6.0 MANAGEMENT PROGRAMS

This chapter provides an overview of the current status and recent innovations of Frederick County's various management programs. Frederick County continually evaluates its stormwater management programs in an effort to identify and bring about needed improvements as required under its NPDES permit. Now that a number of programs have been in operation for several years, it is appropriate to evaluate their progress and effectiveness. Current program components, improvements made during the past year, and plans for future activities, particularly as the County continues to implement management programs under its current permit, are discussed below.

6.1 STORMWATER MANAGEMENT PROGRAM

Frederick County maintains its current Stormwater Management Program in compliance with Environmental Article, Title 4, Subtitle 2, Annotated Code of Maryland. The County will continue to do so through plan review and inspection of all developer projects and through implementation of the *2000 Maryland Stormwater Design Manual*.

6.1.1 Maintenance Inspections of Stormwater Management Facilities

The Environmental Compliance Section (ECS) of the Frederick County Division of Permitting and Development Review continues to conduct a regular program of preventative maintenance inspections of all stormwater management facilities built, approved, and operating within the County. Required triennial inspections of all facilities Countywide are completed on a rotating basis. For sites found unacceptable, responsible parties are notified and the site is re-inspected in a follow-up visit to confirm that appropriate actions have been taken to bring the site into compliance. A complete Access database containing data for the inspection program, including enforcement actions, is included on the accompanying CD. Examples of inspection forms and database reporting formats are presented in Appendix C.

During the time period of January 1, 2006 to December 31, 2006, the following inspections were completed:

Total number of SWM Maintenance facilities inspected: 158
Total number of facilities finding initial conditions acceptable: 116
Total number of facilities finding initial conditions unacceptable: 42
Total number of re-inspected facilities finding site conditions corrected: 37
Total number of re-inspected facilities finding site conditions not corrected: 4
Ongoing enforcement actions pending at end of 2005: 4 (all require re-inspection)

Those facilities where site conditions were not corrected were re-notified and given 30 days to comply. The follow-up will be included in the 2007 database.

The process for follow-up on those facilities deemed "Unacceptable" is as follows:

- If the facility has a "Critical Failure", it is immediately referred to the ECS full-time staff for follow-up and enforcement
- If the facility has a "Non-Critical" issue, a follow-up re-inspection will be made within 30-45 days. If compliance has not occurred, the issue will be forwarded to ECS full-time staff for enforcement

Evaluation: The County continues to maintain an acceptable stormwater management program in accordance with State stormwater management laws. This includes implementation of appropriate County ordinances. The County remains committed to implementing the latest stormwater management technologies while addressing the concerns of the development community.

6.1.2 Implementation of *2000 Maryland Stormwater Design Manual*

Frederick County implemented the stormwater management design policies, principles, methods, and practices of the *2000 Maryland Stormwater Design Manual* and subsequent changes to the Code of Maryland Regulations through the County's Stormwater Management Ordinance and its Design Manual, on June 5, 2001. It became effective July 1, 2001. The Ordinance amended the stormwater management regulations to adopt the *2000 Maryland Stormwater Design Manual* Volumes I and II. The Board of County Commissioners adopted the County's Storm Drainage and Stormwater Management Design Manual effective January 2, 2003. This document helps address safe conveyance of runoff in channels, pipes, swales, culverts, etc. to stormwater management facilities and/or receiving channels.

The County's Development Review staff has made great strides over the past year with the interpretation of the stormwater management designs outlined in the Manual. For example, those single-family home construction projects that are located on large lots and consist of less than 15% overall impervious area are now using the County's version of the MDE-provided standard plan. The standard plan gives the consultants sufficient design information and contains a substantial number of design criteria that many sites in Frederick County are able to meet. Past delays in the implementing of the standard plan due to unresolved legal and program challenges have now been resolved.

The Development Review staff continues to encounter problems with the use of a few of the facility designs outlined in the *2000 Maryland Stormwater Design Manual.* However, necessary corrective changes to a few of the practices, to better facilitate the original intent of the Manual, have been completed with very positive results. Among these include modifying the biofilter soils to allow a combination of 50 percent or more sand blended with highly organic soils in order to facilitate intended function of the facility. Additionally, wet retention pond facility designs, which incorporate open water micro-pools, were found to be problematic when built too shallow. When shallow pools were utilized, the resulting problems include stagnation of water, filling in by vegetation prematurely, and mosquitoes. The design problem has been resolved by the deepening of the open pools, alleviating previous problems encountered when following the minimum standards outlined in the Manual. It has been found that when these open pools are

deepened, the problems outlined above lessen dramatically and the resulting facility better achieves what is desired.

Frederick County has made great progress over the past year with the use of non-structural methods and credits identified in the MD2000 design guidelines. One example is the use of grass buffer shoulders along driveways and other linear projects in combination with "diversion swales". In this type of design, clean offsite water is diverted away from the impervious driveway surface, thereby isolating the road surface. Gentle, cross slope flow is then provided across the driveway road surface leading to a wide grass buffer shoulder with a cross slope of less than five-percent. It has been Frederick County's experience that these types of methods, when combined with best professional judgment, meet SWM requirements in areas that are difficult to treat with structural methods. However, due to the vague language of these credits, it is often difficult for staff to interpret the intent of the regulations as opposed to the written language. Any efforts to make the design guidelines more analytical, or to provide a "user manual" to allow more consistent and effective implementation, would help developers better meet the intent of these design guidelines rather than the exact written code. This could also be done effectively if all jurisdictions shared their successes and challenges.

Evaluation: The County continues to work with the development community to better understand the goals of the *2000 Maryland Stormwater Design Manual*. Enhancements will continue to be made for some of the design concepts in order to achieve the ultimate goal of the manual. The County will also continue to educate both the development community and the general public to educate them in the proper type of design for site-specific areas, as well as in facility installation timetables and maintenance issues.

6.2 ILLICIT CONNECTION DETECTION AND ENFORCEMENT PROGRAM

6.2.1 Illicit Connection Program

Frederick County continues to improve its Illicit Connection Detection and Enforcement Program. Field inspectors note evidence of dry weather flows, if present, at all Stormwater Management Structure "As-Built" inspections and at every triennial maintenance inspection. If water is present, inspectors gather chemical information. If water quality test results or inspections indicate potential illicit connections, pollutant sources are identified and appropriate measures are taken to abate violations. These illicit connection screening data are reported on the CD accompanying this report and in examples provided in Appendix C. Additionally, ECS Inspectors investigate complaints alleging violations. Follow-up actions to resolve all suspected water quality problems are documented in the County's field inspection databases.

Over the past three years, all SWM structures were inspected for illicit connections or discharges through the County's ongoing maintenance inspection program. During the period from January 1, 2006 to December 31, 2006, the County conducted inspections at 158 sites. Field screening results are recorded in the County's facilities database to ensure proper tracking and to follow up when potential problems are detected. Chemical results from wet/dry screenings did not indicate any illicit discharges.

There were no citizen complaints regarding potential illicit discharges.

The County is continuing to expand its public outreach and information efforts to aid in detecting illicit discharges. Frederick County is committed to eliminating any illegal storm drain system discharges discovered through its illicit connection inspection program. As part of this program, the County worked with the Center for Watershed Protection (CWP) to provide a training program using CWP's national guidance, *Illicit Discharge Detection and Elimination – Guidance Manual for Program Development and Technical Assessments*, for responsible personnel. This program was discussed in greater detail in the 2005 Annual Report section 6.2.1.

The County intends to implement the reconnaissance inventory protocol that is detailed in CWP's IDDE manual. WMS staff members are working with Versar to develop a Countywide stream monitoring program using a stratified random design. While field crews are in the field performing stream monitoring protocols, they will also make note of illicit discharges, if present. This process will help to target the areas most in need of intensive IDDE inventories.

Evaluation: Frederick County continues to meet permit requirements for addressing and correcting illicit discharges and connections. Any new inspection staff will be trained in emergency management and in the use of CWP's training manual for illicit connection detection.

6.2.2 NPDES Permit Evaluation Process for County-Owned Properties

As stipulated in items 2a and 2b of Section E, Management Programs, of the County's NPDES MS4 Permit, the County is required to ensure that all non-stormwater discharges to the municipal storm sewer system are permitted or eliminated. All County-owned properties requiring an NPDES industrial discharge permit must be identified and the County must submit documentation that a permit has been applied for or obtained. Consultation by County staff with various County agencies and MDE in 2004 identified fifteen County-owned properties that were required to apply for some type of permit. Eight properties were required to apply for an Industrial Stormwater permit and seven properties were required to apply for a No Exposure Certification for Exclusion.

All permit applications have been submitted and are on record with MDE (Table 6-1). After additional investigation by MDE employees, it was found unnecessary for six of the seven properties originally identified as requiring No Exposure Certification for Exclusion to submit applications for this certification. A letter stating reasons for not requiring a permit and the original application were returned to each facility and the Watershed Management Section office (See Appendix N1 in the 2005 Annual Report). All eight properties that were required to submit an application for an Industrial Stormwater permit have done so (See Appendix N2 in the 2005 Annual Report).

The facilities are required by the Industrial Stormwater permit to develop and implement Stormwater Pollution Prevention Plans (SWPPPs). Over the past year, WMS staff developed a template SWPPP document with instructions on how to complete it (Appendix N1 and Appendix N2). WMS staff also made site visits and met with staff at each facility to evaluate and confirm site conditions and to provide additional guidance on how to complete the SWPPP.

Table 6-1. Current status of discharge permits for County-owned properties, originally issued in 2004-2005

Facility Name	Address	City	Zip Code	Contact	Contact Number	Type of Permit Issued	Permit Number	Permit Issue Date	Permit Renewal Date	Notes
Frederick County Transit	1040 Rocky Springs Rd	Frederick	21702	Sherry Burford	301.600.2065	SW Industrial Discharge	02SW1888	1/20/2005	11/30/2007	
Frederick County Law Enforcement Complex	110 Airport Drive East	Frederick	21705	Valiree Stine	301.600.1572	SW Industrial Discharge	02SW1942	12/7/2005	11/30/2007	
Green Valley Fire-Rescue Station	3939 Green Valley Rd	Monrovia	21770	Douglas Brown	301.600.4634	No Exposure Certification	02SW1898	3/7/2005	3/7/2010	
Rose Hill Manor	1611 North Market St	Frederick	21701	Earl Eyler	301.600.1654	SW Industrial Discharge	02SW1894	1/21/2005	11/30/2007	This permit has been terminated because items resulting in stormwater pollution have been resolved.
Frederick County Public Schools - Hayward Road Bus Lot	7446 Hayward Rd	Frederick	21702	Laura Olsen	301.644.5150	SW Industrial Discharge	02SW1887	1/22/2005	11/30/2007	
Frederick Facility	331 Montevue Lane	Frederick	21702	Bill Routzahn	301.600.1564	SW Industrial Discharge	02SW1890	3/8/2005	11/30/2007	
Johnsville Satellite Facility	13216 Coppermine Rd	Union Bridge	21791	Bill Routzahn	301.600.1564	SW Industrial Discharge	02SW1891	12/29/2004	11/30/2007	
Thurmont Satellite Facility	7407 Blue Mountain Rd	Thurmont	21788	Bill Routzahn	301.600.1564	SW Industrial Discharge	02SW1892	12/29/2004	11/30/2007	
Urbana Satellite Facility	3471-A Campus Drive	Ijamsville	21754	Bill Routzahn	301.600.1564	SW Industrial Discharge	02SW1893	12/26/2004	11/30/2007	

During this process, it was determined that Rose Hill Manor no longer required an industrial discharge permit as on-site conditions have changed since the original permit was issued. With the assistance of Mr. Ed Gertler from the Maryland Department of the Environment (MDE; Appendix N3), Frederick County's Department of Parks and Recreation submitted a letter requesting the termination of the permit (Appendix N4) on December 12, 2006. MDE subsequently terminated the permit (Appendix N5).

As of December 31, 2006, all permitted County facilities have completed a SWPPP. WMS staff will continue to work with the facilities to update and refine the plans as necessary. These documents are kept on file in the WMS office, the main office of each facility, as well as on-site if it is a satellite facility.

Evaluation: All required permits and No Exposure Certifications have been issued. All permitted County facilities have completed a SWPPP. The County has met all requirements for permitting at County facilities and will continue to review permit needs, particularly as permit renewal is upcoming for several sites in November 2007.

6.3 SPILL RESPONSE

Frederick County continued to implement a successful program to respond to illegal dumping and spills. This program included procedures, which are publicized on the County's web site, for public reporting and citizen complaints. As of January 2006, all ECS field staff were trained and certified as "First Response" personnel for HAZ-MAT spill response. This HAZ-MAT training enhances the County's current capabilities and improves protections to staff and citizens.

The County maintained reporting information for illicit discharges and spills on its website and provided a hotline number for citizen inquiries. There were no spills in 2006 that required County action.

Evaluation: Frederick County has maintained an active program to respond to illegal dumping and spills, including expanding its procedures for public reporting and responding to citizen complaints.

6.4 EROSION AND SEDIMENT CONTROL PROGRAM

Frederick County works to maintain an acceptable Erosion and Sediment Control Program in accordance with Environment Article, Title 4, Subtitle 1, Annotated Code of Maryland. The County was undergoing a delegation review as of the end of 2006. Site compliance and minimum inspection guidelines were identified by MDE as needing improvement. Frederick County welcomes the constructive input from the delegation of authority review and will take steps to improve site compliance and minimum inspection guidelines as necessary. Frederick County anticipates a successful review of its program and subsequent renewal of its delegation of authority for the inspection and enforcement of sediment control. The term of said delegation is, as yet, unknown. County Inspectors work closely and cooperatively with the Soil Conservation Districts (SCD) and the NRCS.

Program improvements include:

1. Regular meetings with SCD to discuss issues such as:
   - Allowable Field Modifications
   - Defining Agricultural Exemption
   - Plan review improvements

2. Regular contact with Frederick County Builders' Association to discuss:
   - Standard Plan Agreements
   - Contiguous lot construction
   - Disturbed area phasing
   - Plan and implementation deficiencies

3. Quality Assurance / Quality Control (QA/QC) Program:
   - The current QA/QC program continues to be a valuable field inspection tool when used during sediment and erosion control and SWM facility construction evaluations. Inspectors are required to conduct QA/QC evaluations on sites randomly selected by the Field Supervisor. The evaluations are then reviewed and the sites visited by either the Field Supervisor and/or the ECS Manager. The data are carefully evaluated to determine areas requiring improvements and/or adjustments and then discussed with staff to facilitate effective plans of action. As improvements to the inspection process continue within Frederick County, the QA/QC program will provide valuable enhancement.

The Hansen Permitting System has improved the program by providing a means of reporting and tracking inspection activities on all permitted sites requiring sediment and erosion controls and stormwater management. All field reports are now recorded within the pertinent grading permit (A/P#) file, making it a "one stop" source for all information relevant to a specific project. The introduction of "Air Cards" now allows mobile, real-time access to the Hansen and E-Mail systems.

6.4.1 Responsible Personnel Certification Classes

Frederick County has implemented responsible personnel certification classes ("Green Card" classes) to educate construction site operators about erosion and sediment control requirements. Frederick County conducts regular classes to certify responsible personnel. All classes are advertised on County Cable TV, area radio stations, and in local newspapers. Instructional highlights include a PowerPoint slide presentation and a candid question and answer session. Attendees receive their graded test results with the incorrect answers shown and the correct answer circled. Table 6-2 presents certification class dates and number of attendees recorded at each. Forty-nine of fifty attendees received certification. An Access database containing information on class attendees accompanies this report on CD. Example data are shown in Appendix C.

Table 6-2. Responsible personnel (Green Card) classes held in Frederick County in 2006			
Class Number	**Date of Class**	**Number of Attendees**	**Name of Instructor**
1	06/08/2006	16	Masser
2	11/16/2006 (a.m.)	20	Masser
3	11/16/2006 (p.m.)	14	Masser

6.4.2 Construction Site Data

The Environmental Compliance Section provides quarterly reports of all grading activities disturbing more than one acre to MDE to cross reference against their NOI records. These data were formerly provided in hard-copy format, but new requirements mandate electronic submission. Some improvements were made in 2006 for data entry however, having incompatible data types between Hansen and MS Access required the manual re-input of each permit into a separate database. A lack of available staff to input the data resulted in some delay of report submission for the third quarter. Report submission for the first, second, and fourth quarters was on time.

Effective December 2006, the Hansen Permitting System can be queried directly into an MS Access report. However, there were challenges in linking of multiple tables, resolving table relationships, and the concatenations of fields to meet MDE's field description requirements. Elimination of double data entry will significantly reduce staff time and make meeting the quarterly deadlines much more achievable.

Evaluation: Frederick County's Erosion and Sediment Control program is well established and the County's delegation was under review for renewal at the end of 2006. The County's goal is to not only maintain an acceptable program, but also to excel at site compliance and minimum inspection guidelines. County agents work closely and cooperatively with the SCD and the NRCS, including attending regular meetings. Program staff has regular contact with the building community. The County's QA/QC site evaluations are a strong component of the program, as are improved record-keeping and mobile access to project files. Frederick County continues to implement a successful and effective series of Responsible Personnel Certification classes to educate construction site operators regarding erosion and sediment control requirements. Over the past year, 49 individuals successfully completed the certification during the three classes held by the County. Frederick County plans to continue to implement this successful training program in the coming years. In addition, the County has met requirements for reporting of earth disturbances in 2006 electronically despite database incompatibilities. Staff is seeking ways to improve efficiency and timeliness of quarterly reporting.

6.5 PUBLIC OUTREACH AND EDUCATION PROGRAM

In 2006, WMS staff made diverse and far-reaching impacts through the County's public outreach and education program. Frederick County addressed permit-suggested outreach topics and met its own goals and objectives from *The Strategic Plan to Improve Water Quality Through Public*

Outreach in Frederick County, Maryland, published in November 2003. County staff supported the Monocacy & Catoctin Watershed Alliance (known as MCWA or the Alliance), a group born of the two Watershed Restoration Action Strategy (WRAS) Steering Committees. The MCWA set up a regular bimonthly meeting schedule to discuss educational outreach opportunities as well as to develop restoration and protection projects to support water quality and habitat initiatives. WMS staff coordinated internally with various County divisions to enhance and track their outreach products. Outreach activities were used to educate citizens, to direct the course of watershed plans, and to identify landowners for potential restoration activities.

The results of a year of hard work can be seen in the following sections and in the summary of public outreach and education activities in Table 6-3.

6.5.1 Public Outreach Related to Monocacy & Catoctin Watershed Alliance (MCWA)

As described in last year's Annual Report, the Upper and Lower Monocacy Watershed Restoration Action Strategy (WRAS) Steering Committees developed the Monocacy & Catoctin Watershed Alliance (the Alliance) in order to continue outreach begun during the Upper and Lower Monocacy WRAS efforts and to begin implementation of the Upper and Lower Monocacy WRAS plans. The following mission statement, **"The Monocacy & Catoctin Watershed Alliance coordinates the efforts of a diverse group of stakeholders dedicated to the protection and restoration of the natural resources in the Monocacy & Catoctin watersheds"** has been adopted by the group. The group also selected the logos shown in Figure 6-1.

Figure 6-1. Monocacy & Catoctin Watershed Alliance logos.

Table 6-3. Summary of public outreach and education activities

Type	Date(s)	Description
Water Conservation		
Great Frederick Fair	9/16-23/06	WMS program staff assisted the Monocacy & Catoctin Watershed Alliance by coordinating its volunteers to staff a booth for the full eight days of the Frederick County Fair, making presentations and providing information on harvesting rain water, using native plants, and making natural household cleaners. Many partners assisted during the Fair, covering a total of more than 60 volunteer shifts with more than 40 volunteers, each of whom received an Alliance T-shirt for the occasion.
County Web Page	Ongoing	The WMS web pages feature information for citizens on water conservation at home, at school, and on the farm.
Northern Monocacy Watershed Forum	2/25/06	Residents, officials, and representatives from local and regional environmental groups gathered to discuss water issues as a result of development just north of Frederick County.
Stormwater management facility maintenance		
Woody Vegetation Control Methods Handout	Ongoing	County SWM inspection staff routinely hand out a one-page fact sheet on "Woody Vegetation Control Methods: Guidelines for Stormwater Facilities" to homeowner associations, property management groups, developers, and others responsible for maintaining stormwater management facilities.
Inspection Program	Ongoing	Stormwater Management Facility inspections are conducted triennially with explicit direction for maintenance/correction when problems are discovered.
Erosion and sediment control		
Backyard Buffers Program	4/06	The County participated in the WRAS citizen practices working group with several other partners, including the Western Maryland Resource Conservation and Development Council (RC&D), to publish brochures and conduct outreach that provides free trees to homeowners with frontage on unbuffered streams. The County identified streamside landowners from its landowner data base for direct mail. The program assisted 75 homeowners adjacent to streams with bundles of 25 free trees in 2006.
Lawn care and landscape management		
Building a Greener Lifestyle Series	9/16-23/06	The County assisted Alliance members in presenting information to the public on several Greener Lifestyle topics during the Frederick County Fair, including Landscaping with Native Plants and Slowing Down the Rain with Rain Gardens and Rain Barrels
Landscaping for People and Wildlife	3/23/06	A workshop was held in Walkersville, MD on Low Impact Development (LID). Topics stressed the aesthetic strengths of LID as well as the benefits of preserving wildlife habitats and the Chesapeake Bay. High school and elementary school students were among the speakers at this event.
Bush Creek Tree Planting	4/8/06	Community tree planting to replace trees that suffered damage and/or mortality since their original planting in 2001 at the Old National Pike District Park; the event was a collaboration among the DNR Forest Service, Frederick County Department of Planning, the Alliance, and the Chesapeake Bay Foundation (CBF).
Landscaping Your Yard with Native Plants	4/18/06	The workshop discussed the benefits of using native plants in yard landscaping plans. It was held in Mt. Airy and was sponsored by the Audubon Society of Central Maryland, an Alliance member.
Bennett Creek Restoration Initiative	July 2005, ongoing	The Potomac Conservancy partnered with the County and several other Alliance partners in launching its Bennett Creek Restoration Initiative on Pleasant and Fahrney Branches in the Bennett Creek watershed. Letters were mailed to all riparian property owners; follow-up telephone contact and site visits were made to a number of property owners. Additionally, the Potomac Conservancy is working with Windsor Knolls Middle School, Kemptown Elementary School, and Kemptown Community Park on retrofit and other LID projects.

Table 6-3. Continued

Type	Date(s)	Description
Purple Loosestrife Scout Training	7/18/06	Participants learned about MDA's and SHA's newly developed program to identify, treat, and ultimately eradicate purple loosestrife within Maryland. The history of the weed in Maryland, methods of field identification, removal options, and use of on-line reporting forms was discussed.
County Web Page	Ongoing	The WMS website contains information relating to lawn care and landscape management.
Bay Wise Yardstick Training	5/6/06	Frederick Master Gardeners and Frederick County's Community Restoration Coordinator led planting events including a component on teaching about native plants at Liberty Village and Liberty Elementary in Libertytown to provide training to area citizens about Bay-friendly landscape practices as part of the Libertytown Stewards project.
Urbana High School Retrofit	2006	As part of the planned stormwater retrofit at Urbana High School, staff from WMS spoke at a High School Biology class. For a class project the students selected plants for the school's rain gardens and bioretention facilities.
One Millionth Tree Planting Event	4/21/06	Staff attended the One Millionth Tree Planting event and assisted with riparian reforestation efforts at Windsor Knolls Elementary School.
Household hazardous waste		
County Web Page	Ongoing	The Department of Solid Waste Management has information available on a website (http://www.co.frederick.md.us/index.asp?nid=1764) for County residents on various Landfill Programs, such as disposal of household hazardous wastes, recycling, source reduction, and backyard composting.
Used Motor Oil and Antifreeze Dropoff Sites	Ongoing	The county maintains a list of used motor oil recycling dropoff locations on its website.
Household Hazardous Waste Day	2x/year 5/23/06 10/21/06	The County sponsors two household hazardous waste days each year and promotes them widely in the media.
Great Frederick Fair	9/16 – 23/06	The WMS staff and Alliance partners staffed a booth for the full week of the Frederick County Fair, which featured information on natural household cleaners from the County's Greener Lifestyle Series. Participants were given sample cleaners, recipes for making their own, and encouraged to choose healthy alternatives for home use.
Waste Management Solutions for the 21st Century	5/23/06	Workshop participants learned about waste management solutions and alternative practices for reducing waste such as recycling and composting.
Litter control, recycling, and composting		
5th Annual Big Sweep	4/22/2006	Frederick County co-sponsored this annual cleanup organized by Volunteer Frederick, involving 98 teams. The County provided trash pickup and waived tipping fees at the landfill. A total of 27.23 tons of trash was collected, including 2.41 tons of recyclables and 668 tires. Volunteers from MCWA partners Community Commons, Potomac Conservancy, New Forest Society, and ThorpeWood focused on different sites for the trash pickup day.
Potomac Trash Treaty	2/23/06	Staff presented information about the Alice Ferguson Foundation's Trash Free Potomac Initiative to the Board of County Commissioners on January 26. Staff organized a press conference on February 23, 2006 where Commissioners from Frederick County signed the Trash Treaty, committing to a trash free Potomac by 2013. Staff responded to the MWCOG questionnaire for the Trash Free Potomac Initiative and attended the Trash Summit on March 16, 2006.
Potomac Watershed Trash Summit	3/16/06	Attendees learned how eliminating trash will restore the waters of the Potomac. Regional solutions and implementation techniques to solve the trash problem were discussed.
Potomac River Watershed Cleanup	4/8/06	The event was a watershed-wide effort to clean up trash along the Potomac River. Partners included the Alice Ferguson Foundation, Frederick County Government, and the Potomac Conservancy.

Table 6-3. Continued

Type	Date(s)	Description
Frederick County "Adopt-a-Road" Program	Ongoing	The Office of Highway Operations runs an "Adopt a Road" Program to help control litter along County roads.
County Web Page	Ongoing	The Department of Solid Waste Management has information available on a website (http://www.co.frederick.md.us/index.asp?nid=1764) for County residents on various Landfill Programs, such as disposal of household hazardous wastes, recycling, source reduction, and backyard composting.
Car care, mass transit, and alternative transportation		
County Web Page	Ongoing	The Transit Services of Frederick County web page (http://www.co.frederick.md.us/index.asp?nid=105) contains information on public transit routes, schedules, commuter assistance, rider bulletins, a ride-share matching service, and other information to facilitate the use of mass transit service such as: • Addition of schedules for TransIT and other regional transportation options • Addition of travel training videos
TransIT Improvements	2006	• For the third consecutive year, ridership increased by more than 20%. TransIT provided 651,306 passenger trips in FY 2006. • TransIT adjusted their Meet-the-MARC shuttle to accommodate changes in the MARC schedule to provide better service for commuters. • TransIT adjusted other route schedules to better time transfers made by commuters between routes. • Dispatch hours were extended to cover evenings, Saturdays, and holidays. • TransIT offered free rides on October 5, 2006 as part of the Community in Motion Day to raise awareness and promote the use of public transportation. Free rides are also offered on Code Red air quality days to help reduce emissions from vehicles.
The Transportation Services Advisory Council (TSAC)	Ongoing	TSAC is appointed by the Board of County Commissioners to provide guidance and support to TransIT and transportation-related decision-making within the County. Members include consumer, business, human service, regional, and at-large representatives. The mission of the TSAC is to identify transportation trends and issues, to increase public awareness of transportation alternatives, and to influence public policy by advising Frederick County elected officials and decision-makers on the development of a comprehensive and coordinated regional transportation network. Additionally the TSAC: • Co-sponsored a Transportation Conference to promote a balanced transportation network in Frederick County. • Supported development of transit-friendly design guidelines to integrate transportation and land use planning. • TSAC supported re-design of the proposed downtown MARC train station. The MARC station design was changed to provide an off-street passenger transfer point for the local bus system.

Table 6-3. Continued

Type	Date(s)	Description
Public Education and Media Outreach	Ongoing	• The County has brochure stands in conspicuous places (*e.g.*, lobby of Winchester Hall) that include all of the public transit routes, schedules, and alternative transportation programs. • Increased visibility of TransIT in the community was achieved through marketing and outreach efforts. The County participated in community events that included the Business and Employment Center Job Fair, Transitioning Fair at Frederick Community College, Communities in Motion Day, NIH Transportation Fair, Fun After 50 Fallfest, Elder Expo, the Great Frederick Fair, the Chamber of Commerce Business Expo, Business Appreciation Week, In the Streets Festival, Bike To Work Day, and the 5th Annual Stuff-A-Bus. TransIT staff participated in partnership efforts with local and regional groups and organizations, including the Frederick Area Committee for Transportation, the Frederick County Chamber of Commerce, the Downtown Frederick Partnership, the Maryland Transit Administration, and the Washington Metropolitan Area Transit Authority. In addition, staff met with human service providers and job training counselors to discuss local transportation needs and ways to improve transportation services. • TransIT advertising appeared on local radio, television, print, on-line media, and on-screen cinema advertising. News stories featured the County's Summer Pass Program for teens, annual ridership increase, Air Quality Action Days, Bike to Work Day, Communities in Motion Day, new service proposals, and TransIT Drivers of the Year. • Three new regional rideshare commercials promoted car and vanpool options. • TransIT Lines, a newsletter for community service professionals and their clients; and F.A.S.T. Notes, a newsletter on transportation options, were distributed quarterly.
Private well and septic system management		
Booklet	Ongoing	During field inspections, the Frederick County Health Department provides booklets on septic maintenance to applicants requesting permits for accessory buildings.
Presentations	Periodic	Health Department personnel presented information on proper well and septic system inspection and maintenance at realtor meetings.
Procedures for public identification and reporting of illicit discharges		
Program Web Site	Ongoing	The WMS Program's web site contains information describing illicit discharges, presents examples, and provides telephone contact information and a County Resident Complaint Form.
Providing information to regulated community		
NPDES Phase II assistance to Municipalities	Ongoing	WMS staff continues to meet with municipalities by request in support of their NPDES Phase II permits. The County has provided sample handouts, activities, and other information to assist with implementing recommendations made by MDE upon review of the first annual reports submitted by the municipalities. Staff has also involved municipalities within Frederick County, as well as in Washington and Carroll Counties, in the training by the Center for Watershed Protection on illicit discharge detection and elimination.
Illicit Discharge Detection & Elimination Training	3/06/06	Frederick County conducted a program with the Center for Watershed Protection to test the IDDE program and Hot Spot Investigation in Thurmont.

Table 6-3. Continued		
Type	**Date(s)**	**Description**
Source Water Protection Plan for Lake Linganore	Adopted March 2006	The County's Planning, Public Works, Utilities and Solid Waste, and GIS Program staff completed a Source Water Protection Plan for Lake Linganore and its associated drinking water intakes. WMS staff assisted with developing maps and a table of recommendations for policy makers' use. The Board of County Commissioners approved the Linganore Action Plan in March 2006 to implement portions of the Linganore Source Water Protection Plan. Since this time, Planning staff have installed four Linganore Watershed signs, met with Highway Operations and DPW staff to discuss the use of spanning bridges or bottomless culverts, and performed farm inspections with NRCS for properties enrolled in the various agricultural preservation programs in the County.
Program Web Site	Ongoing	The WMS Program's web site contains background information on stormwater, the County's NPDES Permit, and other stormwater-related information. The web site also contains information on sediment and erosion control permits, Forest Resource Ordinance Permits, and inspections for sediment control and SWM facilities.
NPDES Industrial Stormwater Permit Evaluation and Stormwater Pollution Prevention Plans	Ongoing	County properties were evaluated for the need for industrial stormwater discharge NPDES permits. WMS Staff assisted County offices with applications. WMS staff developed a Stormwater Pollution Prevention Plan (SWPPP) template with instructions and provided assistance to County offices to complete the document.
Maryland Water Monitoring Council Annual Conference	11/16/06	WMS staff attended the MWMC annual conference, which included topics on monitoring tools, methods, and indicators for the purpose of assessing vernal pools, wetlands, streams, rivers, estuaries and ground water resources.
Other outreach and education initiatives		
Community Meeting	2/23/06	WMS staff and Versar held a public meeting at New Market Elementary School to share data collected about the Linganore Creek watershed and to collect feedback regarding potential stormwater retrofit and stream restoration opportunities to incorporate in the Linganore Stormwater Retrofit and Stream Restoration Opportunities report issued in July 2006.
Catoctin, Antietam, and Monocacy Brookie Initiative (CAMBI) meeting	Ongoing	Staff is facilitating the activities of CAMBI. A meeting was held on June 14, 2006 to discuss restoration, protection, and education opportunities to protect the brook trout population. A restoration/protection plan was completed in 2006.
Maryland Brook Trout Alliance (MBTA) state and steering committee meeting coordination	2/28/06 4/26/06 5/5/06 6/14/06 7/28/06 9/20/06 10/6/06	Meetings were held to discuss restoration, protection, and education opportunities to protect the brook trout population. Staff served on the steering committee and as Secretary Treasurer in first year.
Great Heron Wetlands Project	4/20/06	A presentation was given to the Board of County Commissioners to approve the Urbana Elementary School project to name school wetlands and submit them to the USGS Geographic Names board.
Leadership Frederick Presentation	4/21/06	Staff gave a presentation with Comprehensive Planning on Land Use and the Environment to Leadership Frederick, a class taken by community leaders.

Table 6-3. Continued		
Type	**Date(s)**	**Description**
Candidates Forum on the Environment	10/26/06	The candidates for the Frederick County Board of County Commissioners addressed environmental topics in Frederick County in a forum hosted by high school students who posed questions related to growth, waste, global warming, green design, and natural resources.
Monocacy & Catoctin Watershed Alliance	3/30/06 5/25/06 7/20/06 10/18/06	Staff met with interested partners from the Monocacy & Catoctin Watershed Alliance to discuss and develop restoration and protection projects as well as outreach and education materials. The Alliance maintains a website at www.watershed-alliance.com.
Program Web Site	Ongoing	The WMS web site contains background information on stormwater problems, the County's efforts to manage nonpoint source (NPS) pollution, assess watersheds, and conduct water quality and stream monitoring.
Special Programmatic Conditions		
Upper Potomac Tributary Team	Ongoing	County representatives attended tributary team meetings and participated in activities related to the team, including the preparation of nutrient strategies for the basin. WMS hosted a meeting on July 26, 2006 in Winchester Hall and shared information about Brook Trout initiatives, the MCWA, the Watershed Stewards program, and the House Calls program. Staff met with Tributary Strategies and State representatives on October 2, 2006 to discuss Tributary Strategy implementation with other programs like TMDLs.
Upper Potomac Roundtable Conference	2/2-3/06	The conference provided a venue for stakeholders to discuss strategies to reduce local pollution impacts that will help meet Chesapeake Bay cleanup goals in the Upper Potomac Watershed. Frederick County was a sponsor of this event and staff spoke at the conference on March 2, 2006.
TMDL Implementation	Ongoing	Staff has participated in a committee with MDE's Technical and Regulatory Services Administration (TARSA) group to provide guidance to local governments on TMDL implementation. Staff continued to meet with Jim George of TARSA to discuss Linganore TMDL implementation and is working with him to create a database tool to track pollution reductions based on BMP implementation. Staff is working on an Action Plan for the Lake Linganore Watershed, which has TMDLs for sediment and phosphorus. Staff will ultimately use the tool to create baseline and cap management strategies.
TMDL development meeting	9/19/06	Staff attended a meeting held with MDE and Interstate Commission on the Potomac River Basin (ICPRB) on September 19, 2006 to discuss development of TMDLs for nutrients in the Monocacy Watershed. Other TMDLs for sediment, biological impairments, and bacteria are under development.
MidAtlantic Highlands Action Program (HAP)	8/1/06	This Canaan Valley Institute program covers the western counties of Maryland, including Frederick County. The WMS Coordinator spoke at the meeting about County benefits of the program.
Permit Renewal Notification	10/23/06 10/30/06	The notice of the County's NPDES permit renewal application was published in the Frederick News-Post on October 23 and October 30 under "public notices".

The efforts of the Alliance continued to expand during 2006. Members gathered for five bimonthly meetings held throughout the watershed and hosted by various partners. These partners include but are not limited to:

Nonprofit Organizations

- New Forest Society
- Audubon Society of Central Maryland
- Catoctin and Frederick Soil Conservation Districts
- Community Commons
- Friends of Waterford Park
- Strawberry Hill Nature Center
- Frederick County Forest Conservancy District Board
- Catoctin Land Trust
- ThorpeWood
- Frederick County Conservation Club
- Frederick County Master Gardeners
- Friends of Rural Roads of Frederick County
- Maryland Chapter of the American Chestnut Foundation
- Potomac Valley Fly Fishers, Inc.
- Lake Linganore Conservation Society
- Friends of the Lake
- Lake Linganore Association
- Fox Haven Center, Inc.
- Carrollton Manor Land Trust
- Cloverhill Homeowners Association
- Liberty Village Cohousing Community
- Liberty Elementary School
- St. Peter the Apostle Roman Catholic Church
- Colony Village HOA
- Local Developers, Contractors and Engineering Firms
- Local Farmers
- Local Citizens

Regional Organizations

- Canaan Valley Institute
- Potomac Conservancy
- Chesapeake Wildlife Heritage, Inc.
- Chesapeake Bay Foundation
- Upper Potomac Tributary Team
- Potomac Watershed Partnership
- Western Maryland RC&D
- Interstate Commission on the Potomac River Basin (ICPRB)
- The Center for Watershed Protection

Funding Agencies

- National Fish and Wildlife Foundation
- Chesapeake Bay Trust
- Alice Ferguson Foundation
- Maryland Department of the Environment/ Section 319 (h) program – U.S. EPA Clean Water Act

Educational Institutions

- Hood College
- Mount Saint Mary's College
- University of Maryland Environmental Finance Center

Government Organizations

- Frederick County Board of County Commissioners
    - ! Division of Public Works, Watershed Management Section
    - ! Division of Planning
    - ! Division of Solid Waste and Utilities
    - ! Health Department, Environmental Health Section
- U.S. National Park Service
    - ! Catoctin Mountain Park
    - ! Monocacy National Battlefield Park
    - ! Rivers, Trails and Conservation Assistance
- U.S. Environmental Protection Agency
    - ! Chesapeake Bay Program
- Maryland Department of Natural Resources
    - ! Forest Service
    - ! Fisheries
    - ! Watersheds Program
- Maryland Department of the Environment
- Fort Detrick
- U.S. Fish and Wildlife Service
- Maryland State Highway Administration
- Municipalities in Frederick County

Public outreach efforts implemented by the Alliance during 2006 included the development of a Monocacy & Catoctin Watershed Alliance brochure, the Watershed Steward Program, quarterly E-newsletters, participation in the 2006 Frederick County Fair, and the continued expansion of the Alliance website.

The Alliance website (www.watershed-alliance.com) features articles covering six general topic areas: Protect, Restore, Enjoy, Connect, Educate, and Study. Articles in each section are refreshed quarterly, at a minimum. The website also features other pages that provide answers to frequently asked questions, a calendar of events, links to various websites, information on how to report a problem, information on the watersheds of Frederick County, and publications.

Using funds from a National Fish and Wildlife Foundation (NFWF) grant, WMS staff have implemented two Alliance outreach efforts: a MCWA brochure and quarterly E-newsletters. The MCWA brochure (Appendix I) was developed to provide background information on the Alliance, past and current projects, and information on how to get involved. The quarterly E-newsletters highlight newly added articles as well as upcoming volunteer opportunities posted on the Alliance website. The first E-newsletter was sent in spring 2006 with subsequent E-newsletters sent in summer, fall, and winter 2006 and are currently sent to more than 600 citizens.

The MCWA Watershed Steward Program was developed to recognize the efforts of community members to protect and restore the natural resources of the Monocacy & Catoctin watersheds in Frederick County by implementing conservation and best management practices on their property. Watershed Steward signs are available to community members who meet the criteria for one of eight different categories (Appendix I):

- Improving Watershed Health Through Community Partnerships
- Rain Garden
- Forest Conservation Practice
- Agricultural Conservation Practice
- Forest Land Protection
- Farm Land Protection
- Tree Planting
- Wildlife Habitat Improvement

Alliance members have developed a set of criteria as well as a nomination form to be completed by the sponsor. The original printing of the signs was funded through a grant from the Chesapeake Bay Trust with a match provided by the Frederick County Watershed Management Section. So far, a total of 60 signs have been distributed and installed around the County.

Other outreach efforts of the Alliance included participating in the Frederick County Fair (Great Frederick Fair) in September 2006. The theme of this year's booth was "Protecting our Future, One Drop at a Time." Each day was sponsored by a different Alliance partner and daily topics included: Slowing Down the Rain, Native Trees and Shrubs, Regional Water Supply, Natural Landscaping, Protecting Headwater Areas, Help Restore Your Local Watershed, Monocacy & Catoctin Watershed Alliance, and Natural Household Cleaners. The booth included a rain barrel, rain garden, native trees and shrubs, and pervious pavement displays. Giveaways with the Alliance logo and website address included rain gauges, sponges, magnets, and stickers.

6.5.2 Other NPDES Outreach Initiatives

The County continued to enhance its Landowner Tracking Database that was developed to track landowner permission responses for Stream Corridor Assessments (SCA). Staff used mailing lists to contact landowners who requested specific property information (*i.e.,* want results of the SCA on their property) or expressed a specific restoration and outreach program interest (*e.g.,* want to install cattle fencing). Staff also tracked responses to County-sponsored initiatives like the Backyard Buffers program, which distributed free trees to landowners with stream frontage. Future projects may include targeted outreach to properties with well and septic systems and invitations to Homeowner Associations to consider co-sponsoring Greener Lifestyle workshops. Owner outreach will be enhanced by the County's parcel mapping project, which will enable greater flexibility in the production of mailing lists for projects and will automate landowner notification and permission for future SCAs.

Through a grant obtained from the National Fish and Wildlife Foundation, the WMS Community Restoration Coordinator met with a variety of agricultural and urban property owners using the "House Calls" GIS tool, which shows stream conditions and restoration opportunities. The

Coordinator met with the Town of Mt. Airy, the Holly Hills Homeowners Association, the Friends of the Lake, and the Lake Linganore Conservation Society. Presentations also included sharing 32 priority agricultural sites on 35 farms with four staff of the Soil Conservation District to enable them to target selected properties for further outreach. Twelve farms were selected for further outreach, comprising more than 1200 acres with more than 6 miles of stream corridor. Of those farms identified, farm calls were made to landowners of a total of 730 acres. Eight urban sites were visited including one county park, one Mt. Airy municipal property and adjoining HOA property, four schools, and two homeowner associations properties that collectively comprise 196 acres.

On February 23, 2006, WMS staff and Versar held a public meeting at New Market Elementary School to share data collected about the Linganore Creek watershed and to collect feedback regarding potential stormwater retrofit and stream restoration opportunities.

Along with the Division of Public Works, other Divisions in Frederick County government are reaching out to the public in a variety of ways. Some of these initiatives are discussed in detail below while others are summarized in Table 6-3.

6.5.2.1 Frederick County Recycling Program

The Frederick County Recycling Program was able to divert a growing proportion of solid waste from the landfill by promoting recycling among county residents. In fiscal year 2006, 37,619 tons of waste were collected and recycled from the County's residential curbside and satellite drop off programs (Table 6-4). In 2006, Frederick County reported a recycling rate of 34.3% and a source reduction credit rate of 2% for a combined waste reduction rate of 36.3%.

Table 6-4. Quantity of recycled material by type

Frederick County Tons Recycled			
	FY04	**FY05**	**FY06**
Recycling Collected on Curbside	8,646.37	8,618.82	9,079.20
Recycling Collected at Drop-off Centers	4,986.03	6,504.14	4,491.45
Used Motor Oil	339.50	340.00 estimate	330.01
Antifreeze	12.71	13.00 estimate	17.30
White Goods/Scrap Metal	1,706.10	1,835.05	1,767.21
Tires	339.02	243.43	174.15
Car Batteries	62.19	71.45	61.19
Flexible Foam	5.74	2.35	3.54
Pallets	180.83	281.21	218.05
Yard Trimmings	21,018.72	22,071.74	21,440.07
Electronics*			36.86
TOTAL	37,297.21	39,981.19	37,619.03

* new program started May 2006

Household Hazardous Waste Days are held twice annually: once in the spring and once in the fall (Table 6-5). They are held at the Public Safety Training Facility.

Table 6-5. Household Hazardous Waste Day events				
	May 2005	**October 2005**	**May 2006**	**October 2006**
Collection Cost	$11,520.13	$9,592.94	$11,432.04	$6,824.15
Advertising	$3,751.44	$2,814.98	$1,826.68	$2,092.80
Total Cost	$15,271.57	$12,407.92	$13,258.72	$8,916.95
Vehicles Attended	249	207	267	214
Cost Per Resident	$61.33	$59.94	$49.66	$41.67
Pounds Collected	10,240	7,980	10,440	8,720

6.5.2.2 Alternative Transportation

The Transportation Association of Maryland (TAM), a statewide association of over 40 rural and urban transportation providers, named TransIT fixed- route driver Isaac Wilkes and paratransit driver Carol Putman "Drivers of the Year". **TransIT increased its total system ridership by more than 20% for the fourth consecutive year**. **The total system ridership was over 650,000.** Ridership has doubled since 2002. Ridership on the downtown express**,** the free parking shuttle into downtown Frederick, increased 67% in FY 2006. TransIT provides over 2,100 trips each day transporting customers to work, school, shopping, and medical facilities.

Continuous service improvements have been implemented over the years in response to community growth. Two new routes were added in Fiscal Year 2006: the **#80 North-West Connector**, which provides a more direct connection between the Frederick Towne Mall and Frederick Community College; and the **East County Shuttle**, which serves the Spring Ridge, Lake Linganore, and New Market communities. Services now include 8 urban bus routes, 7 shuttle routes, and increased paratransit hours.

TransIT's website (http://www.co.frederick.md.us/index.asp?nid=105) contains a wealth of information on TransIT services as well as regional transportation alternatives. Links are provided to schedules and maps for TransIT, MARC train, MTA Commuter Bus to Shady Grove Metro, Montgomery County Ride-On and Metro. There is a Travel Training video that can be viewed from the site. Rider bulletins, press releases, annual reports, and newsletters are also available. There are links to information for seniors and persons with disabilities, commuters, vanpoolers, and those interested in Telework.

TransIT promotes alternatives to driving as well as providing assistance with:

- Commuter trip planning via phone or email (301.600.2065 or transit@fredco-md.net).
- Formation of vanpools - TransIT provides free on-line ride-matching and provides a financial incentive for first year vanpools with open seats. TransIT assists existing and new vanpools in finding riders.

- Employer Services - TransIT can provide local employers with assistance in setting up telework programs, assessing parking management, employee commute surveys, providing commute tax benefits, and more.
- Air Quality Action Days (AQAD) - TransIT e-mails over 2000 County employees and over 700 City employees on Code Red days to advise how they can help improve Air Quality. TransIT recruits employers for the AQAD program. As participants in the program, employers notify employees of ways they can improve Air Quality and provide information on transportation alternatives.
- Bike to Work Day - TransIT sponsors a "pit stop" at the downtown Transit Center to promote biking as a driving alternative. Recent events have had more than 40 local participants (6,200 in the metro area).

6.5.2.3 Private well and septic system management

The Frederick County Health Department provides citizen education and outreach materials on proper septic system maintenance and well testing and protection. During site visits to evaluate accessory building permit applications, Health Department staff distributes copies of a handbook on septic system maintenance. By Frederick County Ordinance, a well providing a sufficient yield must be drilled on a building lot prior to issuance of a building permit to the property owners. Once the house has been built, the Health Department directs the homeowners to have the water tested to secure a Certificate of Potability, indicating the quality of the water supply. In addition, Health Department staff present information at meetings of boards of realtors at least twice annually to acquaint new real estate professionals with requirements for proper management, inspection, and maintenance of wells and septic systems.

The Frederick County Health Department, in partnership with Canaan Valley Institute (CVI, a Monocacy & Catoctin Watershed Alliance partner), has been awarded over $700,000 through the Maryland Bay Restoration Fund (BRF) in order to address nutrient impacts by failing and underperforming On-site Disposal Systems (OSDS) in the Monocacy Watershed and in Frederick County's proposed source water protection areas.

Throughout Frederick County, an estimated 65 OSDS will be upgraded over a two-year period. These upgrades will reduce the concentration of nitrogen in the OSDS effluent by 50% or more. CVI will work with the Health Department to identify and prioritize potential sites, coordinate with homeowners, select appropriate technologies, oversee installation, and establish a management framework.

The first phase of the project—site identification—will begin in early 2007. Homeowner education activities will be directed toward the WRAS-identified communities and to residents living within proposed source water protection areas, in order to generate applications from these priority locations. This process includes mailings, meetings with community leaders, community forums, and homeowner visits, as appropriate and necessary. While these site identification activities will primarily be directed toward these targeted communities, applications will be accepted for any site within the boundaries of Frederick County.

Evaluation: Frederick County continues to excel in public outreach. Not only has Frederick County addressed all of the suggested topics for outreach in the NPDES permit, it has also extended its public outreach strategy to meet restoration goals. Frederick County has greatly expanded its network through the WRAS process discussed above and through the Monocacy & Catoctin Watershed Alliance. Agencies within Frederick County continue to educate the public about water quality through diverse programs.

6.6 ROAD MAINTENANCE ACTIVITIES

During 2006, Frederick County continued to implement recommendations from its 2002 assessment of road maintenance practices (Versar 2002). The objective of this study was to assess the effects of road maintenance activities on stormwater runoff and resulting impacts on surface water quality. The assessment evaluated current practices, analyzed alternative practices, and presented a plan to incorporate alternative practices into the County's road maintenance programs. Members of the County's Department of Highways and Transportation provided data and information on current practices and plans of the Department.

Activities included in the evaluation included:

- chemical usage in snow and ice removal,
- herbicide spraying for vegetation control,
- street sweeping,
- litter control,
- road surface maintenance; and,
- maintenance of unpaved surfaces.

The assessment report was submitted to MDE on June 11, 2002 and was found to meet NPDES permit requirements for developing a plan to reduce pollutants associated with road maintenance activities.

The County continues to move ahead with several of the recommendations developed in the June 2002 evaluation report. An example of quarterly reports for January to December 2006, prepared by the Office of Highway Operations for a variety of subject areas, is provided in Appendix J. Some of the activities that the County Office of Highway Operations undertook in 2006 to reduce runoff pollution were:

1. Street Sweeping: Street sweeping was conducted in all but the first quarter of 2006. A total of 191.99 miles (242.8 acres) of road and bridges were swept, with special attention paid to bridges. The County tends to apply more deicer to bridges and currently removes these materials after storm events in response to citizen requests. A total of 50.9 acres of bridges were swept in 2006.

2. Litter Control: The Office of Highways and Transportation was a main sponsor of the Big Sweep Cleanup in 2006, which removed 27.23 tons of trash and recyclables and 688 tires from county roads and illegal dumpsites. Highway Operations staff removed 1,324 tires

and 68.08 tons of trash in 2006. Additionally, the Department continued its Adopt-A-Road program in 2006.

3. Deicing: Caliber 1000, which is a 30% Magnesium Chloride solution with an agricultural by-product, is used in 25 of the County's trucks when the temperature is ≤ 20ºF. The mixture is sprayed on a salt/cinder mix as it is applied. Eight of the trucks, which are equipped with saddle tanks for spraying the solution onto the salt/cinder mixture, are new. Overall, the County has 49 full-sized ten-ton dump trucks and 8 smaller one-ton dump trucks for deicing. The additive makes the salt/cinder mix more effective and prevents corrosion. The County has not yet determined if the additive is cost-effective at temperatures above 20ºF. The State uses 100% Magnesium Chloride at all temperatures; however, it is very corrosive. According to product literature for Caliber 1000 (http://www.anti-icers.com/caliber_m1000.htm):

   > "As a pre-wetting agent for salt and sand, Caliber M1000 reduces bounce and scatter, increases the speed at which the salt begins working, increases the melting capacity of the salt, and permits the use of salt at lower temperatures. Additionally, Caliber M1000 also reduces corrosion, inhibits crystal formation and product fallout at lower temperatures, and improves roadway traction when compared to other liquid products."

   Additional information on Caliber M1000 is also available at http://www.es-pa.com/caliberm1.htm#ENVIRONMENTAL_PROPERTIES

   The use of deicers in 2006, by DNR watershed, is presented in Table 6-6. A total of 845 gallons of liquid deicer (Caliber M1000), 3,038.79 tons salt, and 1,081.5 tons cinders were used in 2006 for all watersheds.

4. Inlet Cleaning: All Highway Operations foremen began reporting inlet-cleaning statistics in 2004. A total of 1357 inlets were cleaned in 2006. Inlet-cleaning statistics are reported in the quarterly reports under Drainage (Appendix J).

5. Data Collection: Reports were collected quarterly from district foremen and submitted to the department head. In 2006, data collection improvements were made by each district, especially in the areas of street sweeping, trash collection, herbicide use, and inlet cleaning.

6. Reducing the Use of Pesticides, Herbicides, Fertilizers and Other Pollutants: The 2002 road maintenance assessment report presented data on two herbicides, Razor and Pendulum, which were used by the County's Office of Highway Operations in 2001. Pendulum, with 37.4% pendamethalin as the active ingredient, was noted to be an environmentally unfriendly chemical with potential impacts to aquatic life. The report recommended that the County review its use and consider alternative treatments. As reported in the 2003 Pesticide/Herbicide report (Versar 2003) and subsequent NPDES Annual Reports (see Section 6.7), Pendulum has not been used during the years 2002-2006. In addition, Gly Star Pro (an herbicide containing glyphosate) is now used instead

of Razor by the Office of Highway Operations. In 2006, 135 gallons of undiluted Gly Star Pro/2,4-D Amine 4 were used to control weeds along guardrails, with a total of 640,671 feet (approx 121 mi) sprayed. Herbicide use is reported in the quarterly reports under Guardrails (Appendix J).

Table 6-6. Snow removal materials used in 2006, by watershed. "Liquid" refers to Caliber M1000 liquid deicer.

Date	Catoctin Creek			Double Pipe Creek			Lower Monocacy			Potomac			Upper Monocacy		
	Gallons	Tons		Gallons	Tons		Gallons	Tons		Gallons	Tons		Gallons	Tons	
	Liquid	Salt	Cinders	Liquid	Salt	Cinders	Liquid	Salt	Cinders	Liquid	Salt	Cinders	Liquid	Salt	Cinders
1/14/2006		56.00	21.00											32.00	12.00
1/23/2006		5.50	2.00											32.00	12.00
1/24/2006		20.00	27.50											32.00	12.00
1/25/2006		73.50	38.50		4.00	1.50		10.00	3.75		4.00	1.50		68.00	25.50
2/11&12/2006	80.00	506.25	180.00		146.00	46.50	400.00	804.50	237.50		145.50	19.50	320.00	658.50	225.50
2/13/2006		51.00	25.50		16.00	6.00		97.64	27.50		18.25	3.75		65.00	24.25
2/22/2006		54.00	47.25					48.00	18.00		17.15	8.50		8.00	3.00
2/28/2006	45.00	78.00	47.25											76.00	37.25
Totals	**125.00**	**788.25**	**368.00**	**0.00**	**166.00**	**54.00**	**400.00**	**960.14**	**286.75**	**0.00**	**184.90**	**33.25**	**320.00**	**939.50**	**339.50**

Evaluation: The County's Office of Highways and Transportation continues to implement the recommendations of the Road Maintenance Report and experiment with new technology to reduce its activities' impacts on water quality. Significant improvements were made in reporting practices in 2006.

6.7 HERBICIDE, PESTICIDE, AND FERTILIZER USE

Because of concern for environmental health, MDE, through the requirements of NPDES MS4 Permits, requires local jurisdictions to evaluate their current uses of pesticides, herbicides, and fertilizers and to seek opportunities to reduce use of these materials. To address this requirement, during 2002-2003 Frederick County sponsored a study to characterize uses of pesticides, herbicides, and fertilizers by County agencies and to identify potential reduction strategies. The following is a summary of practices since the completion of that study, *Recommendations for Alternatives to Pesticide/Herbicide/Fertilizer Use for Frederick County*, December 17, 2003 (Versar 2003).

6.7.1 Introduction

Frederick County DPW initiated this study in fall 2002 by surveying County staff about pesticide, herbicide, and fertilizer use at all County-owned facilities and by all Frederick County Government agencies or departments. Five County departments were found to apply at least one of these types of chemicals: (1) the Maryland Department of Agriculture's (MDA) Vector Control Program, which works in conjunction with the Frederick County Mosquito Control Program, (2) the DPW's Department of Parks and Recreation, (3) Frederick County's Office of Highway Operations, (4) the Frederick County Weed Control Program, and (5) Frederick County Public Schools.

Study results indicated that pesticide/herbicide/fertilizer use by Frederick County did not require any drastic reduction in application practices because County agencies had, in general, already minimized use of these chemicals, or were already using more environmentally acceptable substitutes. In most cases, the overall recommendation was to continue current chemical control practices, while considering possible biological and mechanical controls that could be used in place of, or in combination with, current practices.

A number of practices are already employed by County personnel to control the application of chemicals and, where possible, to use minimal amounts. In general, most Frederick County departments reported applying pesticides on an "as needed" basis, while fertilizer is applied 1-3 times per year at specific locations. Most of the departments surveyed indicated specifically that application rates were based on label instructions and were made at the lowest rate required for effectiveness. This section provides an update to the amounts and uses presented in the 2003 study report and subsequent NPDES Annual Reports.

6.7.2 Herbicide Use

Frederick County's Parks and Recreation Department and the Frederick County Weed Control Program continue to monitor weather conditions around the time of application; applications are

not performed if heavy rain is expected within 2 hours of application. The Weed Control Program continues to verify that application personnel are registered with the MDA Pesticide Regulation Section and are either licensed applicators or work directly under the supervision of one.

As noted in the Road Maintenance Activities section (Section 6.6), Frederick County Highway Operations has discontinued the use of the herbicide Pendulum, which is toxic to aquatic life, and has replaced its use of Razor with Gly Star Pro, another glyphosate herbicide.

Herbicide use by County departments from 2003 through 2006 is presented in Table 6-7.

Table 6-7. Pesticide, herbicide, and fertilizer use by Frederick County agencies, 2003-2006

Department	Chemical Name		Average Amount Used (per year)				Comments
			2003	2004	2005	2006	
Frederick County Department of Parks and Recreation	Pesticide	Malthion	--	2.5 gal	--	--	Pesticides/-herbicides applied as needed, fertilizers applied annually
		Sevin Liquid	--	--	--	18 oz	
	Herbicide	Aquashade	14 gal	11 gal	8 gal	9 gal	
		Corner Stone	--	--	--	6 gal	
		Cutrine	43 lb	13 gal	--	7 gal	
		Cutrine Plus	--	--	310 gal (liquid)/10 lb (granular)	--	
		Horticulture Oil	--	--	--	24 oz	
		Malthion	--	2.5 gal	--	--	
		Merit Granular	--	--	--	8 lb	
		Pramitol 25E	6.5 gal	--	--		
		Pronto	--	--	--	3 gal	
		Prosecutor Pro	--	8 gal	17 gal	15 gal	
		Ronstar	--	--	--	2 oz*	
		Roundup Pro	11 gal	4.5 gal	--	1 qt	
		Sahara	9 lb	--	--		
		Surflan	2.8 gal	--	--	1.5 qt	
	Fertilizer	Root Turf Food	6350 lb	--	--	--	
		42-0-0	--	450 lb	--	--	
		18-5-9	--	7600 lb	--	--	

Table 6-7. Continued

Department	Chemical Name		Average Amount Used (per year)				Comments
			2003	2004	2005	2006	
		14-3-5	--	1300 lb	--	--	
		20-27-5	--	60 lb	--	--	
		18-0-18	--	--	9635 lb	--	
		18-24-10	--	--	18 lb	--	
		18-24-12	--	--	2400 lb	--	
		46-0-0	--	--	--	11150 lb	
		39-0-0	--	--	--	1400 lb	
		21-3-21	--	--	--	4350 lb	
		29-2-5	--	--	--	270 lb	
		34-0-0	--	--	--	40 lb	
		30-3-4	--	--	--	80 lb	
		10-10-10	--	--	2400 lb	33 lb	
Maryland Department of Agriculture and Frederick County, Weed Control Program	Pesticide	None	--	--	--	--	
	Herbicide	Transline	10.5 gal	11 gal	12 gal	12 gal	
		Glystar Pro	12 gal	12 gal	12 gal	15 gal	
		Velpar L	0.66 gal	0.50 gal	0.50 gal	0.50 gal	
	Fertilizer	--	--	--	--	--	
Frederick County Office of Highway Operations	Pesticide	--	--	--	--	--	1) Amounts used reflects pure Glystar Pro which is mixed at 1.25% to dilute; 2) In 2006, 2,4-D Amine 4 was added to the Glystar Pro to combat broadleaf weeds. The Glystar Pro is only effective against grasses.
	Herbicide**	Glystar Pro	88.5 gal	91 gal	147.75 gal	135 gal	
		2,4-D Amine 4***	--	--	--	27 gal[2]	
	Fertilizer	--	--	--	--	--	

Table 6-7. Continued

Department	Chemical Name		Average Amount Used (per year)				Comments
			2003	2004	2005	2006	
Frederick County Public Schools	Pesticide	Acephate	--	--	--	100 gal	(1) Amounts provided for pesticides would be maximum amount. Applied on a very limited, case by case basis. (2) Lime used once a year on competition fields and stadium fields. (3) Milorganite and fertilizers are used three times a year (early winter, spring, and summer) on competition and stadium fields.
		Dylox	1000 lbs	4000 lbs	4000 lbs	4000 lb	
		Merit	1000 lbs	60 lbs	60 lbs	60 lbs	
		Statesman Insect control w/Diazinon	200 lbs/yr	--	--	--	
	Herbicide	3 way selective	--	--	--	720 gal	
		Roundup	1000 gal	40 gal	40 gal	2000 gal	
	Fertilizer	18-24-12	4000 lbs	4000 lbs	4000 lbs	4000 lbs	(4) Round-up used "primarily" in the summer months when students not present, typically used on fenced areas where poison ivy has become problem (5) LESCO brand 3 way selective herbicide used, as needed, on competition fields (6) Quantity of Round up reported is DILUTED, applied quantity. Note: Previous two years were reported as total CONCENTRATE - the total diluted applied would have been less than 2000 gallons, as noted in year 2006 (7) Acephate product used sporadically for severe bag worm infestations.
		39-0-0	2000 lb	2000 lbs	2000 lbs	6000 lbs	
		15-3-7	4000 lbs	4000 lbs	4000 lbs	2000 lbs	
		26-4-18	4000 lb	4000 lbs	4000 lbs	6000 lbs	
		10-10-10	200 lbs	200 lbs	200 lbs	--	
		Milorganite 6-2-0	4000 lbs	--	--	--	
		Milorganite 14-1-11	4000 lbs	--	--	--	
		Sustane 5-2-4 weed/feed	--	--	--	500 gal	
		Pelletized Lime	4000 lbs	4000 lbs	4000 lbs	6000 lbs	

Table 6-7. Continued

Department	Chemical Name		Average Amount Used (per year)				Comments
			2003	2004	2005	2006	
Maryland Department of Agriculture, Vector Control Program	Pesticide	Altosid	69 lbs/season	51 lbs/season	65 lbs/season	98 lbs/season	(1) averages are based on ranges provided; (2) amount depends on precipitation and amount of standing water; (3) Altosid purchased as plaster of paris pellets (units) which weigh approx. 1 ounce--can treat 100 square feet of surface for 30 days; (4) season approx 6 months
		Vectobac G	110 lbs/season	34 lbs/season	28 lbs/season	57 lbs/season	
		Vectolax CG	110 lbs/season	105 lbs/season	27 lbs/season	57 lbs/season	
	Herbicide	--	--	--	--	--	
	Fertilizer	--	--	--	--	--	

* 2 packets used @ 1 ounce each

** The overall increase in the amount of Glystar Pro used by Highway Operations is due to the fact that 2005 was the first year they were able to cover all areas twice, as planned. In previous years, the Highway Operations ran out of time or money for the product to complete the spraying of all guardrails.

***Add'l information on 2,4-D Amine 4 can be found at http://www.tcweed.org/pdf's/24amine4label.pdf

6.7.3 Pesticide Use

The majority of pesticides currently used in Frederick County continue to be for the control of mosquitoes by MDA's Vector Control Program and for the control of pest insects by Frederick County Public Schools. Both programs continue to use Integrated Pest Management (IPM) programs. The SOP for IPM by the Public Schools is included as Appendix O. IPM programs identify and control pest problems through staff training, inspection, and sanitation practices that minimize and/or eliminate the need for pesticide use. Under IPM, improvements in cleaning, sanitation, occupant education, or other non-chemical methods are required before pesticide use can be authorized.

The pesticides used by the Vector Control Program for mosquito control include two larvicides, Vectobac and Vectolex, which contain naturally occurring bacteria commonly found in soils in the United States. These pesticides have not been shown to cause any serious health effects in humans. The third pesticide currently being used to control mosquitoes, Altosid, contains a chemical insect growth regulator. This pesticide has not been shown to be harmful to humans. Some formulas used have a residence time and can remain active for 30-150 days.

Survey responses indicate that the public schools do not use excessive quantities of pesticides and that these are applied only on an as-needed basis. In addition, one of the pesticides, Merit, is known for its low percentage of active ingredients compared with other pesticides. Use of one pesticide previously used by the school system, Statesman Insect Control with diazinon, was

affected by EPA's plans to phase out diazinon for all lawn, garden, and turf use by December 2003. Diazinon is an organophosphate which can affect the nervous system and cause nausea, headaches, vomiting, etc. In addition, diazinon's use on turf poses a risk to birds, and is one of the most commonly found pesticides in air, rain, and drinking and surface water. Therefore, the report recommended that the public schools discontinue use of Statesman Insect Control with diazinon and select a safer, more appropriate product to be used in its place. The Public Schools discontinued the chemical once its (small) inventory was consumed.

Pesticide use by County departments from 2003 through 2006 is presented in Table 6-7.

6.7.4 Fertilizer Use

Fertilizer use by Frederick County agencies is mainly attributed to the Public Schools for maintenance and upkeep of school athletic fields. In addition, the Department of Parks and Recreation uses fertilizers at its facilities. Frederick County Public Schools and the Department of Parks and Recreation regularly test the soil to determine if and how much fertilizer needs to be applied. The Parks and Recreation Department conducts soil tests every three years and applies fertilizer according to soil test results. The Superintendent is a certified Nutrient Applicator under the State Nutrient Management Program.

The Public Schools used to use one type of organic fertilizer, Milorganite, which is composed of composted sewage sludge, but have since phased out its use.

Fertilizer use by County departments from 2003 through 2006 is presented in Table 6-7.

Evaluation: Frederick County continues to implement responsible use of herbicides, pesticides, and fertilizers. Agencies strive to minimize use of these materials to the lowest rate required for effectiveness. Applicators have proper certification. Integrated Pest Management programs are in place. Earlier evaluations of herbicide use along roadsides led to a shift away from one potentially harmful herbicide to a more environmentally friendly alternative.

6.8 OVERALL PROGRAM EVALUATION

Frederick County continues to significantly build upon and strengthen the various components of its NPDES stormwater management programs. As detailed throughout this report, the past year brought progress in many areas. This evaluation is based on program improvements noted over the past year. In addition, the current status of management programs was viewed in relation to the County's program objectives, goals, and NPDES permit requirements.

Frederick County operates an effective stormwater management program, including inspections, enforcement, and implementation of the *2000 Maryland Stormwater Design Manual*. A project with the Center for Watershed Protection has enhanced the County's illicit discharge detection and elimination (IDDE) program. The County plans to incorporate these improvements into future field screening, particularly in conjunction with planned Countywide stream monitoring.

Frederick County has completed a thorough review of County-owned properties and, through coordination with MDE and among County agencies, has obtained all needed NPDES permits. Stormwater Pollution Prevention Plans are in place for all of the permitted facilities.

Frederick County ECS staff continues to strengthen erosion and sediment control measures. County Inspectors work cooperatively with SCD and the NRCS and maintain regular contact with the regulated community.

Frederick County government has been particularly effective in leading well-coordinated efforts involving multiple agencies and organizations working toward common goals for water quality improvements and better management of the County's watersheds. The County has capitalized on opportunities to leverage substantial funding for outreach and restoration. This has allowed the County to accomplish program goals most cost-effectively, despite having a small in-house staff. County support of the Monocacy & Catoctin Watershed Alliance has provided substantial benefits in public outreach and watershed restoration.

County staff has actively sought opportunities for numerous restoration projects, successfully attracting outside funding and establishing key partnerships with other organizations. Ongoing implementation of Lower and Upper Monocacy WRAS recommendations, along with projects proposed through the County's restoration and retrofit evaluations, have furthered the County's progress in watershed restoration and will continue to include substantial public involvement. Frederick County is pursuing multiple restoration projects through its CIP program as well as supporting and promoting a number of highly effective community restoration projects.

Frederick County has supported NPDES Phase II municipalities with execution of their permits. The County has provided consultation, public outreach materials, GIS mapping protocols, and IDDE training for local Phase II municipalities.

The County continues to implement long-term monitoring to meet NPDES requirements, including the evaluation of the effectiveness of the *2000 Maryland Stormwater Design Manual*. Long-term chemical, physical, and biological monitoring at Peter Pan Run has provided a continuous record since 1999. The study has now compiled four years of data at a tributary to Peter Pan Run to evaluate Manual effectiveness.

Watershed restoration is a key focus of current programs. In 2006, an assessment of stormwater retrofit and stream restoration opportunities was completed for Linganore Creek watershed. Frederick County DPW is integrating these plans for watershed improvements with proposed source water protection measures for Lake Linganore, including an adopted Action Plan. In addition, Frederick County is coordinating its restoration planning with implementation of sediment and phosphorus TMDLs for Lake Linganore through close coordination with MDE.

During 2006, Frederick County focused its stream monitoring efforts to provide information to assess potential restoration sites and ultimately to evaluate restoration success. Biological and physical monitoring was targeted to locations of planned restoration projects to provide a baseline of pre-construction monitoring data. Future monitoring will continue to track conditions at these and new locations, as additional project sites are recommended, and as the

County develops new monitoring methods targeted to evaluate success in meeting specific restoration goals for a site.

The County will also expand its stream monitoring to assess watersheds throughout the County on a rotating basis, implementing a new, probability-based sampling design developed in 2006. In 2007, a pilot study will focus this monitoring in two high priority watersheds, providing assessment data to aid in restoration planning.

To provide the best information on County water resources for decision-makers and the public, Frederick County has taken the first steps toward integrating monitoring data from other organizations involved in stream monitoring throughout the County. Data gathered by these programs can augment and "fill in gaps" of information currently collected by the Division of Public Works. An integrated picture of stream conditions gained through these monitoring programs will help inform the public on water quality issues. In 2006, the County completed a survey of organizations conducting monitoring within the County and compiled a metadata catalog that will be used in planning further data compilation and integration.

The County continues to implement the recommendations of its Road Maintenance Activities and Pesticide/Herbicide/Fertilizer reports. Improved reporting now allows a clearer picture of trends in pesticide, herbicide, and fertilizer use. Chemical applications that had been suggested for phase-out have been replaced by more environmentally friendly materials by the Frederick County Public Schools and by Highway Operations.

To build communication with MDE and other County programs, many at a similar stage of program development, Frederick County has been an active participant in the state's stormwater workgroup. Lessons learned from other municipal programs in Maryland continue to help to guide the County's future management efforts.

Frederick County has continued to expand and enhance its GIS library. For example, storm drainage network data have proven highly valuable in identifying retrofit and restoration opportunities. Aerial photography flown in 2005 is now available and will provide enhanced topography and updated images for future work.

In general, Frederick County has increased its commitment of staff time and resources to NPDES program activities over the permit term. In 2006, along with a full-time NPDES program manager, the program was supported by two other staff in its Watershed Management Section. The Community Restoration Coordinator (formerly the WRAS Program Coordinator, a position created in May 2003), has proved highly effective in the County's partnership restoration efforts. This position is funded jointly by DPW and grant funds. The County has secured grant funds to extend the support for this position through 2007. A full time Project Manager I staff person provides key support in wetland restoration, grant applications, GIS, Annual Report preparation, and other projects.

During 2006, through two CIP-funded consultant projects, designs were developed for a stream restoration project in Ballenger Creek watershed and Low-Impact Development enhancements to stormwater management at Urbana High School in Bush Creek. Construction of both projects is

planned for 2007, along with design of projects in Linganore watershed. In addition, through a Cooperative Agreement, the County enlisted the support of U.S. Fish and Wildlife Service's Chesapeake Bay Field Office, which provides added expertise in stream geomorphology and restoration.

As detailed in Section 8, the County has maintained steady funding of NPDES programs through its operating budget. The NPDES program is operating well at its current funding level. In addition, substantial CIP funds have been committed to current stormwater retrofit and stream restoration projects. Future CIP funding is earmarked for identifying and implementing watershed restoration and stormwater retrofit projects. The program continues to seek and utilize outside grant funds, including grant funds from the National Fish and Wildlife Foundation, Chesapeake Bay Trust, and EPA's 319(h) program to support implementation of watershed restoration measures. The County continually seeks ways to leverage its resources with grants, cost shares, and other reciprocal programs.