

# Stormwater Management and Other Neighborhood Improvements

## PROGRAM DESCRIPTION

The Stormwater Management and Other Neighborhood Improvements section consists of: Stormwater Control, Streetlights and the County Neighborhood Improvement Program.

## LINK TO THE COMPREHENSIVE PLAN

Fairfax County's Comprehensive Plan has established a number of objectives and policies in order to:

- ✓ Identify, protect and enhance an integrated network of ecologically valuable land and surface waters for present and future residents of Fairfax County, and implement programs to improve older residential areas of the County to enhance the quality of life in these areas, including Mount Vernon Hills and Holmes Run Valley.
- ✓ Protect and restore the ecological integrity of streams in Fairfax County.
- ✓ Apply better site design and low impact development (LID) techniques, and pursue commitments to reduce stormwater runoff volumes and peak flows, to increase groundwater recharge, and to increase preservation of undisturbed areas.
- ✓ Provide for a comprehensive drainage improvement and stormwater management program to maximize property protection and environmental benefits in the watershed.
- ✓ Provide a system of drainage facilities that prevents or minimizes structure flooding, stream degradation and traffic disruption in an efficient, cost-effective and environmentally sound manner.

Source: 2007 Edition of the Comprehensive Plan, as amended.

## CURRENT PROGRAM INITIATIVES

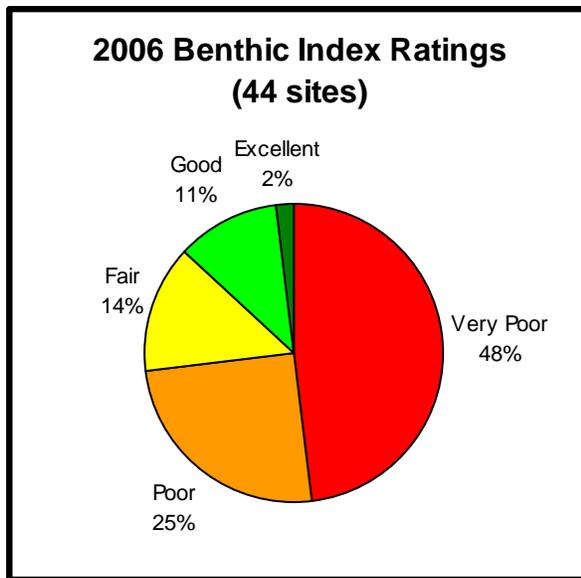
### Stormwater Management Program

Fairfax County's Stormwater Control program is currently undergoing a transformation where all activities are addressed on a comprehensive watershed basis. The program consists of: Regulatory Compliance, Dam Safety, Infrastructure Reinvestment, Project Implementation, Watershed Planning and Operations Support. The long-range goal or mission for the stormwater program is dictated by the County's need to preserve and restore the natural environment and water resources, while being in full compliance with all applicable federal and state laws and mandates. Many of the requirements are derived from the State's Chesapeake Bay Initiatives, Clean Water Act requirements and County ordinance and policies, such as the Water Supply Protection Overlay District. In order to comprehensively address program requirements and strategies for restoring water quality on a holistic basis, updated watershed management plans are under development.

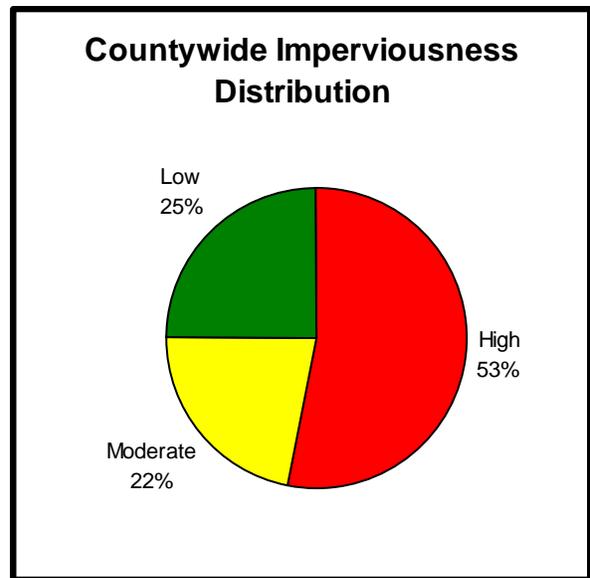
### **Watershed Planning and Implementation**

The completion of watershed management plans for all 30 County watersheds will occur during this 5-year CIP cycle. By FY 2008, watershed planning was completed in approximately 50 percent of the land area in the County and 100 percent of the remaining land area has been initiated for characterization and modeling. Previously prepared watershed master plans developed during the 1970s did not reflect changes in stream conditions resulting from land use practices and environmental goals, most of which have arisen over the last 30 years. The current watershed plans provide targeted strategies for addressing stream health given various current/future land use practices and relative stream conditions.

As depicted on graph A below, based on the 2006 stream monitoring, less than 15 percent of the County's streams are in good to excellent biological health condition. This condition is determined using an Index of Biological Integrity (IBI) which evaluates stream ecological health based on the community structure of bottom-dwelling aquatic invertebrates inhabiting the streams. Stream degradation becomes apparent when imperviousness reaches 10-20 percent within a watershed. High levels of degradation occur as imperviousness exceeds 20 percent. During previous decades, prior to implementation of modern stormwater controls, the County's percent of imperviousness increased drastically which contributed to the current degradation of the streams. As depicted on the graph B below, 53 percent of the County land area has imperviousness at or above 20 percent (high). In addition, 22 percent of the County land area is between 10-20 percent imperviousness (moderate).



**A**



**B**

The Federal Clean Water Act and Virginia state laws require Fairfax County to meet water quality standards for surface streams and groundwater. The County discharges stormwater from its storm drainage network into the waters of the state and must comply with all pertinent water quality standards and conditions established by the Municipal Separate Storm Sewer System (MS4) permit. The permit conditions require that the County have a comprehensive stormwater management program that includes inspection of existing stormwater facilities, watershed planning, public outreach, monitoring and implementation of practices to improve stormwater quality.

In addition to the permit conditions, Virginia and other signature states to the Chesapeake Bay agreement have prepared "Tributary Strategies" to set specific targets for reduction and capping of nutrients and sediment pollutants entering the Bay through its various tributaries, such as the Potomac River. The Potomac River Basin Tributary Strategy was completed in 2005 and established state-wide reduction goals for point source (wastewater treatment plants) and non-point source pollution. Through the stormwater program and other efforts, the County is doing its part to increase water pollution control measures to effectively improve conditions and help remove the Chesapeake Bay from the federal impaired list.

While every effort has been made to accurately reflect the 5-year 2010-2014 capital improvement plan for the stormwater program, there are currently multiple issues that are in various stages of the regulatory and permitting processes that could possibly have significant funding impacts to the Stormwater program.

Increases in regulatory requirements associated with the renewal of the 5-year MS4 permit and increased State mandated requirements in the Dam Safety program will most likely impact the current funding plan in the very near future. Recent flood mitigation efforts resulting from the County-wide flooding, as well as the severe flooding that occurred in the Huntington community in late June 2006 and Belle Haven community in 2003, may require a significant investment to implement corrective actions in these areas. In addition to these near-term impacts to the stormwater program, the recent transfer of the MS4 program for Fairfax County Public Schools (FCPS) to the County will impact funding requirements for the stormwater program as well.

Additional, less defined funding impacts to the stormwater program include long term stormwater management maintenance requirements of County facilities that are designed and built using innovative stormwater management systems, such as Low Impact Development Systems (LIDS). Past stormwater maintenance at County-owned and operated facilities has traditionally consisted of maintenance of catch basins, storm pipes and surface ponds. However, to meet current stormwater quality requirements, more extensive and complex stormwater management systems are being developed with "Best Management Practices" for the treatment of stormwater runoff. These water quality systems will require more routine and more complex operation and maintenance efforts to meet and comply with the stormwater permit. Without the proper on-going operation and maintenance, the systems will likely fail, requiring more extensive costs to reconstruct the systems to function as designed. As these water quality systems and stormwater facilities come on-line, funding will be required to meet the recurring maintenance requirements.

### ***Financing the Stormwater Program***

As part of the FY 2010 Adopted Budget Plan, a new service district was created to support the stormwater management program, as authorized by Va. Code Ann. Sections 15.2-2400. The service district levy is \$0.010 per \$100 of assessed real estate value, an amount that will support both staff operating requirements and stormwater capital projects. Since FY 2006, the Board of Supervisors had dedicated the value of one penny of the real estate tax, or approximately \$20 million annually to stormwater capital projects. In FY 2009, due to budget constraints, staff and operating costs were charged to the stormwater penny fund, resulting in approximately \$15 million remaining for capital project support. The levy of \$0.010 will provide approximately \$20 million in a typical budget year for the stormwater program. The effective date of the service district and tax rate is July 1, 2009. Therefore, during the service district's first year, taxpayers will be billed for the second half of calendar year 2009, generating approximately \$10 million for the stormwater program in FY 2010. It is anticipated that over \$5 million will remain unexpended within Fund 318, Stormwater Management Program, in FY 2009 based on project timelines and completion schedules. Unexpended funding will be transferred at year-end to Fund 125, Stormwater Services, in order to support capital project work in FY 2010. It is estimated that beginning in FY 2011, Fund 125 will be fully supported by a projected \$20 million annually, enabling much needed capital projects to move forward.



***Photo of Lake Royal which is part of the County's extensive stormwater system that includes 1,800 miles of storm drainage conveyance systems, 45,000 stormwater drainage structures and approximately 1,200 publicly maintained stormwater management ponds.***

## **Other Neighborhood Improvements**

Other neighborhood improvement projects include streetlights and the implementation of sidewalks, curbs, gutters and storm sewers in older neighborhoods. The County Streetlight Program is designed to respond to the desires of citizens for additional community lighting in the interest of promoting the Crime Deterrence and Hazardous Intersection programs. New streetlights are installed at the County's expense based on citizens' requests, and at the developer's expense in new developments. The costs of this program fund the installation of streetlights and are supported by the General Fund. In recent years, the Board of Supervisors has established a new approach for funding streetlight projects. A new program entitled "Prioritized Capital Projects" has been established for each Supervisor District. If surplus funding is identified throughout the fiscal year and dedicated for this program, each Board member receives an equal portion of the funding and works with the Department of Public Works and Environmental Services (DPWES) to address the top priority projects.

There are several projects related to streetlights in the County that need to be addressed in future years. First, existing streetlights will need to be upgraded to current standards that are impacted by VDOT road improvement projects. Funding for these upgrades will be adjusted each year based on the magnitude of VDOT construction activities. Next, there are an estimated 27,000 inefficient mercury vapor (MV) streetlights in the County that need to be converted to high pressure sodium vapor (HPSV) cut-off streetlights. Conversion of the County's MV streetlight inventory will need to be addressed in the near future as a result of the Environmental Protection Agency's (EPA) mandate to stop the manufacturing and importation of a key MV streetlight fixture component in order to force the elimination, through attrition, of MV streetlights. This effort will further bring the County streetlight program into compliance with the Board of Supervisor's desire to use cut-off streetlight fixtures to reduce light pollution and promote the Dark Skies Initiative. It is envisioned that it will take several years to complete the conversion of the approximately 27,000 MV streetlights. Further, the County will also need to replace an estimated 1,400 obsolete MV open streetlight fixtures with HPSV cut-off streetlight fixtures on a countywide basis. The open streetlight fixtures installed in the 1960s and 1970s are grossly inefficient for street lighting and produce a great deal of glare. Replacing the open streetlight fixtures with HPSV cut-off streetlight fixtures is also consistent with the large goal of converting the estimated 27,000 MV streetlights currently in the County's inventory, as was mentioned above.

## **CURRENT PROJECT DESCRIPTIONS**

**Stormwater Management Program.** The proposed levy of \$0.010 for the proposed stormwater service district will provide approximately \$10 million in a typical budget year for program implementation of capital projects, an amount roughly equal to the value of the dedicated penny. This funding will address the County's stormwater requirements noted below. It should be noted that, in the near future, two major stormwater program milestones will occur: completion of the watershed plans for all 30 watersheds in the County and renewal of the Virginia Pollutant Discharge Elimination System (VPDES) Municipal Separate Storm Sewer System (MS4) discharge permit. Both of these activities will impact and map the strategic direction of the stormwater program during the FY 2010 to FY 2014 CIP period, and beyond.

1. **Stormwater Capital Projects Reserve** (Countywide): This project provides funding for critical Stormwater capital projects which will be identified throughout the fiscal year. Funding will support watershed implementation projects, the Kingstowne Environmental Monitoring Program, dam safety, requirements associated with the MS4 permit, storm drainage projects and emergency watershed projects, and the infrastructure reinvestment program. In FY 2010, funding of \$617,024 is funded in this reserve and will be allocated to priority projects throughout the fiscal year. It is also anticipated that approximately \$5 million will remain unexpended within Fund 318, Stormwater Management Program, in FY 2009 based on project timelines and completion schedules. This funding will be transferred at year-end to Fund 125, Stormwater Services to supplement the funding noted above for critical capital projects. Beginning in FY 2011, it is estimated that the entire stormwater program, both operational and capital project requirements will be fully supported by a projected \$20 million annually, enabling much needed capital projects to move forward.

### **Other Neighborhood Improvements:**

2. **Developer Defaults** (Countywide): The Developer Default project is a continuing program for the purpose of completing private development projects on which developers have defaulted. There has been an increased level of activity for this program in recent years, and current projections suggest this trend will continue. Land Development Services (LDS) identifies projects for resolution throughout the fiscal year. This program is supported by developer bonds and the General Fund.
3. **Payments of Interest on Conservation Bonds** (Countywide): This project provides for payments to developers for interest earned on conservation bond deposits. The County requires developers to make deposits to ensure the conservation of existing natural resources. Upon satisfactory completion of the project, the developer is refunded the deposit with interest. Funding is based on prior year actual expenditures and current interest rates.
4. **Streetlights** (Countywide): This is an on-going project which provides for the installation of streetlights on a countywide basis. In recent years, the Board of Supervisors has established a new approach for funding streetlight, trails and sidewalk projects. A new program entitled "Prioritized Capital Projects" has been established for each Supervisor District. If surplus funding is identified throughout the fiscal year and dedicated for this program, each Board member receives an equal portion of the funding and works with the Department of Public Works and Environmental Services (DPWES) to address the top priority projects.
5. **Minor Streetlight Upgrade** (Countywide): This program is for the upgrading of existing streetlights that do not meet current illumination standards for roadways, based on citizens' requests.
6. **Survey Control Network Monumentation** (Countywide): This continuing project supports the establishment, maintenance and publication of survey control monuments. These monuments, used by the private and public sector, are the terrestrial framework for geospatial control of surveying, mapping and land development projects. The survey control monuments provide the spatial control for the County GIS system. This monumentation work is necessary to assist Surveyors and Engineers in developing site plans in accordance with the requirements of the Fairfax County Public Facilities Manual.
7. **Emergency Directives Program** (Countywide): This is a continuing project to support emergency property maintenance issues associated with increases in foreclosed properties in the County. Funding provides for abatement services of both emergency and non-emergency directives related to health and safety violations, grass mowing violations and graffiti removal.

**PROJECT COST SUMMARIES**  
**STORMWATER MANAGEMENT AND OTHER NEIGHBORHOOD IMPROVEMENTS**  
**(\$000's)**

Project Title/ Project Number	Source of Funds	Budgeted or Expended Through FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Total FY2010-FY2014	Total FY2015-FY2019	Total Project Estimate
<b>STORMWATER MANAGEMENT / PRIORITY STORMWATER PROJECTS</b>										
1 Stormwater Capital Project Reserve	R	<b>C</b>	<b>617</b>	10,000	10,000	10,000	10,000	40,617		40,617
<b>OTHER NEIGHBORHOOD IMPROVEMENTS</b>										
2 Developer Defaults / U00060	G, X	<b>C</b>	<b>600</b>	600	600	600	600	3,000	3,000	6,000
3 Payments of Interest on Conservation Bonds / 009998	G	<b>C</b>	<b>250</b>					250		250
4 Streetlights / Z00001	G	<b>C</b>						0		0
5 Minor Streetlight Upgrade / Z00016	G	<b>C</b>		20	20	20	20	80	100	180
6 Survey Control Network Monumentation / U00005	G	<b>C</b>		125	125	125	125	500	625	1,125
7 Emergency Directives/ED0001	G	<b>C</b>	<b>100</b>	100	100	100	100	500		500
<b>TOTAL</b>		<b>\$0</b>	<b>\$1,567</b>	<b>\$10,845</b>	<b>\$10,845</b>	<b>\$10,845</b>	<b>\$10,845</b>	<b>\$44,947</b>	<b>\$3,725</b>	<b>\$48,672</b>

Key: Stage of Development	
	Feasibility Study or Design
	Land Acquisition
	Construction

Notes:  
Numbers in **bold italics** represent funded amounts.  
A "C" in the 'Budgeted or Expended' column denotes a continuing project.

Key: Source of Funds	
B	Bonds
G	General Fund
F	Federal
X	Other
U	Undetermined
R	Real Estate Tax Revenue
SR	Special Revenue

# Stormwater Management Project Locations



- Current Stormwater Projects:
- 1a Little Hunting Creek Watershed
  - 1b Popes Head Creek Watershed
  - 1c Cub Run Watershed
  - 1d Cameron Run Watershed
  - 1e Difficult Run Watershed
  - 1f Middle Potomac Watershed
  - 1g Kingstowne Environmental Monitoring

Note: Map numbers correspond to project descriptions in the text and cost summary tables. Only CIP projects with selected, fixed sites are shown on the map.