

## The Johnny Moore Creek and Little Rocky Run Watersheds



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**Healthy Watersheds, Healthier Communities**

Fairfax County Stormwater Planning Division

# Fairfax County Watersheds



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The Johnny Moore Creek and Little Rocky Run watersheds are located in southwestern Fairfax County and have a drainage area of 5.3 square miles and 7.2 square miles, respectively.

## WHAT IS A WATERSHED?

A watershed is an area of land that drains to a particular lake, stream or other water body. Watersheds covered with vegetation capture stormwater, filtering it through roots and soil and slowing its flow to water bodies.

## Population in Fairfax County

The population of Fairfax County has increased significantly during the last several decades, surpassing 1 million residents in 2002.

1980 population: 596,901  
1990 population: 818,584  
2000 population: 969,749  
2006 population: 1,037,311  
2025 population: 1,197,796\*

*\*Source: Fairfax County Department of Systems Management for Human Services, 2004*

Considerable changes to county land use have occurred to accommodate this population growth. Additional structures (such as houses, schools and roads) were constructed, increasing the area of land covered by impervious surfaces.





## How Development Affects Streams

**Percent Impervious Area** – Percent impervious area is a measure of the amount of development in the watershed. This is the percentage of the land surface covered by roads, parking lots, driveways and rooftops that prevents rainfall from infiltrating into the soil. Eighteen percent of the Little Rocky Run watershed and 3 percent of the Johnny Moore Creek watershed is impervious, for an average of 12 percent imperviousness for both watersheds.

Changes in land use and an accompanying increase in the percent impervious area adversely impact streams by increasing erosion and sedimentation. These factors contribute to pollution and degrade water quality and wildlife habitat.

The future growth in these watersheds is determined by the Fairfax County Comprehensive Plan, which limits the total impervious area in the watersheds to 19 percent.



**Stream Erosion and Sedimentation** – Changes in land cover and runoff patterns associated with development increase runoff and stream flow during storms. These increased flows often cause stream bank erosion. The loss of natural vegetation by clearing trees or mowing along stream banks also contributes to erosion.

Stream bank erosion creates sediment, which also results from uncontrolled runoff from construction sites, winter road sand and other land disturbances. This sediment degrades the habitat of wildlife in the stream. Ultimately the sediment moves downstream, degrading and filling downstream waters, including the Potomac River and Chesapeake Bay.

As stream banks erode, trees may fall into the streams and create snags that block the stream channel. These snags can block fish, generate localized flooding and cause further stream erosion.



*Many of the streams exhibit stream bank erosion that results from development and loss of stream buffer vegetation.*

The county conducted the Stream Physical Assessment survey in 2003 to document the conditions of the streams and areas with stream erosion. Most of the streams in these watersheds show some impact from stream bank erosion.





**Water Quality** – Urbanization increases the amount of pollutants that wash off the land and enter the streams. These pollutants affect the aquatic life in the stream and the health of the downstream Potomac River and Chesapeake Bay.

*From your backyard to the Bay:* what occurs in your neighborhood affects everything downstream. When it rains, water washes over the land, picking up contaminants including oil and grease from roads and parking lots; fertilizers, herbicides and pesticides from lawns and gardens; household chemicals that were improperly disposed of; and litter. This water flows into storm drains, which discharge directly to our local streams.

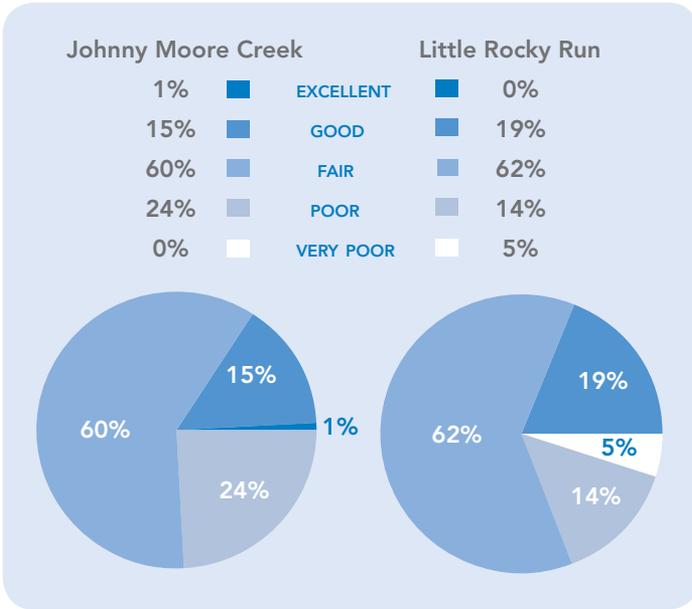
**Habitat** – Stream erosion, sediment deposition, changes in water quality and the loss of natural stream bank and floodplain vegetation affect the habitat in the streams. The habitat quality affects the types and numbers of fish and other animals that live in the streams.

The county's Stream Protection Strategy (SPS) monitoring program includes detailed biological monitoring of the fish and aquatic insects (benthic macroinvertebrates) living in streams. Volunteers from the Audubon Naturalist Society and the Northern Virginia Soil and Water Conservation District perform similar monitoring. This sampling provides an indication of the health of the streams.



The results of the 2001 baseline SPS monitoring study indicate that the overall health of streams in the Johnny Moore Creek and Little Rocky Run watersheds range from “excellent” to “very poor” on a five-category rating scale. The Fairfax County Stream Physical Assessment found the following breakdown of Johnny Moore Creek and Little Rocky Run’s stream habitat condition:

### Stream Habitat Condition



### Stormwater Management History

The stream conditions are better than expected for the current development density in the watershed. This can be attributed to protective land use designations and stormwater controls that were established in response to past storm events. Since 1972, Fairfax County has required that new development projects include controls such as detention ponds to limit peak runoff rates to control flooding. In 1982, water quality treatment of stormwater was required in the Occoquan watershed, and in 1993, the county extended water quality treatment countywide as a result of the Chesapeake Bay Ordinance.



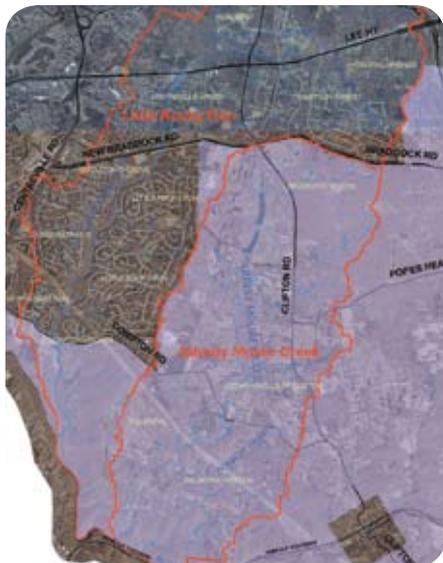


**Occoquan Reservoir Policy** – The Occoquan Reservoir, operated by the Fairfax County Water Authority, provides drinking water to more than 1 million residents in Northern Virginia. In the 1970s the quality of the water in the reservoir was found to be poor. To improve and protect the drinking water supply, the Fairfax County Board of Supervisors voted in 1982 to downzone 41,000 acres of land draining to the reservoir. As a result:

- Development in the downzoned area was limited to no more than one house per five acres, creating the Residential Conservation District that limits the development density.
- A Water Supply Protection Overlay District was created in which new development projects are required to provide water quality control measures that reduce the projected phosphorus pollution runoff by one-half.

These steps helped to improve water quality in the Occoquan Reservoir by the early 1990s. The quality has remained more or less stable over the years despite the significant population increase in the areas that drain to the reservoir.

Currently, 17.3 percent of Fairfax County lies within the downzoned area, including the Johnny Moore Creek watershed (5.3 square miles) and approximately 90 acres (one square mile) of the southern section of the Little Rocky Run watershed.



*Map of downzoned area in Fairfax County*

**Stormwater Management Facilities** – As a result of stormwater policies initiated since 1972, about 134 stormwater facilities have been built in the watersheds. The long-term maintenance and operation of these facilities is important for protecting and maintaining the quality of the local streams.

A stormwater management study performed in the late 1980s provided information to strategically place larger regional stormwater ponds in rapidly growing areas of the county. These regional ponds were designed to replace several smaller ponds that would be needed to serve individual developments. This study identified 14 regional pond sites in the Little Rocky Run watershed, but for various reasons, only ten were constructed. No ponds were planned for the Johnny Moore Creek watershed.

The status of regional ponds in the Fairfax County stormwater management plan has been the subject of various studies and reports to the Board of Supervisors. Regional ponds are just one of many stormwater management tools. The Johnny Moore Creek and Little Rocky Run Watersheds Management Plan will identify and evaluate alternatives to eliminate, construct or reduce the size of the planned regional ponds.



*Map of regional pond locations*





## Parks in the Watersheds

Parkland is an important feature in all watersheds. Johnny Moore Creek and Little Rocky Run include large areas of parkland maintained by the Fairfax County Park Authority and the Northern Virginia Regional Park Authority. These parks and other dedicated open areas protect much of the stream valleys and other areas in the watersheds from development. Combined, dedicated parkland comprises 2,739 acres, or 34 percent, of the watersheds' land area.

## Why We Need Watershed Management Plans

A watershed management plan serves as a tool to identify and address the issues impacting our environment, with the ultimate goal of protecting and restoring county streams and other water resources. There are many new technologies and creative planning tools that can be applied to restore and protect our watersheds.

Fairfax County has developed three main goals applicable to all watersheds during the planning process:

1. Improve and maintain watershed functions in Fairfax County, including water quality, habitat and hydrology.
2. Protect human health, safety and property by reducing stormwater impacts.
3. Involve stakeholders in the protection, maintenance and restoration of county watersheds.

## Reasons to Participate

Environmental stewardship is everyone's responsibility. By participating in your watershed's management planning process, you can help protect and improve the quality of your community and environment.

For more information on the countywide watershed planning process and the Johnny Moore Creek and Little Rocky Run Watersheds Management Plan, please visit the Watershed Planning Web site at [www.fairfaxcounty.gov/dpwes/watersheds](http://www.fairfaxcounty.gov/dpwes/watersheds).

**The Johnny Moore Creek and Little Rocky Run Watersheds Management Plan is being developed by:**

Fairfax County Department of Public Works  
and Environmental Services  
Stormwater Planning Division  
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To request a reasonable ADA accommodations or alternative format of materials, call the Stormwater Planning Division at 703-324-5500, TTY 711.



Contact us with questions or to get involved in your watershed plan.



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