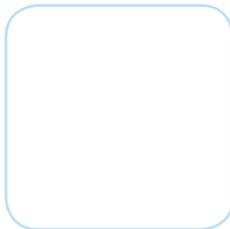


The Belle Haven, Dogue Creek
and Four Mile Run Watersheds



SEPTEMBER 2008

Healthy Watersheds, Healthier Communities

Fairfax County Stormwater Planning Division

The Belle Haven, Dogue Creek and Four Mile Run Watersheds

The Belle Haven, Dogue Creek and Four Mile Run watersheds are located in the southeastern portion of Fairfax County. The Belle Haven watershed is 2.8 square miles, Dogue Creek is 19.4 square miles with 13.3 square miles in the county and Four Mile Run is 30.1 square miles with 2.0 square miles in the county.

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. Nineteen percent of Dogue Creek is impervious, while 32 percent of Belle Haven and 36 percent of Four Mile Run are impervious.

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 Belle Haven to 34 percent, Dogue Creek to 20 percent and Four Mile Run to 38 percent.



Map of Belle Haven, Dogue Creek and Four Mile Run watersheds

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.



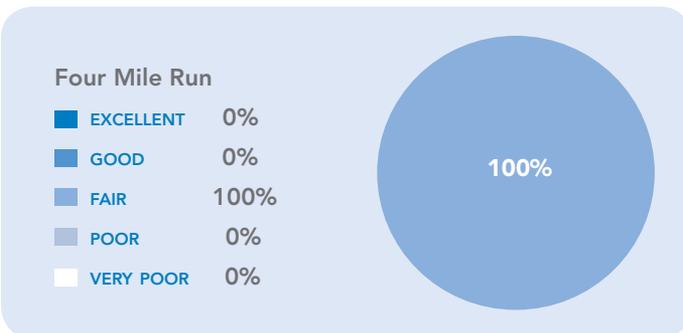
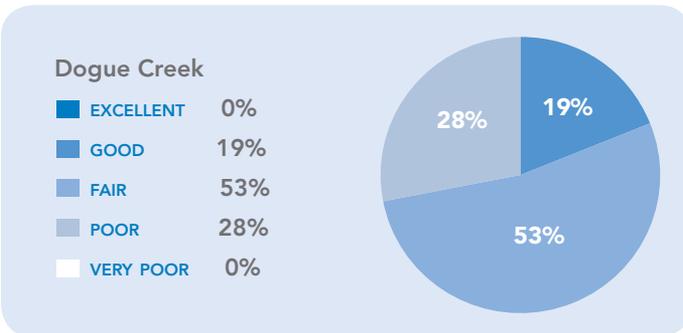
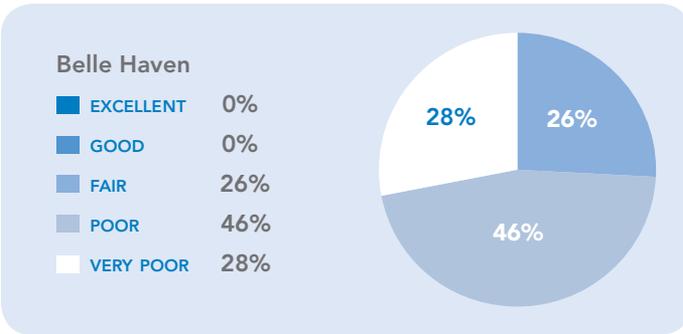
Portions of the streams are in good condition and provide good habitat.

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 vary from watershed to watershed. One site assessed in the Belle Haven watershed and one in the Four Mile Run watershed were rated as “very poor” on a five-category rating scale, while the Dogue Creek watershed ranged from “poor” to “good.” The Fairfax County Stream Physical Assessment found the following breakdown of the three watersheds’ 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.



Dry ponds reduce peak flows. Other types of stormwater facilities also reduce pollutant loads.

Stormwater Management Facilities – 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 one regional pond in the Dogue Creek watershed that was both planned and constructed. No regional ponds were identified for the Belle Haven or Four Mile Run watersheds.

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 Belle Haven, Dogue Creek and Four Mile Run Watersheds Management Plan will identify and evaluate alternatives to eliminate, construct or reduce the size of the planned Dogue Creek regional pond.



Map of regional pond locations





Parks in the Watersheds

Parkland is an important feature in all watersheds. The Belle Haven, Dogue Creek and Four Mile Run watersheds include large areas of parkland owned by the Fairfax County 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 4.56 square miles or 18.8 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 Belle Haven, Dogue Creek and Four Mile Run Watersheds Management Plan, please visit the Watershed Planning Web site at www.fairfaxcounty.gov/dpwes/watersheds.

The Belle Haven, Dogue Creek and Four Mile Run Watersheds Management Plan is being developed by:

Fairfax County Department of Public Works
and Environmental Services
Stormwater Planning Division
12000 Government Center Parkway, Suite 449
Fairfax, VA 22035
TEL: 703-324-5500, TTY 711 FAX: 703-802-5955

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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