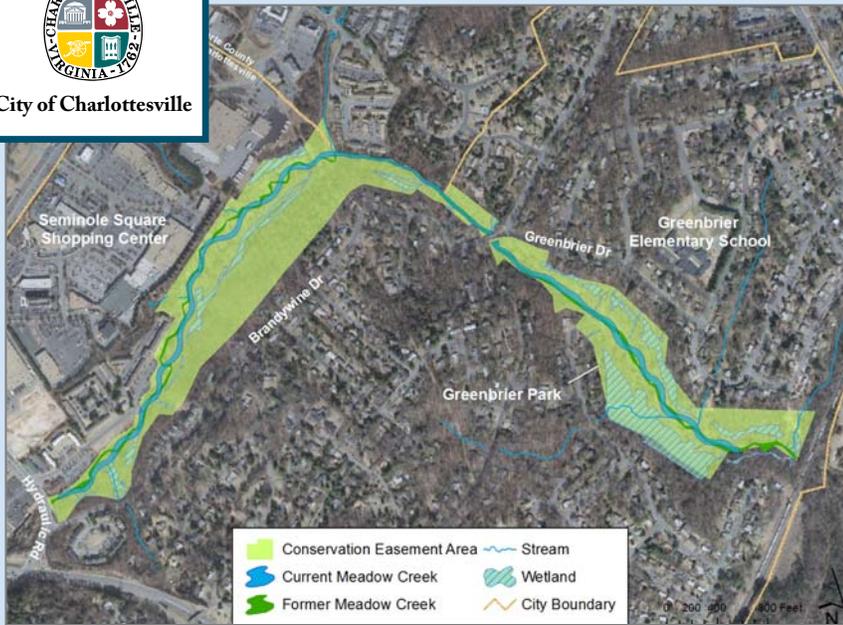


# Meadow Creek Stream Restoration Project



City of Charlottesville



## Project Summary:

Restoration of a 7,300 linear foot section of Meadow Creek extending from Hydraulic Road through Greenbrier Park and permanent protection of over 70 acres of riparian buffer forest and wetlands.

\$3.95 million collaborative project of The Nature Conservancy and the City of Charlottesville funded by the Virginia Aquatic Resources Trust Fund.

Selected to address increased sedimentation, stream bank erosion, and lack of healthy forested riparian buffers that posed a threat to the health of Meadow Creek and the Rivanna River.

## Why Meadow Creek?

Meadow Creek receives water from a surrounding 5,800 acre drainage area that includes the entire northern half of Charlottesville, extending from Observatory Hill at the University of Virginia to Pen Park, including stormwater runoff from urban developments such as neighborhoods, schools, and the shopping centers along U.S. 29. Meadow Creek's deteriorated quality and health had been documented by many local assessments and the creek has been listed as an "impaired waterway" by the Virginia Department of Environmental Quality. Excessive sedimentation from stream bank erosion, due to uncontrolled stormwater runoff, is the major cause of the impairment.

## Stream Health and Stormwater Runoff

Large areas of impervious surfaces, such as rooftops, parking lots, and roads, prevent stormwater from soaking into the ground and instead channel it at much greater volumes and speed through stormwater drainage systems into waterways. This rapid drainage and increased quantity of runoff results in high peak flows and high volumes and velocities of water that erode the streambeds and streambanks. The erosion produces excess sediment, which carries pollutants, blocks sunlight needed by aquatic vegetation, clogs the gills of fish, and eventually settles out, destroying the aquatic habitat.

Water from Meadow Creek flows through the Rivanna River and into the Chesapeake Bay



Pre-restoration Meadow Creek images: severely eroded streambanks, poor habitat, threatened infrastructure.

# Restoration

**Results:** A stabilized stream with improved water quality as well as enhanced aquatic and forest habitats and aesthetic values. In natural settings, rivers create meanders and floodplains that slow their flow during storm events, dissipating energy and reducing erosion and sedimentation. The Meadow Creek Restoration Project used an approach called “natural channel design” to establish a stable meandering pattern, reconnect the stream to its floodplain, and protect and enhance the streamside forest.



- The old unstable channel was improved to create appropriate and stable meanders and reduce the height of streambanks.
- Rock and log structures were installed in the stream to provide bank stability and prevent scour.
- Riffles and pools were created to provide healthy habitat for aquatic insects and fish.
- The floodplain and wetlands, key components of the stream system, were enhanced. Low lying features were created along the stream to help naturally dissipate flow energy and provide added wetland habitats typical of natural floodplains.
- Over 15,000 trees and shrubs, and nearly 50,000 herbaceous plugs, were planted to restore native forest habitat and enhance stream stability.
- Invasive vegetation is being managed to protect the health and diversity of the streamside forest.
- Over 93% of the restoration area is on City parkland; more than 40 acres were added to the park system through this project.

## Continuing Active Involvement

**Short-Term** Frequent inspections along the project corridor and periodic re-working of areas as needed.

### Long-Term

**Physical:** Restored stream channel and streamside vegetation monitoring over a 10-year period; **Biological:** Monitoring benthic macroinvertebrates, key indicators of stream health, that live in the stream bottom; **Conservation:** Ensuring permanent conservation easement properties remain protected as a natural riparian forest; **Litter Cleanup:** The City of Charlottesville will seek support from volunteers to conduct regular litter cleanups.



## For more information:

Additional project information is available on the project website:

[www.charlottesville.org/meadowcreek](http://www.charlottesville.org/meadowcreek)

Information on the program that funded this project is available at The Nature Conservancy's website: [www.nature.org/vartf](http://www.nature.org/vartf)

The Nature Conservancy  
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