

Roanoke County

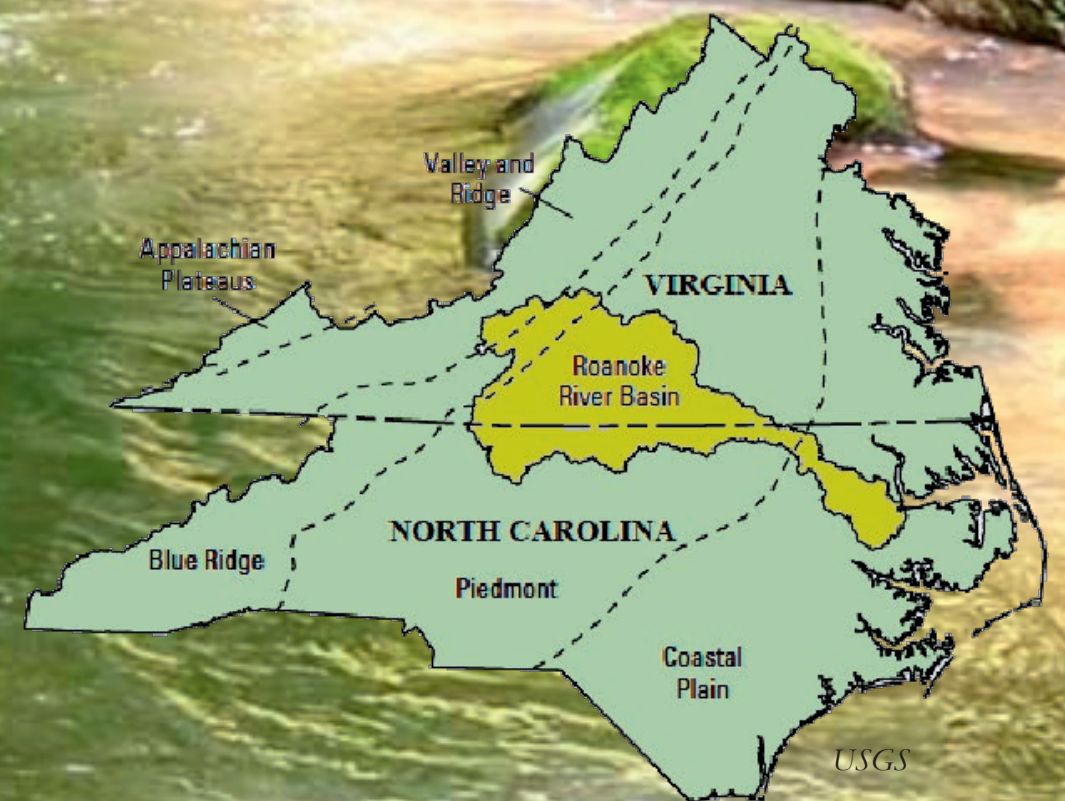
Stormwater Guide for Homeowners

May 2022

A River Runs Through It
KEEP IT CLEAN

The Mighty Roanoke River

Lifeblood of Roanoke County



The Mighty Roanoke River: Lifeblood of Roanoke County

The mighty Roanoke River is a valuable natural resource to localities across southern Virginia, including Roanoke County, and localities across North Carolina. Originating in Lafayette, VA (Montgomery County) in the Blue Ridge mountains, it travels 410 miles to its discharge point in the Albemarle Sound, and its drainage basin encompasses 9,680 square miles. In its early days, settlers used the river as a water source and for transportation. Today, it is used for the generation of electricity at Niagara Dam and for recreational fishing and boating in its several impoundments, including Smith Mountain Lake. In addition, the Roanoke River supports an abundance of plant and animal life, as it has for thousands of years.

Keeping the river free from pollution is vital to the well-being of the localities through which it travels, especially Roanoke County. WHY? To maintain the quality of life that residents have come to expect, to provide safe water-related recreational opportunities, to attract nature-loving tourists, to keep wildlife healthy, and to support vital local industries that depend upon it.

As a homeowner, there are many things that you can do to help keep the Roanoke River clean and pollution-free.

For some quick Stormwater Tips to protect this mighty river, see below:

STORMWATER TIPS For a Clean River

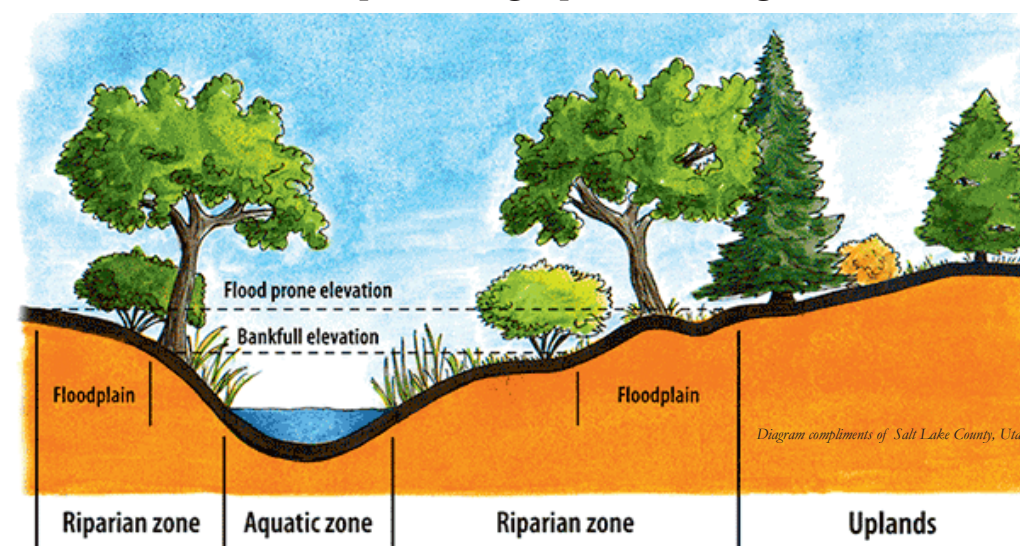
- **Contain trash & litter, including cigarette butts.**
- **Bag or compost leaves and grass clippings.**
- **Remove leaves from roadside gutters and swales.**
- **Blow leaves or grass clippings AWAY from the street, storm drains, ditches, or drainage swales.**
- **Test your soil before applying fertilizers.**
- **Apply absorbent material to oil leaks or spills; place used material in a trash can.**
- **Bag pet waste, then put it in a trash can.**
- **Cover areas of bare dirt on your property with wood mulch, or apply seed and straw.**

Using Native Plants for Shoreline Protection

If you have property that abuts a stream or a creek, it is helpful to maintain a shoreline buffer to improve the water quality in that waterway. Such buffers help to remove pollutants from stormwater, like sediment; they help to reduce the impacts of stream flooding; and, they help to prevent soil erosion.

The best way to craft an effective buffer is to plant native plants in the riparian zone - the buffer ecosystem located along the banks of streams or creeks. Native plants are less expensive than rip-rap or other stone for stabilization, they generally have deep roots that minimize erosion, and, once established, they typically require little maintenance. In addition, native plants are beautiful, and they provide habitat for butterflies, birds, and many other species!

The Virginia Department of Conservation and Recreation divides the riparian zone into four vegetative zones: (1) the **emergent vegetation** zone, which is permanently to semi-permanently flooded, and is often dominated by grasses, sedges, rushes, and herbaceous plants; (2) the **riverside thicket**, which may be seasonally- to temporarily-flooded, and is often characterized by emergent species, shrubs, and a few tree species; (3) the **saturated forest**, which has soils that are saturated to poorly-drained, and is often comprised of shrubs, herbs, and trees; and (4) the **well-drained forest**, or upland forest, which is dominated by trees, but also contains a shrub and herb layer in the understory. To assure their survival, **be sure to plant the right plants in the right zone!**



- Native plants for the emergent vegetation zone may include marsh fern (*Thelypteris palustris*), long hair sedge (*Carex crinita*), soft rush (*Juncus effusus*), and broad-leaved cattail (*Typha latifolia*). The top picture on the right is an example of tussock sedge (*Carex stricta*). It provides habitat for birds, such as rails and snipes. It is also the larval host of the Black Dash Butterfly (*Euphyes conspicua*).
- The riverside thicket zone may include natives such as swamp azalea (*Rhododendron viscosum*), Eastern rosemallow (*Hibiscus moscheutos*), blue vervain (*Verbena hastata*), and fetterbush (*Eubotrys racemosa*). The second photograph is an example of swamp milkweed (*Asclepias incarnata*). This herb's showy flowers attract butterflies, hummingbirds, and many other pollinators. It is also an important food source for the Monarch caterpillar (*Danaus plexippus*).
- Zones 3 & 4 have some overlap in native species, including red mulberry (*Morus rubra*), smooth sumac (*Rhus glabra*), spicebush (*Lindera benzoin*), sycamore (*Platanus occidentalis*), and tulip poplar (*Liriodendron tulipifera*). The third photo is an example of pawpaw (*Asimina triloba*), which is a medium-sized tree that produces fruit on which birds and small mammals feed. It is also a larval host for the Zebra Swallowtail Butterfly (*Euryides marcellus*). The final photograph is the fruit from the persimmon (*Diospyros virginiana*). This large tree can be used for erosion control, and it is the larval host for the Luna Moth (*Actias Luna*).





Clean Stormwater
Starts Where You Are

Making Progress: One Creek at a Time

WOLF CREEK STREAM RESTORATION

Background

Wolf Creek is experiencing excessive erosion partially due to the increased runoff from land development. The excessive erosion degrades water quality and wildlife habitat, and it threatens to undermine some sections of the existing greenway. Roanoke County has been working to mitigate this excessive erosion by improving portions of Wolf Creek by using “natural stream restoration” methods.

Natural Stream Restoration methods are designed to work with the natural processes that occur in streams that are experiencing increased stream flows. Some of these methods include:

- Reshaping the channel to convey stream flows without excessive deposition or erosion.
- Lowering adjacent overbanks to re-attach the stream channel to its floodplain to increase flood storage, lower velocities in the stream, and lessen erosion during high water events.
- Placing stone and log structures in the stream to redirect stream flows towards the middle of the channel and away from vulnerable stream banks.
- Using natural materials (wood/stone/vegetation) to protect stream banks.
- Planting native plants to anchor the soil and enhance wildlife habitat.

Phase 1

Phase 1 was completed in the summer of 2021. This project, located in Goode Park, improved 1,200 linear feet of the stream. Over the next several years, vegetation will establish itself, which will restore the riparian buffer. The project construction cost was \$466,000; the Commonwealth of Virginia provided 50% of the funds through the Virginia Stormwater Local Assistance Fund (SLAF). Based on the design calculations, this project is expected to reduce pollutant discharge by 180 pounds of phosphorous and 349 tons of sediment per year!



Phase 1

- Toe wood provides erosion protection and natural habitat.
- Biodegradable coconut coir matting provides slope protection until native vegetation gets established.

- Where needed, stone is used to anchor the stream bank.
- Imbricated stone is used to provide better aesthetics than traditional stone rip rap.



Existing eroding vertical banks in Wolf Creek will be addressed in Phase 2.

Phase 2

- The County recently received SLAF funding to perform Phase 2 of the Wolf Creek natural stream restoration project. Design work is underway; construction is expected by Fall 2022.
- Phase 2 will begin at Spring Grove Drive and will extend about 1,500 linear feet upstream.
- For more information, click on this link: [Wolf Creek Phase 2](#)

Pretty as a Princess But, not a Poop Fairy!

DID YOU KNOW?

POOP POLLUTES:

- ♦ Neighborhoods
- ♦ Rivers
- ♦ Streams
- ♦ Lakes
- ♦ The Beach

So, be My Queen.

SCOOP THE POOP.



Litter Prevention for A Clean River

In addition to being unsightly, litter causes a variety of issues. Not only is the environment impacted by the careless discarding of trash, but also money is wasted as taxpayers employ people to pick up the trash. As litter accumulates, it serves as a breeding ground for bacteria to develop, and it attracts vermin. Litter that makes its way to the Roanoke River and her tributaries, usually via stormwater runoff, may ensnare or be ingested by wildlife, both of which often prove fatal. When litter degrades, poisonous chemicals may be released that can impair waterways and contaminate soils and freshwater sources, affecting both animals and humans alike.

While it is important to understand the negative results of littering, it is equally important to understand the simple, easy steps to avoid littering. Here are several:

- **Keep lids on trash cans; secure from wildlife.**
- **Participate in community clean-up events.**
- **Keep a trash bag in your car, and use it!**
- **If YOU litter, change your bad habit!**
- **Train your children to be good stewards.**
- **Use recycle bins.**
- **Throw nothing into a storm drain inlet, road, creek, stream, or ditch.**



Litter prevention keeps the Mighty Roanoke River and her tributaries clear, clean, and healthy. Please, do your part by "bagging the trash."

County Adopts New Stream Buffer Requirements

On July 27, 2021, Roanoke County revised its Erosion and Sediment Control (ESC) Ordinance #022316-7 to incorporate stream buffers (25 feet wide) along perennial streams; their purpose is to reduce pollutants in stormwater runoff from construction activities in an effort to keep such pollutants from entering the County's Municipal Separate Storm Sewer (MS4) system, a.k.a., the storm drainage system.

This ordinance requires an ESC Permit for all regulated land disturbances of 2,500 square feet or more and an engineered ESC Plan for any land disturbance greater than 10,000 square feet. The ESC Plan must provide for the implementation of appropriate erosion and sediment controls, to include their proper placement, design, and maintenance. In addition, the ordinance includes site inspection and compliance/enforcement procedures for erosion and sediment control.

Although these requirements target projects that are under active construction, homeowners whose property abut a stream or creek are encouraged to incorporate stream buffers on their own land, if feasible, to protect local receiving waterways. For more information about

stream buffers and how to build them, read the article entitled *Stream Buffers: Why We Need Them* in the May 2018 issue of *A Stormwater Guide for Homeowners*, which is posted on the County's Stormwater webpage. <https://www.roanokecountyva.gov/1648/Stormwater-Public-Education-Documents>.



A well-established stream buffer provides shade, filters pollutants, and protects against shoreline erosion.



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This publication is a public service message brought to you by Roanoke County, Department of Development Services. As regulated by federal and state laws, the County's Stormwater Management Program must include public information strategies to encourage the prevention of stormwater pollution. For other publications or information on ways to prevent stormwater pollution, please call Cynthia S. Linkenhoker, Stormwater Program Manager, at 540-772-2036.

Please, Don't Feed the Wildlife. **WHY?**

- It draws unwanted critters like skunks, bears, and raccoons to your home.
- It may spread disease, such as rabies.
- It makes the critters unafraid of people.
- It potentially allows their feces to enter storm drain pipes, which increases bacteria in stormwater runoff.

