



## **TOTAL MAXIMUM DAILY LOAD (TMDL) ACTION PLAN FOR BENTHIC/SEDIMENT REDUCTION IN THE ROANOKE RIVER**

**Municipal Separate Storm Sewer System (MS4) General Permit  
No. VAR040060**



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# TOWN OF VINTON, VIRGINIA

## TMDL ACTION PLAN FOR SEDIMENT REDUCTION

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## I. EXECUTIVE SUMMARY

The Town of Vinton Total Maximum Daily Load (TMDL) Action Plan for Sediment Reduction in the Roanoke River (Sediment Action Plan) has been prepared and revised as required by the Virginia Department of Environmental Quality's (DEQ) "General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4s)" General Permit No. VAR040026. The Town is subject to the requirements of this permit, effective November 1, 2023, through October 31, 2028.

The Town's strategy is to progressively implement Best Management Practices (BMPs) to decrease the discharge of sediment from the Town's MS4 towards meeting the DEQ-assigned waste load allocation. The Town will implement BMPs over multiple state permit cycles, using an adaptive iterative approach to reduce sediment discharges.

This Sediment TMDL Action Plan has been prepared by Town Staff and approved by the Town Manager. However, nothing in this Action Plan shall be construed as binding the Town to any action until such time that the Vinton Town Council provides final approvals and/or appropriates funding for implementation.

This Plan commits to the study of, and consideration of new ordinances, but it does not commit the Vinton Town Council to adoption of any specific ordinance or requirement.

It is expected that this Sediment Action Plan will be revised from time-to-time to add and/or delete BMPs, to adjust estimated implementation dates, and to reflect new information as it becomes available. Revised Sediment Action Plans and progress regarding implementation of this Plan will be submitted to DEQ with the MS4 Permit Program Annual Report that is due to DEQ by October 1<sup>st</sup> of each year.

The following is a tabulation of the Best Management Practices (BMPs) that the Town of Vinton plans to implement in this permit cycle to decrease discharges of sediment to the maximum extent practicable, along with anticipated implementation date for each.

Some of the Town's modified BMPs will be aligned with Roanoke County's BMPs since the County has been the Town's Erosion Control (ESC) Program Administrator since February 14, 1984 and the Town's Virginia Stormwater Management Program (VSMP) Administrator since April 5, 2016. Additionally, the County operates the Spatial Database Engine (SDE) for the overall County including the Town of Vinton.

Additionally, The Erosion and stormwater Management (ESM) ordinance was adopted by Roanoke County Board of Supervisors on July 9, 2024, and became effective on August 1, 2024. The ordinance integrated the County of Roanoke's stormwater management (SWM) requirements with its erosion and sediment control (ESC) requirements to establish a

consolidated program consistent with the Virginia Erosion and Stormwater Management Program (VESMP).

On September 17, 2024, the Vinton Town adopted Roanoke County's ESM ordinance, as amended by reference, and adopted a resolution to enter a Memorandum of Understanding for Roanoke County to be the Town's Virginia Erosion and Stormwater Management Program (VESMP) Authority.

BMP # Designation	BMP Name/Task	Implementation Dates
S-1	*Lower Threshold for Compliance: Erosion and Sediment Control Program (See Roanoke County BMP # S-1)	Ongoing
S-2	Town of Vinton MS4 BMP Capital Improvement Program	Ongoing
S-3	*Enhanced Public Outreach (Sediment) – Roanoke County Public and Outreach include the Town Limits (See Roanoke County BMP # S-3)	Ongoing
S-4	*Enhanced Employee Training (Sediment)	Ongoing
S-5	*Contractor Appreciation Program (See Roanoke County BMP # S-5: VESMP Administered by Roanoke County)	Ongoing
T-11: Modified to S-6	Public Street Sweeping and Leaf Collection Programs	Ongoing

***\*Note: Roanoke County is the Town's Virginia's Erosion and Stormwater Management Program (VESMP) Authority***

***Roanoke County Public Outreach/Information Dissemination Includes the Town Residences, Business Owners, and/or Active Land Disturbers (Homeowner/Contractor/Developers)***

## II. BACKGROUND

### A. General

The Virginia Department of Environmental Quality (DEQ) routinely monitors and tests the Commonwealth's waters (streams, rivers, lakes, and estuaries) to confirm that they meet Virginia's water quality standards (9 VAC 25-260-10). According to Virginia Water Quality Standards, "*all state waters are designated for the following uses: recreational uses (e.g., swimming and boating); the propagation and growth of a balanced indigenous population of aquatic life, including game fish, which might be reasonably expected to inhabit them; wildlife; and the production of edible and marketable natural resources (e.g., fish and shellfish).*"

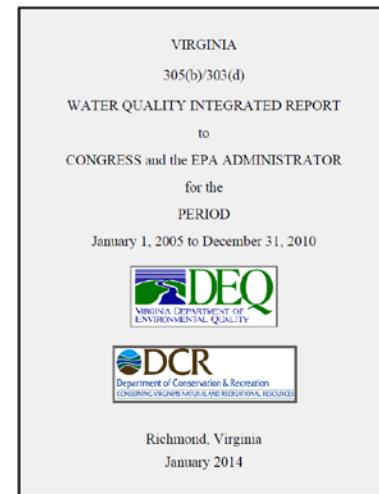
Where DEQ determines that a body of water does not meet Virginia's water quality standards, the water is termed "impaired". Impaired waters are listed on the Virginia Water Quality Assessment 305(b)/303(d) Integrated Report that is issued on even-numbered years to meet the requirements of the U.S. Clean Water Act sections 305(b) and 303(d) and the Virginia Water Quality Monitoring, Information and Restoration Act. The Town has four (4) streams, including Roanoke River.

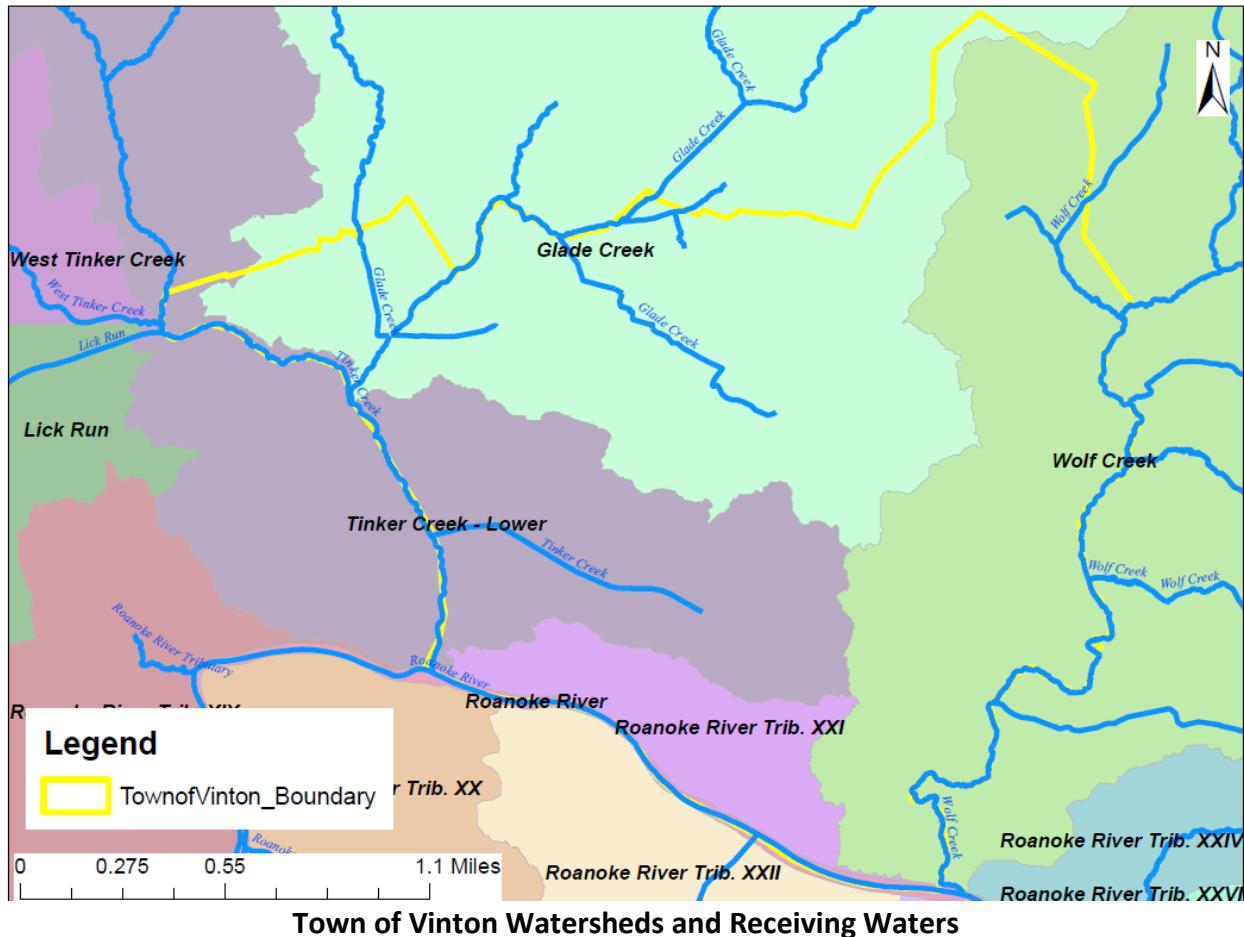
DEQ performs studies on impaired waters to determine the "total maximum daily load" that the water can assimilate and still meet water quality standards. These studies are called TMDL studies. TMDL studies assign "waste load allocations" (WLAs) to permitted point sources of pollution.

WLAs are numerical limits of a pollutant of concern that a permitted point source must meet by implementing appropriate strategies, or Best Management Practices (BMPs) using the adaptive iterative approach. BMPs may be implemented over multiple state permit cycles as long as adequate progress to reduce the pollutant of concern is documented.

The Town of Vinton has coverage under the VPDES General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4 General Permit). This MS Permit (General Permit No. VAR040026) is effective November 1, 2023, through October 31, 2028. Pursuant to this permit, all stormwater that passes through a Town-owned or Town-operated storm drain or improved channel is considered to be a point source discharge, and, therefore, subject to WLAs, where appropriate.

As part of the MS4 General Permit authorization, the Town developed and implemented a MS4 Program Plan with Best Management Practices (BMPs) to address the six Minimum Control Measures (MCMs) and the special conditions for applicable Total Maximum Daily Loads (TMDLs), as outlined in the MS4 General Permit. Implementation of these BMPs is consistent





with the provisions of an iterative MS4 Program constituting compliance with the standard of reducing pollutants to the “Maximum Extent Practicable (MEP)”.

The Roanoke River from the confluence with Mason Creek to the backwater from Niagara Dam has WLAs for sediment. Within the Town, Tinker Creek is identified as impaired by excessive sediment. Tinker Creek does not have a separate WLA, but it is considered to be “nested” within the Roanoke River WLA.

The Roanoke River does not properly support aquatic life due to the excessive sediment. Excessive sediment settles over stream bottoms, removing habitat and smothering macroinvertebrates that form the foundation of the aquatic food chain for fish.

Section II.B. of the MS4 Permit requires the Town to have an updated MS4 Program Plan that includes a specific TMDL Action Plan for pollutants allocated to the MS4 in approved TMDLs.

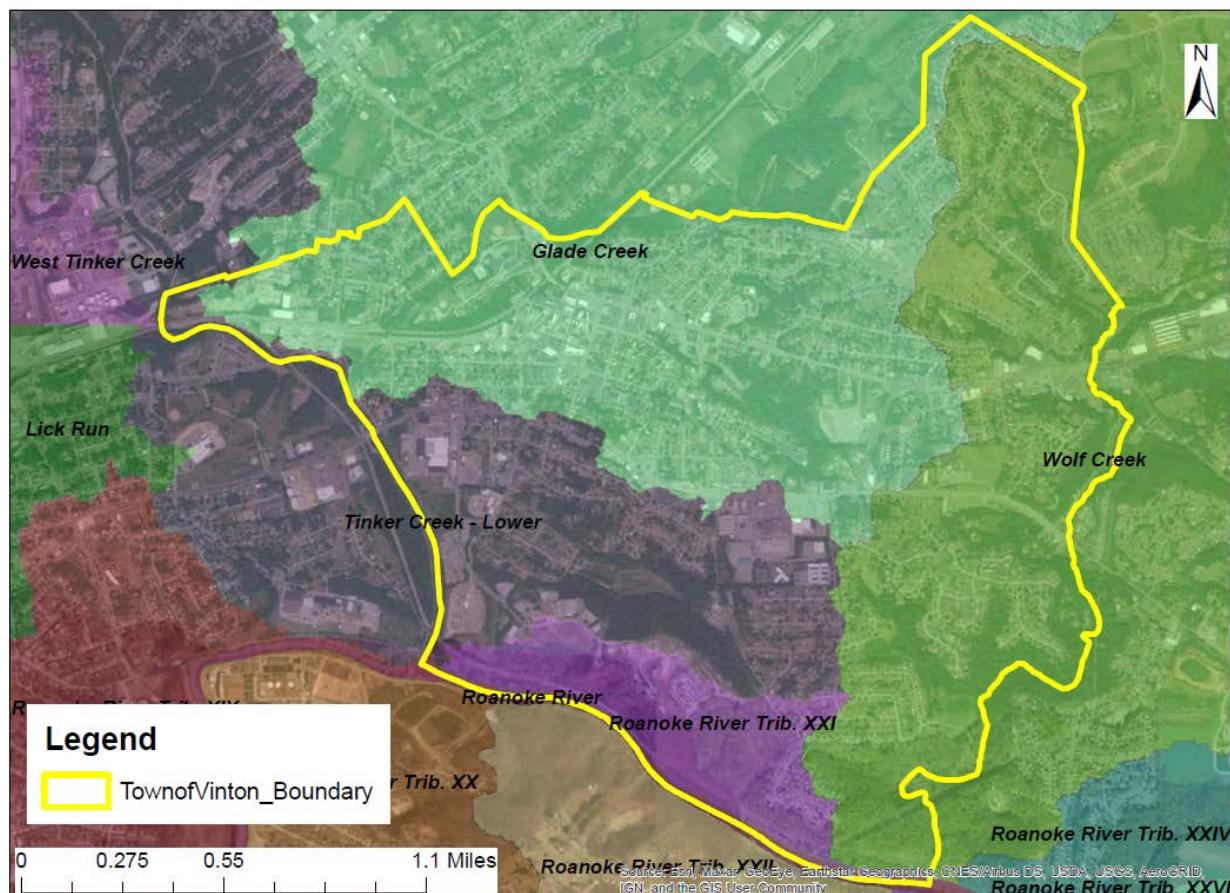


*Examples of Intolerant Benthic*

This specific TMDL Action Plan addresses reduction of sediment discharged into the Roanoke River. Although only the Roanoke River has a WLA for sediment, sediment discharges into all streams that are tributary to the Roanoke River must be decreased.

This Sediment TMDL Action Plan has been prepared by Town staff. Public input was sought through public advertisement and a public meeting. The Completed Plan was approved by the Town Manager. However, nothing in this Action Plan shall

be construed as binding the Town to any action until such time that the Vinton Town Council provides final approvals and/or appropriates funding for implementation. It is expected that this Sediment Action Plan will be revised from time-to-time to add, modify, and/or delete BMPs, to adjust estimated implementation dates, and to reflect new information as it becomes available. Progress regarding implementation of this Plan will be included in the MS4 Annual Report that is submitted to DEQ by October 1<sup>st</sup> of each year in the permit term.



### Town of Vinton Watersheds

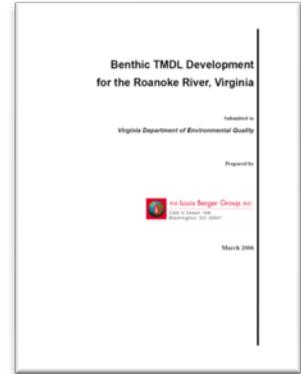
## B. Roanoke River Watershed Description

The Roanoke River originates in Montgomery County; flows through Roanoke County, Salem City, Roanoke City, and Town of Vinton; then flows through Roanoke County again; and continues into Bedford and Franklin Counties and Smith Mountain Lake.

The Town of Vinton borders the Roanoke River for 1.6 miles, and Vinton's entire 3.2 square mile area flows into the Roanoke River. The estimated Roanoke River watershed drainage area within the Town is 148 acres.

## C. Impairment and TMDL Wasteload Allocation

The Roanoke River and Tinker Creek were listed as "impaired" because they did not meet the Virginia water quality standard for wildlife habitat as measured using the modified Rapid Bioassessment Protocols (EPA, 1999). Streams are required to support the propagation and growth of a balanced, indigenous population of aquatic life, including game fish, which might reasonably be expected to inhabit them. Sediment was identified as the probable stressor pollutant that is adversely impacting macroinvertebrates (benthic organisms).



A TMDL study was performed by Virginia DEQ and approved by U.S. EPA on May 10, 2006 and the Virginia State Water Control Board on September 7, 2006. This study determined that the Roanoke River has a "moderately impaired benthic community from the confluence with Mason Creek to the backwater from Niagara Dam."

The Town was assigned a WLA of 119.3 tons of sediment/year.

## D. Roanoke River Bacteria and Sediment TMDL Implementation Plan, Part 1

DEQ released the draft Roanoke River Bacteria and Sediment TMDL Implementation Plan, Part 1 on May 1, 2015 for public comment. Town Staff attended meetings and provided comment during the development of this Implementation Plan. While the Town supports the goals of the Implementation Plan, it has concerns about the technical feasibility of the Implementation Plan's proposed BMPs and their related costs.

## E. Significant Sources of Sediment Discharging into MS4

No specific localized significant sources of sediment were determined by the TMDL study. The MS4 area is characterized by steep slopes with flashy streams and silty and clayey soils. The most likely significant sources of anthropogenic sediment are increased erosion from developed lands due to conversion from forest to lawns and stream bank erosion during major storms.

As stated above, as of September 17, 2024, Roanoke County is the Town's VESMP, therefore, the Town's recognized that Roanoke County has chosen to focus its efforts on decreasing erosion from active construction sites by adopting a lower threshold for compliance than that used in Virginia's Erosion and Sediment Control Program.

The County's/Town's Public Education and Outreach efforts that include the Town Limits and the Town's Employee Training Program have emphasized sediment as one of the Town's primary pollutants of concern.

### III. BMPs DESIGNED TO REDUCE SEDIMENT

The following BMPs have been specifically identified to reduce discharges of sediment from the Town's MS4. To the extent that they reduce sediment discharges, the BMPs listed below also reduce the discharge of E.coli that adheres to sediment surfaces. Note that the highlighted categories shown below align with the requirements outlined in Sections II. B.4 and II.B.6 of the MS4 Permit.

Additionally, the Erosion and stormwater Management (ESM) ordinance was adopted by Roanoke County Board of Supervisors on July 9, 2024, and became effective on August 1, 2024. The ordinance integrated the County of Roanoke's stormwater management (SWM) requirements with its erosion and sediment control (ESC) requirements to establish a consolidated program consistent with the Virginia Erosion and Stormwater Management Program (VESMP).

On September 17, 2024, the Vinton Town adopted Roanoke County's ESM ordinance, as amended by reference, and adopted a resolution to enter a Memorandum of Understanding for Roanoke County to be the Town's Virginia Erosion and Stormwater Management Program (VESMP) Authority.

#### A. Land disturbance thresholds lower than Virginia's regulatory requirements for erosion and sediment control and post-development stormwater management

##### BMP S-1: Lower Threshold of Compliance: Erosion & Sediment Control Program

Roanoke County's Erosion and Sediment Control Program regulates land-disturbing activities of 2,500 square feet or more, which is less than the state's threshold of 10,000 square feet or more. This lower threshold has been implemented due to the County's (including Town of Vinton) steep terrain and highly erodible clay soils.

Roanoke County permits and inspects approximately 129 land disturbing activities, which include the Town Limits, per year that each disturb less than 10,000 square feet. Cumulatively, these activities disturb approximately 18 acres per year.

The amount of erosion that occurs on an uncontrolled construction site and the amount of sediment that subsequently leaves such sites is highly variable. A review of several references suggests values between 20 - 200 tons/acre/year of sediment discharges from uncontrolled construction sites. Based on the County's fairly steep slopes and erodible soils, it is assumed that uncontrolled construction sites discharge about 120 tons/acre/year. However, in 2022, the County revised this estimate to 12 tons/acre/year using the Chesapeake Bay Program guidance as described in *Recommendations of the Expert Panel to Define Removal Rates for Erosion and Sediment Control Practices (2014)*.

Erosion and sediment control devices are not 100% effective; however, per the Chesapeake Bay Program, a properly designed and installed set of controls should retain at least 85% of sediment on the construction site. As previously noted, Roanoke County permits and inspects approximately 129 land disturbing activities per year that each disturb less than 10,000 square feet. Cumulatively, these activities disturb approximately 18 acres per year.

Therefore, Roanoke County's lower threshold for compliance keeps about 184 tons/year of sediment out of local waterways (12 tons/acre/year \* 85% \*18 acre = 184 tons/year). 1,680 tons/year).

## B. BMPs Approved by the Chesapeake Bay Program (MS4 Permit Section II.B.6.a.(2))

### BMP S-2: BMP Capital Improvement Program

The initial Capital Improvement Project was identified in March 2021 for eroded streambank section of Glade Creek. Additionally, a consultant was hired in May 2021. Two eroded outfalls have been identified, inspected and analyzed, and the report dated June 7, 2021, was completed. The Town's consultant recommended that the most cost-effective BMP to reduce sediment discharged from the Town's MS4 would be to stabilize these eroded outfalls. The consultant's recommendation was supported by the reported experiences of other localities.

Since the Town believes that stream stabilization is one of the most cost-effective means to lower sediment loads in the Roanoke River, the Town stabilized a section of an eroded streambank along Glade Creek. Additionally, based on the consultant's recommendation of the two eroded drainage sites, a streambank stabilization project has been submitted for the Virginia Stormwater Local Assistance Fund (SLAF). This program also assumes that 50% of the cost will be provided through the Virginia Stormwater Local Assistance Fund (SLAF). Thus, success for this BMP will be measured by the continued funding and implementation of one capital BMP project about every three years.



- 100 linear feet eroded streambank along Glade Creek was stabilized as of December 8, 2020.
- Two eroded drainage sites were inspected and analyzed on June 7, 2021; Woodland Outfall and Hargis Outfall – A VA SLAF grant application was submitted for Woodland Place on July 27, 2021. with Town's fund commitment resolution adopted on July 20, 2021.
- Woodland SLAF grant application was approved on December 22, 2021, and the 50% required matching was provided with the Town committed CIP.
- The Project was completed by end of June 2023 with final native planting completed by end of April 2024.

**Table 1. Total Annual Sediment Loads**

Total Annual Sediment Loads			
	Existing Reach Length (ft)	Annual Sediment Load (ton/yr)	Sediment Load (ton/ft/yr)
Woodland Outfall	685	952	1.39
<b>TOTALS</b>	<b>685</b>	<b>952</b>	<b>1.39</b>

**Table 2. Total Pollutant Load Reductions via Stream Restoration Project (lbs/year)**

Pollutant Load Reductions			
	Total Phosphorus Load Reduction (lb/yr)	Total Nitrogen Load Reduction (lb/yr)	Total Suspended Solids Load Reduction (lb/yr)
Protocol 1	85% RE 849.4	85% RE 1,925.4	85% RE 1,617,971.8
Protocol 2	---	4.3	---
<b>TOTALS</b>	<b>849</b>	<b>1,930</b>	<b>1,617,972</b>

However, it should be recognized that the Town, through its MS4 permit, is only responsible for point-source discharges from its improved storm drainage system (i.e., pipes, ditches, and swales). The Town is not responsible for streambank erosion within streams, as they are not a component of the Town's MS4 system. Currently, the Town's CIP indicates planned funding for one capital BMP project and this CIP program also assumes that 50% of the cost will be provided through the Virginia Stormwater Local Assistance Fund (SLAF) and/or Community Flood Preparedness Fund (CFPF).

Additionally, Roanoke the County has been addressing the reduction of sediment loads through the construction of stream restoration projects. The County's Stream Restoration Projects as shown in the table below, are the streams that are located upstream of the Town Limits, which might have and will continue to reduce sediment in the Town's streams that are located down streams. City of Roanoke is undertaking Glade Creek Stream Restoration Project which will address the sites identified as Glade\_V08 and Glade\_09 on the map as shown above.

#### **Roanoke County's Stream Restoration Projects**

<b>Year Completed (or anticipated completion)</b>	<b>Stream Name</b>	<b>Project Location</b>	<b>Tons of Sediment per Year Kept out of Stream by Project*</b>
2016	Glade Creek	Vinyard Park	831
2019	Glade Creek	Vinyard Park	378.2
2021	Wolf Creek	Goode Park	348

*\*Values determined based on field studies using a state approved methodology. These calculations were submitted and reviewed by the Virginia Department of Environmental Quality as a part of each project's SLAF grant application.*

#### **C. Outreach strategy to enhance the public's education (including employees) on methods to eliminate and reduce discharges of the pollutants of concern**

\*BMP S-3: Enhanced Public Outreach (Sediment)

**\*Certain components of the BMPS as listed below are implemented with continued coordination with Roanoke County Stormwater Division**

In accordance with the MS4 Permit requirements, the Town's Public Education Program targets three high-priority water quality issues that contribute to the degradation of stormwater runoff and receiving waters: *excess bacteria, excess sediment, and excess nutrients*. The following BMPs, as outlined in the Town's MS4 Program Plan, address these issues:

**BMP 1-1. Stormwater Educational Resources** - The Town maintains a comprehensive listing of existing stormwater-related agencies and organizations along with pertinent educational programs and resources, which is made available to the public on the Town's stormwater website.

**BMP 1-2. Coordination in the Development and Distribution of Roanoke County Stormwater Newsletter** - Continue to coordinate with Roanoke County Stormwater Division with the development and distribution of Roanoke County Stormwater Informational Mailer to Town of Vinton Residents and Businesses.

**BMP 1-3. Stream Monitoring and Education** - On behalf of Town of Vinton, Clean Valley Council provides stream monitoring and informational stream seminars for Town of Vinton students and residents.

**BMP 1-4. Stormwater Education Program for Schoolchildren** - Through the Clean Valley Council, Town of Vinton implements a stormwater education program for its schoolchildren. Different programs target appropriate grade levels.

**BMP 1-5. Stormwater Public Awareness Programs** - The Town of Vinton implements a Stormwater Public Awareness Program by coordinating with Roanoke County Stormwater Division in the distribution of stormwater merchandise, public service announcements, and other high visibility educational media.

**BMP 1-6. Town of Vinton Stormwater Webpage** - Town of Vinton maintains a Stormwater webpage as a means to inform the public on the various ways to reduce stormwater pollution, placing priority on reducing impacts to impaired waters and addressing other local water pollution concerns.

**\*BMP 1-7. Targeted Education Program** - This BMP is a joint project with the County of Roanoke. The annual mailing and/or distribution of the educational materials for this targeted education program by the County of Roanoke included the Town of Vinton households, businesses, and contractors involved in land-disturbing activities.

**BMP 2-3: MS4 Program and Stormwater Pollution Prevention Website** - Town of Vinton maintains a webpage that is dedicated to the MS4 Program and Stormwater Pollution Prevention.

The aforementioned BMPs have been or will be revised, where appropriate, to include messages from the Sediment TMDL Action Plan. This effort will also extend to training materials developed for Town employees. See **BMP S-4: Enhanced Employee Training (Sediment)**.

High-Priority Water Quality Issue	Target Audiences	Means to Determine Audience Size	Estimated Audience Size	Overall Messages	Means to Deliver Messages	Rationale
#1 Sediment	Car Washing/Detail Facilities	Business Licenses/Google	3	<ul style="list-style-type: none"> <li>• All wash water to sanitary sewer.</li> <li>• Potential damage caused to streams by wash water.</li> </ul>	<ul style="list-style-type: none"> <li>• Mailer, annually</li> <li>• PSAs on local cable station</li> </ul>	Commercial car wash facilities can contribute significant sediment if wash water is discharged into the Town's MS4.
	Car Dealers	Business Licenses/Google	2	<ul style="list-style-type: none"> <li>• All wash water to sanitary sewer.</li> <li>• Potential damage caused to streams by wash water.</li> </ul>	<ul style="list-style-type: none"> <li>• Mailer, annually</li> <li>• PSAs on local cable station</li> </ul>	Vehicle washing/detailing can contribute significant sediment if wash water is discharged into the Town's MS4, which drains, untreated, to local streams. Residential car washing is specifically allowed; but, it still may contribute significant sediment if wash water is not properly handled.
	Auto Body Shops	Business Licenses/Google	1	<ul style="list-style-type: none"> <li>• All wash water to sanitary sewer.</li> <li>• Potential damage caused to streams by wash water.</li> </ul>	<ul style="list-style-type: none"> <li>• Mailer, annually</li> <li>• PSAs on local cable station</li> </ul>	
	Homeowners	Tax Records	2,756	<ul style="list-style-type: none"> <li>• Potential damage caused to streams by wash water.</li> <li>• Direct wash water to grass area for filtration and infiltration.</li> <li>• Never allow wash water to flow into street or storm drains.</li> </ul>	<ul style="list-style-type: none"> <li>• County publication sent annually to homeowners</li> <li>• PSAs on local cable station</li> <li>• Handouts at local environmental events, 4 per year minimum</li> </ul>	
	Contractors Involved in Land-Disturbing Activities	Business Licenses	15	<ul style="list-style-type: none"> <li>• Damage caused to streams by sediments.</li> <li>• Healthy fish populations require clear stream bottoms.</li> <li>• Silt fence is not enough.</li> <li>• Limit disturbed areas.</li> <li>• Stabilize as quickly as possible.</li> </ul>	<ul style="list-style-type: none"> <li>• Mailer, annually</li> <li>• Brochure given to land-disturbance permittee when permit is issued</li> <li>• Brochure given with enforcement actions</li> </ul>	Erosion and sediment control is required by regulations; however, more effective implementation may occur with additional education.

## BMP S-4: Enhanced Employee Training (Sediment)

In accordance with the MS4 Permit requirements, the Town's Public Education Program targets three high-priority water quality issues that contribute to the degradation of stormwater runoff and receiving waters: *excess bacteria, excess sediment, and excess nutrients*. Thus, the Town's employee training program has been enhanced to recognize sediment as a "high-priority water quality issue." Training courses include the following, as outlined in the MS4 Program Plan:

- **Recognition and Reporting Illicit Discharges** - all applicable field personnel receive training on a biennial basis in the recognition and reporting of illicit discharges. Among many potential illicit discharges, sediment and bacteria are identified as potential pollutants in this training.
- **Good Housekeeping and Pollution Prevention Practices** - all employees that perform road, street, and parking lot maintenance, or are employed in and around maintenance and public works facilities and at greenway/trail facilities receive biennial training in good housekeeping and pollution prevention practices. Sediment and bacteria are identified as potential pollutants in this training.

***NOTE: All employees who are required to take Good Housekeeping and Pollution Prevention Practices are also required to read and follow the Town's Standard Operating Procedures (SOPs). These procedures were designed to eliminate or minimize pollutant discharges in stormwater.***

- **Contractor Oversight for Environmental Compliance** – all supervisors who oversee Contractors that perform work for the Town or employees involved in developing contracts for Contractors will take this training on a biennial basis. The training explains that all Contractors must have their own written good housekeeping and pollution prevention program, or they must comply with the Town's written policies and SOPs. This training discusses the significance of soil erosion from construction sites, the potential harm to receiving waters, and the need to use effective erosion and sediment controls. It also discusses the need to carefully place and maintain portable toilets onsite to ensure bacterial wastes do not enter stormwater runoff. Town employees who oversee Contractors working for the Town must ensure compliance by Contractors.
- **Hazardous Materials (HAZ-MAT) Training** – although not directly related to sediment reduction, Roanoke County currently maintains basic hazardous materials training for its employees including volunteers, in Fire and Rescue. As of July 1, 2019, the Town's EMS services are provided by Roanoke County. All career (paid) staff are certified to HAZ-MAT Operations. HAZ-MAT certification does not expire from the Virginia Department of Fire Programs; however, all career personnel receive annual, internal training on this topic as

part of their career development training. The Town's Public Works employees receive their training through VA Risk Sharing.

The aforementioned BMPs (as outlined in **BMP S-3**) and the Town's Water-Quality Related SOPs have been or will be revised, where appropriate, to include messages from the Sediment TMDL Action Plan.

\*BMP S-5: Contractor Appreciation Program

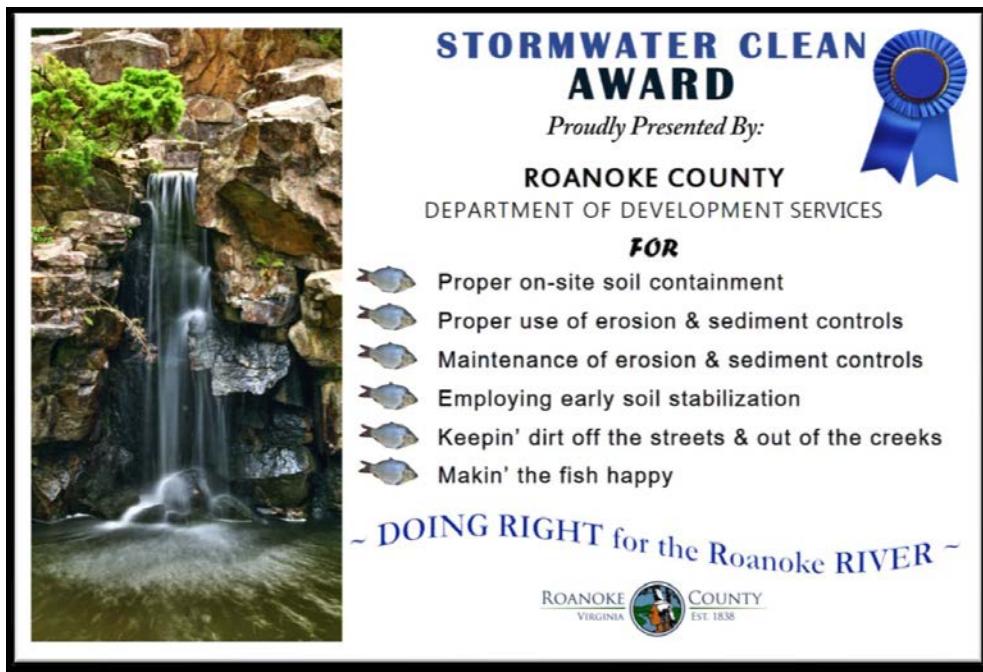
**\* This BMP has and will continue to be implemented by Roanoke County since the County is the Town's ESC and VSMP Administrator.**

In accordance with the MS4 Permit requirements, the Town's Public Education Program targets three high-priority water quality issues that contribute to the degradation of stormwater runoff and receiving waters: *excess bacteria, excess sediment, and excess nutrients*. Roanoke County has implemented the Contractor Appreciation Program to recognize those contractors that are proactive in implementing proper erosion and sediment controls and who are employing stormwater management measures to "keep their dirt on their project and out of the creeks."

As previously mentioned, erosion and sediment control devices are not 100% effective; however, a properly-designed and properly-installed set of controls will likely retain at least 70% of sediment on the construction site.

For more information on this well-received program, visit the Roanoke's County's stormwater website at:

<https://www.roanokecountyva.gov/1780/Stormwater-Contractor-Appreciation>



## D. OTHER BMPs

### BMP S-6: Public Street Sweeping and Leaf Collection Program

The street sweeping program offers the greatest benefit to capture roadway contaminants, debris, and sediment before entering the Town's storm sewer collection system.

The street sweeping program to target weekly sweeping of all primary streets will return the greatest benefit of collecting and thus preventing roadway contaminants, sediment and debris, from entering the stormwater collection system. Other streets are swept bi-weekly, every third week, every fourth week, and on as needed basis (once a while) for one street.

The leaf collection program, which is normally done in the months of November and December, also minimizes leaf and yard waste from entering the stormwater collection system.

Additionally, with the street sweeper being configured to vacuum debris from drainage inlet continues to optimize both the use and effectiveness of the Town single street sweeper and achieves desired results. Success of this BMP is measured mileage of streets swept; amount of debris vacuumed from drainage inlets; amount of leaf collected; and total expanses of street sweeping and leaf collection programs.

The Town will continue to maintain the street sweeping and the leaf collection program. This program of collections of roadway contaminants, sediment, debris, leaf, yard waste, prevents them from entering the Town's storm sewer collection systems, and is of aesthetic benefit.

The leaf collection program minimizes leaf and yard debris that contaminated with pet waste (bacteria) from entering storm sewer system.

#### Other Roanoke County/Town of Vinton Coordinated BMPs

The Town of Vinton and Roanoke County recognize that addressing water quality in post construction runoff is an important way to prevent deposition of sediment and other pollutants into our streams and river. As noted earlier, Roanoke County is the Town's ESC Administrator since February 14, 1984 and the Town's VSMP Administrator since June 1, 2016, therefore the following BMPs in Roanoke County's MCM-5: Post Construction Stormwater Management for New Development and Development on Prior-Developed Lands help to address these concerns:

**BMP 5-1: Stormwater Management Legal Authorities** - Roanoke County utilizes certain legal authorities to comply with Virginia's Stormwater Management Act and Stormwater Management Program (VSMP) Regulations.

**BMP 5-2: Post-Construction Inspections for Existing Stormwater Management Facilities** - Roanoke County maintains and implements written inspection and maintenance procedures for post-construction stormwater management facilities (SWMFs) that discharge to the MS4 to address the long-term operation and maintenance requirements of these facilities.

**BMP 5-3: Stormwater Management Facility Tracking** - Roanoke County maintains and implements a GIS-based system to track stormwater management facilities to address the long-term operation and maintenance requirements of these facilities.

**BMP 5-4: Strategies to Encourage Long-Term Maintenance of Stormwater Control Measures on Single Family Residential Lots** - Roanoke County implements strategies to promote the long-term maintenance of stormwater control measures that are designed to treat stormwater runoff solely from the individual single-family residential lot. These strategies are used in lieu of recorded maintenance agreements and post-construction inspections by the County.

**BMP 5-5: Storm Sewer System Maintenance** - Roanoke County implements a program to maintain and repair its storm sewer system within its MS4 program area. Such maintenance helps to keep the system working as designed, which minimizes the risk of surcharging and overflows; it also helps to minimize street flooding associated with clogged inlet structures and conveyances.

While these BMPs have been created to address the MS4 Permit requirements, they are also effective in helping the Town achieves its TMDL goals for sediment: reducing excessive stream bank erosion and preventing the deposition of sediment and other pollutants into local streams and rivers.

## IV. ANNUAL REPORTING REQUIREMENTS

The MS4 Annual Report will include a summary of actions conducted to implement this Sediment TMDL Action Plan during the reporting period of July 1st - June 30th for each year of the permit term. In accordance with the MS4 Permit, the report is submitted to DEQ by October 1st of each year.

## V. EVALUATION OF THE TMDL ACTION PLAN

The *Total Maximum Daily Load (TMDL) Action Plan for Benthic Reduction (Sediment) in the Roanoke River* was originally completed in July 2015 and submitted to DEQ with the corresponding MS4 Annual Report. It was last updated in September 2022.

To satisfy the requirements of Section II.B.2.a.(1) of the current MS4 Permit, the Town hereby provides “an evaluation of the results achieved by the previous action plan” named above.

The Town chose to reduce sediment loads by implementing the following three permit strategies:

1. One or more BMPs approved by the Chesapeake Bay Program (Permit Section II.B.6.a.(2))

• **BMP S-2: Town of Vinton MS4 BMP Capital Improvement Program.** As described in Part III of this report, the Town has been addressing the reduction of sediment loads through the repair of eroded streambank and construction of stream restoration projects as part of its Capital Improvement Program. **This program has proven to be quite effective, as evidenced by the completion of the Woodland Place Stream Restoration Project in 2024, an estimated 1.39 tons/year of sediment have been kept out of local streams.**

*\*Values determined based on field studies using a state approved methodology. These calculations were submitted and reviewed by the Virginia Department of Environmental Quality as a part of each project's SLAF grant application.*

2. Land disturbance thresholds lower than Virginia's regulatory requirements for erosion and sediment control and post development stormwater management. (Permit Section II.B.6.a.(3))

• **BMP S-1: Lower Threshold of Compliance: Erosion & Sediment Control Program** As described in Part III of this report, the County regulates land-disturbing activities of 2,500 square feet or more, which is less than the state's threshold of 10,000 square feet or more. This lower threshold has been implemented due to the County's steep terrain and highly erodible clay soils. Roanoke County's lower threshold for compliance is effective in that it keeps about **184 tons/year** of sediment out of local waterways (12 tons/acre/year \* 85% \*18 acre = 184 tons/year).

3. An outreach strategy to enhance the public's education (including employees) on methods to eliminate and reduce discharges of the pollutant. (Permit Section II.B.4.g.)

- The Town's/County's Public Education and Outreach efforts and its Employee Training Program have emphasized sediment as one of the Town's primary pollutants of concern. The Town in coordination with the County, specifically implements two Best Management Practices (BMPs) to enhance the public's education and employee's education on methods to eliminate and reduce discharges of sediment:
  - BMP S-3: Enhanced Public Outreach (Sediment) - The County developed a host of publications with a variety of sediment reduction methods aimed at various target audiences. These materials are directly mailed on an annual basis and reach 100% of the target audiences. They include but are not limited to the following:
    - "It's Just Dirt" newsletter and brochure describe the harm to receiving waters from excess sediment from construction sites, explains permit requirements, and provides techniques to "keep the dirt on the project."
    - "Stormwater Guide for Homeowners" provides messages about reducing erosion and sedimentation, minimizing PCBs, reducing stormwater pollution at home, refraining from feeding wildlife, creating stream buffers, and more.
    - Landscaping Fact Sheet reminds landscapers that grass/shrub clippings, leaves, sediment, fertilizers, etc. cause pollution to receiving waters; encourages the use of BMPs to minimize lawn debris, reuse stormwater, install erosion controls, and employ alternative lawn care practices.

The Town and County find these materials to be effective, and it often gets positive feedback from citizens or businesses who have received them.

- BMP S-4: Enhanced Employee Training (Sediment) - As outlined on page 12, the County revised its various training materials, such as SWPPP training and SOPs for Pollution Prevention and Good Housekeeping, to educate employees on ways to eliminate and reduce discharges of sediment. These materials are effective in increasing awareness and knowledge among staff.
- BMP S-5: Contractor Appreciation Program - Roanoke County recognizes those contractors that are proactive in implementing erosion and sediment controls and employing stormwater management measures to "keep their dirt on their project." This program is very effective in raising awareness among contractors to 'do the right thing' by keeping their dirt on their projects and out of the local receiving waters. It gives staff an opportunity to work with the Contractors in a positive way and provides the recipient contractors with positive and free publicity

for their projects. By praising those that do it well, the County hopes to encourage other contractors to strive to do the same.

## **Conclusion**

Overall, the Town agree with the County that the selected strategies to be effective for conducting the necessary education and training and in achieving actual reductions in sediment loads to its local waterways.

As noted on page 7, the TMDL study performed and approved by U.S. EPA and the Virginia State Water Control Board in 2006 determined that the Roanoke River has a “moderately impaired benthic community from the confluence with Mason Creek to the backwater from Niagara Dam.” As a result of this study, Roanoke County was assigned a Waste Load Allocation (WLA) of 1,680 tons of sediment/year.

In reviewing the sediment amounts withheld from strategies 1 and 2 above, the Town and the County keeps an estimated 1,968 tons of sediment/year (1,784 tons/year + 184 tons/year) out of its local streams that feed the Roanoke River. This demonstrates good progress toward achieving the WLA. While there is no quantitative measure for the outreach strategy described above in item #3, it serves to educate employees and citizens on methods to further eliminate and reduce discharges of sediment to the area waterways.