



# TOWN OF VINTON

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VINTON, VIRGINIA 24179

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ANITA MCMILLAN  
PLANNING AND ZONING DIRECTOR

September 28, 2012

Mr. J. Douglas Fritz, MS4 Program Manager  
Virginia Department of Conservation and Recreation  
203 Governor Street  
Richmond, VA 23219-2010

**Re: Town of Vinton VSMP MS4 Permit # VAR040026  
Year Four Annual Report – July 1, 2011 through June 30, 2012**

Dear Mr. Fritz:

Attached to this letter, please find a copy of the Town of Vinton's Year Four Annual Report for the period of July 1, 2011, through June 30, 2012, for our MS4 Permit No. VAR040026. Included with this document is a CD containing all of the supporting materials for the Year Four Annual Report.

Vinton encourages involvement of its residents, property and business owners, and the local development community in the implementation of its stormwater management program. In cooperation with Roanoke County, City of Roanoke, and Clean Valley Council, the Town continues to actively place special emphasis on providing education on the stormwater program to school-age children and the general public.

The annual report and supporting materials have also been sent to you and Mr. Mason Harper in digital form via these electronic mail addresses: [StormBMP@dcr.virginia.gov](mailto:StormBMP@dcr.virginia.gov), [doug.fritz@dcr.virginia.gov](mailto:doug.fritz@dcr.virginia.gov) and [mason.harper@dcr.virginia.gov](mailto:mason.harper@dcr.virginia.gov).

I really appreciate your assistance with this program. Should you have any questions pertaining to this submittal, please contact me at (540) 983-0601 or by email at [amcmillan@vintonva.gov](mailto:amcmillan@vintonva.gov).

Sincerely,

A handwritten signature in blue ink that reads "Anita J. McMillan".

Anita J. McMillan  
Planning and Zoning Director

c: Christopher Lawrence, Town Manager  
Gary Woodson, Public Works Director

**TOWN OF VINTON, VIRGINIA**  
**Virginia Stormwater Management Program (VSMP)**  
**General Permit for Discharges of Stormwater from**  
**Small Municipal Separate Storm Sewer System (MS4)**  
**Annual Report**  
**Year Four**

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**Town of Vinton, Virginia**

**MS4 Registration # VAR040026**

**REPORTING PERIOD OF**  
**JULY 1, 2011 – JUNE 30, 2012**

**October 1, 2012**

**Prepared By:**  
**Department of Planning and Zoning**  
**311 South Pollard Street**  
**Vinton, VA 24179**

Submitted to the Virginia Department of Conservation and Recreation in  
compliance with MS4 Permit Number VAR040026

**Vinton Town Council**

**Bradley E. Grose, Mayor**

**William Wesley Nance, Vice Mayor**

**Robert R. Altice**

**Matthew S. Hare**

**I. Douglas Adams, Jr.**

**Christopher S. Lawrence**

Town Manager/Chief Executive Officer  
311 South Pollard Street  
Vinton, VA 24179  
540-983-0607, [clawrence@vintonva.gov](mailto:clawrence@vintonva.gov)

**Report prepared and compiled by:**

The Town of Vinton Department of Planning and Zoning  
The Town of Vinton Department of Public Works

Anita J. McMillan, Planning and Zoning Director  
MS4 Duly Authorized Representative  
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**Contributing Agencies and Organizations:**

Clean Valley Council  
The City of Roanoke  
The County of Roanoke  
Roanoke Valley Resource Authority (RVRA)  
Roanoke Valley Television Station (RVTV)

**Signed Certification in Accordance with 4VAC50-60-370:**

*"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations."*

Print Name: Christopher S. Lawrence

Title: Town Manager

Signature: 

Date: September 28, 2012



## Executive Summary

The Town of Vinton finds that the uncontrolled and polluted stormwater runoff to the Town's storm sewer system has an adverse impact on the water quality of the receiving waters. When left uncontrolled, this water pollution can result in the destruction of fish, wildlife, and aquatic life habitat; a loss in aesthetic value; and it threatens public health by contaminating food, drinking water supplies, and recreational waterways.

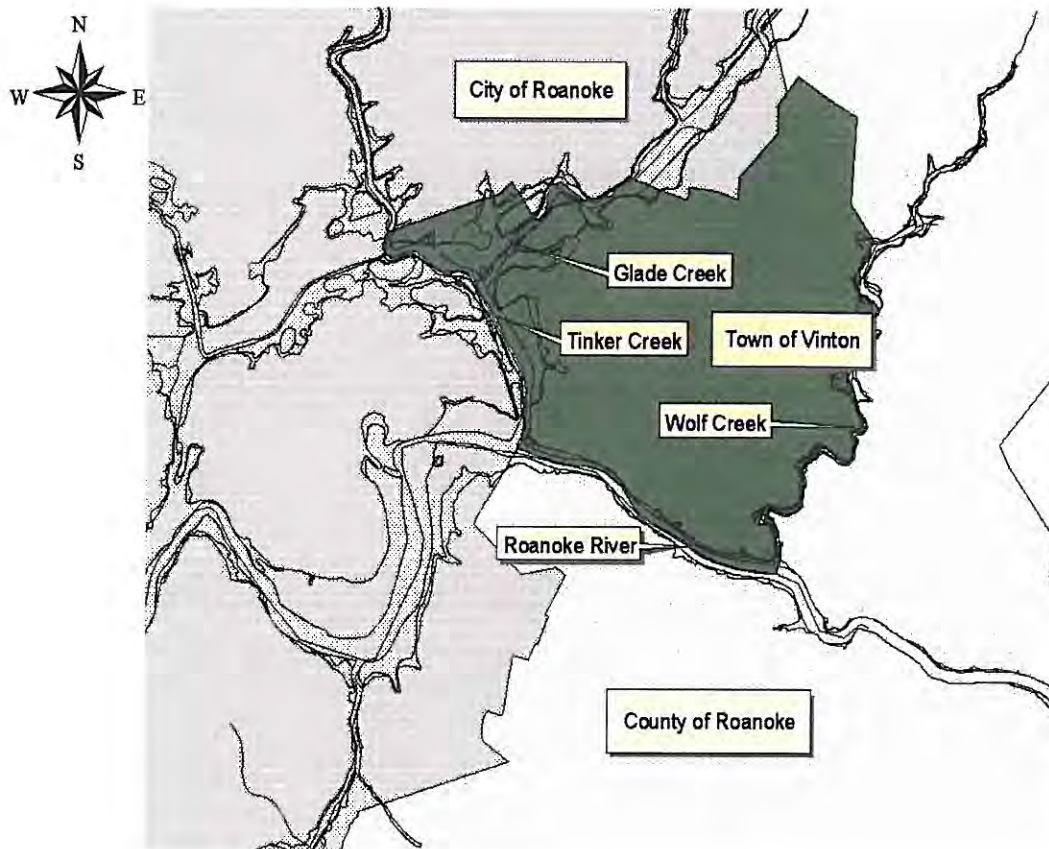
The Town is committed to continuing the development, implementation, and enforcement of its Municipal Separate Storm Sewer System (MS4) Program that is designed to reduce the discharge of pollutants from the regulated MS4 and to addressing impaired waters that the MS4 discharges into to the maximum extent practicable (MEP). The main goal of this program is to protect water quality, and to improve waters into which the regulated small MS4 discharges. This program is also designed to meet the appropriate water quality requirements of the Clean Water Act (CWA), Virginia Stormwater Management Act, and associated regulations.

The Town's commitment to establish and sustain a comprehensive program that protects the Town's stormwater quality has been made through strong regional cooperation for the implementation of the minimum control measures practices. The Town intends to continue its participation in regional efforts to educate the general public and developers. These efforts are in cooperation with Roanoke County and City of Roanoke, and other regional organizations such as the Clean Valley Council (CVC), Roanoke Valley Resource Authority (RVRA), Roanoke Valley Television (RVTV) Channel 3, Roanoke Valley Alleghany Regional Commission (RVARC), Upper Roanoke River Roundtable (URRR), Roanoke Valley Greenway Commission, Roanoke Valley Urban Forestry Council (RVUFC), Western Virginia Water Authority, and Western Virginia Land Trust. Strong regional cooperation is instrumental in minimizing pollutants in the Roanoke River, creeks and streams, and providing Roanoke Valley citizens with clean water now and into the future.

Since 2003, the Town has and continues to develop a comprehensive plan to meet the conditions of the MS4 permit to the maximum extent practicable as outlined in six minimum control measures (MCMs) practices: Public education and outreach on stormwater impacts; Public participation and involvement; Illicit discharge detection and elimination; Construction site stormwater runoff control; Post-construction stormwater management in new development and redevelopment; and Pollution prevention and good housekeeping for municipal operations. Numerous best management practices (BMPs) within each of the MCM are being implemented by the Town. This report entails MCMs and associated BMPs for reporting period of July 1, 2011 through June 30, 2012, the fourth annual report for the Town's MS4 permit.

## The Town of Vinton's Physically Interconnected MS4's to which It Discharges

The Town is located in Roanoke County, bordered on its western and northern limits by the City of Roanoke. To the east, lie Roanoke County and the Blue Ridge Parkway. The southern border lies along the Roanoke River. The northwest and west portions of the Town are bordered by Glade Creek and Tinker Creek. The eastern portion is bordered by Wolf Creek. The Town has a population of 8,098; contains 3.2 square miles in area; 90 miles of roadways and the stormwater outfalls discharging to the waters of the state: Glade Creek, Tinker Creek, Wolf Creek and Roanoke River; see Figure 1.



**Figure 1. Receiving Waters for the Town of Vinton, Virginia**

The Town owns and maintains its roadway systems, solid waste collection operation, and provides water and sewer system services to both Town and East Roanoke County residents. The Town pumps its sewage to the Roanoke Regional Wastewater Treatment Plant located in the City of Roanoke. The Town owns and operates its water system, which uses a series of thirteen wells drawing ground water from the Falling Creek Aquifer.

The Town transports its solid waste to Tinker Creek Transfer Station, which is owned and operated by the Roanoke Valley Resource Authority (RVRA) and funded by the City of Roanoke, County of Roanoke, and Town of Vinton.



## Watershed Summary

This section details a list of all known waters currently receiving discharges or that have potential to receive discharges from the regulated small MS4. The following Table 1 lists the waterways and the Hydrologic Unit Codes (HUC) as identified in the most recent version of the Virginia's 6<sup>th</sup> Order National Watershed Boundary Dataset and the estimated drainage areas in the Town of Vinton, served by the regulated small MS4 discharging to these surface waters.

Watershed	Hydrologic Unit	Impaired Receiving Waters	Drainage Area (Estimated in Acres)
Glade Creek	RU13	Glade Creek	711
Roanoke River	RU14	Roanoke River	148
Tinker Creek	RU13	Tinker Creek	489
Wolf Creek	RU14	-	663

**Table 1: Town of Vinton Watersheds HUC's, Impaired Receiving Waters, and Drainage Areas inside Town of Vinton**

### Strategies to Ensure Program Consistency with TMDL Assumptions

The Town of Vinton has several local creeks that have a TMDL completed at the time when the MS4 permit was issued. The creeks, associated pollutants, and waste load allocations are listed below. This addendum will discuss the evaluation of the current ordinances, policies, and BMPs of the Town of Vinton MS4 Program Plan to determine the effectiveness of addressing the specific pollutants and determine procedures to ensure consistency with the TMDL.

TMDL Waterways and Tributaries	WLA
<i>Tinker Creek Watershed, 2004 – E-Coli (EC)</i>	
Glade Creek	8.78E+10 cfu/year
Tinker Creek	3.42E+11 cfu/year
<i>Roanoke River Watershed, 2006 – E-Coli (EC)</i>	
Roanoke River	3.32E+10 cfu/year
<i>Roanoke River Watershed, 2006 – Sediment (SED)</i>	
Roanoke River	128 tons/year

**Table 2: Wasteload Allocations for the Town of Vinton Watershed with Completed TMDLs**

The efforts which the Town of Vinton has and/or will continue to develop to reduce these pollutants are listed below:

- **Measurable goals, schedules, and strategies to ensure Program Plan consistency with TMDL assumptions – Minimum Control Measures (MCM) 1 through 6.**
- **TMDL specific awareness campaign implementation**
- **Summary of assumptions of the Town of Vinton TMDLs**

- List of ordinances and legal authorities, BMPs, policies, plans, and procedures applicable in reducing pollutants identified in WLA
- Summary of existing program evaluation (ordinances, legal authorities, policies, plans, and procedures)
- Implementation schedule
- Annual characterization of volume of stormwater and quantities of pollutants of concern
- Outfall reconnaissance for identification of potential sources of pollutant of concern
- Evaluation of all properties for potential sources of pollutant of concern

### Outfall Reconnaissance for Identification of Potential Sources of Pollutant of Concern

The Town has fewer than 250 total outfalls discharging to any of the TMDL WLAs identified surface waters; Roanoke River, Tinker Creek, and Glade Creek. The reconnaissance of all outfalls will be completed during the five-year permit period of the Town known MS4 outfalls discharging to the surface water for which a TMDL has been completed and a WLA has been assigned, see Table 4.

Surface Water	Total Outfalls	Year 3 2010-2011	Year 4 2011-2012	Year 5 2012-2013
Glade Creek	6	0	4	2
Tinker Creek	6	0	4	2
	12	0%	50%	100%

**Table 3: Town of Vinton Outfall Reconnaissance Schedule**

**Table 4: Evaluation and Inspection Schedule of All Town Properties for Potential Sources of Pollutant of Concern**

Town Facility Illicit Discharge Inspection Schedule	Schedule	Inspected	Pollutant?
Vinton Storage Building, 151 W. Jackson Avenue	2010-11	YES	NO
Vinton Storage Building, 131 W. Jackson Avenue	2010-11	YES	NO
Vinton Municipal Building, 311 S. Pollard Street	2011 -12	YES	NO
Vinton EMS and Fire Station Buildings, 110 and 120 W. Jackson Avenue	2011-12	YES	NO
Vinton/County Health Dept., 227 S. Pollard Street	2011-12	YES	NO
Vinton Farmers' Market, 204 W. Lee Avenue	2011-12	YES	NO
Vinton Stage, 209 W. Lee Avenue	2011-12	YES	NO
Vinton Historical Society Museum, 210 E. Jackson Avenue	2011-12	YES	NO
Vinton War Memorial Building, 814 Washington Avenue	2011-12	YES	NO
Charles R. Hill Senior Center, 820 Washington Avenue	2011-12	YES	NO

<b>Municipal Swimming Pool, 330 Meadow St.</b>	2011-12	YES	NO
<b>Vinton Public Works Building/Garage, 804 3<sup>rd</sup> Street</b> (Have been Remediated to Reduce for Potential Sources of Pollutant of Concern)	2011-12	YES	YES
<b>Town Facility Illicit Discharge Inspection Schedule</b>	<b>Schedule</b>	<b>Inspected</b>	<b>Pollutant?</b>
<b>Niagara Road Pump Station, 1300 Niagara Road</b>	2012-13		
<b>Third Street Pump Station, 804 3<sup>rd</sup> Street</b>	2012-13		
<b>Hardy Road Pump Station, 1359 Hardy Road</b>	2012-13		
<b>Wolf Creek Greenway, Hardy Road</b>	2012-13		
<b>M.A. Banks Park/Shelter, 131 Craig Avenue</b>	2012-13		
<b>Gearhart Park/Roanoke County Storage Building, 350 Highland Road</b>	2012-13		

**Stormwater Volume and Pollutant Load Estimation with Waste Load Allocation (WLA) Identified**

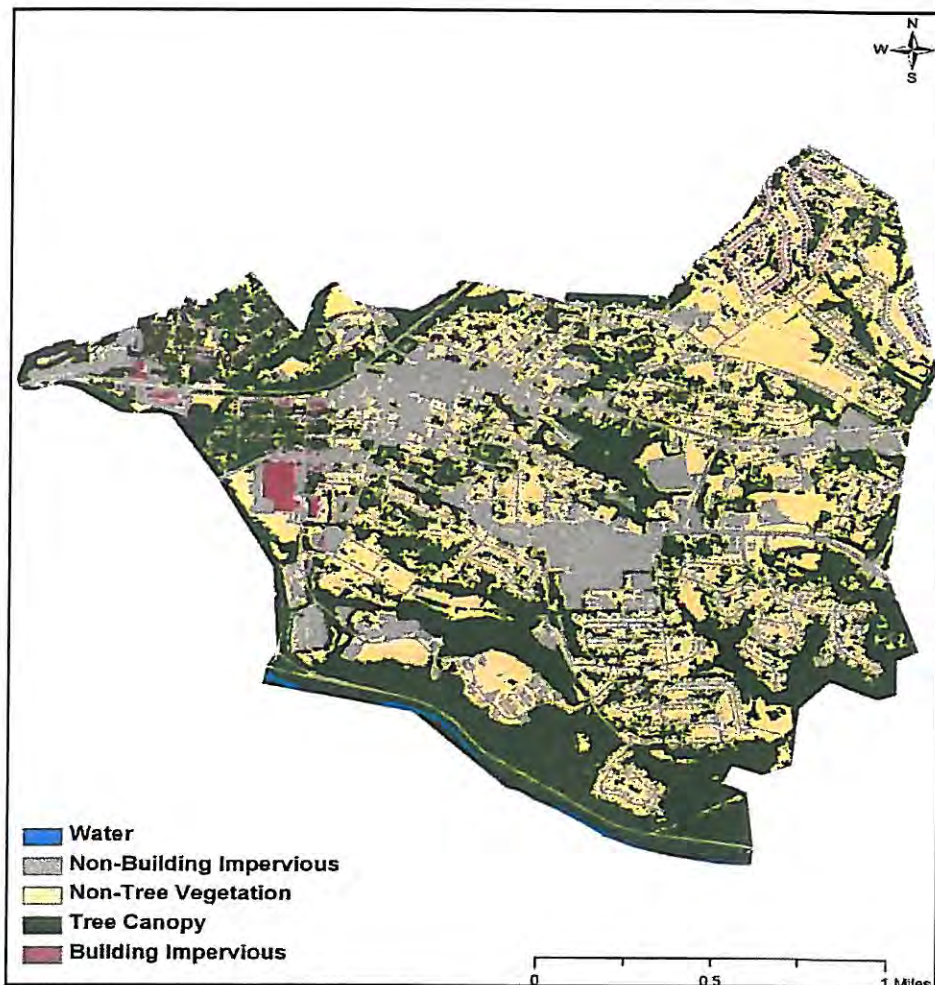
As part of the Town of Vinton Annual Report – July 1, 2011 through June 30, 2012, this information is being submitted to report the estimate volume of stormwater discharged and the quantity of pollutants identified in the Town’s Waste Load Allocations (WLAs) that is discharged by the regulated small MS4 for each pollutant identified in the local creeks that have a TMDL completed in 2004 and 2006. In this section, the methods and results of the calculations for the following items will be described:

1. Estimated Percent Impervious for the Town of Vinton MS4
2. Annual Precipitation for the Reporting Period
3. Estimation of Volume of Stormwater Discharged
4. Estimation of Colony Forming Units of E. Coli
5. Estimation of Total Suspended Solids Discharged Annually

**Percent Impervious for Town of Vinton MS4**

The Percent Impervious for the Town of Vinton was derived from the Town of Vinton Urban Tree Canopy (UTC) Report carried out by the Virginia Department of Forestry in collaboration with the Town and Roanoke Valley Alleghany Regional Commission. The data analysis utilized high resolution (1 meter) aerial imagery acquired in the summer of 2008 and incorporated parcel specific zoning and land use data provided by the Town of Vinton. The UTC report provided the town with an estimate of total impervious cover of **29.4%**.





**Figure 2: Land Cover for the Town of Vinton, Urban Tree Canopy (UTC) Report**

### **Annual Precipitation for the Reporting Period**

The Town of Vinton gathers its annual precipitation from the Local Climatological Data from NOAA’s National Climatic Data Center (NCDC). The Town of Vinton used the data from the Roanoke Regional/Woodrum Field Airport (KROA) due to its close proximity to the Town. This data was collected on a monthly basis from July 1, 2011 through June 30, 2012, and compiled for this report. The total precipitation for the July 1, 2011 through June 30, 2012 period was **42.89 inches**.

### **Estimation of Volume of Stormwater Discharged**

Using the Town of Vinton’s impervious percentage estimate and annual precipitation, the Town of Vinton has used the formula below to derive the volume, in cubic feet, of runoff from the regulated MS4 for each of the watersheds with an identified wasteload allocation. The results are shown below:

$$R_{cft} = 36.3021 * X * Y * Z$$

$$36.3021 = \left( \frac{1}{100\%} \right) \left( \frac{1ft}{12in} \right) \left( \frac{0.0015625mi^2}{1acre} \right) \left( \frac{27,880,000ft^2}{1mi^2} \right)$$

Where: R = Runoff Volume Estimate, cubic feet  
 X = 29.4%, Estimated percentage of impervious for Town of Vinton MS4  
 Y = 42.89 inches, Annual precipitation in inches of reporting period Jul 1, 2011 – June 30, 2012: Data from NOAA, Roanoke Regional Airport Station  
 Z = Area of MS4 (in acres)

Watershed with WLA	Drainage Area of MS4 (ac)	Volume (cubic feet)
Roanoke River	148	6.77E+06
Tinker Creek	489	2.24E+07
Glade Creek	711	3.25E+07

**Table 5. Stormwater Runoff Volume Estimation**

**Estimation of Colony Forming Units of E. Coli**

Town of Vinton has utilized the Simple Method (Schueler, 1987) to calculate urban stormwater loading for bacteria. This method is originally derived to calculate bacteria in the form of Fecal Coliform using the National Median Concentration for Chemical Constituents in stormwater factor for fecal coliform. To convert to the E. Coli standard for bacteria to make this calculation consistent with the WLA, Town of Vinton has converted Fecal Coliform to E. Coli using the regression model developed by the Virginia Department of Environmental Quality (DEQ). These methods and results are detailed below.

*The Simple Method:*

$$L (cfu/year) = 103 * R * C_b * A (Fecal Coliform)$$

Where: L = Annual load (cfu/year)  
 R<sub>in</sub> = 42.89 inches, Annual Runoff Estimate  
 = X \* Y  
 C<sub>b</sub> = Bacteria Concentration (1000/mL)  
 = 15,000/mL (factor for fecal coliform)  
 A = Area (acres)  
 Note: 103 is the conversion Factor for Bacteria

*The Virginia Department of Environmental Quality Conversion from Fecal Coliform to E. Coli*

$$E\ coli = 2^{[-0.0172+0.91905*\log_2(fecal\ coliform)]}$$



Watershed with WLA	Drainage Area of MS4 (acres)	Fecal Coliform (L) (cfu/year)	E. Coli (cfu/year)
Roanoke River	148	2.88E+09	4.89E+08
Tinker Creek	489	9.53E+09	1.47E+09
Glade Creek	711	1.39E+10	2.07E+09

**Table 6: Colony Forming Units of E. Coli Estimation**

**Estimation of Total Suspended Solids (TSS) Discharged Annually**

Town of Vinton has utilized the simple method (Schueler, 1987) to calculate urban stormwater loading for total suspended solids. This method identified to the method used for Fecal Coliform with different values for potential concentration and conversion factors. The method and results are detailed below.

*The Simple Method:*

$$L = 0.226 * R_{in} * C_p * A$$

Where: L = Annual Load (lbs/year)  
 $R_{in}$  = 42.89 inches, Annual Runoff Estimate  
= X \* Y  
 $C_p$  = Pollutant Concentration (mg/L)  
= 54.51 mg/L (factor for TSS)  
A = Area (acres)

Note: 0.226 is the Conversion Factor for TSS

$$L \text{ annual load (tons)} = \frac{L \text{ lbs (annual load)}}{2000 \text{ lbs}}$$

Watershed with WLA	Drainage Area of MS4 (ac)	Total Suspended Solids (tons/yr)
Roanoke River	148	11.5 tons/year

**Table 7: Total Suspended Solids (TSS) Discharged Annually Estimation**

**MCM 1: PUBLIC EDUCATION AND OUTREACH ON STORMWATER IMPACTS**

The Town of Vinton, Roanoke County, and City of Roanoke entered into a contract agreement with Clean Valley Council (CVC), Inc., since August 2006 to help fulfill most of the Best Management Practices (BMPs) within the MCM 1 and MCM 2. The MCM 1 is intended to implement a public education program to distribute and make available educational materials to the community and conduct equivalent outreach activities about the impacts of stormwater discharges on water bodies and the steps that the public can take to reduce pollutants in stormwater runoff.

A mix of best management practices (BMPs) has been chosen to target school children through outreach programs in the Roanoke County School System which include the Town of Vinton. Homeowners, restaurateurs, industries and the general public will also be targeted through wastewater education, public forums, and Save Our Streams (SOS) field days.

A list of programs or BMPs to meet these educational, and outreach measures is:

- BMP 1-1: Comprehensive Review and Inventory of Available Stormwater Educational Resources and Programs
- BMP 1-2: Development and Distribution of Stormwater Educational Materials for Town Residents and Businesses
- BMP 1-3: Development and Implementation of Stormwater Educational School Programs – Different Programs for Age Appropriate Grade Level
- BMP 1-4: Stormwater Public Awareness Programs to Promote the Importance of Protecting Stormwater Quality
- BMP 1-5: Town of Vinton Webpage where Citizens Can Obtain Information Concerning the Town’s Stormwater Management Program, Ordinances, Design Guidelines, Contact Information, Educational Programs, and Links to Other Organizations and Web Sites

Included in this document is a detailed description of the objective and measurable goals of each BMP, the strategies to ensure consistency with identified TMDL’s, the status of the Town’s compliance with each BMP, and an evaluation of the BMP and any proposed modifications needed to better achieve the goals of the stormwater program. The TMDL compliance is broken down by the identified impairment type: e.coli, fecal coliform (EC/FC) and sediment (SED).

### **BMP 1-1. Comprehensive Review and Inventory of Available Stormwater Educational Resources and Programs**

**Goal:** To continue to update and distribute a list of current publications, educational programs, websites, videos, maps, and training opportunities that directly address stormwater issues such as stormwater management, stormwater quality, impaired water bodies, floodplain management, pollution prevention, conservation practices, and riparian habitat protection.

**Measurable Goals:** The Town and County have created and maintained this education programs review in the form of a stormwater programs database. The database documents educational programs, brochures, pamphlets, videos, maps, and training opportunities related to stormwater quality, stormwater management, and pollution prevention. The database is accessible through Town’s website and includes instructions on accessing the variety of educational materials located on the site.

**TMDL Consistency:** The sources available on the Town’s and County’s websites provide extensive educational material concerning the damage pet waste and sediment can do to the waterways (EC/FC, SED). The website provides links to the Roanoke County and state erosion and sediment control regulations for developers that are interested in ways to stabilize a construction site.



**Evaluation and Modification:** The Town was able to get the number of times that the database was viewed. The number of visits illustrates that while the website is an effective format to distribute the information concerning educational programs, the usage has been minimal. Modifications to this BMP for year four may include new locations where this database is accessible to increase the amount and variety of information distributed.

### **BMP 1-2. Development and Distribution of Stormwater Educational Materials for Town Residents and Businesses**

Stormwater educational materials were given out to students and adults through school outreach programs and Earth Summit for high school students and teachers; and community special events such as Vinton Dogwood Festival, Earth Day Celebration, Vinton Fall Festival, Energy Expo, Roanoke Regional Home Show, Fall Waterways Clean-up Picnic; and select locations including the Vinton Municipal Building and Roanoke County Vinton Branch Library.

The Town provides its citizens an annual calendar in early December of each year. The 2012 calendar, which was distributed in December 2011 to every household in the Town's limits, provided information on stormwater, special refuse pick-ups, household hazardous waste collection, and recycling collections. The calendar also lists environmental events in the Town and Roanoke Valley.

**Goal:** The Town along with Roanoke County, City of Roanoke, and Clean Valley Council will continue to develop educational material on annual basis. The material will be designed as a regional document and will touch on the stormwater program, general stormwater quality education, updates of local impaired water bodies, and TMDL's. It will be based on the unique issues and concerns for the Roanoke River Watershed. The Town will to continue to educate residents and businesses on the Town's stormwater program through educational materials and will post a version of the materials on its website for additional outreach.

**Measurable Goals:** For year four, Town's calendar which contains stormwater information was distributed to **3,500** households. Other stormwater educational materials for year four were:

1. Stormwater Best Management Best Practices for Restaurants brochure was mailed on July 29, 2011 to approximately 35 restaurant managers including fast-food restaurants and convenient stores.
2. How to Safely Dispose of Pet Waste brochure along with pet waste bag was distributed to veterinary clinic, given away during special events, pet owners that participated in the rabies clinic at the Vinton War Memorial on September 10, 2011.
3. Drug-Free Drains; Refuse and Recycling, and other environmental related brochures tailored to young and adult audiences were given out to attendees in conjunction of having the children to participate in the Enviroscape demonstration, during the Town of Vinton Fall Festival Event on October 8, 2011.

**TMDL Consistency:** The calendar, advertisement and postcard provided information on pet waste (EC/FC), sediment (SED), hazardous waste, stormwater management facility maintenance guide, and outreach programs.

**Evaluation and Modification:** The number of phone calls and emails received shows that the calendar, brochure, and postcard are an effective format to distribute stormwater information. No modifications are planned for this BMP due to the large number of citizens reached through these distributions of calendar, brochures and postcard.

### **BMP 1-3. Development and Implementation of Stormwater Educational School Programs – Different Programs for Age Appropriate Grade Levels**

Clean Valley Council (CVC) educators under the direction of the Town, County of Roanoke, and City of Roanoke, have been and will continue developing and providing programs addressing stormwater quality issues at public and private schools. Town residents are served by Roanoke County Public School in addition to a number of private and parochial schools. Additionally, the Western Virginia Water Authority has also developed outreach programs for elementary, middle, and high schools in the Roanoke Valley.

In conjunction with these school programs, the CVC also holds an annual Earth Summit, in which select seniors and juniors from area high schools attend environmental workshops and lectures. The Town believes that this program is successful in teaching school children about stormwater issues and the benefits of healthy water bodies.

**Goal:** The Town will continue to work with CVC in developing and providing programs addressing stormwater and related water quality issues. Different programs will target appropriate grade levels and will be SOL correlated.

**Measurable Goals:** For year four, CVC has continued to provide stormwater education program to public school age children. **161** education programs were held in **26** different County schools on several days and **4,141** students between Kindergarten and Grade 12 were reached. In addition to public schools, CVC provided 33 programs to 266 students in five private and parochial schools. The stormwater education program description and program statistics are attached in Appendix A.

**TMDL Consistency:** The educational programs that are presented target sources of bacteria such as “Indoor and Outdoor Stream Schools”, “Soil Who Need It”, “The Water Game”, “Travelin’ Trash”, “Drains to Rivers”, “Reelin’ Runoff”, “Water Jeopardy”, and “After the Storm” (EC/FC). Educational programs that target potential sources of sediments are “Watershed to Oceans”, “Watershed Connections”, “Plant Eat Bad Chemicals”, “Water: Nature’s Recycling System”, “Stream School”, “Water: Woes to Wonders”, and “After the Storm” (SED).

**Evaluation and Modification:** The number of school programs and students reached shows that the stormwater educational programs are an effective method to address stormwater and related water quality issues in the school system. The Town will continue to provide the funding to CVC for these educational programs that are grade levels appropriate and SOL applicable. The educational programs will continue to be evaluated and new program may be incorporated to address new issues that impact the community.



Year	County Schools Participating	Students Reached
2008 – 2009 (Year One)	28	12,156
2009 – 2010 (Year Two)	23	9,522
2010 – 20 11 (Year Three)	26	7,825
2011-2012 (Year Four)	26	4,141
Year	Private/Parochial Schools Participating	Students Reached
2008 – 2009 (Year One)	18	775
2009 – 2010 (Year Two)	6	1,217
2010 – 2011 (Year Three)	16	503
2011-2012 (Year Four)	5	266

**BMP 1-4. Stormwater Public Awareness Programs to Promote the Importance of Protecting Stormwater Quality**

A Stormwater Public Awareness Program continues to be developed including the distribution of stormwater merchandise, public service announcements, and other high visibility educational media to utilize social mass marketing methods to bring stormwater quality issues to the attention of the Town’s citizens.

The Town has combined the promotional merchandise BMP with the public service announcement BMP to create a Public Awareness Program that will incorporate the distribution of stormwater merchandise, the creation of public service announcements, and working with local TV news networks to cover stormwater issues in the news media, as well as other high-visibility educational media to bring stormwater quality issues to the attention of Town citizens.

For the 2011 Fall Waterways Clean-up Event that was held on Saturday, October 1, 2011, throughout the Roanoke Valley, public service announcement regarding the event was publicized for three weeks, in the WDBJ Channel 7 TV Station. The TV station also did a segment along the Roanoke River Greenway, to emphasize the importance of protecting the Roanoke Valley waterways. The event posters were distributed and posted throughout public buildings and libraries. The event was also advertised in The Roanoke Times, Roanoke Natural Food Coop newsletter, WDBJ Channel 7 TV Station, Roanoke Star Sentinel, Community Calendars, and Bella Magazine. The clean-up was from 8:30 a.m. to 11:30 a.m. and followed by a free lunch, music, and environmental exhibitions from 11:30 a.m. to 1:30 p.m. Event participants were also given a free “Fall Waterways Cleanup T-shirt – Reclaim Our Rivers”.

Other public awareness program was an article “Littering our Waterways and Oceans” published for a month in Natural Awakenings Magazine and stormwater postcard that was posted on Roanoke Outside website and Facebook that was viewed 900 times.

**Goal:** The Town, in conjunction with Roanoke County, City of Roanoke, and CVC, will develop a stormwater public awareness program that includes distribution of stormwater merchandise, flyers, fact sheets, and other educational media to promote the importance of stormwater quality to the citizens.



**Measurable Goals:** The Town and CVC distributed book bag tags, bookmarks, erasers, lanyards, litter bags, pencils, rulers, stickers, stormwater chip clips, highlighters, and pens, all promoting the importance of water quality of our local waterways.

**TMDL Consistency:** The thousand pieces of stormwater promotional merchandise that were given out at special events and public buildings have reminder slogan on them to be conscious of day to day activities such as picking up after their pets (EC/FC) and filling bare spots or leaving riparian buffer on the stream banks to prevent erosion (SED).

**Evaluation and Modification:** The Town in cooperation with CVC distributed a variety of media bringing stormwater quality issues to the attention of the public through merchandise and informational sessions. The Town finds this BMP to be effective and intends to continue to publicize the stormwater message through a variety of media sources to continue to meet the goals of the Town’s permit.

Year	Media/Merchandise Distributed	Type/Sources of Media/Merchandise
2008 – 2009 (Year One)	2,811	Students Merchandise, Television Spots
2009 – 2010 (Year Two)	5,244	Student Merchandise, Grandin Theater Advertisement
2010 – 2011 (Year Three)	2,691	Student Merchandise, Grandin Theater Advertisement
2011 – 2012 (Year Four)	5,697	Students Merchandise, WDBJ TV Station Channel 7, Magazines

**BMP 1-5. Town of Vinton Webpage where Citizens Can Obtain Information Concerning the Town’s Stormwater Management Program, Ordinances, Design Guidelines, Contact Information, Educational Programs, and Links to Other Organizations and Web Sites**

**Goal:** The Town will continue to maintain and monitor the Town’s Stormwater webpage, where citizens and visitors can obtain information concerning the Town’s Stormwater Management Program, ordinances, design guidelines, general and contact information, pollution prevention information, educational programs, list of impaired water bodies, and links to other organizations and sites. The website will also inform citizens of regional clean-up events, household hazardous waste and electronic collection events, and other local water quality educational programs. Additional information pertaining stormwater has been added with the launching of the Town’s new website in November 2010.

**Measurable Goals:** The Town was able to maintain and monitor the Town’s stormwater webpage beginning November 2010, in addition of having the capability of receiving citizens’ requests and/or complaints on stormwater issues.

**TMDL Consistency:** A page will be developed to highlight “Nonpoint Source Pollution” to illustrate activities that can contribute to the overall pollution problem (EC/FC) and how a citizen



can prevent nonpoint source pollution through planting riparian buffer along stream banks (SED).

**Evaluation and Modification:** The Town plans to evaluate and design the stormwater webpage to make it easier to find frequently requested items and make this BMP a more effective method of information distribution and outreach.

Year	Webpage Views
2010 – 2011 (Year Three)	21
2011 – 2012 (Year Four)	46

***MCM 2: PUBLIC PARTICIPATION AND INVOLVEMENT***

The Town of Vinton in conjunction with Roanoke County, City of Roanoke, Botetourt County, Clean Valley Council (CVC), Inc., Roanoke Valley Resource Authority (RVRA), Upper Roanoke Roundtable Committee, and Roanoke Valley Greenway Commission will continue to have the community involved with clean-up projects along local streams and riparian corridors through the annual Spring Clean Valley Day and Fall Waterways Clean-up.

The Town will also continue to hold its annual Special Spring Cleanup Week, where citizens are allowed to dispose of bulk items on the curb on their regular refuse collection day at no extra charge. Bulk items include unused/unwanted furniture, appliances, brush and lawn trimmings.

This control measure is intended to implement programs that help inform and educate Town citizens about the components of the stormwater management program. Support from citizens is crucial for the success of the stormwater management plan. To get the citizens’ support, the Town has and will continue to coordinate several programs to engage citizens’ interest in stormwater quality as listed:

- BMP 2-1: A Storm Drain Stenciling Program with Area Schools, Organizations, and Businesses to Engage Group Involvement and Educate People about the Consequences of Dumping Waste into the Storm Drain System
- BMP 2-2: Cleanup and Environmental Events to Bring Attention to Current Stormwater Issues
- BMP 2-3: Citizens’ Stormwater Advisory Committee to Provide an Approachable Environment where Ideas and Concerns Regarding the Town’s Stormwater Program may be Shared and Discussed on a Regional Level
- BMP 2-4: Staff and Town-Appointed Citizens’ Representatives Environmental Related Regional Organizations
- BMP 2-5: Post Town’s Stormwater Discharge Permit and Annual Report on the Town’s website for Citizen Access

Included in this document is a detailed description of the objective and measurable goals of each BMP, the strategies to ensure consistency with identified TMDL’s, the status of the Town’s compliance with each BMP, and an evaluation of the BMP and any proposed



modifications needed to better achieve the goals of the stormwater program. The TMDL compliance is broken down by the identified impairment type: e.coli, fecal coliform (EC/FC) and sediment (SED).

**BMP 2-1. A Storm Drain Stenciling Program with Area Schools, Organizations, and Businesses**

**Goal:** The Town, in conjunction with CVC, will coordinate a storm drain stenciling program with local schools, neighborhoods, businesses, and other organizations, to stencil messages on storm drains that educate people about the consequences of dumping waste into the storm drain system.

**Measurable Goals:** The Town storm drain stenciling event scheduled on late May 2012 was canceled due to weather.

**TMDL Consistency:** The storm drain stenciling program is an outreach method to inform and remind citizens that what goes into the storm drain goes directly to local creeks and streams. The stenciling activity and message will make the citizens understand that the storm drains are not treated by the sanitary sewer, therefore they will be less likely to allow pet waste or other non-stormwater waste to enter the storm drain through the road-side inlets (EC/FC).

**Evaluation and Modification:** The Town finds this BMP to be an effective method of information and distribution. The Town proposes to continue with the implementation of this BMP and will continue to coordinate this program. The Town will continue to document the stenciling of the storm drains as an effort to enhance the education and outreach of its stormwater management program.

Year	Storm Drains Stenciled	Number of Participants
2008 – 2009 (Year One)	20	12
2009 – 2010 (Year Two)	Rained Out	16
2010 – 2011 (Year Three)	10	4
2011 – 2012 (Year Four)	0	0

**BMP 2-2. Cleanup and Environmental Events to Bring Attention to Current Stormwater Issues**

Town Staff continues to be involved in the coordination of regional cleanup and environmental events such as the annual Spring Clean Valley Day and Fall Waterways Cleanup Event; Electronic Waste Collection events; public forum on environmental issues related to water quality and impaired water bodies; Earth Summit; Better Living Expo; Town’s Spring Cleanup Week; Energy Expo, and events on the area greenways.

The Town coordinated with CVC, Roanoke County, and City of Roanoke to conduct public forum meetings in conjunction of the Fall Waterways Cleanup Event, describing what the three localities (Town, City, and County) were doing concerning stormwater management issues. The meetings allowed for input and concerns to be received on stormwater issues. After evaluating



the success, these three Valley governments believe that combining the forum with a stormwater and/or other environmental events would improve the effectiveness of the BMP by increasing public attendance.

The Town will continue to publicize its curbside recycling program and fund the recycling collection center at the Lake Drive Plaza Shopping Center in its efforts to increase awareness about the importance of recycling. The Town will continue its Spring Special Cleanup Week Program and participation in the Annual Spring Clean Valley Day, and Fall Waterways Event. Town staff and Town-appointed citizens are also board members of the RVRA, CVC, Roanoke Valley Greenway Commission, and Roanoke Valley Alleghany Regional Commission (RVARC), which enables special environmental events and projects to be done regionally to reduce costs and reach a wider audience.

**Goal:** The Town to continue to participate in the clean-up and environmental events to address stormwater issues including impairment to the water bodies.

**Measurable Goals:** On Saturday, September 17, 2011, a regional ECO E-Waste Collection was held at Roanoke Natural Food Coop which attracted 300 attendees. On Saturday, October 1, 2011, Town of Vinton along with other jurisdictions in Roanoke Valley and area businesses sponsored the Fall Waterways Cleanup Event in addition to CVC and Roanoke County maintained a booth at the event. 711 volunteers registered for the event and they collected 22 tons of garbage and 158 tires.

On two Saturdays, October 29, 2011 and April 28, 2012, the Drug Take Back program was held at several locations in Roanoke, Vinton, and Salem. Medication was safely collected and then destroyed by local law enforcement and DEA agents. The drug-take back event instead of leaving medications unsecured in the home or flushing them down the commode will help prevent drug abuse and protect the Roanoke Valley's waterways. Both events collected over 500 pounds of various drugs from the Vinton location.

On Saturday, March 31, 2012, the Town participated in the Annual Spring Clean Valley Day, and it is followed by the Town's annual Spring Cleanup week from April 16 through April 22, 2012. The Spring Clean Valley Day was featured by Roanoke TV Station Fox 21/27: <http://www.fox2127.com/global/category.asp?c=209682&clipId=6884679&autostart=true>  
<http://www.fox2127.com/global/category.asp?c=209682&clipId=6884721&autostart=true>  
1,368 volunteers representing 70 teams participated in the 2012 Spring Clean Valley Day Event, collected 34.34 tons of trash and 430 tires.

On Saturday, April 21, 2012, a regional E-Waste Recycling Event sponsored by Cycle Systems, was held at the City of Roanoke Civic Center. The Town 2012 Arbor Day Celebration and Tree Planting Event was held on Friday, April 27, 2012, at the Wolf Creek Greenway. The Arbor Day event was well received by the students and school staff, and attended by Vinton elected officials and personnel; and members of Valley Beautiful, Inc. The highlights of the program were the planting of the ceremonial tree by Smokey Bear and the children, and presentation by Virginia State Forester to the students, parents, and other attendees, on the importance of taking care of the environment and the planting of and importance of trees along waterways.



The Regional Recycle & Win Program sponsored by Coca-Cola kickoff event was held on October 24, 2011, followed by Recycle Events (November 19, December 10, 2011, January 7, 28, February 18, March 10, April 7, and 21, 2012) at various locations throughout Roanoke Valley. The Town of Vinton was one of the Valley governments, to partner with Coca-Cola and Kroger to increase recycling in the community in the promotional event which ran through April 30, 2012. The event was publicized by Roanoke Valley TV Stations, The Roanoke Times, and The Vinton Messenger. Coca-Cola was giving out a total of 300 of \$50 Kroger gift cards (260 for curbside winners and 40 for event winners) throughout the 6-month program. In order to qualify, a recycling sticker must be on the recycling bin and the items inside the bin must be proper recyclables. The Prize Patrol Team randomly checked the recycling bins on the day of the recyclables were picked up.

**TMDL Consistency:** At least three times a year, the Town is involved in one or more public events to promote the Town and celebrate Roanoke Valley’s citizens’ commitment to regional water quality. In addition to litter, debris, and hazardous waste, pet waste and erosion of stream banks are common themes at each of these events since these are regional water quality issues (EC/FC, SED).

**Evaluation and Modification:** The Town finds this BMP to be an effective method in involving citizens in addressing to address stormwater issues based on the citizens’ involvement and attendance in these events.

Year	Environmental Public Events	Participants/Attendance
2008 – 2009 (Year One)	Fall Waterways, Clean Valley Day, Earth Day, Energy Expo, Earth Summit, etc.	1,700+
2009 – 2010 (Year Two)	Same As Above	2,000+
2010 – 2011 (Year Three)	Same As Above	2,200+
2011 – 2012 (Year Four)	Same As Above	3,500+

**BMP 2-3. Citizens’ Stormwater Advisory Committee to Provide an Approachable Environment where Ideas and Concerns Regarding the Town’s Stormwater Program may be Shared and Discussed on a Regional Level**

A group of citizens who meet with local stormwater management staff to review ordinances, TMDL’s issues, local projects, informational materials and educational components of the Stormwater Management Program has been established since the first permit cycle. The Town’s representatives serve on the Regional Stormwater Citizens’ Advisory Committee along with representatives from the City of Roanoke and Roanoke County. The CVC handles the meeting logistics under the direction of Town, County, and City officials.

**Goal:** An establishment of a group of citizens that meet with local stormwater management officials to review stormwater management programs and plans. This group provides an approachable environment where ideas and concerns regarding the Town’s stormwater management program are shared and discussed.



**Measurable Goals:** The Citizens' Advisory Committee held four meetings for year four reporting period: (1) March 12, 2012, Roanoke County Administration Center: A presentation on "Glade Creek Water Quality Improvement Project; (2) April 19, 2012, Vinton Municipal Building: Experiences and feedback on regional stormwater issues from the Leadership Roanoke Valley Environmental Workshop; (3) May 21, 2012, Roanoke City Firehouse # 5: Pervious Pavement for Stormwater Management; and (4) June 18, 2012, Roanoke County Walrond Park: Total Maximum Daily Loads for Roanoke Valley Waterways.

**TMDL Consistency:** Each of the stormwater citizens' advisory committee meeting focused on issues that educate the committee members on local and regional stormwater and waterways issue pertaining excess bacteria (EC/FC) and sediment loss and ways to prevent and minimize these pollutant from entering the waterways.

**Evaluation and Modification:** Town proposes to continue this regional stormwater citizens' advisory committee. Based on the survey results that was sent to each committee member, the citizens find this committee to be an effective conduit of allowing them to address issues an voice their opinions and suggestions pertaining stormwater management program not just for the Town but also from a regional perspective.

#### **BMP 2-4. Staff and Town Representatives Environmental Related Regional Organizations**

The Town continues to have staff and/or Town citizens serve on the regional organizations such as Roanoke Valley Alleghany Regional Commission (RVARC), Clean Valley Council (CVC), Inc., Roanoke Valley Greenway Commission, Roanoke Valley Urban Forestry Council (RVUFC), Roanoke Valley Resource Authority (RVRA), and Western Virginia Water Authority (WVWA).

**Goal:** The goal of this program is to continue to have staff and/or citizen representatives on environmental focused regional organizations to enable Town's participation in regional events and projects, and to increase wider involvement in environmental and stormwater quality issues.

**Measurable Goals:** The annual Fall Waterways Cleanup event, Spring Clean Valley Day, E-Waste Recycling Event, Earth Day, Annual Greenway Festival by the River, Better Living Expo, and other related events are well publicized and attended by Roanoke Valley residents.

**TMDL Consistency:** Each of the events makes citizens aware on the importance of taking care of the environment. The continued construction of greenways and trails in the Valley and annual event at the Roanoke River Greenway have made the residents of the Valley appreciate the trails along the local waterways for them to recreate and to keep these waterways clean from pet waste, litter, and/or excess sediment and eroded streambanks (EC/FC and SED) .

**Evaluation and Modification:** Based on media coverage and well attended by general public of these events, the Town finds this BMP to be an effective method by having Town's representatives serve on these regional committees.

**BMP 2-5. Post Town’s Stormwater Discharge Permit and Annual Report on the Town’s website for Citizens’ Access**

The Town continues to post the Town’s Municipal Separate Storm Sewer Systems (MS4) Program on the Town’s website which citizens may view and comment upon. This form of public viewing will allow Town citizens to become knowledgeable about the goals of the program and have information with which to comment on existing issues and influence changes in future programs. Each annual report as required will be posted on the website to keep citizens current on annual evaluations of the program’s effectiveness and any proposed changes to the stormwater program.

**Goal:** The Town will continue to post the MS4 permit application and each subsequent annual report submitted to Department of Conservation and Recreation (DCR). Each annual report will be posted on the Town’s website to keep citizens current on annual evaluations of program effectiveness.

**Measurable Goals:** The general permit statement was posted again on the website after the launching of the new Town’s website. This permit statement will continue to be available on the website until the five-year permit period is complete on June 30, 2013. The first and second annual reports have been posted on the website and the hard copies are also made available for review. No comments were received from the citizens regarding the Program Plan.

***MCM 3: ILLICIT DISCHARGE DETECTION AND ELIMINATION***

The goal of the illicit connection and discharge elimination plan is to inspect known stormwater outfalls to Tinker, Glade, and Wolf Creeks and the Roanoke River as identified through review of existing storm sewer maps; eliminate illicit discharges as they are identified through visual monitoring of known stormwater outfalls; and field observations to identify and verify additional stormwater outfalls that may not have been identified through review of existing storm sewer maps. The programs that have been put in place to complete this measure are:

- BMP 3-1: A Town-wide Storm Sewer System Map in the GIS Database
- BMP 3-2: Illicit Discharge Ordinance to Detect, Identify, and Enforce Illicit Discharges
- BMP 3-3: Illicit Discharge Program to Minimize Illicit Discharges as defined under VSMP General Permit 4VAC50-60-10, as amended

Included in this document is a detailed description of the objective and measurable goals of each BMP, the strategies to ensure consistency with identified TMDL’s, the status of the Town’s compliance with each BMP, and an evaluation of the BMP and any proposed modifications needed to better achieve the goals of the stormwater program. The TMDL compliance is broken down by the identified impairment type: e.coli, fecal coliform (EC/FC) and sediment (SED).

### **BMP 3-1. A Town-wide Storm Sewer System Map in the GIS Database**

Roanoke County GIS Division of the Community Development Department has always been responsible for Town's mapping services and needs since Town's residents pay the County's real estate and property taxes, in addition to Town's taxes. Additionally, since 2003 under the direction of Town personnel, the County has developed and continued to update the Town's storm drain map.

**Goal:** The goal of this BMP is for the Town to continue working with Roanoke County GIS in developing and updating the storm drain map which identifies all of the municipal separate storm sewers within the Town which discharge to natural drainage way.

**Measurable Goals:** The Town will continue this program by expanding and updating the storm sewer map of the Town with Roanoke County assistance. In addition to locating any new storm sewer outfalls, the Town will have the County to update the map to show the current outfalls and their associated Hydrologic Unit Code (HUC) of the waters that are being discharged to, and the names and locations of all the impaired surface waters that receive discharges from these systems.

**TMDL Consistency:** An updated and accurate storm drain map which identifies all of the municipal separate storm sewers system will help the Town in the discovery of illicit discharge connections (EC/FC) and the locations where sediment may be entering the regulated MS4 (SED).

**Evaluation and Modification:** No modifications are planned for this BMP. Town believes that the process of mapping the storm drain is an appropriate method to aid in the enforcement, detection, and elimination of illicit discharges to the storm sewer system.

### **BMP 3-2. Illicit Discharge Ordinance to Detect, Identify, and Enforce Illicit Discharges**

The Town has established a program to detect and eliminate illicit discharges in the Town's storm sewer system by developing and adopting ordinances and regulations, and an enforcement program to minimize illicit discharges and prevent illegal discharges into the storm drain system.

**Goal:** The goal of this program is to detect and eliminate illicit discharges in to the MS4 by developing and adopting regulations and an enforcement program to prevent illegal discharges into the storm drain system.

**Measurable Goals:** Town has adopted, developed and evaluated the County's Illicit Discharge Ordinance and determined that is in compliance with current state regulations of the Virginia Department of Conservation and Recreation (DCR). Suitable measures for effective enforcement are included in the Illicit Discharge Ordinance.

**TMDL Consistency:** An illicit discharge ordinance will greatly assist in the enforcement of the illicit discharges to the MS4 system. This legal method can help the Town in discontinuing existing connections and discouraging future illicit discharges to the system (EC/FC).



**Evaluation and Modification:** No modifications are planned for this BMP. The Town believes that the evaluation and the enforcement of the ordinance is an effective method in the enforcement, detection, and elimination of illicit discharges to the Town's storm sewer system.

**BMP 3-3. Illicit Discharge Program to Minimize Illicit Discharges as defined under VSMP General Permit 4VAC50-60-10, as Amended**

**Goal:** The Town will develop, implement, and enforce a program to detect and eliminate illicit discharges in the Town's storm sewer system. The Illicit Discharge Program will include the following components:

1. Procedures for locating priority areas likely to have illicit discharges.
2. Procedures for tracing the source of an illicit discharge.
3. Procedures for removing the source of the discharge.
4. Procedures for program evaluation and assessment.
5. Procedures for reporting discharges into the Town's storm sewer system.

**Measurable Goals:** The Town has developed procedures to detect, address, and report illicit discharges that enter the Town's separate storm sewer system. The illicit discharge ordinance (BMP 3-2) includes procedures to address illicit discharges through enforcement process.

**TMDL Consistency:** An illicit discharge program will assist in locating illicit discharges to the MS4 system. This method can give staff the methodology needed to screen, target and monitor the storm drain system in the efforts to discover existing illegal connections to the Town's storm drain system (EC/FC).

**Evaluation and Modification:** No modifications are planned for this BMP. The Town believes that the illicit discharge program is a critical component in the detection and elimination of illicit discharges to the Town's storm sewer system.

**MCM 4: CONSTRUCTION SITE STORMWATER RUNOFF CONTROL**

**\* The implementation of this MCM and its associated BMPs will be the responsibility of Roanoke County Department of Community Development in conjunction with Vinton Planning and Zoning Department.**

Since February 14, 1984, the County of Roanoke has been responsible for the Erosion and Sediment Control program for the entire County area, including the Town of Vinton. On April 3, 2007, the Vinton Town Council adopted Ordinance No. 847 to amend the Vinton Town Code by the adoption of Chapter 15.1 known as the "Erosion and Sediment Control and Steep Slope Development of the Town of Vinton", by referencing County of Roanoke Code, Chapter 8.1. Erosion and Sediment Control and Steep Development, as amended.

The Town and County recognize that construction sites can deposit significant amounts of silt and sediment in stormwater runoff due to large areas of land disturbances. The goal of this MCM is to implement and enforce a program that will reduce pollutants in stormwater runoff to

the regulated municipal separate storm sewer system from construction sites and activities. The programs that have been established by the County and supported by the Town to meet this MCM measure are listed below:

- BMP 4-1: Erosion and Sediment Control (ESC) Ordinance
- BMP 4-2: Erosion and Sediment Control Ordinance Certification
- BMP 4-3: Land Development Site Plan Review Procedures and Evaluation

Town Staff continues to work cooperatively with Roanoke County in the implementation of this measure including: the review of the County's ESC ordinance; notification of any land disturbance without any permit; site and subdivision plans review process; and in the issuance of any land disturbance permit in the Town Limits. Any new development, re-development, and/or addition meeting certain criteria will require site plans be submitted for review and approval as stated in the County's and Town's codes. The site plans must be submitted to the Planning and Zoning Department and be distributed to appropriate persons for comments and review.

The Planning and Zoning Director, who is also serves as the Town's Development Review Coordinator, is responsible for the review coordination, including providing written comments pertaining site plans received from applicable departments and state agencies. Currently, the Town's engineering firm on retention is responsible for the review of the stormwater management requirements. **Section 23-5.3 Water Quality**, of the stormwater ordinance, states the criterion that must be addressed for stormwater management at all land-disturbing activities.

The property owner/developer is also notified by the Development Review Coordinator in writing that the Department of Conservation and Recreation (DCR) requires that any land disturbance of one (1) acre or greater obtain a Virginia Stormwater Management Program (VSMP) permit through the DCR office. The VSMP permit must be applied for two (2) days prior to any land disturbance on the property. A copy of the application, the check, and the Stormwater Pollution Prevention Plan (SWPPP) must be submitted to the Town of Vinton Planning and Zoning Department. In June 2011, the Town and Roanoke County started a discussion in establishing a Memorandum of Understanding (MOU) for the County to provide stormwater management plan review services.

Included in this document is a detailed description of the objective and measurable goals of each BMP, the strategies to ensure consistency with identified TMDL's, the status of the Town's compliance with each BMP, and an evaluation of the BMP and any proposed modifications needed to better achieve the goals of the stormwater program. The TMDL compliance is broken down by the identified impairment type: e.coli, fecal coliform (EC/FC) and sediment (SED).

#### **BMP 4-1. Erosion and Sediment Control (ESC) Ordinance**

**Goal:** The goal of this BMP is to maintain an ESC that will reduce pollutants in the stormwater runoff to the storm sewer system from construction activities. These regulations, included in the ESC ordinance require erosion and sediment controls as well as sanctions to ensure compliance

under Roanoke County/Town of Vinton law. The ordinance requires E & S controls for all 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 E & S Plan will require construction site operators to implement appropriate ESC best management practices specific to the site. Site inspection and enforcement actions are also incorporated in the ESC Ordinance.

**Measurable Goals:** The Town along with the County has evaluated the ESC ordinance to keep it in compliance with any changes to regulations being made at the state level. No changes have been made on the state level, and the County/Town ESC ordinance is still in compliance with the regulations set forth and enforced by the VA DCR.

For year four reporting period, the Town had only one regulated land disturbing activities, and a total of 0.57acre disturbed.

**TMDL Consistency:** This ordinance targets reducing sediment in stormwater runoff from construction sites. These regulations require ESC BMPs on the site as well as sanctions to ensure compliance, under the County/Town ESC law.

**Evaluation and Modifications:** No modifications are planned for this BMP. The Town believes that the ESC ordinance is critical component in reducing pollutants in stormwater runoff to the regulated small MS4 storm sewer system from construction activities. It is critical for the ordinance to remain in compliance with the VA ESC regulations.

Permit Number	Date Issued	Project Name	Address of Property	Disturbed Acreage
12-0004	1/30/12	Wood’s Service Center Addition	418 Washington Avenue	0.57
			<b>Total Disturbed Area</b>	<b>2.366</b>

**Table 8: Town of Vinton Regulated Land-Disturbing Activities for Year Three Report July 1, 2011 – June 30, 2012**

**BMP 4-2. Erosion and Sediment Control (ESC) Certification**

**Goal:** The goal of this County BMP is to identify current ESC certified County employees and develop a program for additional certification and cross-training.

**Measurable Goals:** Two Roanoke County departments, Community Development, and Parks and Recreation were identified as having positions whose job responsibilities necessitate erosion and sediment control training and certification. Currently, the County utilizes training and certification through the DCR’s VA ESC training and certification program. Additional employees hired into the positions whose job responsibilities have already been determined as needing training in ESC will be certified using this program.



**TMDL Consistency:** This program identified County employees that need ESC training and tracks their certifications to determine if they have lapsed in their required training and certifications. This program minimizes the locality's site erosion potential by educating the employees on correct E & S procedures and policy (SED).

**Evaluation and Modification:** No modifications are planned for this BMP. The Town is concurrent with the County that the certification of certain positions that could significantly impact erosion through land disturbance is a critical component in reducing pollutants in stormwater runoff.

### **BMP 4-3. Land Development Site Plan Review Procedures and Evaluation**

**Goal:** The goal of this BMP is to ensure that the procedures for site plan review incorporate considerations for water quality impacts by addressing the most current local stormwater management regulations which are outlined in the Roanoke County/Town of Vinton Stormwater Management Ordinance.

**Measurable Goals:** The County and Town have evaluated the Land Development Procedures to keep them in compliance with any changes to the ordinance and manual or to regulations being made at the state level. No changes have been made in the past year on the state level, and the County/Town land Development procedures are still in compliance with the regulations set forth and enforced by the VA DCR.

**TMDL Consistency:** The land development procedures list the steps needed for a site plan to meet the state and local ESC and permanent stormwater requirements. Keeping these procedures in compliance with any changes at the state level guarantees that site plans are reviewed by the Town and County with the most current regulations available. This program minimizes erosion and flooding potential due to the benefit of an educated engineering design team and construction crew on the Town public and private land development sites (SED).

**Evaluation and Modification:** No modifications are planned for this BMP. The Town is concurrent with the County that continuing the process in updating the Land Development Procedures is important to make sure that the site plan review requirements and process are consistent with the most recent stormwater management regulations. As state stormwater management regulations change, the local ordinance must also be changed, and keeping the Land Development Procedures up to date makes the procedures a useful tool to utilize when developing a site.

### ***MCM 5: POST-CONSTRUCTION STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT***

The Town 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. The programs that continue to be established to complete this measure are listed below:

- BMP 5-1: Stormwater Management Ordinance and Manual
- BMP 5-2: Stormwater Management Facility Inspection Program
- BMP 5-3: Low Impact Development (LID) Principles, Techniques, and Strategies

The Town will work with Roanoke County and City of Roanoke to develop programs to address the post-construction runoff with structural and nonstructural BMPs on a regional level to address the stormwater quality and impairment of water bodies.

### **BMP 5-1. Stormwater Management Ordinance and Manual**

**Goal:** The goal of this BMP is to adopt and enforce an ordinance and design manual that requires stormwater runoff to be addressed. These documents ensure that controls are in place that would prevent or minimize water quality and quantity impacts due to new development and redevelopment projects.

**Measurable Goals:** The Town started enforcing the stormwater ordinance and manual after adopting by reference Roanoke County Stormwater Management Ordinance and Manual on January 1, 2008. The stormwater management ordinance regulates new development and redevelopment projects of 5,000 square feet and larger. The stormwater management design manual details structural and non-structural best management practices (BMPs) that are appropriate for Roanoke Valley region. The ordinance requires the designation of a responsible party who is legally bound to inspect and maintain the best management practices for the life of the BMP.

For year four, these documents have been evaluated by Roanoke County to ensure continual compliance with the goals of this BMP and compliance with federal and state regulations. The ordinance and manual have been found to be consistent with the prevention or minimization of water quality and quantity impacts.

**TMDL Consistency:** This legal document and design manual targets reducing the quantity and improving the quality of stormwater runoff from new development, redevelopment, and existing developed areas. This manual and ordinance protects against erosion from stream banks, construction sites, developed areas, and redeveloped area (SED).

**Evaluation and Modification:** No changes are planned for this BMP. It is vital that Town of Vinton continues to keep its local stormwater management standards in compliance with the state new regulations.

### **BMP 5-2. Stormwater Management Facility Inspection Program**

**Goal:** The goal of this BMP is to enforce procedures for the stormwater management facility inspection program.

**Measurable Goals:** In the second annual period, the Town developed a stormwater management facility inspection and implemented the program. Background information, design plans, and contact information was gathered. In the third annual period, the inspection program was started.

Currently, the Town has a total 48 known permanent stormwater facilities. In the third annual period, the Town inspected five permanent facilities. For each inspected pond, the Town determined the treated acreage, HUC, and downstream water body. In the fourth annual period, the Town inspected 11 stormwater management facilities.

In July, 2011, 22 residential property owners including homeowners association were notified on a community meeting to discuss the maintenance of the stormwater management facilities, an exploration of the alternatives for the costs of maintenance, compliance, and future enforcement actions. The meeting was held on Tuesday, August 30, 2011 at William Byrd High School and we had about 50 people attended the meeting. Attendees were given a copy of the informational booklet, “Maintaining Your Stormwater Pond or BMP: A Practical Guide for Private Owners of Stormwater Facilities in Roanoke County, Virginia”. Additionally, a list of stormwater pond maintenance contractors was also made available.

**Evaluation and Modification:** Currently the Town is on schedule with the inspection program and is in the process of establishing a Memorandum of Understanding (MOU) with Roanoke County to perform the inspection of the stormwater management facilities located in the Town. Continuing to track and inspect permanent stormwater management facilities is vital for the long term success of the facilities and the prevention of sediment and other pollutants from being transported into the local streams and river.

Year	Stormwater Facilities Inspected	Total Number of Stormwater Facilities
2010 – 2011 (Year Three)	5	48
2011 – 2012 (Year Four)	11	48

### **BMP 5-3. Low Impact Development (LID) Utilization**

**Goal:** The goal of this BMP is to encourage and identify development projects that utilize Low Impact Development (LID) strategies.

**Measurable Goals:** The Town will continue to work with Roanoke County personnel and development community to identify and encourage development projects that utilize Low Impact Development (LID) principles, techniques, and strategies. The Town will be updating its zoning and subdivision ordinances in the near future to incorporate LID principles, techniques, and strategies. The Town understands that LID strategies will help to minimize the reliance on expensive structural practices that require ongoing maintenance to remain effective.

**TMDL Consistency:** This LID program encourages development projects that utilize LID strategies which is an important way to prevent the deposition of sediment and other pollutants into the waterways.

**Evaluation and Modification:** No changes are planned for this BMP. The Town will continue to encourage LID in the Town and will track the number, size, and HUC of LID in the Town Limits. The use of LID will help minimize the reliance on expensive structural practices that



require ongoing maintenance to remain effective. LID practices will prevent the deposition of sediment and other pollutants into the waterways.

**MCM 6: POLLUTION PREVENTION/GOOD HOUSEKEEPING**

The main goal of the pollution prevention and good housekeeping program is to reduce pollutant runoff from the Town's operations. The Town needs to continue to evaluate its facilities and also provide education and training programs that will educate Town employees about pollution prevention and hazardous waste. The programs that continue to be established to meet this measure are listed below.

- BMP 6-1: Spill Prevention and Control Plans for the Town Facilities
- BMP 6-2: Storm Sewer Systems Maintenance Program
- BMP 6-3: Street Sweeping and Leaf Collection Programs
- BMP 6-4: Pollution Prevention and Hazardous Waste Training
- BMP 6-5: Household Hazardous Waste Collection Events

Included in this document is a detailed description of the objective and measurable goals of each BMP, the strategies to ensure consistency with identified TMDL's, the status of the Town's compliance with each BMP, and an evaluation of the BMP and any proposed modifications needed to better achieve the goals of the stormwater program. The TMDL compliance is broken down by the identified impairment type: e.coli, fecal coliform (EC/FC) and sediment (SED).

**BMP 6-1. Spill Prevention and Control Plans for the Town Facilities.**

**Goal:** The goal of this BMP is to develop and update Spill Prevention and Control Plans for all of the Town's municipal facilities. Each facility will be evaluated for the potential of illicit discharges from storage yards, outdoor storage areas, waste transfer station, fleet or maintenance shops and other municipal facilities. The disposal method for waste materials will be evaluated. Soluble or erodible materials will be analyzed and protected from exposure to precipitation. The application of fertilizers and pesticides will be examined to meet manufacturer's recommendations. Any operation that has potential to discharge material into the separate storm sewer system will be examined for potential unwanted discharge. These plans will be updated and annual training will be completed.

**Measurable Goals:** The plans for an accidental spill at any of these sites would include a normal response by the Vinton Fire Department for containment. Then it will be turned over to a private hazardous waste material contractor, either LCM or WEL, for clean-up. Notification will be sent to VDEM, DEQ, and DCR.

The Town proposes to update these spill prevention plans and create new plans for any new facilities. Training for associated facilities will be performed for the Town employees affected by the spill prevention plan.

**TMDL Consistency:** This program minimizes the potential for pollution spills to enter the Town’s storm drain system. Having updated plans will aid in the education of Town employees that are in areas with some risk of pollution spills.

**Evaluation and Modification:** No changes are planned to this BMP. This BMP is considered to be an effective method of evaluating and eliminating potential illicit discharges from Town’s facilities, and preventing spills from entering the storm sewer system from a Town’s facility.

**BMP 6-2. Storm Sewer Systems Maintenance Program**

**Goal:** The goal of this BMP is for the Town Public Works Department to continue to actively maintain the Town’s storm sewer system. Keeping the storm sewer system properly maintained is very important for the Town because it keeps the regulated storm sewer working as designed, minimizing the potential for flows to surcharge or surpass the capacity of the regulated storm sewer system. The maintenance crews also have the potential of discovering illicit connections and additional areas where hazardous waste may be entering the regulated storm sewer system.

**Measurable Goals:** The success of this BMP will be measured by the continuation of this program and the increase in total value of improvements that have been completed to maintain the storm sewer system. The following table summarizes the Public Works Department’s total expenditures for labor, materials, and equipment to maintain the stormwater system to correct deficiencies. Repairs are performed within available funds budgeted for this purpose. For year four reporting period, a total of 2,496 labor hours were spent on the storm sewer systems maintenance and repair. The value of these improvements was estimated to be \$104,376.52.

Reporting Period	Work Hours	Total Labor	Materials	Total Equipment
7/1/08 to 6/30/09 (Year One)	2,040	\$55,853.00	\$27,886.55	\$19,935.00
7/1/09 to 6/30/10 (Year Two)	2,070	\$56,661.46	\$13,147.58	\$20,898.27
7/1/10 to 6/30/11 (Year Three)	1,528	\$42,508.68	\$19,331.14	\$15,707.72
7/1/11 to 6/30/11 (Year Three)	2,496	\$63,863.00	\$22,833.76	\$17,679.77

**TMDL Consistency:** This program is responsible for maintaining the regulated storm sewer system. This program involves cleaning up storm inlets, fixing eroded areas around storm drains and inlets to minimize sediment being eroded and washed into channels and streams (SED). This program also increases the potential for discovering illicit connections to the storm drain system (EC/FC).

**Evaluation and Modification:** No changes are planned for this BMP, the Town will continue to maintain this program of maintaining and repairing its storm sewer system to keep the system functioning properly. By being in the field, increases the opportunity to discover potential illicit discharge connections to the storm drain system.



### **BMP 6-3. Public Street Sweeping and Vacuuming Program and Leaf Collection Program**

**Goal:** The goal for this program is for the Town to maintain an effective street sweeping and vacuuming program and the leaf collection program.

**Measurable Goals:** 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 or at three week intervals. This continues to optimize both the use and effectiveness of the Town single street sweeper and achieves desired results. 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. Sweeping frequency is impacted by inclement weather and equipment downtime. Beginning, July 1, 2010, the street sweeper was configured for vacuuming debris from drainage inlet. For year four reporting period, the total expenses on wages, and equipment cost of street sweeping program was \$136,115.88 and the total expense of the leaf collection program was \$19,115.77.

**TMDL Consistency:** The street sweeping program offers the greatest benefit to capture roadway contaminants, debris, and sediment (SED) before entering the Town's storm sewer collection system. The leaf collection program minimizes leaf and yard debris that contaminated with pet waste from entering storm sewer system (EC/FC).

**Evaluation and Modification:** No changes are planned for this BMP; the Town will continue to maintain the street sweeping and vacuuming program 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 system.

### **BMP. 6-4. Pollution Prevention and Hazardous Waste Training Programs for Town Employees**

**Goal:** The goal of this BMP is to develop and maintain pollution prevention and hazardous waste training for Town employees and grounds maintenance workers.

**Measurable Goals:** The Town currently maintains basic hazardous waste training for employees in Fire and Rescue. The Human Resources Manager and Public Works Administrative Assistant will be responsible to ensure the Town employees receive environmental awareness and management training.

For year four reporting period, 11 Town Public Works employees attended the regional Virginia Rural Water Association Conference held in Roanoke, Virginia. Exhibitors and Professional Service firms were present displaying a variety of stormwater related products and stormwater related services, respectively.

**TMDL Consistency:** This program makes sure that all Fire and Rescue personnel maintains basic hazardous waste training to prevent mishandling of hazardous materials in ways that could be detrimental to the environment. The program is also responsible for education Town

employees on environmental awareness and management training. This effort targets every employee, whether they are in a high risk field or not about some good housekeeping practices. This program will train every employee to be the eyes and ears of pollution prevention. This will increase the likelihood that any potentially hazardous situation will be brought to the attention of a supervisor and adequately addressed (EC/FC, SED).

**Evaluation and Modification:** The Town considers this BMP to be successful and proposes to continue with this program. The Town will continue the pollution prevention and environmental awareness training for all Town employees. The total number of new employees to receive training will be documented in addition to the total number of employees trained to date.

#### **BMP 6-5: Household Hazardous Waste Collection Event**

**Goal:** The goal of this BMP is to encourage and identify strategies and events to help citizens dispose of household materials and waste that could be hazardous to dispose of in bulk landfills.

**Measurable Goals:** Since 2009, a permanent household hazardous waste facility was made available at the Roanoke Valley Resource Authority (RVRA). The facility is open on the third Saturday of each month, giving citizens in the Roanoke Valley opportunities to dispose of their hazardous materials year-round rather than during three regional collection events offered in the past. For FY 2011-2012, RVRA collected 1,957 gallons of oil, 25 batteries, and 5,450 gallons of latex paint from 1,531 residential households from Roanoke County, City of Roanoke, and Town of Vinton.

**Evaluation and Modification:** The Town considers this BMP to be successful and proposes to continue with the funding to keep the monthly collection at the RVRA facility. This monthly collection makes it easier for citizens to dispose of their household hazardous materials and waste. The Town continues to advertise this monthly hazardous waste collection on its website to increase participation to keep hazardous wastes from being disposed inappropriately into the Roanoke Valley streams and river.