TOWN OF VINTON

311 S. POLLARD STREET
VINTON, VIRGINIA 24179

PHONE (540) 983-0601
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Anita J. McMillan
PLANNING AND ZONING DIRECTOR

September 30, 2011

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 - General Permit Registration Number VAR040026
Year Three Annual Report – July 1, 2010 through June 30, 2011

Dear Mr. Fritz:

Attached to this letter, please find the Town of Vinton's Annual Report for the reporting period of July 1, 2010, through June 30, 2011, of the Virginia General Permit for Discharges from Small Municipal Separate Storm Sewer Systems. The Town continues to develop and implement a stormwater management program designed to reduce the discharge of pollutants to the maximum extent practicable, to protect water quality, and to satisfy the appropriate requirements of the Clean Water Act.

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

The Town has been a part of a strong regional cooperation with Roanoke County, City of Roanoke, Western Virginia Water Authority, Roanoke Valley Resource Authority, Clean Valley Council, and Roanoke Valley Greenway Commission in stormwater pollution prevention, the development of greenways, and stream bank restoration projects along the area waterways.

I appreciate your assistance in this program, and should you have any questions pertaining to this submittal please contact me at (540) 983-0601 or by email at amcmillan@vintonva.gov.

Sincerely,

Anita J. McMillan
Planning and Zoning Director

Attachment

c: Christopher Lawrence, Town Manager
Michael Kennedy, Public Works Director

TOWN OF VINTON, VIRGINIA
Virginia Pollutant Discharge Elimination System (VPDES) Phase II Municipal Separate Storm Sewer System (MS4) Annual Report Year Three

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Town of Vinton, Virginia

VPDES PERMIT NO. **VARO40026**

REPORTING PERIOD OF
JULY 1, 2010 – JUNE 30, 2011

October 1, 2011

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 VPDES Permit No. VAR040026

Vinton Town Council

Bradley E. Grose, Mayor

Carolyn D. Fidler, Vice Mayor | **Robert R. Altice**

Matthew S. Hare | **William "Wes" Nance**

Christopher S. Lawrence
Town Manager/Chief Executive Officer
311 South Pollard Street
Vinton, VA 24179
540-983-0607, 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
311 South Pollard Street
Vinton, VA 24179
540-983-0601, amcmillan@vintonva.gov

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 30, 2011

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, 2010 through June 30, 2011, the third 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 7,782; 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.

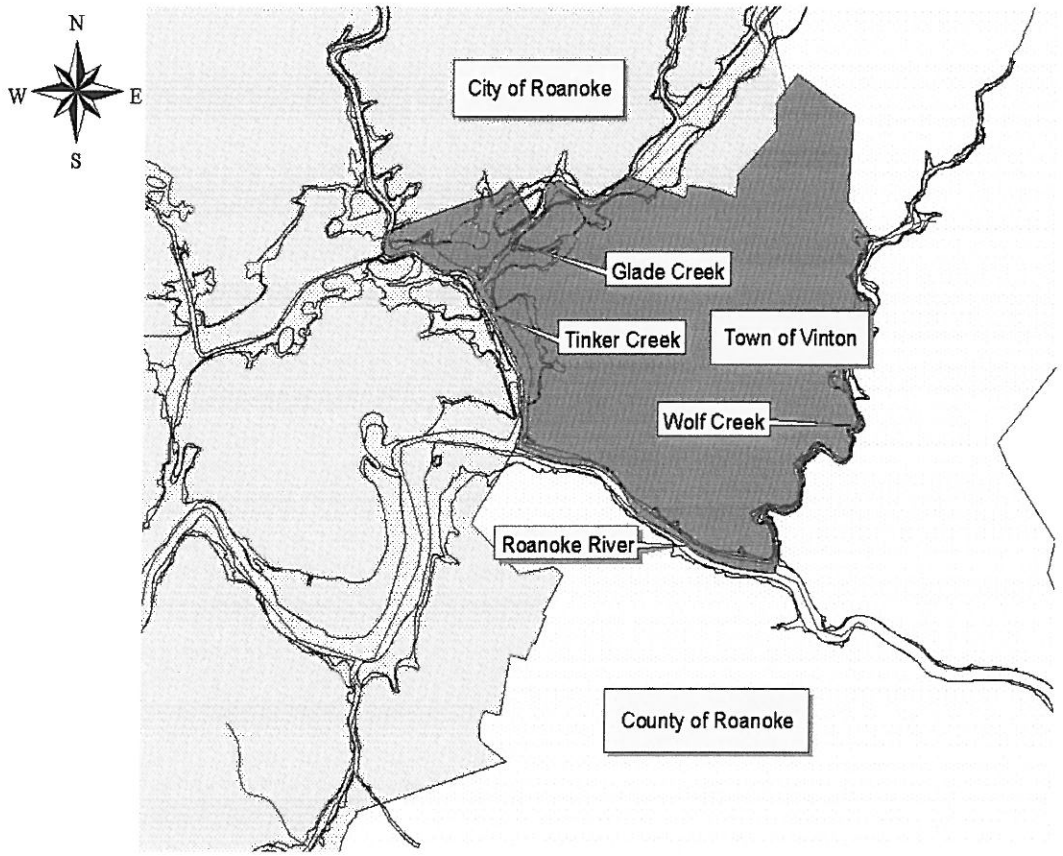

Figure 1. Receiving Waters for the Town of Vinton, Virginia

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 6th 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
Tinker Creek Watershed, 2004 – E-Coli (EC)	
Glade Creek	8.78E+10 cfu/year
Tinker Creek	3.42E+11 cfu/year
Roanoke River Watershed, 2006 – E-Coli (EC)	
Roanoke River	3.32E+10 cfu/year
Roanoke River Watershed, 2006 – Sediment (SED)	
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**

Summary of Assumptions: Tinker Creek Watershed TMDL

The Tinker Creek Watershed TMDL study, completed in March 2004, prepared for and approved by the Virginia Department of Environmental Quality (VDEQ), encompasses the waters of Glade Creek, Tinker Creek, Carvin Creek, Laymantown Creek, and Lick Run. The water quality impairment was to the fecal coliform standard and DEQ has translated fecal coliform values to *E.coli* values. As required, the Town will address the Waste Load Allocation (WLA) for Tinker and Glade Creeks, which are within the Town watershed.
The Tinker Creek watershed TMDL study summarized the potential point and non-point sources of fecal coliform. The study indicates that eight point sources are permitted to discharge in the Tinker Creek watershed through VPDES. Additionally, both urban and rural non-point sources were cited, such as residential sewage treatment systems, land application of waste (livestock and biosolid), livestock, wildlife, and pets. The Town does not allow livestock or the land application of waste, and majority of the residences are served by Town public sewer.

Summary of Assumptions: Roanoke River TMDLs

The Bacteria and Benthic TMDLs Development for Roanoke River completed in February and March 2006, prepared for and approved by the VDEQ, encompasses Wilson Creek, Ore Branch, and the Roanoke River Watershed. Two water quality impairments were cited; E. coli and sediment, and the Town will address the WLA for Roanoke River, which is within the Town watershed. The Roanoke River Bacterial TMDL summarized the potential point and non-point sources of E. coli; and these sources include wildlife, human waste, livestock waste, and pets. The Roanoke River Benthic TMDL summarized the potential point and non-point sources for sediment; non-point sources include forested lands, agricultural lands, developed lands, wetlands, or barren lands, and point sources include facilities that have discharge permits and in-stream bank erosion.

Table 3. List of MCMs/BMPs, Ordinances, Legal Authorities, Policies, and Procedures Applicable to Reduce Pollutants Identified in the TMDL and WLA Development

Minimum Control Measures/Best Management Practices	EC/FC	SED.	Evaluated
MCM 1: PUBLIC EDUCATION AND OUTREACH			
BMP 1-1: Stormwater Educational Programs Review	✓	✓	✓
BMP 1-2: Stormwater Educational/Informational Materials	✓	✓	✓
BMP 1-3: Stormwater Educational School Program	✓	✓	✓

Minimum Control Measures/Best Management Practices	EC/FC	SED.	Evaluated
BMP 1-4: Stormwater Public Awareness Program	✓	✓	✓
BMP 1-5: Town of Vinton Stormwater Webpage	✓	✓	✓
MCM 2: PUBLIC PARTICIPATION AND INVOLVEMENT			
BMP 2-1: Storm Drain Stenciling Program	✓		✓
BMP 2-2: Clean-up and Environmental Events	✓		✓
BMP 2-3: Stormwater Citizens Advisory Committee	✓	✓	✓
BMP 2-4: Staff & Town Representatives on Environmental Related Regional Organizations	✓		✓
BMP 2-5: Posting of the VSMP Report on Town's Website	✓	✓	✓
MCM 3: ILLICIT DISCHARGE DETECTION AND ELIMINATION			
BMP 3-1: Storm Sewer System Mapping	✓	✓	✓
BMP 3-2: Illicit Discharge Ordinance	✓		✓
BMP 3-3: Illicit Discharge Detection Program	✓		✓
MCM 4: CONSTRUCTION SITE STORMWATER RUNOFF CONTROL (Note on the Applicability of Roanoke County BMPs Per Agreement with Roanoke County, February 14, 1984, as the Town's Erosion Sediment Control Agent)			
BMP 4-1: Erosion and Sediment Control (ESC) Ordinance		✓	✓
BMP 4-2: Erosion and Sediment Control (ESC) Certification		✓	✓
BMP 4-3: Land Development Review Procedures and Evaluation		✓	✓
MCM 5: POST-CONSTRUCTION STORMWATER MANAGEMENT FOR NEW DEVELOPMENT AND REDEVELOPMENT			
BMP 5-1: Stormwater Management Ordinance and Manual		✓	✓
BMP 5-2: Stormwater Management Facility Inspection Program		✓	✓
BMP 5-3: Low Impact Development (LID) Utilization		✓	✓
MCM 6: POLLUTION PREVENTION AND GOOD HOUSEKEEPING FOR MUNICAL OPERATIONS			
BMP 6-1: Spill Prevention and Control Plan for Town Facilities	✓		✓
BMP 6-2: Storm Sewer Systems Maintenance Program	✓	✓	✓
BMP 6-3: Street Sweeping and Leaf Collection Program			✓
BMP 6-4: Pollution Prevention and Hazardous Waste Training	✓	✓	✓
BMP 6-5: Household Hazardous Waste Collection Events			✓
Ordinances	EC/FC	SED	Evaluated
Vinton Code Chapter 15: Stormwater Management Ordinance/ Roanoke County Code Chapter 23, Stormwater Management Ordinance	✓	✓	✓

Ordinances	EC/FC	SED	Evaluated
Vinton Code Chapter 15.1: Erosion and Sediment Control and Steep Slope Development Ordinance/Roanoke County Code Chapter 8.1 and Section 8.1-2		✓	✓
Chapter 23, Section 5.7: Illicit Discharge Ordinance	✓		✓
Policies and Procedures	EC/FC	SED.	Evaluated
Land Development Review and Evaluation Procedures		✓	✓
Stormwater Management Facility Inspection Protocol		✓	✓
Illicit Discharge Inspection Procedures	✓		✓

Summary of Program Evaluation

As shown in Table 3 above, multiple best management practices listed in the Stormwater Program Plan and many of the Town's ordinances, policies, and procedures are designed to address the reduction of the pollutants that are identified in the TMDL Waste Load Allocations (WLAs) to the maximum extent practicable. The Town feels that these methods sufficiently address the pollutants of concern and if implementation of the current and future stormwater management program continues, the reduction of the identified pollutants will result. Currently, no weaknesses or limitations have been identified that would limit the Town's programs consistency with the assumptions of the TMDLs.

Implementation Schedule

Overall, the Town feels that there is no lack of clear weakness in the Town's overall Program Plan and Town's ordinances, policies, and procedures. On the other hand, please note that due to limited resources, the implementation of the following best management practices has been minimal: BMP 3-3. Illicit Discharge Detection Program to Minimize Illicit Discharges and BMP 5-1. Stormwater Management Facility Inspection Program.

In June of this year, Town personnel along with Roanoke County personnel performed outfalls reconnaissance in the Wolf Creek Watershed. Town personnel will resume these screenings in October 2011 using the "Stormwater Outfall Inspection Report" provided by Department of Conservation of Recreation (DCR). Roanoke County Department of Community Development GIS and Mapping and Engineering Divisions will continue with the mapping and update of the Town of Vinton storm sewer mapping.

Additionally, 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 and facilities inspection services. Tentative approval of these two MOU by the Town Council and Roanoke County Board of Supervisors is by May of 2012.

Annual Characterization of Volume of Stormwater and Quantities of Pollutants of Concern

The Town will continue to work closely with the Virginia Department of Conservation and Recreation (DCR) and Roanoke County in the development of a standard method with which to estimate the volume of stormwater discharged from the regulated MS4 and the quantity of pollutants identified in the WLAs.

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 4: Town of Vinton Outfall Reconnaissance Schedule

Table 5: 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		
Vinton EMS and Fire Station Buildings, 110 and 120 W. Jackson Avenue	2011-12		
Vinton/County Health Dept., 227 S. Pollard Street	2011-12		
Vinton Farmers' Market, 204 W. Lee Avenue	2011-12		
Vinton Stage, 209 W. Lee Avenue	2011-12		
Vinton Historical Society Museum, 210 E. Jackson Avenue	2011-12		
Vinton War Memorial Building, 814 Washington Avenue	2011-12		
Charles R. Hill Senior Center, 820 Washington Avenue	2011-12		
Municipal Swimming Pool, 330 Meadow St.	2011-12		
Vinton Public Works Building/Garage, 804 3rd Street	2011-12		

Town Facility Illicit Discharge Inspection Schedule	Schedule	Inspected	Pollutant?
Niagara Road Pump Station, 1300 Niagara Road	2012-13		
Third Street Pump Station, 804 3rd Street	2012-13		
Hardy Road Pump Station, 1359 Hardy Road	2012-13		
Wolf Creek Greenway, Hardy Road	2012-13		
M.A. Banks Park/Shelter, 131 Craig Avenue	2012-13		
Gearhart Park/Roanoke County Storage Building,350 Highland Road	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, 2010 through June 30, 2011, 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%**.

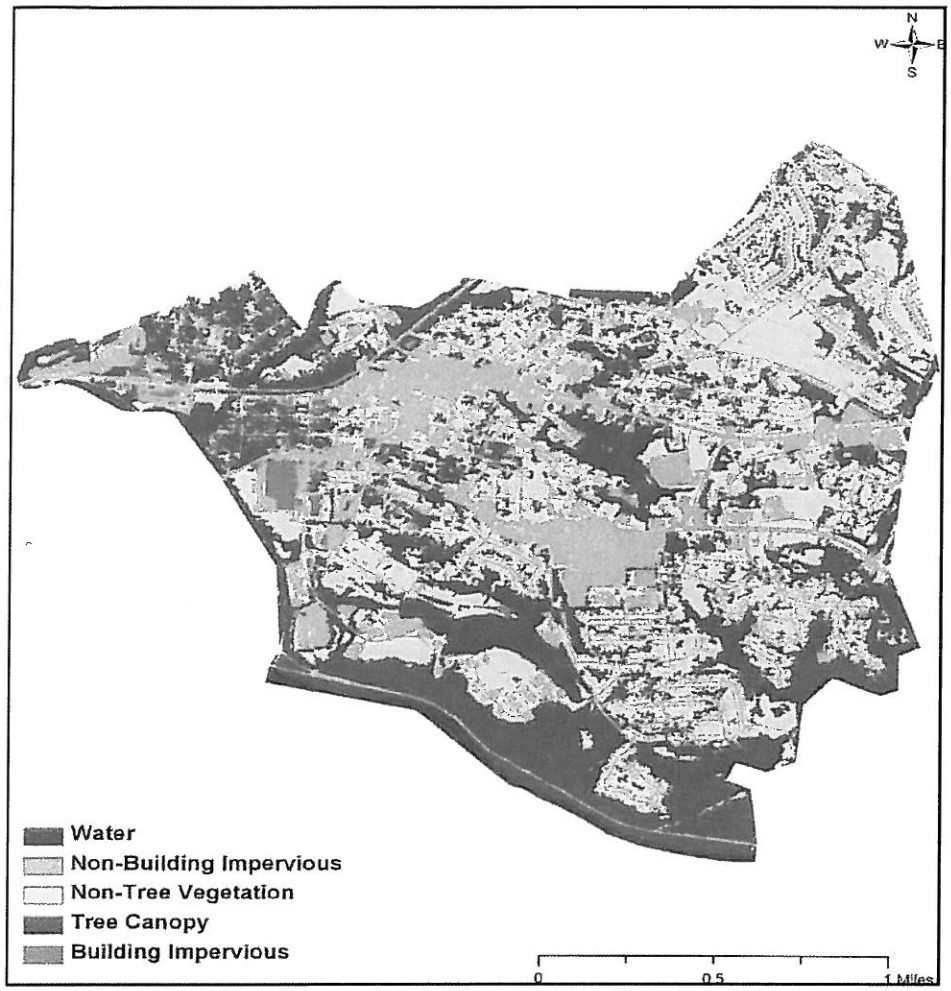

Figure 2: Land Cover for the Town of Vinton, Urban Tree Canopy (UTC) Report

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, 2010 through June 30, 2011, and compiled for this report. The total precipitation for the July 1, 2010 through June 30, 2011 period was **44.68 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:

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

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

Where: R = Runoff Volume Estimate, cubic feet
X = 29.4%, Estimated percentage of impervious for Town of Vinton MS4
Y = 44.68 inches, Annual precipitation in inches of reporting period Jul 1, 2010 – June 30, 2011: 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	7.06E+06
Tinker Creek	489	2.33E+07
Glade Creek	711	3.39E+07

Table 6. 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_{in} = 44.68 inches, Annual Runoff Estimate
= X * Y
C_b = 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	3.39E+09	5.07E+08
Tinker Creek	489	1.12E+10	1.52E+09
Glade Creek	711	1.63E+10	2.15E+09

Table 7: 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} = Annual Runoff Estimate, inches
= 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

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

Watershed with WLA	Drainage Area of MS4 (ac)	Total Suspended Solids (tons/yr)
Roanoke River	148	12.0 tons/year

Table 8: 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 stomwater 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. Based on the website statistics, it shows that the stormwater programs database has been viewed 24 times between July 1, 2010 and June 2010.

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, 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 2011 calendar, which was distributed in December 2010 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 three, Town's calendar which contains stormwater information was distributed to **3,500** households. Other stormwater educational materials for year three were: (1) "Roanoke County Stormwater Management Update" half-page ad was placed in the Roanoke County Parks, Recreation, and Tourism Spring Program and Registration Guide brochure. This

brochure was mailed out in February 2011, to over **50,000** including Town residences out of 90,000 residences. (2) "Keep it clean, clear and safe" postcard which was distributed at special events mentioned above.

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 three, CVC has continued to provide stormwater education program to public school age children. **296** education programs were held in **26** different County schools and reached **7,825** students between Kindergarten and Grade 12. In addition to public schools, CVC provided **20** programs to **717** students in **16** private and parochial schools located in Roanoke Valley. 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 "Who Polluted the River?", "Travelin' Trash", "Drains to Rivers", "Reeling in Runoff", "Stream School", 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
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

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 2010 Fall Waterways Clean-up Event that was held throughout the Roanoke Valley, an advertisement regarding the event was shown at the Grandin Theater for the whole month prior to the event. 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 2:00 p.m. The event was also advertised in The Roanoke Times, Roanoke Natural Food Coop newsletter, WDBJ Channel 7 TV Station, Roanoke Star Sentinel, and Bella Magazine.

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	Student Merchandise, Television Spots, Students Merchandise
2009 – 2010 (Year Two)	5,244	Student Merchandise, Grandin Theater Advertisement
2010 – 2011 (Year Three)	2,691	Student Merchandise, Grandin Theater Advertisement

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

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 held a storm drain stenciling event on June 21, 2011 with two students and two adults from Roanoke Valley Family Services and 10 storm drains were stenciled along South Pollard Street and East Cleveland Avenue.

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

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, October 2, 2010, 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. 751 volunteers registered for the event and they collected 18.8 tons of garbage and 116 tires.

On Saturday, February 19, 2011, a regional E-Waste Recycling Event sponsored by Cox Communications and Synergy was held at the City of Roanoke Civic Center. On Saturday, April 9, 2011, the Town also participated in the Annual Clean Valley Day, and it is followed by the Town's annual Spring Cleanup week from April 18 through April 22, 2011. The Spring Clean Valley Day, 892 volunteers collected 68.09 tons of trash and 701 tires.

The Town 2011 Arbor Day Celebration and Tree Planting Event was held on Friday, April 29, 2011, at the Herman L. Horn Elementary School. Seven October Glory Maple trees were planted at the school new playground. 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 singing and musical presentations by the students on the importance of taking care of the environment and the recyclable characters.

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+

BMP 2-3. Citizen's 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 Regional Stormwater Citizens Advisory Committee held three meetings for year three reporting period; December 3, 2010 in conjunction of the Annual Green Living &Energy Expo at the Roanoke Civic Center; April 12, 2011 at the Vinton War Memorial, and June 15, 2011 at the Roanoke County Fleet Services Center. The meeting on December 3rd focused on why watersheds matter; what is watershed; impacts of impervious cover; and what our community and we as an individual can do to protect our watershed. For the April 4th meeting, Roanoke County engineers gave a PowerPoint presentation on their stormwater facilities inspection effort which include their challenges as how to address facilities that have not been maintained. On June 15th meeting, the committee was given a tour of the County Fleet Services Center Facility, a LEED building and its stormwater management system which includes grass swales and rain garden.

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. Tentative approval of this MOU by the Town Council and Roanoke County Board of Supervisors is May 2012.

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 the year three reporting period, the Town had three regulated land disturbing activities, and a total of 2.366 acres 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
10-0039	8/19/10	O'Reilly Auto Parts	1150 Bypass Road	0.96
10-0040	8/24/10	Vinton Car Wash & Laundromat	805 Hardy Road	0.646
10-0045	9/09/10	Vinton Maple Street Right-of-way Drainage Pipe Replacement	614 Maple Street	0.30
11-0007	3/17/11	Butler Family Trust Office Building	301 Walnut Avenue	0.46
			Total Disturbed Area	**2.366**

Table 9: Town of Vinton Regulated Land-Disturbing Activities for Year Three Report July 1, 2010 – June 30, 2011

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.

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 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 three, 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 47 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.

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	47

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 Town has inspected two facilities. 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 the three year reporting period, a total of 1,528 labor hours were spent on the storm sewer systems maintenance and repair. The value of these improvements was estimated to be $77,547.54.

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
7/1/09 to 6/30/10 (Year Three)	1,528	$42,508.68	$19,331.14	$15,707.72

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: The total of maintenance and repairs to the storm sewer systems dropped due to budget cuts for personnel. 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 downtown. Beginning, July 1, 2010, the street sweeper was configured for vacuuming debris from drainage inlet. For year three reporting period, the total expenses on wages, and equipment cost of street sweeping program was $87,543.64 and the total expense of the leaf collection program was $21,597.92.

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 Town hired a Human Resources Manager in December 2010. The Human Resources Manager will be responsible to ensure the Town employees receive environmental awareness and management training.

For year three 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. One Public Works employee attended the one-day training seminar, "*Stormwater Management: Emerging Regulatory Programs & The Next Generation of Stormwater Practices*". Four Public Works employees attended a one-day workshop offered by the University of Virginia-Technical Transportation Center, "*Drainage: The Key To Roads that Last*".

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 2010-2011, RVRA collected 1,471 gallons of oil, 56 batteries, and 5,683 gallons of latex paint from 1,529 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 plans to advertise this monthly hazardous waste collection to increase participation to keep hazardous wastes from being disposed inappropriately into the Roanoke Valley streams and river.

TOWN OF VINTON, VIRGINIA
Virginia Pollutant Discharge Elimination System (VPDES) Phase II Municipal Separate Storm Sewer System (MS4) Annual Report Year Three

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APPENDIX A

Town of Vinton, Virginia

VPDES PERMIT NO. **VARO40026**

REPORTING PERIOD OF
JULY 1, 2010 – JUNE 30, 2011

Submitted to the Virginia Department of Conservation and Recreation in compliance with VPDES Permit No. VAR040026

STORMWATER MANAGEMENT FACILITIES DATA IN TOWN OF VINTON

Permit No. R040026 Reporting Year July 1, 2010 - June 30, 2011

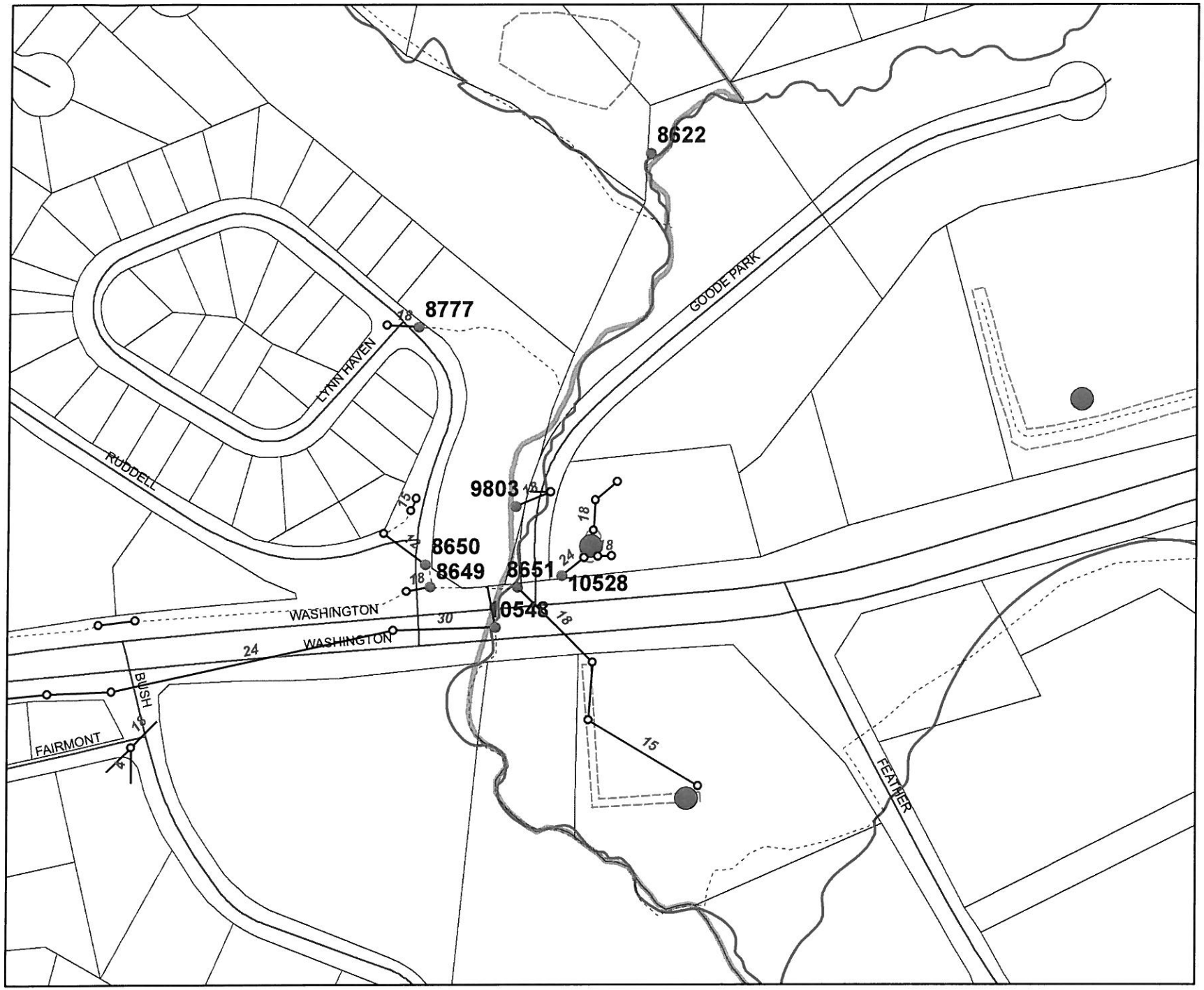
FACILITY ADDRESS	BMP TYPE	HUC	IMPAIRED WATER	NO OF ACRES TREATED
3rd Street/Chestnut St.	Detention Pond	RU 13	Tinker Creek	151
1092 Bypass Road	Detention Pond	RU 13	Glade Creek	19.8
1135 Vinyard Road	Detention Pond	RU 13	Tinker Creek	8.53
970 Hardy Road	Retention Pond	RU 13	Glade Creek	1.23
1000 Hardy Road	Retention Pond	RU 13	Glade Creek	1.44
845 3rd Street	Retention Pond	RU 13	Tinker Creek	1.92
1022 Hardy Road	Detention Pond	RU 13	Glade Creek	2.18
1781 Meadows Road	Retention Pond	RU 14	(Wolf Creek - NI)	19.69
1836 Meadows Court	Retention Pond	RU 14	(Wolf Creek - NI)	6.14
120 W. Virginia Avenue	Retention Pond	RU 13	Tinker Creek	1.75
935 Third Street	Retention Pond	RU 13	Tinker Creek	2.14
910 Hardy Road	Underground Facility	RU 13	Glade Creek	1.1
415 S. Pollard Street	Retention Pond	RU 13	Glade Creek	2.68
1003 Hardy Road	Underground Facility	RU 13	Glade Creek	0.89
1301 Hardy Road	Detention Pond	RU 14	(Wolf Creek - NI)	1
1329 Hardy Road	Detention Pond	RU 14	(Wolf Creek - NI)	1
600 S. Pollard Street	Underground Facility	RU 13	Glade Creek	0.31
865 Industry Circle	Retention Pond	RU 13	Tinker Creek	2.24
119 E. Cleveland Ave.	Underground Facility	RU 13	Glade Creek	0.72
1002 Ruddell Road	Retention Pond	RU 13	Glade Creek	12
101 Highland Road	Retention Pond	RU 13	Glade Creek	0.87
1129 Mountain View Rd	Underground Facility	RU 13	Glade Creek	0.31
1131 Mountain View Rd	Underground Facility	RU 13	Glade Creek	0.34
1209 Mountain View Rd	Underground Facility	RU 13	Glade Creek	0.36
1213 Mountain View Rd	Underground Facility	RU 13	Glade Creek	0.4
1217 Mountain View Rd	Underground Facility	RU 13	Glade Creek	0.44
1221 Mountain View Rd	Underground Facility	RU 13	Glade Creek	0.5
1225 Mountain View Rd	Underground Facility	RU 13	Glade Creek	0.54
1235 Mountain View Rd	Underground Facility	RU 13	Glade Creek	0.35
100 Tobias Road	Detention Pond	RU 13	Glade Creek	5.97
209 Minnie Bell Lane	Underground Facility	RU 13	Glade Creek	0.13
213 Minnie Bell Lane	Underground Facility	RU 13	Glade Creek	0.3
217 Minnie Bell Lane	Underground Facility	RU 13	Glade Creek	0.28
221 Minnie Bell Lane	Underground Facility	RU 13	Glade Creek	0.38
225 Minnie Bell Lane	Underground Facility	RU 13	Glade Creek	0.21
224 Minnie Bell Lane	Underground Facility	RU 13	Glade Creek	0.19
220 Minnie Bell Lane	Underground Facility	RU 13	Glade Creek	0.17
420 Pine Street	Detention Pond	RU 13	Glade Creek	3.3
814 Washington Avenue	Detention Pond	RU 13	Glade Creek	11.27
940 3rd Street	Retention Pond	RU 13	Tinker Creek	1.43
801 Virginia Avenue	Retention Pond	RU 13	Glade Creek	2.62
1130 Hardy Road	Retention Pond	RU 13	Glade Creek	3.07
Wyndham Dr/Saunja Ln	Detention Pond	RU 14	Roanoke River	12.34
Saunja Lane	Detention Pond	RU 14	Roanoke River	1.01
Saunja Court	Detention Pond	RU 14	Roanoke River	4.74
401 Washington Avenue	Bioretention Facility	RU 13	Glade Creek	0.687
1150 Bypass Road	Bioretention Facility	RU 13	Glade Creek	0.96

STORMWATER MANAGEMENT FACILITIES IN THE TOWN OF VINTON

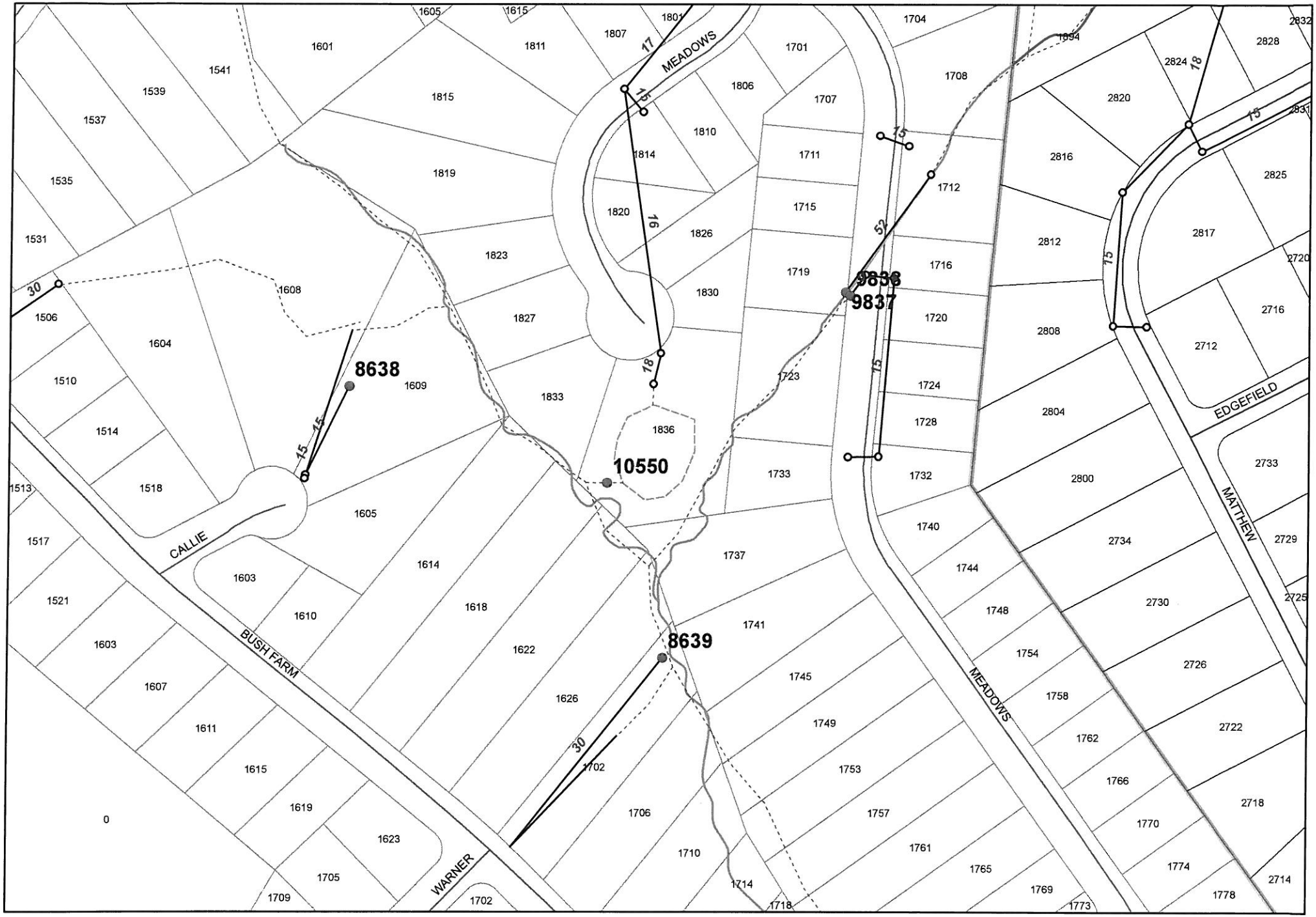
FACILITY NAME	FACILITY OWNER	FACILITY ADDRESS	TAX MAP #	SWM BMP TYPE	YR BUILT
Town SW Detention Basin	Town of Vinton	3rd Street/Chestnut St.	70.08-1-1.8	Detention Pond	1986
River Park Shopping Center	McAdams Norman Properties	1092 Bypass Road	61.13-4-13.2	Retention Pond	1988
Brabham Off-Site Pond	Lancerlot Sports Complex LC	1135 Vinyard Road	60.20-3-81.3	Detention Pond	1997
First Citizens Bank	First Citizens Bank & Trust Co.	970 Hardy Road	61.17-1-8	Retention Pond	1997
Rite Aid Vacant Building	Wolverine Property Co. Trust	1000 Hardy Road	61.17-1-11	Retention Pond	1997
M & W Fire Apparatus	ROWM Company, Inc.	845 3rd Street	70.07-1-8	Retention Pond	1997
CVS Drugstore	Blue Gem Inc.	1022 Hardy Road	61.17-1-18	Detention Pond	1998
Meadows Subdivision #1	David and Judy Nuckolls	1781 Meadows Road	61.10-7-27	Retention Pond	2000
Meadows Subdivision #2	David and Lynn Glovier	1836 Meadows Court	61.10-7-53	Retention Pond	2000
Wachovia Bank	First Union National Bank of VA	120 W. Virginia Avenue	60.15-6-45	Retention Pond	2000
Pennington Crown & Bridge Lab	Staley and Carolyn Pennington	935 Third Street	70.08-1-1.11	Retention Pond	2000
Speedee Oil Change	FTB LLC	910 Hardy Road	60.20-7-33	Underground Facility	2000
Carilion/Parkway Physicians	Carilion Clinic Properties, LLC	415 S. Pollard Street	60.15-6-17	Retention Pond	2002
Valley Bank	Valley Bank	1003 Hardy Road	61.17-3-8	Underground Facility	2002
Hardy Road #1 (Town of Vinton)	Commonwealth of Virginia DOT	Hardy Road	61.18-4-2	Detention Pond	2004
Hardy Road #2 (Town of Vinton)	Commonwealth of Virginia DOT	Hardy Road	61.18-4-7.2	Detention Pond	2004
Jessup Medical Office	Neal and Tammy Jessup	600 S. Pollard Street	60.19-3-21	Underground Facility	2004
Kraft Foods Ware/Freezer	Crestwood of Virginia, LLC	865 Industry Circle	70.07-1-11	Retention Pond	2004
Cundiff Drugstore/Restaurant	Cundiff Properties, LLC	119 E. Cleveland Ave.	60.16-9-2	Underground Facility	2004
Herman L. Horn Elem.School	Roanoke County School Board	1002 Ruddell Road	61.09-2-26	Retention Pond	2005
Steve's Automotive	Thomas and Terri St. Clair	101 Highland Road	60.11-4-27	Retention Pond	2005
James B. Smith Subdivision	Lindsay Jayne Valentine	1129 Mountain View Rd	61.13-1-6	Underground Facility	2005
James B. Smith Subdivision	Lisa Via Chaney	1131 Mountain View Rd	61.13-1-6.2	Underground Facility	2005
James B. Smith Subdivision	Gloria Jean Frazier	1209 Mountain View Rd	61.13-1-21.1	Underground Facility	2005
James B. Smith Subdivision	Merita H. Etue	1213 Mountain View Rd	61.13-1-22.1	Underground Facility	2005
James B. Smith Subdivision	Thomas and Judy Tavela	1217 Mountain View Rd	61.13-1-23.1	Underground Facility	2005
James B. Smith Subdivision	Bonnie L. Conner	1221 Mountain View Rd	61.13-1-23.2	Underground Facility	2005
James B. Smith Subdivision	Jack and Joy Shepp	1225 Mountain View Rd	61.13-1-23.3	Underground Facility	2005
James B. Smith Subdivision	Jeffrey Davis and James Staton	1235 Mountain View Rd	61.13-1-24.1	Underground Facility	2005
Lewis Russell Estates	Lewis Russell Estates HOA	100 Tobias Road	61.14-5-26	Detention Pond	2005
Lewis Russell Estates # T1	Allan and Josephine Floro	209 Minnie Bell Lane	61.14-5-20	Underground Facility	2005
Lewis Russell Estates # T2	Uldine Rae Haga	213 Minnie Bell Lane	61.14-5-19	Underground Facility	2005
Lewis Russell Estates # T3	Kynn Deadrick & Jessica St. Clair	217 Minnie Bell Lane	61.14-5-18	Underground Facility	2005
Lewis Russell Estates # T4	Todd and Lisa Smith	221 Minnie Bell Lane	61.14-5-17	Underground Facility	2005
Lewis Russell Estates # T5	Roger Beverly	225 Minnie Bell Lane	61.14-5-16	Underground Facility	2005
Lewis Russell Estates # T6	Justin Arrington	224 Minnie Bell Lane	61.14-5-15	Underground Facility	2005
Lewis Russell Estates # T7	Carrie Dase & Ronda L. Krogman	220 Minnie Bell Lane	61.14-5-14	Underground Facility	2005

STORMWATER MANAGEMENT FACILITIES IN THE TOWN OF VINTON

FACILITY NAME	FACILITY OWNER	FACILITY ADDRESS	TAX MAP #	SWM BMP TYPE	YR BUILT
Peebles Place Townhomes	Peebles Place HOA, Inc.	420 Pine Street	60.20-6-12	Detention Pond	2006
Vinton War Memorial	Town of Vinton	814 Washington Avenue	60.16-6-33	Detention Pond	2006
Wiley Development	H & S Leasing, LLC	940 3rd Street	70.08-1-1.9	Retention Pond	2006
Life Tabernacle Church	Life Tabernacle Church	801 Virginia Avenue	60.20-5-52.1	Retention Pond	2006
Campbell Memorial Pre. Church	Campbell MP Church	1130 Hardy Road	61.17-1-45	Retention Pond	2007
A. Porter's Haven Senior Hsg #1	Parree Porter Sr Housing, Inc.	Wyndham Dr/Saunja Ln	70.08-1-1.13	Detention Pond	2009
A. Porter's Haven Senior Hsg #2	Parree Porter Sr Housing, Inc.	Saunja Lane	70.08-1-1.13	Detention Pond	2009
A. Porter's Haven Senior Hsg #3	Parree Porter Sr Housing, Inc.	Saunja Court	70.08-1-1.13	Detention Pond	2009
Advance Auto Parts	Advance Stores Company, Inc.	401 Washington Avenue	60.16-5-18	Bioretention Facility	2009
O'Reilly Auto Parts	O'Reilly Automotive, Inc.	1150 ByPass Road	61.13-4-13	Bioretention Facility	2010



Outfalls in Wolf Creek Watershed



Outfalls in Wolf Creek Watershed

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File Edit View Favorites Tools Help

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Dashboards

▼ View: Webmaster

- Webmaster Overview
- Content Summary
- Defined Funnel Navigation
- Entrance Bounce Rates
- Goal Tracking
- Content by Titles
- ⊟ Web Design Parameters
  - Browser Versions
  - Platform Versions
  - Browser & Platform Combos
  - Screen Resolutions
  - Screen Colors
  - Languages
  - Java Enabled
  - Flash Version
  - Connection Speed
  - Hostnames

All Reports

- ▼ Advertisement Optimization
  - ⊞ Marketing Campaign Results
  - ⊞ Search Engine Marketing
  - ⊞ CPC Structure
- ▼ Marketing Optimization
  - ⊟ Unique Visitor Tracking
    - Daily Visitors
    - Visits & Pageview Tracking
    - Goal Conversion Tracking
    - Absolute Unique Visitors
    - Visitor Loyalty
    - Visitor Recency
    - Visitor List
  - ⊞ Visitor Segment Performance
  - ⊞ Marketing Campaign Results
  - ⊞ Search Engine Marketing
- ▼ Content Optimization
  - ⊞ Ad Version Testing
  - ⊟ Content Performance
    - Top Content
    - Content Drilldown
    - Content by Titles
    - Page Query Terms
    - Depth of Visit
    - Engagement Metrics
  - ⊞ Navigational Analysis
  - ⊞ Goals & Funnel Process
  - ⊞ Web Design Parameters

Content by Titles Export

VA-Vinton | 7/1/2010 - 6/30/2011

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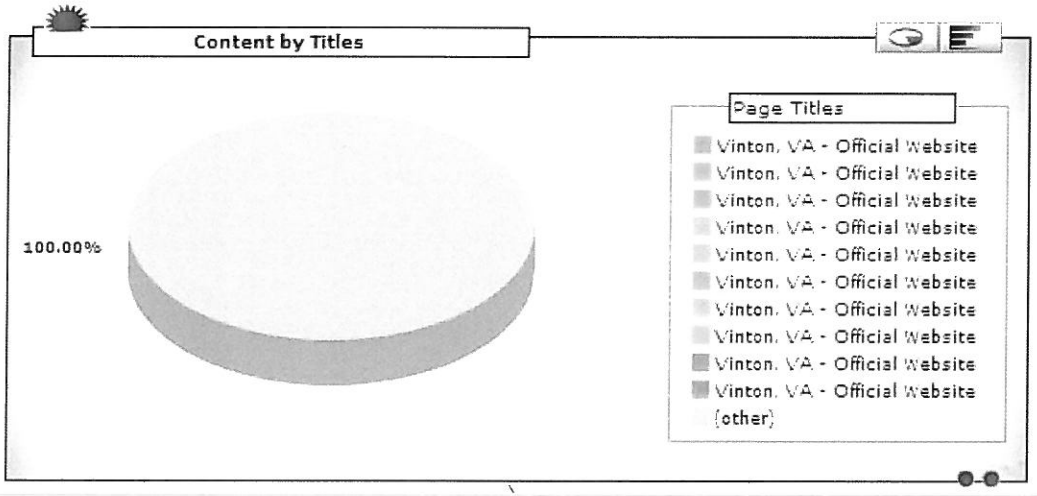

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222.	Vinton, VA - Official Website - Business	0	2	00:00:02	0.00%	$0.00
223.	Vinton, VA - Official Website - Community	0	2	00:00:03	0.00%	$0.00
224.	Vinton, VA - Official Website - Community Features	0	1	00:00:58	0.00%	$0.00
225.	Vinton, VA - Official Website - New Page	0	3	00:01:47	0.00%	$0.00
226.	Vinton, VA - Official Website - Zoning Map	0	1	00:00:07	0.00%	$0.00
227.	Vinton, VA - Official Website - Gain Sharing	0	3	00:01:47	0.00%	$0.00
228.	Vinton, VA - Official Website - Special Exception Requirements	0	24	00:00:12	0.00%	$0.00
229.	Vinton, VA - Official Website - Water	0	1	00:00:01	0.00%	$0.00
230.	Vinton, VA - Official Website - Volunteer First Aid (EMS) Crew	0	2	00:04:10	0.00%	$0.00
231.	Vinton, VA - Official Website - Numbers	0	12	00:00:43	0.00%	$0.00
232.	Vinton, VA - Official Website - Sign Permits	0	2	00:00:03	0.00%	$0.00

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Did you know that every time it rains, the rainwater (commonly known as stormwater runoff) picks up pollutants in its path and carries them into storm drains which lead to the nearest creek, stream or river? These pollutants include motor oil, gasoline, lawn chemicals, pet waste, litter, soil and more. Polluted water can be unsafe for drinking, recreation, and plant and aquatic life. But you can help. Below are 5 easy ways you can make a difference and help keep our water clean. To learn more, call the Clean Valley Council at 345-5523 or visit **www.cleanvalley.org**.

1 Never dump anything down a storm drain.

2 Pick up after your pet.

3 Place trash and recyclables in secure containers.

4 Use lawn chemicals sparingly.

5 Prevent soil erosion on your property.

Keep it clean, clear and safe.

Did you know there are 5 easy things you can do to help keep our water clean and safe? To learn more, see the back of this postcard, call the Clean Valley Council at 345-5523, or visit **www.cleanvalley.org**. Also, you can visit these other localities below for further information. Together, we can make a difference.

Roanoke City
www.roanokeva.gov

Roanoke County
www.roanokecountyva.gov

Vinton
vintonva.gov

Over 55

Driver's Safety Program

Refresh your driving knowledge in this two session program presented by AARP and held at the Brambleton Center. Fee: $12 for AARP members and $14 for non-members. Fee paid to the Instructor at first session. Two session program.

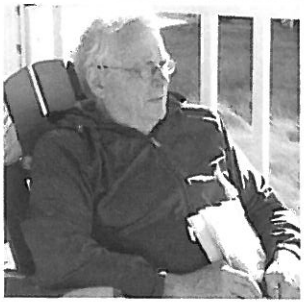
Ages	Date	Day	Time	Place	Course #	Fee
55+	Mar 7-8	M-Tu	8:30am-12:30pm	Brambleton	17387	$12+
55+	Apr 11-12	M-Tu	8:30am-12:30pm	Brambleton	17388	$12+

Retire in Comfort & Style

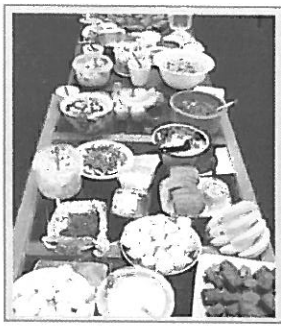
NEW!

Budgets, Medicare, ROTHs. This class will tell you how to make sense of everything for your retirement. Plan ahead now so you can sit back and relax in the future.

Ages	Date	Day	Time	Place	Course #	Fee
55+	May 19	Th	5:30pm-8:00pm	Green Ridge	18198	$19



With the proper planning, you won't need to worry about making ends meet in retirement! Learn how in the class above.



Pot Luck Lunches for 55+

Bring your friends and a covered dish! Bingo will be played, so bring a gift to be used as a prize. Program meets the fourth Friday of every month at Glenvar Library from 12 to 2pm and the third Thursday of every month at Mason's Cove Firehouse. No lunch in the month of January for either location. Reservations are required by calling 772-PLAY

Breakfast Cookout at Garst Mill Park

Become part of a tradition and join your friends at Garst Mill Park for breakfast. Indulge in pancakes made from scratch and hot off the griddle, sausage gravy and biscuits, bacon, eggs, fruit and juices.

Ages	Date	Day	Time	Place	Course #	Fee
55+	Jun 22	W	9:00am-11:00am	Garst Mill Park	17902	$8

Lunch Around the Valley

Everyone is invited to meet at 11:30 AM for lunch on your own at a variety of area restaurants listed below. Please register by the Thursday before so reservations can be made.

Ages	Date	Day	Time	Place	Course #	Fee
55+	Apr 25	M	11:30am-1:00pm	Applebees Salem	17903	$0
55+	May 23	M	11:30am-1:00pm	Annie Moore's	17905	$0
55+	Mar 28	M	11:30am-1:00pm	Wildwood	17393	$0

ROANOKE COUNTY STORMWATER waterwise

Roanoke County Stormwater Management Update

The Roanoke County Stormwater Division is continuing our commitment to improving water quality and reducing impacts from flooding by enhancing the stormwater management facility maintenance and inspection program.

In an effort to educate Roanoke County citizens and property owners on the importance of stormwater pond maintenance and inspection, the Stormwater Division is planning several community meetings, Board of Supervisors work sessions, and the distribution of a Stormwater Management Facility Maintenance Guide.

The County outreach program is intended to educate citizens and private property owners on:

- Why we need Stormwater Management and who benefits from it;
- Who contributes to stormwater runoff;
- What stormwater management Best Management Practices (BMPs) are, the different types of BMPs, and how each should be maintained;
- And who is responsible for inspecting facilities.

For your own free copy of the Roanoke County Stormwater Facility Maintenance Guide or for more information on a public meeting in your district, please contact the Stormwater Division at (540) 772-2096 or visit the County's stormwater webpage online at http://www.roanokecountyva.gov/ or email us at stormwater@roanokecountyva.gov.

Unmaintained Ponds in Roanoke County

Clean Valley Council, Inc., Outreach Programs

Elementary School *Look for New Programs!*

Preschool or Kindergarten (30 to 45 minutes)

New! Let's Recycle!
(Science SOL: K.1, K.9, K10)
Readings from books like Michael Recycle, The Day the Trash Came Out to Play, or All the Way to the Ocean, will help students learn about recycling, how it works, why it's important, and what they can do to help. (Mr. Rogers Goes to the Recycling Center video is also available). Trash can be harmful when it's not where it belongs.
Vocabulary Introduced: Litter, Reduce, Reuse, Recycle, Conserve, Resources
Equipment needed: VCR/ DVD player

Rigsby's Cleanup Surprise
(Science SOL K.9, K.10, & Civics SOL K.7)
Students will identify differences between natural and human-made objects. They will recognize that they have control over litter. Students investigate a park that's been littered and meet "Rigsby", the Raccoon, who teaches the harm that litter brings to all of his park pals. They will learn what kinds of litter can be recycled.
Vocabulary Introduced: Litter, Natural Objects, Man-made Objects, Recycling
Equipment needed: None

Who Polluted the River? **(Can be adapted for grades K – 3)**
(Science SOL K.10, 1.8, 2.5, 2.7,3.9,3.10,3.11)
Students will identify sources of pollution and how they get into the river. A pickle jar is used to represent the river, and students help "pollute" the river. Prevention of water pollution is discussed, to include recycling, reusing, and reducing waste.
Vocabulary Introduced: Litter, Natural Objects, Man Made Objects, Recycling;
(For grades 2-3:Pollution, Acid Rain, Sewage, Pesticides, Fertilizer)
Equipment needed: None

Grade 1 (45 minutes)

Think Earth
(Science SOL 1.8 Economics 1.10,1.11)
Students identify natural resources which are found in the Greater Roanoke Valley and consider ways that they can personally reduce consumption of these resources.
Vocabulary Introduced: Natural Resources, Conservation
Equipment Needed: VCR

Wartville Wizard
(Science SOL 1.8, Economics 1.10,1.11)
Students will identify the components of a community: human resources, natural resources, capital resources used to produce goods. A 35-mmslide story explores litter as being an undesirable component.
Vocabulary Introduced: Community, Litter
Equipment Needed: Slide projector, Cassette Player

The Truth About Trash
(Science SOL 1.8)
Students will discover that trash has better uses than just throwing it in the "regular" trash can. Using
the book, "A Pig Tale" or Pokemon posters, and a bag of collected trash, students will find better uses for trash. Interactive activity: Using plastic drink bottles, students will create toys from trash.
Vocabulary Introduced: Litter, Solid Waste, Natural Resources
Equipment Needed: By teacher: half sheet construction paper, google eyes, pom poms, pipe cleaners, extra construction paper, glue, tape, plastic drink bottles.

Grade 2- 5 (45 minutes)

The Green Game
(Science SOL 2.5, 2.8, 3.6, 3.10, 3.11, 4.2, 4.8, 5.6, 5.7)
Students will focus on ways in which they can care for their environment by playing a fun interactive game. The game format is a "greenopoly" board game played in up to 6 groups.
Vocabulary Introduced: Litter, Recycle, Conservation, Environment, Ecology, Natural Resources, Pollution
Equipment needed: None

The Water Game
(Science SOL 2.5, 3.6, 3.10, 3.11, 4.8, 5.4, 5.6)
Students will play an interactive giant ground version of a board game that focuses on ways to preserve, conserve, and share our waters. The game can be played indoors or outdoors.
Vocabulary Introduced: Conserve, Preserve, Natural Resources, Water Pollution, Water Cycle, Hydrologic Cycle, Surface Water, Groundwater, Consumers, Desalination, Watershed,
Equipment needed: None

Grade 2 (45 minutes)

Kids-Eye View
(Science SOL 2.5, 2.8)
Students will define ECOLOGY and will focus on ways in which they can care for their environment. A list of "25 Things Kids Can Do" is part of the program.
Vocabulary Introduced: Ecology, Environment
Equipment Needed: VCR

The Lorax
(Science SOL K.5, 2.5, 2.8, 3.6, 3.10)
Students will listen to Dr. Seuss' story of the "Lorax" to learn about the human effects on animals and the environment. They will recognize that they have control over their consumption of natural resources.
Vocabulary Introduced: Conservation, Environment, Ecology, Natural Resources, Pollution
Equipment Needed: VCR

Travelin' Trash
(Science SOL K.5, 1.8, 2.5, 3.6, 3.10) *Can be adapted for grades K–3.*
Students will see a series of activities that demonstrate the characteristics of marine debris, and how these characteristics affect where marine debris is found in the environment. Students will determine whether or not trash can float, be moved by the wind, or be washed away.
Vocabulary Introduced: Buoyant, Marine Debris
Equipment Needed: None

***New!* Groundwater: What Goes Down, Must Come Up**
(Science SOL: 3.6, 3.7, 3.9, 4.5, 4.8, 5.1, 5.6, 5.7; Math SOL: 5.8)
Students will use the Bedrock Simulator and Rainmaker models to examine the complete water cycle, and discover the movement and storage of water from the surface through belowground soil and bedrock. The flow of water will be traced, covering basic groundwater concepts. Students will see the immediate effect of groundwater contamination. The *Rainmaker* will demonstrate the *Water Cycle* as part of the surface to groundwater cycle.
Vocabulary: Aquiclude, Aquifer, Bedrock, Subsoil, Topsoil, Clay, Runoff, Groundwater, Evaporation, Condensation, Precipitation, Nonpoint Source Pollution, Point Source Pollution, Sand, Soil, Water Conservation, Wetlands
Equipment Needed: Paper Towels, Sink

Grade 3 (45 minutes)

Soil: Who Needs It?
(Science SOL3.3, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10)
Students will discover why soil is important while viewing the DVD Soil: Who Needs It? The DVD focuses on why we are loosing billions of tons of soil each year to erosion and what we can do to save our soil. The DVD is followed by an energetic game of TRASH to SOIL. The object of this activity is to create a viable compost pile using only green and brown materials while keeping the pile free of inappropriate items, helping to build a better understanding of soil properties.
Vocabulary Introduced: Erosion, Humus, Organic, Inorganic, Decompose, Compost
Equipment needed: DVD Player

Think Earth, "e"
(Science SOL 3.6, 3.10)
Students will examine the 3 R's as a means to conserve identified natural resources.
Vocabulary Introduced: Reduce, Reuse, Recycle
Equipment Needed: VCR

The Rotten Truth
(Science SOL 3.10)
Solid waste disposal is a major industry. Students learn different methods of waste disposal and ways they personally can reduce the waste stream.
Vocabulary Introduced: Solid waste disposal, Landfill, Compost, Waste stream
Equipment Needed: VCR

Grade 4 (45 minutes)

Aluminum (Plastic, or Paper) Recycling
(Science SOL 4.2, 4.8)
Students will follow a can to a recycling center and learn about recycling, how it works, why it's important, what they can do to help. Trash can be dangerous when it's not in its proper place: the garbage can or recycling can. Students will keep one piece of litter (aluminum can) in mind as they follow it from the street to a new container or usable item. This program can also substitute "Paper Recycling" or "Plastic Recycling" for the title. Students will see a variety of new materials that were recycled from other materials.
Vocabulary Introduced: Recycling, Reduce, Reuse, Natural Resources, Machines
Equipment needed: VCR

Environmental Bingo
(Science SOL 3.11, 4.8)
Students will examine aspects of recycling and solid waste management, and then play a fun interactive game reviewing what they have learned.
Vocabulary Introduced: Litter, Recycle
Equipment needed: None

Grade 4 - 5 (45 Minutes)

Watersheds to Oceans
(Science SOL 4.8, 5.6; English SOL 4.2, 5.1, 5.8; Math SOL 4.12, 5.11)
Students will identify watersheds and map the movement of solid waste from storm drains to the ocean. The Enviroscape (or Watershed Demo Pans) will show the effects of erosion, pesticides, fertilizers, and litter on waterways and bodies of water. The effects of natural disasters and litter will be compared and contrasted.
Vocabulary Introduced: Litter, Solid Waste, Pollution, Watershed, Erosion, Pesticides, Fertilizers, Natural Disasters
Equipment needed: None

The Trash Train
(Science SOL: 3.11, 4.5, 4.8, 5.6, 5.7)
Students will follow trash as it is brought in by localities (Roanoke City, Roanoke County, and Vinton) as it is dumped on the transfer station floor for inspection, loaded onto "Trash Train" rail cars, and travels to the Smith Gap Landfill. Ways of decreasing the amount of trash will be addressed.
Vocabulary: Recycle, Decompose, Biodegrade, Ventilation, Wasteline Express, Synthetic, Leachate, Natural Buffer, Compost

Grade 5 (45 Minutes)

Oceans of Trash
(Science SOL 5.4)
A 35 mm slide presentation and discussion review of Roanoke Valley's connections to the ocean and ocean characteristics. Marine debris is a health hazard, presenting a threat for entanglement by marine mammals and aquatic life.
Vocabulary Introduced: Salinity, Estuary, Riparian
Equipment Needed: Slide projector/ Screen (or blank wall), Overhead Projector

Clean Valley Council, Inc. Outreach Programs

Middle School **- Grade 6-8 (45 minutes)**

New! Groundwater Flow

(Science SOL: 6.1, 6.5, 6.7, 6.9, LS.7, LS.10, LS.12, 8.1, 8.2; Math SOL: 6.2, 7.5, 8.1, 8.7)

Students will use the Bedrock Simulator and Rainmaker models to examine the complete water cycle, and discover the movement and storage of water from the surface through belowground soil and bedrock. The Bedrock Simulator covers basic groundwater concepts to include aquifers, saturated and unsaturated zones and water table. Students will see the immediate effect of groundwater contamination. Remediation (pollution removal) of contaminated groundwater will demonstrate the connection between surface and groundwater. The Rainmaker model will demonstrate the *Water Cycle* as part of the surface to groundwater cycle. Follow-up activities for teachers include Percent Porosity, Density, and Volume calculations.

Vocabulary: Aquiclude, Aquifer, Artesian Well, Bedrock, Confined (Artesian) Aquifer, Discharge Area, Flow-Through Lake, Groundwater, Infiltration, Nonpoint Source Pollution, Permeability, Point Source Pollution, Porosity, Recharge Area, Runoff, Saturated Zone, Unsaturated Zone, Water Conservation, Wetlands

Equipment Needed: Paper Towels, Sink

New! Why Watersheds?

(Science SOL: ES.7, ES.9, ES.11, BIO.3)

Students will follow a Power Point presentation that addresses five topics: Why Watersheds Matter, What Is a Watershed, Impacts of Impervious Cover, What Your Community Can Do to Protect Your Watershed, and What You Can Do to Protect Your Watershed.

Vocabulary: Aquatic Buffer, Aquatic Corridor, Green Parking Lots, Groundwater, Impervious Cover, Nonpoint Source Pollution, Point Source Pollution, Runoff, Water Conservation, Watershed, Wetlands

Equipment Needed: Projection Screen, Electrical Outlet

Environmental Jeopardy: New! Stormwater Jeopardy!

(Science SOL 6.2, 6.3, 6.6, 6.9, LS.7, LS.12, PS.6, World Geography SOL: WG.1, WG.2, WG.6)

Students will examine aspects of environmental issues, and then play a fun interactive game reviewing what they have learned. Topics to choose from (choose one) are Stormwater, Water, Energy, Solid Waste, or Ecological Footprint.

Vocabulary Introduced: Energy, Natural Resources, Renewable Resources, Litter, Solid Waste, Recycle, Watersheds, Runoff, Pollution

Equipment needed: None

The Chemistry of Recycling

(Science SOL 6.1, 6.4, LS.1, LS 6, PS.1, PS.2, PS.4)

This two-part program starts with the cycles of recycling. Students are given cycles of recycled products and try to determine the identity of each product. The second part of the program is a ***mini-lab*** where students try to identify the type of plastic by testing the reaction of each plastic in different solutions. Students will see a variety of new products that were recycled from other materials.

Vocabulary Introduced: Recycle, Decompose, Biodegrade, Compost, Ingot, Extruded, Alloyed, Density, Resins

Equipment needed: Overhead Projector in classroom, 16 small ***glass*** beakers

Drains to Rivers! **(Excellent Precursor to *Reeling in Runoff* Program)**
(Science SOL 6.7, 6.9, LS.11, LS.12, ES.9, World Geography SOL: WG.1, WG.2, WG.6)
Students will discover what happens to common household waste, as it becomes "runoff". Solutions for cleaner and less runoff will be explored, using an Enviroscape runoff model or watershed demo pans that represent individual parts of a community.
Vocabulary Introduced: Litter, Solid Waste, Natural Resources, Storm Drain, Runoff, Nonpoint Source Pollution
Equipment Needed: None

Reeling in Runoff
(Science SOL 6.7, 6.9, LS.11, LS.12, ES.9, World Geography SOL: WG.1, WG.2, WG.6)
Students will discover practical solutions for preventing water pollution. Best Management Practices (BMPs) are systems, activities, and structures that can reduce and prevent onpoint source pollution. Solutions for cleaner and less runoff will be explored, using a model that represents individual parts of a community.
Vocabulary Introduced: Litter, Solid Waste, Natural Resources, Storm Drain, Runoff, Nonpoint Source Pollution, BMPs
Equipment Needed: None

Oceans of Trash
(Science SOL 6.9, LS.4, LS.7, LS.10, LS.11, LS.12)
A 35 mm slide presentation and discussion review of Roanoke Valley's connections to the ocean and ocean characteristics. Marine debris is a health hazard, presenting a threat for entanglement by marine mammals and aquatic life.
Vocabulary Introduced: Salinity, Estuary, Riparian
Equipment Needed: Screen, Electrical Outlet

Stream School (offered in the Fall and Spring)
Science SOL 6.5, 6.7, LS.7, LS.10, LS.12, ES.7, ES.9, ES.11, BIO.3, BIO.9, CH.1)
Students will participate in a field trip experience at a local stream to identify macroinvertebrates and perform chemical tests. This will enhance their understanding of the factors involved in determining water quality, and the connection between point source and non-point source pollution in their waterways.
Vocabulary Introduced: Riparian Corridor, Litter, Erosion, Point Source Pollution, Nonpoint Source Pollution
Equipment Needed: Old sneakers or water shoes/boots

Watershed Connections
(Science SOL 6.3, 6.5, 6.7, 6.9, LS.7, LS.10, LS.12)
A 35 mm slide presentation and discussion will examine watersheds and determine the problems associated with erosion, pollution, and litter.
Vocabulary Introduced: Riparian Corridor, Litter, Erosion
Equipment needed: Screen, Electrical Outlet

Plants Eat Bad Chemicals
(Science SOL 6.7, 6.9, LS.3, LS.4, LS.7, LS.10, PS.7)
The students will learn about the process of Phytoremediation, where plants remove, transfer, stabilize or destroy contaminants in soil and groundwater. Through classroom demonstrations the students will observe groundwater and soil contamination as a result of chemicals accumulating in soil and water, and review plant anatomy.

Vocabulary Introduced: Phytoremediation, Groundwater, Transpiration, Contamination, Infiltration, Riparian
Equipment Needed: None

Water: Nature's Recycling System
(Science SOL 6.1, 6.7, 6.9, LS.1, LS.3, LS.7, LS.10)
This interactive program takes students through the Water Cycle with emphasis on water management, topography, infiltration, runoff and erosion. Through hands on activities and demonstrations students will discuss these occurrences and how they are influenced by human activities.
Vocabulary Introduced: Precipitation, Evaporation, Transpiration, Topography, Infiltration, Erosion, Runoff
Equipment Needed: None

Land Use: For the People, the Government, or the Environment?
(Science SOL: 6.2, 6.5, LS.12, Civics & Economics SOL: CE.11, CE.12, World Geography SOL: WG.7, WG.9)
Students will discover what decisions need to be made when they try to place a school on a tract of land that has many aspects to be considered: citizens, government regulations, environmental impacts. These decisions will carry costs and benefits, value, and personal choices. Principles to be discussed include: a scarcity forces choices b. resource management decisions are made by people acting alone or in groups c. changes in rules and laws alter incentives and decisions d. people value things differently.
Vocabulary Introduced:
Costs and Benefits = positive and negative factors involved as a result of choices
Natural Resources = all the Earth's materials that make other products
Incentives = rewards or punishment for behavior
Hammock = stand of preserved, original trees
Hazardous Waste = waste that is harmful to the environment and people
Groundwater = water found beneath the soil's surface
Water conservation = the careful use and protection of water resources in quantity and quality
Wetlands = landforms that are wet at least part of the year and have a particular type of soil and plants
Scrub Habitat = area with small trees, bushes or plants that have low moisture
Superfund = underground storage site of hazardous waste on a list to be cleaned up and restored by the government
Watershed address = area you live in that drains to the nearest creek, stream, or river
Equipment needed: Overhead projector

Aluminum (Plastic, or Paper) Recycling
(Science SOL 6.2, 6.6, 6.9, LS.12, Civics & Economics SOL: CE.3, CE.4, World Geography SOL: WG.1, WG.2, WG.6)
Students will follow a can to a recycling center and learn about recycling, how it works, why it's important, what they can do to help. Trash can be dangerous when it's not in its proper place: the garbage can or recycling can. Students will keep one piece of litter (aluminum can) in mind as they follow it from the street to a new container or usable item. This program can also substitute "Paper Recycling" or "Plastic Recycling" for the title. Students will see a variety of new materials that were recycled from other materials.
Vocabulary Introduced: Recycling, Reduce, Reuse, Natural Resources, Machines
Equipment needed: VCR

Clean Valley Council, Inc. Outreach Programs

High School - Grade: 9 –12 (45 minutes)

New! Groundwater: Flow, Contamination and Remediation
(Science SOL: ES.1, ES.3, ES.7, ES.9, ES.13, BIO.3, BIO.9, CH.1, CH.6, PH.2; Math SOL: A.7, G12, G.13, G.14, AII.3, AII.4, AII.8, COM.12, PS.2)
Students will use the Bedrock Simulator and Rainmaker models to examine the complete water cycle, and discover the movement and storage of water from the surface through belowground soil and bedrock. The Bedrock Simulator covers basic groundwater concepts to include aquifers, saturated and unsaturated zones and water table. Students will see the immediate effect of groundwater contamination from abandoned wells, underground storage tanks and septic tanks as it moves through different zones, wells, lakes, rivers, wetlands and springs. The surface water to groundwater connection and remediation (pollution removal) can be examined by showing how contaminated water percolates down into groundwater and can be drawn up into wells and surface water. Chemical contaminates with different densities or different pH (including buffering) can be demonstrated and discussed. The Rainmaker model demonstrates the aboveground part of the water cycle and how it connects to the groundwater portion of the cycle. *Follow-up activities* for teachers include Percent Porosity calculations, Slope of the Water Table (Hydraulic Gradient) calculations, Potentiometric Surface (water pressure and water level) measurements, and Average Flow Velocity of groundwater.
Vocabulary: Aquiclude, Aquifer, Artesian Well, Bedrock, Cone of Depression, Confined Aquifer (Artesian), Discharge Area, Flow-Through Lake, Groundwater, Hydraulic Gradient, Hydraulic Head, Infiltration, Nonpoint Source Pollution, Perched, Permeability, Plume, Point Source Pollution, Porosity, Potentiometric Surface, Recharge Area, Runoff, Saturated Zone, Unsaturated Zone, Water Conservation, Wetlands
Equipment Needed: Paper Towels, Sink

New! Why Watersheds?
(Science SOL: ES.7, ES.9, ES.11, BIO.3)
Students will follow a Power Point presentation that addresses five topics: Why Watersheds Matter, What Is a Watershed, Impacts of Impervious Cover, What Your Community Can Do to Protect Your Watershed, and What You Can Do to Protect Your Watershed.
Vocabulary: Aquatic Buffer, Aquatic Corridor, Green Parking Lots, Groundwater, Impervious Cover, Nonpoint Source Pollution, Point Source Pollution, Runoff, Water Conservation, Watershed, Wetlands
Equipment Needed: Projection Screen

Environmental Jeopardy: New! Stormwater Jeopardy!
(Science SOL: ES.7, ES.9, ES.11, BIO.5, BIO.8, BIO.9, PH.8)
Students will examine aspects of environmental issues, and then play a fun interactive game reviewing what they have learned. Topics to choose from (choose one) are Water, Stormwater, Energy, Solid Waste, or Ecological Footprint.
Vocabulary Introduced: Energy, Natural Resources, Renewable Resources, Litter, Solid Waste, Recycle, watersheds, Runoff, Pollution
Equipment needed: None

The Chemistry of Recycling
(Science SOL: BIO.1, CH.1, CH.2, PH.1)
This two-part program starts with the cycles of recycling. Students are given cycles of recycled products and try to determine the identity of each product. The second part of the program is a mini-lab where students try to identify the type of plastic by testing the reaction of each plastic in different solutions. Students will see a variety of new products that were recycled from other materials.
Vocabulary Introduced: Recycle, Decompose, Biodegrade, Compost, Ingot, Extruded, Alloyed, Density, Resins
Equipment needed: Overhead Projector in classroom, 16 small ***glass*** beakers

After the Storm
(Science SOL: BIO. 9, CH.1, CH.6, PH.4; English SOL 9.4, 11.4)
Students will discover what happens after it rains, and what ends up in our streams, lakes, rivers, and oceans. How ecosystems can collapse due to turbidity and low oxygen levels will be outlined and suggestions for filtering runoff by wetlands and green roofs will be discussed.
Vocabulary Introduced:
Solid Waste, Natural Resources, Storm Drain, Runoff, Nonpoint Source Pollution, Fecal Coliforms, Hypoxic, Groundwater, Water Conservation and Quality, Wetlands, Green Roof, Watershed Address
Equipment Needed: Overhead Projector, DVD

Water: Woes to Wonders
(Science SOL: BIO.9, CH.1, CH.6, PH.4, English SOL: 9.4, 11.4)
Students will discover why the overuse of groundwater has been described as a non-renewable resource that is being "mined". Wetlands will be described and students will see what makes wetlands awesome natural wonders. Activities and demonstrations will discuss their watershed address, and suggestions for the quality and quantity of water preservation will be discussed.
Vocabulary Introduced: Solid Waste, Natural Resources, Storm Drain, Runoff, Nonpoint Source Pollution, Groundwater, Water Conservation, Wetlands, Riparian, Watershed Address
Equipment Needed: Overhead Projector, VCR

How Much is 6000 cubic km of Water?
(Science SOL: BIO.9, CH.1, CH.6, PH.4, Mathematics SOL: A.10, English SOL: 9.4, 11.4)
Students will discover that the water cycle is the most impressive geothermal cycle on earth. The transfer and storage of water on a global scale gives the appearance of an abundance of water, but with only 1% available for people, plants, and animals we need to be extremely careful in managing Earth's water resources. Activities and demonstrations will address the causes of water pollution and suggestions for the quality and quantity of water preservation will be discussed.
Vocabulary Introduced: Solid Waste, Natural Resources, Storm Drain, Runoff, Nonpoint Source Pollution, Water Conservation, Watershed Address
Equipment Needed: Overhead Projector, VCR

Stream School (Offered in Fall and Spring)
(Science SOL: BIO.3, BIO.9, CH.1)
Students will participate in a field trip experience at a local stream to identify macroinvertebrates and perform chemical tests. This will enhance their understanding of the factors involved in determining water quality, and the connection between point source and non-point source pollution in their waterways.

Vocabulary Introduced: Riparian Corridor, Litter, Erosion, Point Source Pollution, Nonpoint Source Pollution
Equipment Needed: Old sneakers or water shoes/boots

Oceans of Trash
(Science SOL: BIO.5, BIO.8, BIO.9)
A 35 mm slide presentation and discussion review of Roanoke Valley's connections to the ocean and ocean characteristics. Marine debris is a health hazard, presenting a threat for entanglement by marine mammals and aquatic life.
Vocabulary Introduced: *Salinity, Estuary, Riparian*
Equipment Needed: Slide projector/ Screen (or blank wall), Overhead Projector

Watershed Connections
(Science SOL: BIO.3, BIO.9)
A 35 mm slide presentation and discussion will examine watersheds and determine the problems associated with erosion, pollution, and litter.
Vocabulary Introduced: *Riparian Corridor, Litter, Erosion*
Equipment needed: *Screen, Electrical Outlet*

Plants Eat Bad Chemicals
(Science SOL: BIO 9)
The students will learn about the process of Phytoremediation, where plants remove, transfer, stabilize or destroy contaminants in soil and groundwater. Through classroom demonstrations the students will observe groundwater and soil contamination as a result of chemicals accumulating in soil and water, and review plant anatomy.
Vocabulary Introduced: *Phytoremediation, Groundwater, Transpiration, Contamination, Infiltration, Riparian*
Equipment Needed: *None*

Water: Nature's Recycling System
(Science SOL ES.2, ES.7, ES.9, BIO.9)
This interactive program takes students through the Water Cycle with emphasis on water management, topography, infiltration, runoff and erosion. Through hands on activities and demonstrations students will discuss these occurrences and how they are influenced by human activities.
Vocabulary Introduced: *Precipitation, Evaporation, Transpiration, Topography, Infiltration, Erosion, Runoff*
Equipment Needed: *None*

Land Use: For the People, the Government, or the Environment?
(Science SOL: : ES.7, ES.11, BIO.5, 8, 9, Government SOL: 12.6, 12.8, 12.10, 12.13, 12.14, 12.15, 12.16)
Students will discover what decisions need to be made when they try to place a school on a tract of land that has many aspects to be considered: citizens, government regulations, environmental impacts. These decisions will carry costs and benefits, value, and personal choices. Principles to be discussed include: a. scarcity forces choices b. resource management decisions are made by people acting alone or in groups c. changes in rules and laws alter incentives and decisions d. people value things differently.
Vocabulary Introduced:
Costs and Benefits = positive and negative factors involved as a result of choices
Natural Resources = all the Earth's materials that make other products
Incentives = rewards or punishment for behavior
Hammock = stand of preserved, original trees

Hazardous Waste = waste that is harmful to the environment and people
Groundwater = water found beneath the soil's surface
Water conservation = the careful use and protection of water resources in quantity and quality
Wetlands = landforms that are wet at least part of the year and have a particular type of soil and plants
Scrub Habitat = area with small trees, bushes or plants that have low moisture
Superfund = underground storage site of hazardous waste on a list to be cleaned up and restored by the government
Watershed address = area you live in that drains to the nearest creek, stream, or river
Equipment needed: *Overhead projector*

Aluminum (Plastic, or Paper) Recycling
(Science SOL ES.7, ES.11, BIO.5, BIO.9, PH.4)
Students will follow a can to a recycling center and learn about recycling, how it works, why it's important, what they can do to help. Trash can be dangerous when it's not in its proper place: the garbage can or recycling can. Students will keep one piece of litter (aluminum can) in mind as they follow it from the street to a new container or usable item. This program can also substitute "Paper Recycling" or "Plastic Recycling" for the title. Students will see a variety of new materials that were recycled from other materials.
Vocabulary Introduced: *Recycling, Reduce, Reuse, Natural Resources*
Equipment needed: VCR

Clean Valley Council's 2010-2011 Outreach Report
Public & Private School's of the Roanoke Valley
Linda Barker & Lane Guilliams – Environmental Educators

Total # of Students Reached: 16,634
Total # of Programs Presented: 633
Total Materials Distributed: 8,060
Total # of Days/Outreach Visits: 254
Total # of Schools Visited: 65
Localities Covered: Botetourt County, City of Roanoke, Roanoke County, Town of Vinton, City of Salem

Botetourt County - 11 Schools 23 Programs/551 Students

Breckinridge	Greenfield
Buchanan	Troutville
Central Academy MS	Lord Botetourt HS
Cloverdale	James River HS
Colonial	Read Mountain MS
Eagle Rock	

Roanoke City - 26 Schools 223 Programs/5,333 Students

Lucy Addison MS	James Madison MS	Westside
Crystal Spring	Lincoln Terrace	William Fleming HS
Fairview	Monterey	Woodrow Wilson MS
Fallon Park	Morningside	Stonewall Jackson MS
Fishburn	Patrick Henry HS	Forest Park Academy
Garden City	Preston Park	Roanoke Valley Governor's School
Grandin Court	Roanoke Academy	
Highland Park	Round Hill Montessori	
Breckinridge MS	Virginia Heights	
Hurt Park	Wasena	

Roanoke County - 26 Schools 296 Programs/7,825Students

Back Creek	Fort Lewis (Salem)	
Glen Cove	Glenvar (Salem)	Mason's Cove
Bonsack	Glenvar HS	Mt. Pleasant
Burlington	Glenvar MS	Northside HS
Cave Spring	Green Valley	Northside MS
Cave Spring HS		Oak Grove
Cave Spring MS	Herman Horn (Vinton)	Penn Forest
Mountain View	Hidden Valley HS	William Byrd MS (Vinton)
Clearbrook	Hidden Valley MS	William Byrd HS (Vinton)
		W. E.Cundiff (Vinton)

City of Salem - 6 Schools 76 Programs/2,296 Students

Andrew Lewis MS	Salem HS
East Salem	South Salem
G.W. Craver	West Salem

Private - 6 Schools 7 Programs/480 Students

North Cross	Community HS
New Vista Montessori	Community Elementary/MS
Salem Montessori	Roanoke Valley Montessori

Church Schools - 10 Schools 13 Programs/237 Students

Church Court day Nursery & K	Faith Christian
Roanoke Adventist Preparatory	First Wesleyan Children's Discovery Center
Life Academy	Mineral Springs Christian School
Parkway Wesleyan Preschool	Roanoke Valley Christian
Roanoke Catholic School	Parkway Christian Academy

Outreach Programs - 7 17 Programs/256Students

Fall Waterways Cleanup	Fishburn Park Elementary Water Festival
Va. Heights Elementary & Wasena Elementary Stream School	Town of Vinton Stenciling Storm Drains
Summer Enrichment Trinity UN Church	Middle Summer School Northside High School
ECO Day	

Downtown Storm Drain Stenciling

June 21, 2011

RECLAIM OUR RIVERS

Roanoke Valley, Virginia

FALL WATERWAYS CLEANUP & CELEBRATION

Saturday, October 2, 2010

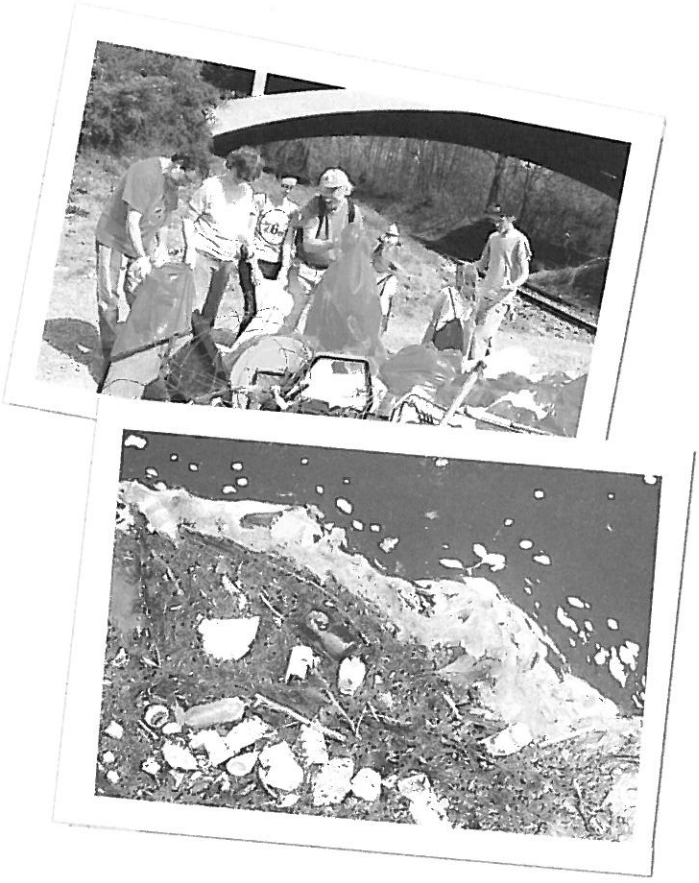
Cleanup: 8:30 – 11:30 a.m.

Celebration at Wasena Park:

12 noon – 2 p.m.

Clean your favorite spot along a stream, tributary, or river (or get to know a new one). Supplies are provided.

Then join your fellow volunteers at Wasena Park for lunch, music, and free samples.



Partners include:
Clean Valley Council and its partners, DEQ, Kiwanis Club of Roanoke, Orvis, City of Roanoke, Roanoke County, Roanoke Natural Foods Co-op, Town of Vinton, Upper Roanoke River Roundtable, Western Virginia Water Authority

Sign up: Clean Valley Council at www.cleanvalley.org or 540.345.5523

Clean Valley Day 2011 Recap

Total Tonnage: 68.9 tons

Total Teams Registered: 60 Teams

Total Number of Volunteers Registered: 892

Locality Breakdown:

City of Roanoke –	44.37 tons	270 tires
Roanoke County/Vinton –	21.47 tons	some tires
City of Salem -	2.25 tons	

ITEMS FOUND:
Cans, glass, plastic bottles, plastic bags
Vinyl siding, plastic shutters
Small tent, lawn chair, coffee maker, kids shoes
Fishing pole, golf club, broken skate board
Truck wind shield wiper, black bra
Soccer ball in drain pipe, inflated beach ball
Emergency blanket, police tape

Anita McMillan - 11th Annual Green Living and Energy Expo

From: Association of Energy Conservation Professionals <aecp@swva.net>
To: amcmillan@vintonva.gov; aecp@swva.net
Date: 11/1/2010 3:27 PM
Subject: 11th Annual Green Living and Energy Expo

11th Annual Green Living & Energy Expo

Please join us...

Friday, December 3, 2010 ~ 10am-6pm

Saturday, December 4, 2010 ~ 10am-4pm

Roanoke Civic Center - Special Events Center

***********Parking and Admission are FREE!!***********

Gold Sponsors

ROANOKE

Breakell Inc. GENERAL CONTRACTORS *Taking the Lead*

****

Silver Sponsors

AEP APPALACHIAN POWER A unit of American Electric Power

Water-Furnace Smarter from the Ground Up

Krull & Company Socially Responsible Financial Services

WarmWise Brought to you by Columbia Gas of Virginia A NiSource Company

Green Living and Energy Exhibits

Be sure to stop by to see exhibits on:

- *Solar & Wind Energy
- *Green Building
- *Geothermal Systems
- *Energy Efficient Appliances & Lighting
- *Home Insulation

**********AND SO MANY MORE!**********

We welcome homeowners, contractors, students, girl & boy scout troups, professionals, and home school classes. There is something for everyone!

For more information and a complete list of exhibits, please visit the links below:

http://www.aecpes.org/Expo/expo.shtml

http://www.aecpes.org/PDFs/AECP%20Energy%20Expo%20Exhibitor%20List%202010.pdf

Green Job Fair

New in 2010

We are thrilled to be partnering with CREATES this year to host our first ever green job fair in addition to our exhibits and presentations! The CREATES Showcase and Job Fair will exhibit course offerings and training opportunities offered free* through the CREATES program as well as connect local employers with job seekers in these targeted industries.

For more information please visit:

http://www.communityhousingpartners.org/development/energy_services/EnergyExpo.shtml

**Funding is provided for CREATES via the American Recovery and Reinvestment Act (ARRA) through a U.S. Department of Labor "Energy Training Partnership" grant*

Daily Presentations

brought to us by...

We will have presentations on the topics such as:

***Household Cleaning Products *Solar Energy *Low Energy Contruction *Energy Star *Symbiotic Living *Stormwater *Photovoltaics *Evergreen Basement Systems *Geothermal *Responsible Investing *Wind vs. Solar *Gereau Center *Home Energy Audits**

For a detailed list of presentations and times, please visit:

http://www.aecpes.org/PDFs/2010%20Expo%20%20Presentations.pdf

Green Certification

brought to us by... Breakell Inc. General Contractors *Taking the Lead*

The Green Living and Energy Expo is pleased to announce it has received the Virginia Green certification as a Green Event. The Roanoke Civic Center has also become a Green Conference Center. For more information on what comes with being Green Certified, please follow the links.

Silent Auction

As we have done in years past, we will be holding a silent auction to assist in funding the Energy Expo. This year we will be auctioning a Hybird Water Heater, a Toyo Oil Space Heater, and an Empire Gas Space Heater, as well as many other items. The auction will run all day Friday, December 3rd and will close at 2pm Saturday, December 4th, in the entrance of the exhibit hall.

Bronze Sponsors

Partnerships

Citizen's Stormwater Advisory Committee
April 12th, 2011
Vinton War Memorial
6:00 – 7:30pm

I.	Roll Call	Fran Szechenyi
II.	Welcome and Overview CVC Update	Cristina Siegel
III.	Enjoy Light Supper	
IV.	Presentation: Stormwater Facility Inspection In Roanoke County	Kofi Howard
V.	Upcoming CSAC schedule and plans	Cristina Siegel
VI.	Adjournment	

CITIZEN'S ADVISORY COMMITTEE MEETING
STORMWATER MANAGEMENT PROGRAM
Vinton War Memorial
MINUTES FOR Tuesday, April 12, 2011

Present: Cassandra Archambault (Roanoke College Intern), Linda Barker, Christopher Blakeman, Chris Craft, Cristina Siegel, Megan Daily, Mark Garland, Justin Harness, David Henderson, Dave Jones, Anita McMillan, Kafi Howard, Ray Sandifer, George Simpson, Fran Szechenyi,

Apologies: Jeffrey Ganthner, Jeannie Keen, Cary Lester, Michael Rakes, Vince Reynolds, Pat Rucker, Shane Sawyer, Lane Guilliams.

Welcome: Cristina Siegel, CVC Executive Director, welcome the committee.

Overview: Siegel provided the following:

- CVC has a new website (www.cleanvalley.org) with a new logo.
- Lane Guilliams is our new educator who replaced Beth Walton last Fall.
- CVC did a stormwater presentation at the Energy Fair in December called "Stormwater and You".
- Two cleanups: Fall Waterways 2010 and Clean Valley Day 2011
- CVC hosting an award winning movie called "Bag It". We have four showings at the Jefferson Center, Roanoke College, Floyd Country Store, and Virginia Western Community College.
- CVC has received a grant from Keep Virginia Beautiful
- CVC partnering with the Blue Ridge Marathon which has been certified as a green event.
- The Executive Committee has met several times throughout the last several months.

Siegel, asked the committee how long has the SW Advisory Committee been meeting. Dave Jones recalled that it was in November 1985 when they first started. Cassandra (CVC intern) has researched the different topic that the committee has had in the past. Siegel encouraged the committee to let CVC know what topics they were like to have presented to the committee. A few suggestions were to get the DEQ folks back as a program and Craft suggested having the superintendents join our meeting.

Speaker: The Roanoke County Environmental Engineers (George Simpson, Megan Daily, and Kafi Howard) presented a power point presentation entitled "Stormwater Facility Inspection". Topics discussed:

- Why do we need to inspect stormwater ponds
- Inspector responsibilities and processors

- Program challenges
- Future challenges
- Public Education and Outreach
- Successes

The County has inspected 118 ponds out of the 552 ponds. They have found that only 36% of those ponds are adequate with 64% being inadequate.

Meeting Dates:
The next stormwater will be on June 15th at 4:30. Megan Daily is working on the location at Fleet Service Center.

The August 24th meeting will be announced later but Siegel is working on that meeting being a field tour.

The Clean Valley Council and Upper Roanoke River Roundtable is working together to do a Water Symposium at Ferrum College in the Fall.

Siegel would also like to bring some speakers from Va Tech for future SW meetings.

Meeting began at 6:00PM and adjourned at 8:00PM.
Respectfully submitted by Fran Szechenyi.
www.cleanvalley.org

Citizen's Advisory Committee for Stormwater Protection
June 15, 2011
Roanoke County Fleet Services Center
4:30-6:30

Agenda

Welcome

4:30 Tour of the Roanoke County Fleet Services Center – Mark Garland and Cassandra Van Hyning, Spectrum Design
- Stormwater Management Systems
- Features of LEED certified building

5:30 Dinner and Presentation on SMS and LEED project continued
Upcoming meetings and topics

Next Meeting Dates:

August 24th – Walrond Park wetland tour and BBQ, Walrond Park, Roanoke, VA
Date TBA* - Water Resources Symposium, Ferrum College, Ferrum, VA
meeting co-hosted by CVC and Upper Roanoke River Roundtable)
Symposium includes topics such as stormwater management and uranium mining effects on water resources
January 2012- Date TBA
April 2012- Date TBA
July 2012 - Date TBA
*a Friday in late sept/early oct

E & S CONTROL INSPECTION/PLAN REVIEWER CERTIFICATIONS

NAME		CERTIFICATION	CERTIFICATE #	EXPIRATION DATE
Atkinson	Bob	Professional Engineer	0402 041822	1/31/2013
Bailey	Jeff	Professional Engineer	0402 032993	1/31/2013
Simpson	George	Professional Engineer	0402 014167	8/31/2013
Cooper	Matt	Plan Reviewer	497	5/31/2013
Yates	Morgan	Plan Reviewer	458	5/31/2014
Daily	Megan	Combined Administrator	722	11/30/2013
Morris	Andy	Combined Administrator	697	11/30/2013
Thompson	Philip	Combined Administrator	698	11/30/2013
Wood	Tammi	Combined Administrator	6036	11/30/2013
Covey	Arnold	Program Administrator	164	11/30/2011
Sowder	Denise	Program Administrator	313	5/31/2013
Bowles	Jimmy	Inspector	2089	11/30/2013
Brokaw	Dan	Inspector	901	5/31/2012
Carper	Steve	Inspector	1965	11/30/2013
Carroll	Curtis	Inspector	1966	11/30/2013
Fowler	Bill	Inspector	3740	11/30/2013
Fuller	RG	Inspector	3848	11/30/2013
Holland	Dale	Inspector	1945	5/31/2013
Peters	Bruce	Inspector	3469	5/31/2012
Waldron	Larry	Inspector	3930	5/31/2014
Wimmer	Randy	Inspector	1934	5/31/2013
Yates	Morgan	Inspector	1929	5/31/2013
Howard	Kafi	SW/BMP Inspection/Maint	813	10/7/2011
Peters	Bruce	SW/BMP Inspection/Maint	815	10/7/2011

Stormwater Report

July 1, 2010 - June 30, 2011

Date of Service/Task	Location	Work Hours	Total Labor	Total Equipment
Date: 7/26/10	Storm Drain - Bedford & Vinyard	24	$ 664.96	$ 465.76
Date: 7/27/10	Storm Drain - Bedford & Vinyard	24	$ 661.52	$ 465.76
Date: 7/28/10	Storm Drain - Bedford & Vinyard	16	$ 490.40	$ 465.76
Date: 8/3/10	Dig up drain pipe on Bowman St.	12	$ 342.88	$ 200.80
Date: 8/5/10	Drain Pipe - Niagara Rd.	18	$ 498.72	$ 46.68
Date: 8/6/10	Storm Drain - Bedford & Vinyard	21	$ 600.31	$ 401.60
Date: 8/9/10	Storm Drain - Bedford & Vinyard	16	$ 455.28	$ 62.24
Date: 8/10/10	Storm Drain - Bedford & Vinyard	24	$ 664.96	$ 158.48
Date: 8/11/10	Storm Drain - Bedford & Vinyard	21	$ 600.31	$ 240.72
Date: 8/18/10	Storm Drain Cleaning	24	$ 664.96	$ 62.24
Date: 8/19/10	Clean Street - Coolbrook & Pine	9	$ 228.78	$ 23.34
Date: 8/19/10	Storm Drain Cleaning - Townwide (Rain)	24	$ 664.96	$ 62.24
Date: 8/24/10	Cleaned debris from gutter-121 N. Pollard	1	$ 26.21	$ 25.88
Date: 9/1/10	Sunken patch repair: Storm Drain S. Preston	6	$ 152.52	$ 248.56
Date: 9/2/10	Storm Drain Cleaning - Mt. View	6	$ 190.14	$ 346.92
Date: 9/17/10	Storm Pipe: Pollard & Madison	16	$ 492.56	$ 62.24
Date: 9/22/10	Sidewalk & Drain Inlet-Bowman & Madison	6	$ 166.24	$ 100.44
Date: 9/27/10	Checking Storm Drains in the Rain (Townwide)	12	$ 454.74	$ 46.68
Date: 9/29/10	Checking Storm Drains in the Rain (Townwide)	24	$ 664.96	$ 62.24
Date: 9/30/10	Checking Drainage issues in the Rain (Townwide)	12	$ 332.48	$ 82.88
Date: 9/30/10	Cut sidewalk at Madison & Bowman prep for new D.I.	12	$ 332.48	$ 31.12
Date: 10/4/10	Wash Streets: Aragona	3	$ 76.26	$ 49.52
Date: 10/7/10	Filled ditch in, seeded & straw, wash road down. (604 Briarwood)	4	$ 123.14	$ 100.44
Date: 10/8/10	Cleaned out brush in front of pipe and layed down gravel (behind Lynn Haven Circle)	6	$ 143.28	$ 127.32
Date: 10/14/10	Clean DI Hardy & Bedford	6	$ 166.24	$ 15.56
Date: 10/20/10	Clean Drain System (Townwide) - Rain	24	$ 664.96	$ 62.24
Date: 10/20/10	Check Drain Inlets - Townwide (Rain)	12	$ 305.04	$ 31.12
Date: 10/26/10	Check Drain Inlets - Townwide (Rain)	24	$ 610.08	$ 62.24
Date: 11/4/10	Clear debris from drain inlets (Townwide) - Rain	9	$ 228.78	$ 23.34
Date: 11/9/10	Wash Street (Emerald Drive)	6	$ 152.52	$ 51.76
Date: 11/16/10	Cleaning Drain Inlets (Townwide)	3	$ 88.95	$ 23.34
Date: 11/29/10	Cleaning street & gutters-Spruce & Old VA	9	$ 228.78	$ 100.98
Date: 11/30/10	Clean Storm Drains (Townwide)	24	$ 664.96	$ 62.24
Date: 12/1/10	336 Bowman Street-Storm Drains	24	$ 747.44	$ 401.76
Date: 12/2/10	336 Bowman Street-Storm Drains	24	$ 747.44	$ 401.76
Date: 12/3/10	336 Bowman Street-Storm Drains	32	$ 919.84	$ 401.76
Date: 12/6/10	336 Bowman Street-Storm Drains	24	$ 664.96	$ 401.76
Date: 12/7/10	336 Bowman Street-Storm Drains	24	$ 664.96	$ 401.76
Date: 12/8/10	336 Bowman Street-Storm Drains	24	$ 664.96	$ 401.76
Date: 12/9/10	336 Bowman Street-Storm Drains	24.75	$ 691.48	$ 401.76
Date: 12/10/10	336 Bowman Street-Storm Drains	24.75	$ 691.48	$ 274.88
Date: 12/13/10	336 Bowman Street-Storm Drains	16	$ 505.52	$ 401.76
Date: 12/14/10	336 Bowman Street-Storm Drains	16	$ 492.56	$ 242.72
Date: 12/14/10	Storm Drains - 336 Bowman (Installed Catch Basin)	11	$ 318.22	$ 62.24
Date: 12/20/10	336 Bowman Street-Storm Drains	24.75	$ 691.48	$ 172.45
Date: 12/21/10	336 Bowman Street-Storm Drains	24.75	$ 691.48	$ 66.13
Date: 12/22/10	336 Bowman Street-Storm Drains	24	$ 664.96	$ 274.88
Date: 12/27/10	336 Bowman Street-Storm Drains	24	$ 664.96	$ 274.88
Date: 1/4/11	Cleaning Drainpipe at Meadow & Polk	9	$ 249.36	$ 150.66
Date: 1/5/11	Cleaning Drainpipe at Meadow & Polk	24	$ 664.96	$ 401.76
Date: 1/6/11	Cleaning Drainpipe at Meadow & Polk	26.25	$ 727.30	$ 66.13
Date: 1/13/11	Cleaning Drainpipe at Meadow & Polk	9	$ 249.36	$ 103.08
Date: 1/14/11	336 Bowman Street-cleaned crush run out of street	12	$ 332.48	$ 70.99
Date: 1/18/11	Washed debris from road on 3rd Street at Junk Yard	3	$ 83.12	$ 7.78
Date: 1/20/11	Cleaned rock from roadway at Ramada & Kenyon	6	$ 147.33	$ 41.36
Date: 1/26/11	Clear storm inlets - Townwide (freezing rain)	12	$ 305.04	$ 31.12
Date: 2/4/11	Storm Pipe - 336 Bowman	9	$ 249.36	$ 23.34
Date: 2/24/11	Repair Drain Pipe Niagara & Wood St.	9	$ 257.16	$ 23.34
Date: 2/24/11	Clean storm drain inlets - Townwide	9	$ 228.78	$ 23.34
Date: 2/25/11	Storm Drains - Various Locations	21	$ 600.31	$ 62.24

Stormwater Report
July 1, 2010 - June 30, 2011

Date of Service/Task	Location	Work Hours	Total Labor	Total Equipment
Date: 2/28/11	Clean storm drain inlets (Midway & 2nd)	9	$ 228.78	$ 23.34
Date: 3/2/11	Pickup material for drain ditch-Wood St	6	$ 171.44	$ 15.56
Date: 3/3/11	Repair drain ditch on Wood St.	24	$ 685.76	$ 338.20
Date: 3/4/11	Spread straw on drain ditch on Wood St.	6	$ 171.44	$ 15.56
Date: 3/7/11	Clean Storm Drains - Townwide	13	$ 370.43	$ 62.24
Date: 3/8/11	Clean Creek-Lynn Haven Cir	6	$ 166.24	$ 100.44
Date: 3/15/11	Curb & Gutter-335 Bowman St	24	$ 664.96	$ 62.24
Date: 3/16/11	Curb & Gutter-335-336 Bowman St	24	$ 664.96	$ 62.24
Date: 3/17/11	Curb & Gutter-335-336 Bowman St	26.25	$ 727.30	$ 66.13
Date: 3/21/11	Curb & Gutter-335-336 Bowman St	24	$ 664.96	$ 268.86
Date: 3/23/11	Catch Basin - 215 Walnut Ave	24	$ 664.96	$ 62.24
Date: 3/24/11	Curbing - 526 Pine St	24	$ 664.96	$ 295.44
Date: 3/25/11	Curbing - 526 Pine St	26.25	$ 727.30	$ 119.29
Date: 3/30/11	Curb & Gutter: 501 5th & 526 Pine	24	$ 664.96	$ 168.56
Date: 4/1/11	Catch Basin-Cleveland & 2nd	24	$ 664.96	$ 62.24
Date: 4/1/11	Clean Street (Maywood)	8	$ 185.48	$ 114.76
Date: 4/4/11	Clean Street (Maywood)	6	$ 152.52	$ 15.56
Date: 4/14/11	Clean drains in downtown sidewalks	10	$ 231.85	$ 38.90
Date: 4/14/11	Storm Drain - S. Maple	9	$ 249.36	$ 103.08
Date: 4/19/11	Cleaned DI - W. Cleveland	24	$ 664.96	$ 62.24
Date: 5/3/11	Install Berms - (4th Walnut & Mt. View)	9	$ 249.36	$ 372.84
Date: 5/17/11	Sweep Streets after Storm (2nd, 3rd, Walnut & Pollard)	12	$ 305.04	$ 31.12
Date: 5/25/11	Check storm drains (Townwide)	3	$ 71.79	$ 7.78
Date: 6/6/11	Storm Drain - Old Virginia	16	$ 492.56	$ 220.32
Date: 6/16/11	Cleaned storm drains (Townwide)	4	$ 92.74	$ 15.56
Date: 6/22/11	Clean Storm Drains (6th, Braddock and other locations in Town)	15	$ 347.78	$ 58.35
Date: 6/22/11	Clean Storm Drains	12	$ 294.66	$ 277.96
Date: 6/22/11	Pave Gutter - 6th Street	6	$ 152.52	$ 265.06
Date: 6/22/11	Storm Drain - S. Pollard	26	$ 735.68	$ 481.92
Date: 6/23/11	Sweep gravel out of road (Spruce)	4	$ 92.74	$ 15.56
Date: 6/24/11	Storm Drain - S. Pollard	24	$ 664.96	$ 349.02
Date: 6/27/11	Storm Drain - S. Pollard	24	$ 664.96	$ 349.02
Date: 6/27/11	Re-seeded lawn from sidewalk work (316 Cedar)	4	$ 92.74	$ 15.56
Date: 6/28/11	Repair Drain Inlet-Shelbourne	12	$ 305.04	$ 233.88
Date: 6/28/11	Storm Drain - S. Pollard	27	$ 753.82	$ 365.85
Date: 6/29/11	Storm Drain - S. Pollard	21	$ 586.33	$ 269.28
Date: 6/30/11	Storm Drain - S. Pollard	18	$ 498.72	$ 361.44

Hours:		**1,527.75**		
Labor:	**$**	**42,508.68**		
Materials:	**$**	**19,331.14**		
Equipment:	**$**	**15,707.72**		
Subtotal Stormwater Maintenance & Repair:	**$**	**77,547.54**		
Street Sweeping Labor:	**$**	**13,219.30**		
Street Sweeping Equipment:	**$**	**74,324.34**	$ 909.50	$ 81.72
			(Equip. Hours	*x Equip. Rate) =*
Subtotal Street Sweeping:	**$**	**87,543.64**		
Wages & Equip. Cost of Leaf Collection:	**$**	**21,597.92**		
Grand Total All Drainage Services/Equip./Materials:	**$**	**186,689.10**		

TOWN OF VINTON
2010 LEAF COLLECTION SCHEDULE
November 8, 2010 - December 17, 2010

The Town of Vinton Public Works Department will begin annual leaf collection on Monday, November 8, 2010 and end on Friday, December 17, 2010. Leaves should be raked no closer than one foot and no farther than five feet from the back of the curb or edge of the street located in front of the residence. Do not place leaves in the street or gutter as this may cause rainwater to pond and leaves to wash into the roadway creating hazards and obstructing traffic. Sticks, limbs, rocks and other debris should not be included in the leaves as these items can clog and damage the equipment. Leaves must be raked to the proper location by 7:00 am. Leaves should not be put out too early, and should not block sidewalks. Bagged leaves will be collected weekly on the resident's regular refuse collection day. Weather and equipment breakdown issues can cause delays. We ask for your patience and cooperation.

Please call 983-0646 if further information is needed.

LEAF COLLECTION SCHEDULE

ZONE	COLLECTION WEEK
First Collection	
1 & 2	Nov. 8 thru Nov. 18
3 & 4	Nov. 19 thru Nov. 30
Second Collection	
1 & 2	Dec. 1 thru Dec. 9
3 & 4	Dec. 10 thru Dec. 17

Roanoke Valley Resource Authority
FY 11

Household Hazardous Waste
ITEM No. III.F.

Contracted HHW Expenditures

Month	Mobilization Cost	Disposal and Labor Cost	Total	Residents Registered	Residents Served	Cost Per Resident	Contractor Technicians	Contractor Man Hours
July	$ 448.00	$ 595.84	$ 1,043.84	50	57	$ 18.31	2	14
August	448.00	5,039.93	5,487.93	49	60	$ 91.47	2	14
September	448.00	468.16	916.16	37	45	$ 20.36	2	11
October	448.00	4,945.25	5,393.25	32	41	131.54	2	12
November	450.00	641.25	1,091.25	46	53	20.59	2	15
December	452.00	3,650.92	4,102.92	24	21	195.38	2	12
January	454.00	431.30	885.30	22	26	34.05	2	10
February	458.00	609.14	1,067.14	34	36	29.64	2	14
March	460.00	3,533.02	3,993.02	34	38	105.08	2	16
April	444.60	468.00	912.60	43	29	31.47	2	10
May	470.00	625.10	1,095.10	75	62	17.66	2	14
June	$ 468.00	6,260.09	6,728.09	42	36	186.89	2	13
Total	$ 5,448.60	$ 27,268.00	$ 32,716.60	488	504	$ 64.91	Average	Average
			YTD Combined Residents Total		2,033	$ 16.09	2	13

Daily HHW Quantities

*	Oil Gallons	Antifreeze Gallons	Batteries Each	Latex Paint Gallons	Total
YTD Total	1,471	210	56	5,683	
YTD Residents Total	294	42	56	1,137	1,529

Registration by Municipality

Month	County of Roanoke		City of Roanoke		Town of Vinton		Total	
	Residents Registered	Residents Served	Residents Registered	Residents Served	Residents Registered	Residents Served	Residents Registered	Residents Served
July	34	38	13	17	3	2	50	57
August	31	33	17	26	1	1	49	60
September	21	27	15	18	1	0	37	45
October	19	23	13	17	0	1	32	41
November	33	39	13	12	0	2	46	53
December	13	13	9	6	2	2	24	21
January	9	11	13	15	0	0	22	26
February	22	21	10	13	2	2	34	36
March	14	15	18	20	2	3	34	38
April	28	18	15	11	0	0	43	29
May	46	38	26	21	3	3	75	62
June	16	14	26	22	0	0	42	36
Total	286	290	188	198	14	16	488	504

**Note: Customers served assumption is 5 gallon limit per customer or 1 battery each*

RVRA Now Accepts the Following Materials from *Citizens Only*

- Lead Acid Automobile Batteries
- Latex Paint (Only)
- Used Oil
- Used Antifreeze

Maximum 5 gallon Quantities per Visit

Recycling Center has Expanded to Include

- Plastics Bottles/Jugs # 1 & 2
- Tin Cans
- Aluminum Cans
- Newspaper
- Office Paper
- Corrugated Cardboard