



down to earth

Environmental Restoration Quarterly • Spring 2017

1 Sinkholes in Carroll County

2 Stormwater Tour

2 A Successful Homeowners' Workshop

3 Tree Planting Program

4 Grant Program Success



Sinkholes in Carroll County

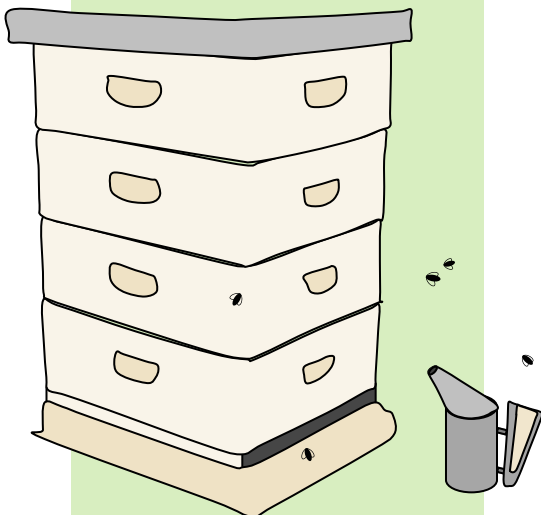
By: Sean Hartman, LRM Staff

Sinkholes which occur in the County can be separated into two broad categories. Those that are of a geologic nature and those that are human induced. While each type may appear similar on the surface, their causes are somewhat different.

Sinkholes that are related to geologic conditions are found only in the small portion of the county that is underlain by carbonate rocks such as marble, limestone or dolomite. This condition is only present in about two percent of the county and is focused on the west central portion from the Frederick/Carroll County line and trending northeast through New Windsor and Union Bridge along Wakefield Valley to the western and northern portions of Westminster before continuing northeast across Route 140 to the areas around the airport. Additionally a band of carbonate rock is located along Silver Run northwest of Union Mills and several small bands can also be found trending northeast from west of Hampstead near Shiloh and northeast of Manchester near Millers and Alesia. (See the Geologic Map on the Viewable Maps page on the County's website for more details, <http://ccgovernment.carr.org/ccg/mapserver4/gis/webpage/MapIndex.html>.) In these areas, precipitation and groundwater can act to slowly dissolve the underlying carbonate rock causing subterranean cavities to form. This action alone or often times combined with fluctuations in the water table can weaken overlying soils causing the ground to subside or collapse.

Human induced sinkholes, on the other hand, can occur anywhere in the county that has previously been disturbed by the actions of man. The most commonly seen sinkholes of this nature are caused from buried debris, particularly woody material that may have been cleared away and buried many years ago. These materials slowly decay and break down sometimes causing subsurface voids to form which overlying soils may slump or collapse into. Other human induced sinkholes can be caused by buried pipes which may leak or provide a path for runoff to follow which over time can wash away surrounding soil and compromise the surface above.

Whether human induced or geological in nature, the single greatest factor that encourages sinkhole expansion is runoff flowing over top of, or into, the initial depression. Stormwater runoff should be prevented from flowing to, or accumulating in, any depression suspected of being a sinkhole. When it comes to repairing sinkholes or suspect sinkholes, the Department of Land and Resource Management can provide citizens with guidance and recommendations upon request. For assistance, contact Sean Hartman at 410-386-2868 or shartman@ccg.carr.org.



Department of Land and Resource Management (LRM) • Bureau of Resource Management (BRM)
225 N. Center St., Westminster, MD 21157 • 410.386.2506 • ccgovernment.carr.org/ccg/resmgmt

Protecting and managing Carroll County's natural resources for the pleasure and enjoyment of its citizens.

Tour of Stormwater Management Facilities

By: Colleen Ensor, BRM Staff

The week of June 5th – 9th has been designated as the *2nd Annual Chesapeake Bay Awareness Week* by the Chesapeake Bay Commission. In honor of this week of environmental awareness, the Bureau of Resource Management (BRM), in partnership with the Water Resource Coordination Council (WRCC), and Office of Management and Budget, will be hosting a Carroll County stormwater management facility tour.

This event, which is open to the public, will afford citizens the opportunity to see first-hand how our local projects will have a positive impact on water quality, local communities, and ultimately the health of the Chesapeake Bay.

We hope you will join us on Tuesday, June 6th as we visit a few local stormwater management facility locations that are in various stages of development. A copy of the tour schedule is included in this article. BRM staff will be present to provide details on the site designs and answer any questions you may have. For more information contact Colleen Ensor at 410-386-2566 or ensor@ccg.carr.org.

Tour Schedule	
9 – 9:30 A.M.	Willow Pond Sunshine Way, Westminster
10 A.M. – 10:30 A.M.	Small Crossings Creswell Terrace, Hampstead
11:30 A.M. – 12 P.M.	Finksburg Industrial Industrial Park Drive, Finksburg
1:30 P.M. – 2 P.M.	Shannon Hawk Ashbrook Court, Sykesville
2:30 – 3 P.M.	Merridale Gardens Merridale Blvd., Mount Airy

A Successful Homeowners Workshop

By: Brenda Dinne, Special Projects Coordinator



Homeowners who attended the free public workshop on March 18, 2017, in the Great Hall at Carroll Community College shared very positive feedback with staff and the Carroll County Environmental Advisory Council (EAC) members, who hosted the workshop. The purpose of the workshop was to provide homeowners with information on how to prevent stormwater pollution and minimize stormwater runoff from their properties, a requirement of the County's MS4 permit. Roughly 50 people visited the workshop tables and/or participated in the various topic discussions.

Experts presented helpful information and materials on a variety of topics. The presentation sessions were well attended, with many people attending all of the sessions. When not presenting, the experts were available to answer individual questions and provide a host of information and handouts to visitors.

Topics covered included:

- ⇒ General Homeowner Best Management Practices
- ⇒ Lawn Care and Landscape Management
- ⇒ Septic Maintenance
- ⇒ Permeable Pavement
- ⇒ Rain Gardens
- ⇒ Composting (Yard and Food Waste)
- ⇒ Reduce, Reuse, Recycle!
- ⇒ Tree Planting & Stream Corridor Assessments

Copies of the presentations are available to view or download on the workshop's webpage at <http://ccgovernent.carr.org/ccg/npdes/homeowner/>. The Stormwater Pollution Prevention for Homeowners brochure, highlighting what homeowners can do to address clean water also can be found on the webpage. The EAC anticipates holding this workshop every other year.

For more information, contact Brenda Dinne at bdinne@ccg.carr.org or 410-386-2140.

TREE PLANTING PROGRAM

A Program Designed to Protect Local Streams

By: Tracy Eberhard, BRM Staff

The tree planting stream buffer initiative was developed as a means to help landowners obtain trees to address inadequate streamside buffers. Reestablishing and enhancing streamside buffers helps stream bank stabilization, protects and enhances water quality through nutrient uptake, trapping sediment, and removing pollution. The additional trees in the buffer make for a great home to a great diversity of species, providing structurally complex habitats, and can serve as travel corridors. The trees, when fully established, will also provide shading to waterways that helps regulate water temperatures.

Through this initiative the County is looking to plant as much acreage as possible, however the minimum size area accepted is 0.1 ac or 20-30 trees per interested property owner.

Ideal planting locations include areas contiguous to existing forest and areas along the stream on a property.

Trees will be planted in rows using 15 foot spacing. This spacing allows for easy access for maintenance. The Bureau of Resource Management (BRM) includes a maintenance package for 3 years where a contractor will mow around the trees three times a year and reset tree shelters as necessary. Planting areas and trees planted are determined based on landowner requests using our preferred tree selection list and expert guidance.

The BRM cannot plant trees in areas with existing right-of-ways or easements. Examples include utility, road, or use-in-common right-of-ways and existing conservation, agriculture or drainage easements. Additional limitations are areas that block sight distance, or access to a property or use-in-common drive, or areas of active agriculture. We encourage the agricultural community to contact the Carroll Soil Conservation District for interest in assistance with streamside buffers.

A landowner must be willing to allow Carroll County staff to inspect the planting progress twice a year for up to 10 years, or the length of the landowner's ownership of the property. The landowner must be willing to cause no intended harm to the planting.

If the landowners are interested in what the program has to offer and believe they have an area suitable for planting, they review a tree selection list and landowner agreement. The tree selection list offers a variety of native trees (pictured below) which have been successful when planted in Carroll County. The landowner agreement lays out permissions for access and the 10-year inspection cycle.

If you are interested in learning more about the tree planting program contact Tracy Eberhard, Water Resources Specialist, at 410-386-2505 or teberhard@ccg.carr.org.

Dry Area Species



Pin Oak



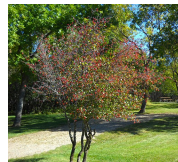
American Sycamore



Black Walnut



River Birch



Hackberry



Red Maple



Black Willow

Wet Area Species



White Oak



Northern Red Oak



Tulip Poplar



Red Bud (Eastern)



Black Oak



Black Cherry



Black Locust

Grant Program Success

By: Colleen Ensor, BRM Staff

Over the past nine years, Carroll County Government's Bureau of Resource Management (BRM) has been focused on reducing nutrient and sediment loads entering the County's local waters, researching and monitoring streams, and planting trees to build stream buffers as part of its NPDES permit.

To accomplish this goal the BRM has constructed new stormwater management ponds, restored streams, and retrofitted numerous, outdated facilities that treat runoff from three of Carroll County's most densely populated residential and industrial areas.

The more the BRM worked on this restoration objective, the more the staff realized the growing need for water quality management. Like most budgets, the County faced financial limitations. Therefore in 2008 the Bureau of Resource Management began seeking grant funding from a variety of sources.

Because of the County's commitment to completing the projects described in the various proposals, the BRM has a 60% success rate with its grant applications and awards. This percentage is very respectable in the grant funding realm.

As a result of this success, The BRM has established strong relationships with organizations such as the Chesapeake Bay Trust (CBT), the Maryland Department of Natural Resources (DNR), The Maryland Department of the Environment (MDE), The National Fish and Wildlife Foundation (NFWF), and The Maryland State Highway Administration (SHA).

Today, the BRM is proud to have grant funding for most of its projects. Recently, the BRM was awarded its largest sum to date of \$3.95 million dollars by DNR to complete a stormwater management project in each of the County's eight municipalities.

Table 1 provides a comprehensive list of all the BRM's projects that have been grant-funded since 2008. In less than a decade, the BRM has generated over \$12 million dollars in grant funding. For more information on the Bureau of Resource Management's grant program contact Colleen Ensor at 410-386-2566 or ensor@ccg.carr.org.

Table 1

Program	Amount Received	Project(s)
2009 Chesapeake Bay Trust (CBT) Mini-Grant	\$919.00	Lineboro Tree Planting
2009 State Highway Administration (SHA) Transportation Enhancement Program	\$453,526.00	Westminster High School SWM Retrofit
2010 CBT Restoration Grant	\$19,212.00	Upper Patapsco Ag BMP's and SWM Facility
2010 SHA Transportation Enhancement Program	\$933,125.00	Sullivan Road Regional SWM Retrofit - Phase I
2011 CBT Watershed Assistance Grant	\$27,177.00	Snowden's Run Watershed Characterization
2012 SHA Transportation Enhancement Program	\$760,708.00	Finksburg Industrial Park SWM Retrofit
2012 CBT Mini-Grant	\$1,600.00	St. James Episcopal Church Rain Garden
2012 Maryland Stream Restoration Challenge	\$92,655.00	Carroll County Tree Plantings Phase 1
2013 Maryland Stream Restoration Challenge	\$206,073.00	Carroll County Tree Plantings Phase 2
2013 National Fish and Wildlife Foundation (NFWF) Chesapeake Bay Technical Assistance Grant	\$39,956.80	Manchester Elementary School Outfall Monitoring
2013-2014 CBT Environmental Education K-12 Mini-Grant	\$995.00	East Middle School Student Tree Planting
2013 Maryland Stream Restoration Challenge	\$404,462.00	Carroll County Tree Plantings Phase 3
2014 SHA Transportation Alternatives Program	\$1,047,466.00	Elderwood SWM Basin #2 and Oklahoma Phase 4 SWM Pond
2014 CBT Community Engagement and Restoration Mini-Grant	\$4,900.00	Lower Monocacy Watershed Rain Barrel Program
2014 CBT Community Engagement and Restoration Mini-Grant	\$560.00	Dickenson Run Stream Clean-up & Storm Drain Stenciling Project
2014 CBT Watershed Assistance Two Year Milestone Support Program	\$30,645.00	CC Farm Museum ESD Proposal
2014 CBT Outreach and Restoration Grant Program	\$10,759.00	Earth Day 2015 at Ebb Valley Elementary
2015 Department of Natural Resources (DNR) Chesapeake & Atlantic Coastal Bays Trust Fund Grant	\$1,600,000.00	Industrial Areas
2015 SHA Transportation Alternatives Program	\$756,043.00	Manchester Skate Park
2015 NFWF Chesapeake Bay Stewardship Innovative Nutrient and Sediment Reduction Grant	\$351,867.26	CC Maintenance Center
2016 DNR Chesapeake & Atlantic Coastal Bays Trust Fund Grant	\$3,950,000.00	Municipalities
2016 NFWF Chesapeake Bay Stewardship Small Watersheds Grant	\$150,000.00	CC Farm Museum Construction
2016 CBT Restoration Research Grant	\$175,730.00	Blue Ridge/FurnaceHills/Central MD SVC Center/Whispering Valley/Spring Garden/RobertsField
2016 CBT Watershed Assistance Grant	\$75,000.00	Roberts Mill
Grand Total:	\$12,073,320.06And Counting!

