



Esopus Creek News

Fall/Winter 2011

Ashokan Watershed Stream Management Program Newsletter

A quarterly publication of Cornell Cooperative Extension Ulster County

Esopus Creek - Broadstreet Hollow - Woodland Valley - Stony Clove - Fox Hollow - Birch - Beaverkill - Little Beaverkill - Peck - Bushnellville - Bush Kill

Historic Floods Inundate the Ashokan Watershed

Although flooding is a regular occurrence in the Catskills, the flooding caused by Hurricane Irene and Tropical Storm Lee was unprecedented in the region. In 12 hours over 16 inches fell in some locations, resulted in massive flooding in the Catskills and much of the Northeast. The Esopus Creek has stream gage records that go back over 100 years. Preliminary

estimates by the United States Geological Survey (USGS) have indicated that this was a greater

floods? The USGS stream gage at Allaben, near the Shandaken Town Hall, recorded flood

waters at **16.34**

feet. Down-

stream, at the Coldbrook stream gage (just above Boiceville) floodwaters

reached a record

height of **23.34 feet.** The prior record flood in Boiceville was **21.94 feet.**

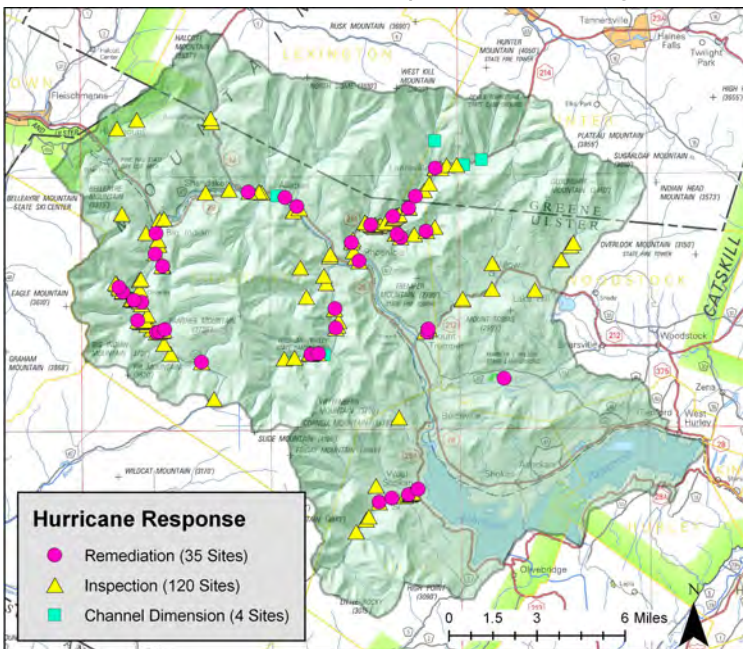
The 100 year flood is a flood that has a 1% chance of occurring each year. During the life of a 30 year mortgage there is a 26% chance of receiving a 100 year flood.

than 100 year flood. For some gauges the height and volume of water from these storms was the highest in recorded history!

Just how much water was carried by the streams during these

Floodwaters inundated main streets in the hamlets of Boiceville and Phoenicia, breached a flood control project in Mount Pleasant, destroyed homes in Mount Tremper, and washed out over a half dozen roads and bridges in Oliveira.

Immediately following the storm, Ashokan Watershed Stream Management Program (AWSMP) staff worked alongside local, state, and federal officials to assess the damage and to come up with a plan on how to go forward. Technicians from the Ulster County Soil & Water Conservation District (UC SWCD) performed almost 100 site visits to landowners who contacted the AWSMP office



Above: Map of technical assistance provided to Watershed towns following Hurricane Irene.



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SOIL & WATER

Conservation District



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We're on the web!
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(Flood -Continued on page 4)



Recent Public Events in the Ashokan Watershed



Above: Flooding near Phoenicia following Hurricane Irene

bridges and assist with stream channel reconstruction. Program staff helped to educate officials and individuals about disaster relief resources that were available to them as well as assisting with the coordination of various agencies who responded to the flood. For more specific information on AWSMP's response to the flooding please see the article on page 1.

September

AWSMP participated in this year's **2nd Annual Ulster County Creek Week**. On Wednesday September 21st, AWSMP screened the documentary film *Chattahoochee: From Water War to Water Vision* about conflicts over water rights in the southeastern United States. Following the film a discussion about how the topics raised in this film applied to the Ashokan Watershed. On Thursday a Homeowner Stormwater Management class was offered that focused on how homeowners could use best management practices normally associated with forestry roads on their dirt or gravel drive-ways to reduce erosion.

October

The Ashokan Watershed Implementation Fund Grant proposals were due to the AWSMP. 12 proposals totaling approximately \$550,000 were received by the program.

November

Highway Managers' Meeting was held on November 10 to discuss the need for training opportunities for highway department staff. Plans are underway to develop a training specifically for contractors to teach stream restoration best management practices. It is anticipated that that the first part of this training will be held in late January/early February. Please check our website as updates become available.

The **Ashokan Watershed Advisory Council** Meeting was held on November 15. They approved grant applications for funding as well as reviewed AWSMP flood response measures and programs.

July

Cornell Cooperative Extension of Ulster County and Ulster County Soil and Water Conservation District offered a **Landowner Training** to teach landowners about stream erosion. The course, taught by Cory Ritz of Ulster County Soil and Water Conservation District and Deron Davis of USDA NRCS, covered alternative approaches to control erosion such as planting vegetation along streambanks. Elizabeth Higgins from Ulster County CCE used the Ashokan Watershed Stream Management Program's stream table to demonstrate the effect of water on stream channels and landscapes.

AWSMP also had a booth at the annual **Woodstock Library Day** and distributed information to Woodstock residents about the AWSMP program. A display at the booth featured turbidity samples from local streams. This was the first time that program representatives attended this event and plan on making this an annual occurrence.

August

On August 5th CCE's Ashokan Watershed

Stream Management Program participated in the **Ulster County Fair**. Representatives from the program held stream table demonstrations for the public in the 4-H Youth Building throughout the day and a special hands-on activity for youth—making prints of native plants found in the watershed.

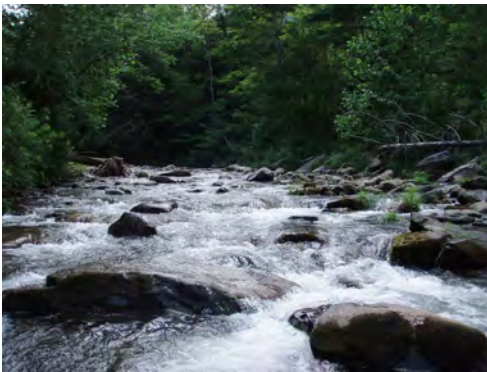
On August 27th, CCE's AWSMP Program had a booth at this year's **Shandaken Day Festival** in Phoenicia. On display were exhibits about streamside recreational activities that can be found throughout the watershed along with information on turbidity.

September—October (flood response)

From late August through October, the Ashokan Watershed Stream Management Program assisted various local, state, and federal agencies with **responding to Hurricane Irene and Tropical Storm Lee**. Immediately after the storms, UC SWCD and CCE staff reported to the Shandaken Command Center and assisted highway department staff with reconstruction of stream channels. DEP offered the services of Milone and MacBroom engineers to assess

Featured Stream: Woodland Valley Creek

Running along Woodland Valley Road, just off of Route 28, Woodland Valley Creek is in an area with a wealth of natural resources, recreational activities, and is brimming with local history. Easily accessible fishing access, primitive and car camping sites and numer-



Above: A steep, boulder-filled section of Woodland Valley.

ous trailheads make this one of the most popular recreational areas in entire Ashokan Watershed.

Woodland Valley Creek is 7.5 miles in length with a drainage area of approximately 20.5 miles. The headwaters of the stream begin along the steep slopes of some of the tallest mountains in the Catskills including: Slide,



Wittenburg, Panther, and Cornell Mountains. Woodland Valley Creek joins the Esopus Creek near the bridge at Herdman Road. This confluence is a popular location for fishing, kayaking, and swimming. Some of the larger and more notable tributaries to the Woodland Valley Creek include: Dougherty Brook, Cross Mountain Hollow Brook, the Panther Kill, and Muddy Brook.

Settled in the early 1800's most Woodland Valley families made a hardscrabble existence dairying. However, the area became an economic hotbed in the mid to late 1800's because of the hemlock trees that dominated the landscape. Hemlock bark contains a substance known as tannin which is used in the manufacturing of leather products. Tanning leather was a huge industry throughout the Catskill Mountains. During the Civil War, the majority of all leather products (from gloves, clothes, and saddles, and many others) produced for the Union Army was made in the Catskills. Teams of men with horses and oxen would cut wide trails through the forest and use special tools to strip the bark off of hemlock trees. The bark would then be bundled and sold to local tanneries. The hemlock tree itself would usually be cut down and the wood used for planking. Woodland Valley was such a hotbed of activity that most maps did not even show other nearby hamlets such as Phoenicia because they were considered backwaters. The impact of the tanning industry can still be seen today. Many hiking trails follow paths that were once used by the hemlock bark harvesters.

As the landscape was eventually cleared of all the hemlock trees, the tanneries moved on to new areas and Woodland Valley returned to its agrarian roots of mostly small farmers. But by the early 1900's most of the

Below: Campsite at Woodland Valley campground



agricultural land had essentially been abandoned and many of the previous owners defaulted on their taxes. New York State took over the abandoned property and incorporated it into the Catskill Forest Preserve (what would eventually be called the Catskill Park). Throughout the early 20th Century, Woodland Valley became a popular destination for those interested in the new recreational activity known as camping. In the early 1930's, the Civilian Conservation Corps built the cabins and most of the early campsites officially making the state owned property a public campground. Woodland Valley Campground is one of the oldest continuously operating public campgrounds in the state and it remains a popular destination.

The clear-cutting of the hemlock trees drastically changed the landscape. In the place of the hemlocks grew up an assortment of hardwoods such as red and sugar maples,

(Woodland Valley: Continued on page 6)

Historic Floods, continued

with concerns about their streamside property. These technicians were able to make recommendations on how to proceed with restoring their streambank and protect their property from further flood damage.

Staff from Cornell Cooperative Extension of Ulster County (CCE) helped direct watershed residents to the appropriate agency or organization for assistance. CCE Staff also educated residents and town officials about the National Flood Insurance Program and acted as a clearing house of information for individuals and municipal officials.

The New York City Department of Environmental Protection (DEP) hired engineers from Milone & MacBroom to assist county and town highway departments with assessing the structural integrity of many damaged roads and bridges and to make plans on rehabilitating or rebuilding those bridges. They also helped UC SWCD staff assess sites where streams had cut into road embankments and had caused bank failures and were able to design plans on how to rebuild these sites to modern specifications which should decrease the amount of damage done should flooding happen again.

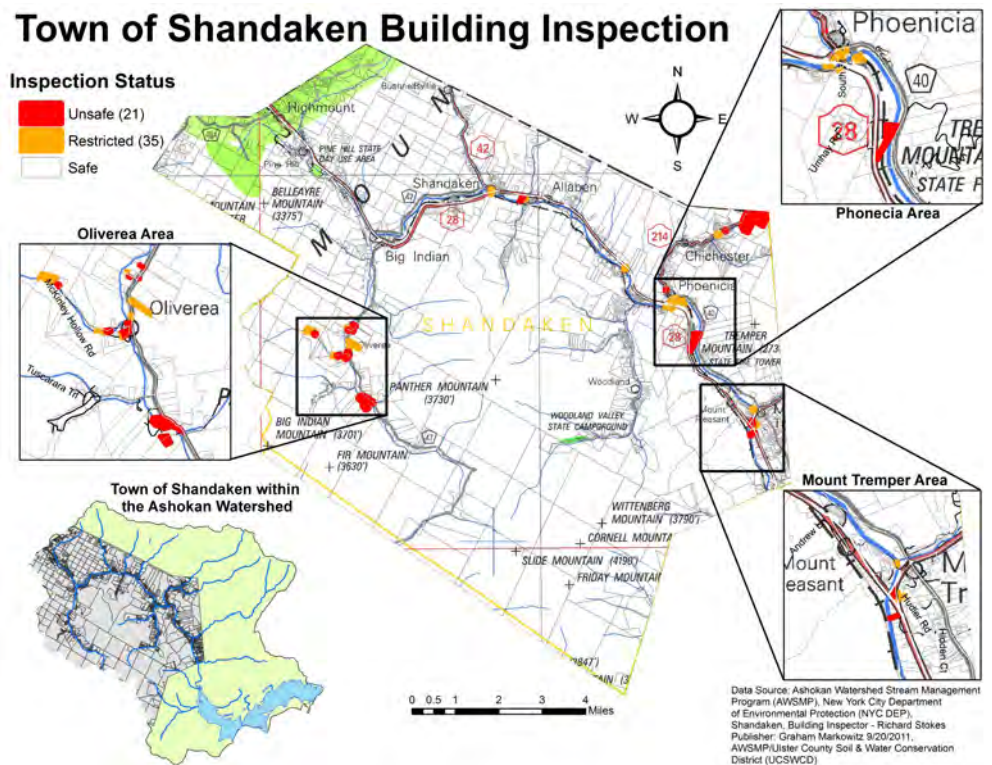
Since 2010, the Ashokan Watershed Stream Management Implementation Program has provided \$1.1 million to municipalities in the watershed for flood mitigation projects. We anticipate allocating at least \$100,000 more towards

local match for recovery efforts. Additional funds are being provided by NYC DEP to watershed communities through the Catskill Watershed Corporation. DEP is also funding improved flood maps to help guide future planning.

Periodic flooding is natural and unavoidable. The catastrophic flooding that occurred following Irene and Lee is hopefully rare. However, in our region, climate

change is predicted to increase the number of severe rainstorms. This will make large, destructive floods occur with greater frequency and intensity. While individuals and communities cannot halt the effects of climate change, they can prepare and adapt to a changing environment. With preparation and planning hopefully the next flood's impacts will be less severe.

Below: A map of severely damaged structures in the Town of Shandaken following Hurricane Irene. The locations of damage generally correlate to areas which have had flood damage in previous storms events. These are areas that may be the focus of future planning efforts.



Left: Bridge Street Bridge in Phoenicia shortly after Hurricane Irene flood waters began to recede. Notice how much the double yellow line moved because of the force of the flood waters



Right: Danny Davis (NYCDEP) speaks to a reporter about the AWSMP response to the floods on a bus tour of the affected areas .

Going forward, AWSMP plans to continue assisting private landowners as well as local governments in the watershed with recovering from this historic flood event. As always, AWSMP's technical staff can come to a private landowner's property and assess their unique situation and make recommendations on how to make repairs to their streamside property. Staff can also offer some advice regarding federal flood insurance and flood mitigation practices. For more information on these and other AWSMP programs please visit our website at www.ashokanstreams.org or call our office at 845-688-3047.



Above: An excavator removing excess gravel from the Stony Clove in the days following the flood.

Below Left: Flood waters blew out two culverts along County Route 47 in Olivearea creating a 30 foot deep crater in the road. The county plans to replace the culverts with a bridge. A temporary one-lane replacement bridge was installed in early December at the site to allow through traffic to pass.



Want to know when AWSMP is having a program?

Can't wait until the next issue of the News to get updates and information?

Then check out our Calendar Updates and our Facebook site!

We try to fill our calendar with fun and exciting programs that everyone from landowners to stream professionals to families can enjoy. But from now on you don't have to wait for our newsletter to find out about these programs. Simply go to our website and check out our Google Calendar at:

<http://www.ashokanstreams.org/calendar.html>

By checking this part of our website frequently you'll always be in the know about upcoming programs and volunteer opportunities. Be sure to bookmark it on your web browser for easy access. For more information on upcoming events or on how to become a volunteer stream steward please contact either Brent Gotsch (bwg37@cornell.edu) or Bob McCormack (rmb232@cornell.edu) or call our office at 845-688-3047. Looking forward to seeing you at our events!

Clearing the Record:

Whenever a disaster of the magnitude of Irene and Lee occurs rumors inevitably circulate throughout the community.

Rumor #1: The Winnesook Dam Broke

Fact: The Winnesook Dam, at the headwaters of the Esopus Creek, did not break. While there was some minor structural damage which required that the level of Winnesook Lake be lowered in the days following the flood, never during the course of any of the storms did the dam break. The pulse of water experienced in Olivearea and other places along the Upper Esopus was a result of a significant back-up of water behind culverts at County Rt. 47. When the culverts failed, a high volume of water entered the Esopus Creek all at once (see pictures to the left).

Rumor #2: The Gilboa Dam Broke

Fact: The Gilboa Dam did not fail during the storms. At no point during the storm did the dam experience any leakages or breaks in its structure. Water did flow over the spillway but this normal and controlled releases and not part of any structural deficiency. Although the dam has had structural problems in the past, those problems have largely been corrected and it is considered structurally safe by New York State regulators. Before the storm hit, a \$350 million upgrade was in progress to make the dam even stronger than it currently is and those upgrades are still continuing.

Rumor #3: The Shandaken Tunnel was Open and Contributed to Flooding Along the Esopus

Fact: The tunnel was never open during any part of the flood. It is illegal for the New York City Department of Environmental Protection (DEP) to release water from the Shandaken Tunnel during flood events (see DEC Regulations Chapter X, Part 670 for more details). If they do, they can be severely fined by the New York State Department of Environmental Conservation (DEC). Both state and city official have determined that there were no flows, accidental or purposeful, from the Shandaken Tunnel during the flood. Some residents have come forward to claim that they saw water flowing out of the tunnel during the peak of the flood. Their observations were mistaken. The amount of water which was coursing through the Esopus and all its tributaries most likely made it appear that water was coming out of the tunnel when it was not.

If you have any questions about the storm and its impact on streams in the Ashokan Watershed, please contact our office: (845) 688-3047



Upcoming Events

December

AWSMP representatives will be making appearances at every regular Town Board, Planning Board, and Zoning Board of Appeals in the watershed towns to discuss the upcoming Annual Watershed Conference in April 2012.

January

The stream access and recreation working group will meet in early January.

AWSMP staff will be hosting a training for town highway department personnel and contractors. This training hopes to better inform and educate frontline staff on stream management and restoration best practices in post-flood conditions.

TJ Ross, a graduate student at Cornell University will present on his research on the health of trout in the Esopus Creek. TJ has spent the last two summers in the watershed. His research was funded by a grant from the AWSMP program.

March

The Ashokan Watershed Advisory Council will hold its quarterly meeting in March.

April

The annual Ashokan Watershed Conference will be held on **Saturday April 21, 2012** at the Bearsville Theater in Woodstock, NY. Please check our website for further updates on agenda items and for registration information as it becomes available.

(Woodland Valley: Continued from page 3)

yellow birch, white oak and white ash. Today over 95% of land area in Woodland Valley is forested.

Woodland Valley Creek was assessed by DEP in 2008. The assessment documented areas of significant erosion, large woody debris (LWD) accumulations, location of infrastructure (bridges, culverts). Issues of particular concern in Woodland Valley Creek are turbidity, vulnerability of infrastructure and houses, flooding, and erosion. Like many other streams in our watershed, Woodland Valley Creek runs through exposed clay deposits and the water can be turbid. The narrowness of the valley and the steep gradient of the surrounding slopes put infrastructure such as Woodland Valley Road at risk for flood damage. In the past, many areas in the Valley have been washed-out or extensively damaged following flood events.

The river corridor is dominated by a closed canopy of northern hardwoods such as white oak, red maple, and yellow birch as well as northern evergreens such as white pine and eastern hemlock. Woodland Valley also has healthy populations of heart-leaf willow (*salix eriocephala*) and silky willow (*salix sericea*). Willows and other similar shrubby plants have roots that penetrate deep into the soil of the streambank and help hold it in place during high water events. Willows also naturally bend and can withstand swift currents. The bending also helps to slow down the velocity of the water thereby helping to control streambank erosion.

These types of willows are used by the Ashokan Watershed Stream Management Program in bioengineering projects to help stabilize streambanks. This type of bioengineering project was used with great success at a stream restoration project site near Fawn Hill Road. Completed in September 2010 and funded by a FEMA mitigation grant and the AWSMP Implementation Fund this site withstood the floods in October and December 2010 and the record-setting flood waters that followed Hurricane Irene and Tropical Storm Lee. An earlier restoration project by UC SWCD was installed at the confluence of the Esopus Creek and Woodland Valley Creek. This project has also withstood several significant floods with minor damage.

For more information about projects and monitoring efforts along Woodland Valley Creek please contact Cory Ritz, Ulster County SWCD cory.ritz@ashokanstreams.org.

Other AWSMP Program Updates

AWSMP HIRES TWO NEW FULL-TIME STAFF MEMBERS

Brent Gotsch, who temped with the program since June, was hired as the new full-time Watershed Educator. While working on his graduate degree he interned with the Rondout-Neversink Stream Management Program in his hometown of Grahamsville, NY. Brent holds a Masters of Public Administration (MPA) degree from Binghamton University where the topic of his Capstone Project focused on the policy implications of large woody debris management.

Bob McCormack has been hired as the new full-time Education and Outreach Coordinator. Bob has had a long and successful career in environmental education. He holds a bachelor's degree from Ithaca College and a Master's Degree from the Virginia Institute of Marine Science (which is affiliated with the College of William and Mary). Bob spent 11 years in Alabama as the Interpretative Coordinator for the Weeks Bay National Estuarine Research Reserve. More recently he has worked in New Jersey for the U.S. Fish and Wildlife Service as well as the National Park Service in Cape Cod, MA. Bob (who grew up in Rochester, NY) is happy to be back in the Empire State and looks forward to working with the AWSMP team to educate others about the unique value of the Ashokan Watershed.

CATSKILL STREAMS BUFFER INITIATIVE (CSBI)

The CSBI Program has plants available for post-hurricane site stabilization. Reviewers are fast tracking applications for plant material and landowners who already have stabilized their streambanks will be given priority for free riparian plants for planting projects this fall. These plants will help to strengthen and stabilize streambanks as well as contribute to an aesthetically pleasing area on your property.

Landowners who cannot meet this fall planting deadline are encouraged to apply for the regular 2012 planting season. Although the deadline has



(l-r) Brent Gotsch and Bob McCormack

not been set yet, it is expected to be sometime in mid-January. For more information on CSBI programs please contact CSBI Coordinator Adam Doan at 845-688-3047 ext. 7# or by email at adam.doan@ashokanstreams.org. Check our website's calendar for volunteer opportunities with CSBI and other AWSMP programs.

INTERNS PREPARE FINAL REPORT



Above: AWSMP interns Sara Newton and Graham Markowitz

Our interns, Sara Newton and Graham Markowitz, spent the summer surveying Birch Creek. Their survey utilized the Bank Assessment for Nonpoint Source Consequences of Sediment (BANCS) model which was developed by famed hydrologist Dave Rosgen. Sara and Graham are preparing a report based on the data collected during their survey. This will help determine the

extent of erosion on the creek after flood events (such as those seen recently following Irene and Lee). When it is complete their report will be made available in the forthcoming Birch Creek Stream Management Plan and on the AWSMP website (www.ashokanstreams.org). Their research and analysis methods can be duplicated for future stream assessments throughout the watershed. Their report will be the cumulating experience of their internship.

FALL 2011 GRANT CYCLE AWARDS ARE ANNOUNCED—7 projects funded

Mini-Grants (\$10,000 or less)

Phoenicia Library to improve the Jerry Bartlett Memorial Angling Collection

RCAP Solutions: to provide assistance to the Town of Shandaken for flood mitigation planning and outreach.

CCE Ulster Floodplain Manager Association Conference Training Grant—to send the Floodplain manager from each of the watershed towns to the State Floodplain Manager Association Conference in April 2012.

Matching Grants (up to 25% match of a total proposed budget, with a maximum of \$100,000)

USGS—Impact of climate change

Municipal Grants (Up to 90% of the funds to municipalities to support infrastructure projects consistent with stream management plan objectives)

Ulster County DPW—local match for new bridge over Esopus on CR 47 to replace undersized culverts

Ulster County DPW—local match for bridge repairs and expansion of Maben Hollow Bridge.

Shandaken/UCSWCD - local match for Esopus Creek at Brown Road FEMA Hazard Mitigation Grant Program

Esopus Creek News

Cornell Cooperative Extension of Ulster County
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Non-Profit Organization
PAID
Permit No.1
Kingston, NY 12401

Announcements: Van Hoagland Bridge Construction Begins!



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Free to residents by request.

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Editors

Brent Gotsch, Elizabeth Higgins,
CCE Ulster County

The Town of Woodstock work has been steadily progressing on the replacement of the Van Hoagland Bridge over the Beaverkill in Mink Hollow.

Bridges that are hydraulic constrictions often experience increased rates of bank erosion; sediment deposits (i.e. gravel bars) tend to form upstream—further restricting the flow. Because reducing the number of hydraulic constrictions in the watershed is a priority of the Stream Management Program, the program helped the town pay an engineer to do an assessment of the bridge and it was determined that the new bridge should be about 15' wider than

the current span.

The Town of Woodstock applied for and received a \$200,000 AWSMP Implementation Fund

grant to pay to move one of the bridge abutments (the under-bridge support) back and increase the length of the deck.

Below: Town of Woodstock Highway Department crews place the abutment for the new Van Hoagland bridge in Mink Hollow.

