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# *RONDOUT NEVERSINK STREAM PROGRAM*

## *2018-2020 ACTION PLAN*

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BIOENGINEERING AT CLARYVILLE ABOVE CONFLUENCE OF E. AND W. BRANCH NEVERSINK 2017





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**TO:** Mark Vian, Project Manager, NYC DEP Stream Management Program  
**FROM:** Karen Rauter, Sullivan County Soil & Water Conservation District  
**DATE:** May 15, 2018  
**RE:** Rondout Neversink Stream Program 2018-2020 Action Plan

*Sullivan County Soil & Water Conservation District and NYC Department of Environmental Protection have developed the 2018-2020 Action Plan for your review. The purpose of the Action Plan is to identify the Rondout Neversink Stream Program's (RNSP) planned activities, goals to accomplish and next steps in support of recommendations derived from stream management plans and Committee/stakeholder input. The current plan was updated and reviewed by our staff team and Watershed Advisory Group including municipal stakeholders in April 2018.*

*The Action Plan is divided into key programmatic areas:*

- A. Protecting and Enhancing Stream Stability and Water Quality*
- B. Floodplain Management and Planning*
- C. Highway and Infrastructure Management in Conjunction with Streams*
- D. Assisting Streamside Landowners (Public and Private)*
- E. Protecting and Enhancing Riparian and Aquatic Habitat*
- F. Stream Stewardship Education and Outreach*

*This program does not address Enhancing Public Access to Streams as in other basin Action Plans because the watersheds are predominantly in the Catskill Forest Preserve with significant New York State DEC access points to the stream. Overuse issues are prevalent and RNSP and DEP staff teams coordinate with regional municipal and state partners to disseminate public information and raise awareness about conservation law. This document lists the program's (RNSP staff-driven) and grant-driven Education and Outreach activities in Section F.*

*The Action Plan is updated annually and recommendations are fully revised biannually. This proposed plan will be implemented from May 2018 through April 2020.*

## *2018-2020 Action Plan*

### *Rondout Neversink Stream Program*

*The Rondout Neversink Stream Program (RNSP) was established in a partnership among Ulster and Sullivan County Soil & Water Conservation Districts (UCSWCD & SCSWCD) and NYC Department of Environmental Protection (DEP) in 2009 as part of the Filtration Avoidance Determination (FAD) issue to DEP by the Environmental Protection Agency. For practical purposes, a field office was established in Grahamsville at Neversink Town Hall in 2010 when through an MOU, Sullivan County SWCD contracted with DEP to conduct Stream Management Planning in this unique area to serve the two remote towns in Rondout and Neversink basins: Town of Neversink (Sullivan County) and Town of Denning (Ulster County). Stream Management Plans (SMPs) were completed for the three major river corridors in the basin: Chestnut Creek, Rondout Creek and East and West Branches and Main Stem of Neversink River.*

*The SMPs provide a road map for improved stream and floodplain management. Initiatives include the Stream Management Implementation Program (SMIP), Catskill Streams Buffer Initiative (CSBI), stream and floodplain restoration projects, stream and bank erosion watershed assessments, flood hazard analysis and mitigation, and education and outreach programs.*

*The following Action Plan summarizes the programs and projects that SCSWCD will be leading within the Rondout and Neversink Basins between May 2018 and April 2020, and includes updates on program activity through May 1, 2018. SCSWCD and its Watershed Advisory Group will lead the effort for each action item and work cooperatively with watershed partners including Denning, Neversink, Ulster and Sullivan Counties, NYC DEP, NYS DEC, and CWC. Funding sources for action items is provided by NYC DEP in contract CAT-443 through February 2020. This Action Plan identifies goals to address Stream Management Plan and Local Flood Analysis recommendations for implementation by Rondout Neversink Stream Program in the period 2018-2020. See the Projects tab at [www.rondoutneversink.org](http://www.rondoutneversink.org) for restoration activities by year from 2011-2017. A successor contract is currently being scoped in discussion with DEP. Projects in this plan will depend on available funds.*

*How to read this document: The Action Plan is organized around key program areas. For each topic area there is a list of recommendations, derived from Stream Management Plans and Local Flood Hazard Mitigation Plans in conjunction with Program stakeholders, in italicized text. Under the list of recommendations, tables list planned projects to be carried out by the staff team and through the Stream Management Implementation Program (SMIP).*

## A. Protecting Stream Stability & Water Quality

***These actions may include: stream corridor assessments, stream stabilization/restoration projects with a goal to restore stream stability and reduce targeted pollutants; monitoring and maintenance of stream projects; and outreach, education and technical assistance to encourage stream stewardship.***

### STREAM CORRIDOR ASSESSMENT AND MONITORING RECOMMENDATIONS

1. *Complete a watershed assessment of tributaries in Rondout and Neversink watersheds that have yet to be assessed. Assessments identify and prioritize fine and coarse sediment sources, erosion hazards, and potential water quality impairments and associated treatment opportunities.*
2. *Review existing water quality data and identify, as far as is possible, the most significant water quality impairments.*
3. *Identify locations of potential water quality impairments including: sources of pollution from upland areas and within the stream channel such as significant glacial lake clay and till exposures and sources of contaminants from road runoff and households, and make prioritized recommendations for their treatment.*
4. *Identify, monument and survey selected sites of bank erosion, assess their relative stability, and make prioritized recommendations for their treatment.*
5. *Monitor constructed stream restoration sites to document the projects' status and performance. Monitoring includes measurements and analysis of geomorphic form, rock structures and vegetation. Data is collected to monitor project stability and vegetation establishment.*
6. *Establish Riparian Reference Reaches.*

RONDOUT AND NEVERSINK WATERSHED STREAM FEATURE INVENTORY ASSESSMENT PROJECTS		
STREAM	LOCATION	CURRENT STATUS
Unnamed/Raymond George Rd	Town of Denning	Planned 2018

RONDOUT AND NEVERSINK BANK EROSION SITE ASSESSMENT		
LOCATION	STREAM	CURRENT STATUS
Clothes Pool	West Branch Neversink	Complete 2017
Blue Hill Lodge	East Branch Neversink	Complete 2017
Denning Town Hall	East Branch Neversink	Complete 2017
Ladleton	East Branch Neversink	Complete 2017
East Valley Ranch (Frost Valley)	East Branch Neversink	Complete 2017
Station 42300 Denning Rd	East Branch Neversink	Complete 2017
Frost Valley Model Forest Reference Reach	West Branch Neversink	Complete 2017
Gray Lodge Reference Reach	West Branch Neversink	Complete 2017

### STREAM RESTORATION AND STABILIZATION RECOMMENDATIONS

1. *Identify locations, such as those included in Ulster County Multi-Jurisdictional Hazard Mitigation Plan, where roads, bridges, or culverts and water quality may be threatened by SMP-prioritized bank erosion, or are otherwise unstable or threatened, and make prioritized recommendations for their treatment.*

2. *Identify locations where water quality may be threatened by bank erosion, and make prioritized recommendations for their treatment.*
3. *Identify locations of stream instabilities contributing to water quality impairment and make prioritized recommendations for their mitigation or treatment.*
4. *Implement the following stream stability restoration projects that have been identified through field assessments or prioritized in management plans:*

*East Branch Neversink in Claryville: Restoration of these two sites (Blue Hill Lodge and Denning Town Hall) meets dual goals of reducing 1) fine sediment contributing to turbidity, and 2) coarse sediment contributing to aggradation in downstream reaches nearby in population centers, which has both flood hazard mitigation and potential water quality benefit. These were identified in the comprehensive bank erosion study of the Neversink mainstem and branches, and in the Claryville LFA. Construction is expected to be completed in Summer 2018.*

*Clothes Pool (West Branch of the Neversink): This site is a major contributor of turbidity in the WB Neversink system, and was identified as high priority for treatment in the comprehensive bank erosion study of the Neversink mainstem and branches. Stantec has been hired for the design and construction is anticipated for Summer 2019.*

RONDOUT AND NEVERSINK STREAM RESTORATIONS							
PROJECT NAME	STREAM	STATUS	EXPECTED COMPLETION	PROJECT DESCRIPTION	LENGTH (FT)	DESIGNER	COST
Blue Hill Lodge	East Branch Neversink River	100% Design	2018	Full restoration with channel realignment and grade control	750	Barton & Logiudice	60% estimate: \$415,000
Denning Town Hall	East Branch Neversink River	100% Design	2018	Full restoration with channel realignment and grade control	700	Barton & Logiudice	60% estimate: \$314,000
Frost Valley Road S-Turn	West Branch Neversink River	100% Design	2018	Flood Hazard Mitigation Project	500	Milone & MacBroom	\$1,500,000
Molls Brook	Molls Brook	30% Design	2018	Streambank repair and planting	180	SCSWCD	TBD
Clothes Pool Restoration	West Branch Neversink River	Conceptual Design in progress	2019	Turbidity Reduction Project, hillslope stabilization and bankfull bench	800	Stantec	TBD
Ladleton Restoration	East Branch Neversink	Conceptual Design 2019	2020	Turbidity and Coarse Sediment Reduction Project	TBD	TBD	TBD

## B. Floodplain Management and Planning

***Includes floodplain assessments; coordination with floodplain management effort in the watershed; and outreach, education and technical assistance for floodplain management.***

#### LOCAL FLOOD ANALYSIS AND FLOODPLAIN ASSESSMENT RECOMMENDATIONS

1. *Identify locations where roads, bridges, or culverts may be threatened by flooding, and make prioritized recommendations for their treatment.*
2. *Identify locations where improved or residential areas may be threatened by flooding, and make prioritized recommendations for their treatment.*
3. *Support flood hazard mitigation efforts to reduce the impacts from flooding such as impacts to public safety, homes and businesses, critical facilities (i.e., Town Halls, Highway Depts) infrastructure and the natural environment.*
4. *Through LFA, provide resources to help WOH municipalities: confirm that there is a significant flood hazard in the target area through engineering analysis; use engineering analysis to develop a range of hazard mitigation alternatives; evaluate both the technical effectiveness and the benefit/cost effectiveness of each solution, and compare different solutions to each other for the most practical, sustainable outcome.*

RONDOUT AND NEVERSINK LOCAL FLOOD HAZARD MITIGATION ANALYSIS		
STREAM	LOCATION	CURRENT STATUS
Neversink River	Claryville Towns of Denning, Neversink	Accepted 2014
Rondout Creek	Sundown, Town of Denning	Accepted 2017
Chestnut Creek	Town of Neversink	In Progress

#### FLOODPLAIN MANAGEMENT COORDINATION, EDUCATION AND OUTREACH RECOMMENDATIONS

1. *The SCSWCD can support local municipalities in the use of FIRM maps.*
2. *Municipalities in the watershed can conduct a review of current floodplain ordinances and adopt revisions as appropriate. Revisions should reflect current building trends, new technologies, compliance and integrated broader community plans as appropriate.*
3. *Support municipal exploration of Community Rating System as a feasible activity.*
4. *Access to flood prevention/protection information can be established and supported throughout the basins.*
5. *Watershed municipalities, working with local and state agencies, can support periodic training sessions on flood related issues. Audiences can include municipal leaders, code enforcement staff, planning boards, landowners, realtors, lending institutions and others.*
6. *Watershed municipalities can facilitate development of a flood damage reporting system to track types of flooding, their location and the costs associated with flood damage.*
7. *Stream and floodplain management guidelines, which integrate stream form and function, can be developed for use during post flood response.*

POST-FLOOD TECHNICAL ASSISTANCE	
STAKEHOLDER/AUDIENCE	EXPECTED COMPLETION
Establish a staff operator/partnership for post-flood emergency response at Frost Valley YMCA	2018
Establish Town operator/partnership for post-flood emergency response in Claryville	2019

## C. Highway and Infrastructure Management in Conjunction with Streams

**Outreach, training and financial assistance to highway departments (two Counties and two Towns) to encourage the adoption of best management practices. Early detection and rapid response to control and eradicate invasive species.**

### HIGHWAY INFRASTRUCTURE AND STORMWATER MANAGEMENT RECOMMENDATIONS

1. Provide support for County and Town Highway Departments for vegetation management on critical areas such as roadside ditches and steep slopes.
2. Watershed municipalities can evaluate winter road abrasive procedures to address abrasive quality, application methods and spring sweeping.
3. The Town and County Highway Departments and NYSDOT can integrate geomorphology principles in all new projects and routine maintenance activities related to the streams and tributaries.
4. Work with local highway departments to minimize the negative effects of bank armor through the use of vegetation within and above the armor. Replant existing rip rap. This will increase the effectiveness and strength of the rip rap and cool water temperatures through shading and reducing the thermal effects of heated rock.
5. Work with the Denning and Neversink Highway Departments to identify opportunities to address infrastructure that is leading to stream instability and water quality degradation.
6. Study potential for science-based criteria for selective stream gravel management and decisions about impacts of Large Wood.

RONDOUT AND NEVERSINK HIGHWAYS & INFRASTRUCTURE PROJECTS		
STREAM	LOCATIONS	CURRENT STATUS
East Branch Neversink Critical Area Seeding	Denning Road	Ongoing [Proganics Pilot]
Little Hollow Road Erosion Site	Town of Neversink	Complete 2017
Road Ditch Mapping/Assessment	Town of Denning	Planned 2018
Denning Culvert Assessment SMIP	Town of Denning	Planned 2018
Hunter Road Flood Model Detail	Town of Neversink	Planned 2018
Sugarloaf Road Culvert Assessment	Town of Neversink	Planned 2018

### RECOMMENDATIONS FOR OUTREACH AND TECHNICAL SUPPORT TO HIGHWAY DEPARTMENTS, STORMWATER MANAGERS AND CONTRACTORS

1. Provide municipal highway departments and local contractors with hands-on training in various stream management activities. Conduct field days, workshops and demonstration projects to meet this goal.
2. Educate and train municipal highway departments in stream process, and provide them with information about how maintenance of road systems and other public infrastructure may impact local waterways.
3. Provide education and outreach to municipal highway departments, stormwater managers and contractors to improve their ability to recognize changes in stream stability and impacts to water quality that may be associated with infrastructure management activities and to understand the impact of management actions.

RONDOUT AND NEVERSINK STAKEHOLDERS TRAINING		
SUBJECT	AUDIENCE	CURRENT STATUS
NYS DEC Erosion & Sediment Control Certification	Land/Operation Managers	March 2018
Rosgen Level 1 Basic Stream Process Training	Frost Valley Operations	2019
Japanese Knotweed Early Detection	Highway Departments	Ongoing since 2011

## D. Assisting Streamside Landowners (Public and Private)

***Provide access to training and technical assistance to increase the knowledge, skills and capabilities of landowners in the watershed. Also provide support for riparian buffer restoration.***

### CATSKILL STREAMS BUFFER INITIATIVE RECOMMENDATIONS

- 1. Preserve and protect existing riparian buffers and provide for improved stewardship.*
- 2. Protect/enhance the stream corridor through the establishment of effective forested buffers. Stream buffers will offer some measure of protection against encroaching land uses and act to protect public and private property.*
- 3. Assist landowners with their efforts to protect and maintain healthy riparian buffers, address invasive species, and improve the condition of unstable or degraded riparian areas.*
- 4. Provide assistance with managing and preventing the spread of Japanese knotweed and other invasive species.*
- 5. Provide assistance for streamside landowners to maintain diverse and healthy riparian buffers of at least 35-100 feet using native shrubs, trees and other woody vegetation.*

RONDOUT AND NEVERSINK BUFFER PROJECTS							
PROJECT NAME	WATERBODY	STATUS	EXPECTED COMPLETION	PROJECT DESCRIPTION	LENGTH (FT)	DESIGNER	COST
State Route 55	Chestnut Creek	100% Design	2018	Erosion control hillslope stabilization/revegetation	110	SCSWCD	TBD
Toohey	Neversink River	In progress	May 2018	Bioengineering for bank protection	250	SCSWCD	\$55
Brittenham	Aden Brook	In Progress	May 2018	Bioengineering for bank protection	132	SCSWCD	\$225
Rondout Demo Cribwall	Rondout Creek	In Progress	May 2018	Ongoing repair planting to 2011 project	160	SCSWCD	\$0
Vegetation Monitoring	Multiple	Planned	August 2018	Vegetation monitoring at past project sites	NA	NA	NA
Ballfield	Rondout Creek	Contracting	Fall 2018	Demo site for sustainable landscape design	550	TBD	TBD
S-Turn	West Branch Neversink	Planning and Design	Fall 2018	Supplemental planting to DPW project	200	SCSWCD	TBD
Vegetation Monitoring	Multiple	Planned	August 2019	Vegetation monitoring at past project sites	NA	NA	NA



**OUTREACH, EDUCATION AND TECHNICAL ASSISTANCE TO STREAMSIDE LANDOWNERS**

1. *Provide streamside landowners detailed technical information on the establishment and maintenance of riparian buffers.*
2. *Provide stakeholders technical assistance that will guide restoration of stream system stability and help to maintain ecological integrity. Technical assistance can range from a landowner consultation to activities that will help meet the priorities of protecting water quality and establishing riparian buffers.*
3. *Provide long-term access to technical assistance to landowners and municipalities for assessment of their stream-related problems, and development of effective management strategies and to supervise stream project implementation.*
4. *Educate streamside landowners by providing a basic understanding of fluvial process, factors impacting streambank stability and water quality, and management decisions for the promotion of a healthy stream.*
5. *Characterize current riparian vegetation management in the watershed and make prioritized recommendations for changes that can improve ecosystem integrity.*
6. *Educate municipal leaders by providing a basic understanding of fluvial process, with an emphasis on how local decision makers can support stream health through their leadership and provide information on the multiple benefits which can be realized by protecting stream and watershed health.*

<b>RONDOUT AND NEVERSINK OUTREACH EVENTS</b>		
<b>SUBJECT</b>	<b>AUDIENCE</b>	<b>CURRENT STATUS</b>
Annual Tree & Shrub Sale	Streamside Landowners	Ongoing since 1945
Northern Woodlands Subscription Mailing	Streamside Landowners	2018
Introduction to Permaculture Public talk	Streamside Landowners	2018
Community Collaboration Education Grant Meeting	Education Grant Stakeholders	May 2018
Annual Anglers Symposium	Anglers and Streamside Landowners	November 2018
Hemlock Phenology Project Training	Streamside Landowners	2018
Floodplain Basics for Planning & Zoning	Towns of Neversink, Denning	March 2018
Floodplain Basics for Realtors	Sullivan County Realtors	July 2018
Neversink Farm Market Exhibit	Streamside Landowners	Ongoing
Sustainable Landscape Design Training & Pilot Planting	Streamside Landowners	2019
Permaculture Landowner Workshop	Streamside Landowners	2019

**E. Protecting and Enhancing Riparian and Aquatic Habitat**

***Support for research and education programs that encourage protection of aquatic and riparian ecosystems.***

**RECOMMENDATIONS FOR RIPARIAN AREAS**

1. *Preserve and protect existing riparian buffers and provide for improved stewardship.*
2. *Protect/enhance the stream corridor through the establishment of effective forested buffers. Stream buffers will offer some measure of protection against encroaching land uses and act to protect public and private property.*

3. *Assist landowners with their efforts to protect and maintain healthy riparian buffers, address invasive species, and improve the condition of unstable or degraded riparian areas.*
4. *Provide assistance with managing and preventing the spread of Japanese knotweed and other invasive species.*
5. *Provide assistance for streamside landowners to maintain diverse and healthy riparian buffers of at least 35- 100 feet using native shrubs, trees and other woody vegetation.*

RONDOUT AND NEVERSINK JAPANESE KNOTWEED CONTROL SITES		
STREAM	LOCATION	CURRENT STATUS
Chestnut Creek	Multiple sites	2010 - Ongoing
Rondout Creek	Multiple sites	2010 - Ongoing
West Branch Neversink	County Road 47	Complete 2016

#### RECOMMENDATIONS FOR HEALTHY AQUATIC HABITAT

1. *Conduct a detailed assessment of current and potential fisheries conditions.*
2. *Provide technical support for post-construction monitoring of fisheries habitat conditions at restoration project sites to confirm benefits to fisheries.*

RONDOUT AND NEVERSINK RESEARCH GRANTS		
PARTNER	SMIP GRANT FUNDING	CURRENT STATUS
US Geological Survey 3-Year Fish Population Study	\$174,584	Active through 2020
Colorado State University 2-Year Large Wood Sediment Study	\$99,086	2018-2019

## F. Stream Stewardship Education and Outreach

***Support for projects that engage the community through targeting diverse stakeholders/audience ages on stream health and stewardship. Includes honoring local knowledge, illuminating land use history and providing context for future use of best management practices; includes partnership with three major educational institutions: Frost Valley YMCA, Tri Valley Central School and Time and the Valleys Museum.***

#### STREAM STEWARDSHIP EDUCATION AND OUTREACH RECOMMENDATIONS

1. *Collaborate with local and regional partners to enhance education and outreach efforts related to stream and floodplain management, sediment and erosion control, and other topics critical to sound watershed management.*
2. *Maintain a watershed website to provide information to all stakeholders.*
3. *Develop publications focused on stream management which can be provided to watershed stakeholders and/or used in training workshops.*
4. *Host an annual watershed conference for the community to promote stream management and stewardship awareness.*
5. *Increase public and technical awareness about the importance of the Rondout and Neversink watersheds and ecosystems by providing educational workshops for a variety of stakeholders including riparian landowners, municipal leaders, planning boards, code*

*enforcement personnel, highway departments, local businesses, contractors, developers and educators.*

6. *Increase technical awareness about stream science, water quality protection and best management practices by providing educational workshops for a variety of stakeholders including riparian landowners, municipal leaders, planning boards, code enforcement personnel, highway departments, local businesses, contractors, developers and educators.*
7. *Develop detailed science-based guidelines for stream management and natural channel design which are readily available to those entities responsible for stream activities in Rondout and Neversink watershed.*

<b>RONDOUT AND NEVERSINK STAKEHOLDER OUTREACH PROJECTS</b>		
<b>TITLE</b>	<b>AUDIENCE</b>	<b>STATUS</b>
Streamside Landowner Participation Guide	Project Site Landowners	2018
Getting to Know Your SMP	New Municipal Officials	2019
Floodplain Management	New Municipal Officials	2019
Stream Process 101	New Municipal Officials	2019
The Source E-News	Partners and Participants	Ongoing/Quarterly
<a href="http://www.rondoutneversink.org">www.rondoutneversink.org</a>	Partners and Participants	Ongoing
Instagram @nycheadwaters	Partners and Participants	Ongoing
Facebook	Partners and Participants	Ongoing
Anglers Symposium Podcast	General Public	Ongoing/Annual
Catskill Waters Podcast	General Public	2019

<b>RONDOUT AND NEVERSINK EDUCATION AND OUTREACH SMIP GRANT PROJECTS</b>					
<b>PROJECT NAME</b>	<b>RECIPIENT</b>	<b>STATUS</b>	<b>EXPECTED COMPLETION</b>	<b>PROJECT DESCRIPTION</b>	<b>AWARD \$</b>
Watershed Project	Tri-Valley School	Completed	November 2017	Interdisciplinary multi-media storytelling with high schoolers	\$15,000
School Trip Scholarships	Time and the Valleys Museum	Active	2018	Funding for transportation/museum visits	\$5,000
Catskill Waters	Keiko Sono/ Fractured Atlas	Active	2018 includes NYC events	Film stories of stream stewardship	\$24,241
Watershed Model	Sullivan BOCES	Active	2018	An augmented reality topographical model using gaming and projection software to create an interactive sandbox that shows how water flows over the surface of the earth.	\$2,000
Water Power & Streams Exhibit	Time and the Valleys Museum	Active	2018	With the assistance of Tri Valley Central School 8th graders, the Museum is building a properly buffered streamside area feeding a mill pond in a new exhibit to teach visitors about the history of water powered tools on a 1930s farm and the impacts manufacturing land uses had on local rivers.	\$12,500
Augmented Reality Watershed Model	Time and the Valleys Museum	Active	2019	An augmented reality topographical model using gaming and projection software to create an interactive sandbox that shows how water flows over the surface of the earth.	\$2,585
Peekamoose Blue Hole Stewards	Catskill Center for Conservation & Development	Active	2018	In partnership with NYS DEC and Catskill Center, funding provides for two full-time outreach workers to present Blue Hole visitors with Leave No Trace principles of outdoor recreation on-site five days during peak use time (summer).	\$31,568
Wild About Water	Tri-Valley School	Active	May 2018	Wild About Water in-school presentation for elementary science students	\$1,000

## APPENDIX A: SUMMARY OF COMPLETED PROJECTS 2010-2017

### STREAM ASSESSMENTS

Streams	Location	Status
Chestnut Creek	Town of Neversink	2003
Rondout Creek	Towns of Denning and Neversink	2010
East, West, and Mainstem	Towns of Denning and Neversink	2011
Chestnut Creek	Town of Neversink	Reassessment completed 2012
Red Brook	Town of Neversink	2012
Sugarloaf Brook	Town of Neversink	2017
Pepacton Hollow Brook	Town of Neversink	2003
Pigeon Brook	Town of Denning	2014
Biscuit Brook	Town of Denning	2014
Fall Brook	Town of Denning	2015
High Falls Brook	Town of Denning	2015
Deer Shanty Brook	Town of Denning	2015
Erts Brook	Town of Denning	2015
Tray Mill Brook	Town of Denning	2015
Molls Brook	Town of Neversink	Initiated 2016
Trout Creek	Towns of Wawarsing, Rochester	2017
Conklin Brook	Town of Neversink	2017
Aden Brook	Town of Neversink	2017 (Partial Access)
Sugarloaf Brook	Town of Neversink	2017
Riley Brook	Town of Denning	No Access

### BANK EROSION ASSESSMENT

Streams	Location	Status
West Branch Neversink	Clothes Pool	2017
East Branch Neversink	Blue Hill Lodge	2017
East Branch Neversink	Denning Town Hall	2017
East Branch Neversink	Ladleton	2017
East Branch Neversink	East Valley Ranch (Frost Valley)	2017
East Branch Neversink	Station 42300 Denning Rd	2017
West Branch Neversink	Frost Valley Model Forest Reference Reach	2017
West Branch Neversink	Gray Lodge Reference Reach	2017

### JAPANESE KNOTWEED CONTROL

Streams	Location	Status
Chestnut Creek	Multiple sites	2010 - Ongoing
Rondout Creek	Multiple sites	2010 - Ongoing
West Branch Neversink	County Road 47	2016

### STREAM RESTORATION AND STABILIZATION PROJECTS (PRIOR TO SMIP GRANTS)

Town	Project	Goal	Status
Neversink	Chestnut Creek Stabilization	Streambank Stabilization and Native Plants Buffer Demonstration Project	2005
Denning	Sundown Creek Restoration at Ulster Co Highway Garage	Stabilization of heavy equipment use area and stream bank with live crib wall and native forested buffer including inter-planted riprap.	2011
Neversink	West Branch Neversink Habitat Restoration Demonstration	Full channel restoration. Placement of in-stream structures, channel realignment, and hillslope stabilization. Included post-flood emergency response bridge abutment repair.	2013

Denning	Clair Road at Rondout Creek Stabilization and Restoration	Streambank stabilization to protect road and adjacent residence.	2012
Neversink	Van Aken Farm on Rondout Creek	Rootwad revetment and willow staking installed as post-flood emergency response.	2011
Denning	East Branch Neversink Denning Road (Sapadin)	Rootwad revetment and willow staking installed as post-flood emergency response.	2011
Neversink	Claryville Road Protection	Post-flood emergency response; channel realignment.	2013
Denning	Culvert at Claryville Firehouse	Replace blocked bridge and failing culvert with 3-sided concrete bottomless culvert.	2013
Denning	Tributary at Estes	Technical assistance/design for channel realignment W. Branch Neversink	2013
Neversink	Bungalow Brook	Technical assistance/design for channel realignment Main Stem Neversink (FHM)	2015
Denning and Neversink	Large Wood Flood Hazards	Removal from Bridge Openings per Claryville Sundown FHM Recommendation	2015
Neversink	Claryville Church Hall	Avulsion Protection East Branch Neversink River	2016
Neversink	Little Hollow Brook Stabilization	Design of Stabilization/Channel realignment at Little Hollow Road slide	2017
Denning and Neversink	Critical Area Seeding	Sites selected along roads by Town of Neversink and Denning	Annually as needed

### STREAM BUFFER PROJECTS

Year	Project	Town	Goal
Ongoing	Riparian Corridor Management Plans	Denning, Neversink	Completed 31 Riparian Corridor Management Plans for landowners enrolled in CSBI to date.
Annually	Buffer Planting Monitoring	Multiple	Surveyed 32 individual monitoring plots on CSBI project sites to assess vegetation to date.
2011	Denning Town Hall	Denning	Establish riparian buffer
2011	Sapadin	Denning	Streambank stabilization and riparian buffer improvement
2011	Charlick	Denning	Riparian buffer improvement
2011	Duhl	Denning	Japanese Knotweed Treatment
2011	Ryan	Denning	Riparian buffer improvement
2012	Panasci/Bailey	Denning	Streambank stabilization and riparian buffer improvement
2012	Ryan Phase 2	Denning	Riparian buffer enhancement and repairs
2012	Reichman	Denning	Streambank stabilization and riparian buffer improvement
2012	Van Aken	Neversink	Streambank stabilization using rootwads and bioengineering and buffer planting
2012	Dupal	Neversink	Streambank stabilization using rootwads and riparian buffer planting
2013	Frost Valley, Biscuit Brook	Denning	Streambank stabilization using bioengineering and riparian buffer planting
2013	Winton, Flat Brook Culvert	Denning	Riparian buffer planting after town replacement of culvert
2013	Winton, County Line	Denning	Streambank stabilization using bioengineering and riparian buffer planting
2013	Schiffer	Neversink	Streambank protection and riparian buffer planting
2013	Clair Road	Denning	Supplemental riparian buffer planting after stabilization project
2014	Frost Valley, Biscuit Creek Phase 2	Denning	Riparian buffer planting
2014	Neversink Fairgrounds	Neversink	Riparian buffer planting
2014	DEP Grahamsville Facility	Neversink	Riparian buffer planting
2014	Tison	Denning	Streambank stabilization using bioengineering and riparian buffer planting
2014	Winton, Parking Lot	Denning	Riparian buffer planting and streambank enhancement
2014	Frost Valley, West Branch	Denning	Riparian buffer planting
2015	Rio Alto	Denning	Riparian buffer planting and streambank stabilization
2015	Halls Mills	Neversink	Riparian buffer planting and streambank enhancement
2015	Morley	Neversink	Riparian buffer planting

2015	New Road Hill	Denning	Riparian buffer planting after town road work
2015	Erts Brook	Denning	Riparian buffer planting after town culvert replacement
2016	Schoenburg	Neversink	Streambank protection using rootwads and riparian buffer planting
2016	Capawana	Denning	Riparian buffer enhancement
2017	Frost Valley, White Pond	Denning	Riparian buffer planting
2017	Tew/Little Hollow	Neversink	Supplemental planting after town road protection

### LOCAL FLOOD HAZARD MITIGATION ANALYSIS PLANS

Town	Project	Goal	Year
Neversink, Denning	Hydraulic Model for Neversink River at Claryville	Towns accepted recommendations of Local Flood Hazard Mitigation Analysis	2015
Denning	Hydraulic Model for Rondout Creek at Sundown	Town accepted recommendations of Local Flood Hazard Mitigation Analysis	2016

### EDUCATION AND OUTREACH PROJECTS

Publications			
Type	Title(s)	Audience	Status
Stream Management Plans	Chestnut Creek Stream Management Plan (2003) Upper Rondout Creek Stream Management Plan (2010) Neversink River Stream Management Plan (2013)	Watershed residents, stream managers, municipal officials, project partners	Completed for 3 main rivers.
Newsletter	The Source Newsletter of Rondout Neversink Stream Program The Source E-Newsletter of Rondout Neversink Stream Program	Streamside landowners and project partners	2010 (1 issue) 2011 (1 issue) 2012 (3 issues) 2013 (2 issues) 2014 (3 issues) 2015 (3 issues) 2016 (3 issues)
Fact Sheets	Flood Preparedness Stream Guide (2012) Native Plant Stream Guide (2012)	General public, municipal employees, and streamside landowners	Adapted with permission from Ashokan Watershed SMP (2009-2013)
Brochure	Spread the Word Not the Weed: Battle the Invasion of Japanese Knotweed	Streamside landowners, municipal employees, general public	2010
Program Brochure	Guide to the Ashokan Watershed Stream Management Program	General public	Adapted with permission from Ashokan Watershed SMP 2012
Displays and Kiosks	Tributaries Tribute Holiday Tree (2010, 2011) CSBI Native Plants Display (2010) Native Plants 4H Exhibit Invasive Species 4H Exhibit Hemlock Appreciation 4H Exhibit CSBI Native Plants Display at Ulster Co Fair (2016)	General public; Town of Neversink, Grahamsville Fair, NY State Fair	Annual Partnerships with Town and Tri Valley Central School 4H leaders; Ashokan Watershed SMP

Action Plan	2009-2011 Action Plan 2010 Update 2011-2013 Action Plan 2012 Update 2013-2015 Action Plan 2014-2016 Action Plan 2016-2018 Action Plan	Project partners, municipal officials, applicants for funding, interested members of the public, FAD regulators	Updated annually
Social Media	<a href="http://www.sullivanwcd.org">www.sullivanwcd.org</a> <a href="http://www.rondoutneversink.org">www.rondoutneversink.org</a> <a href="http://www.facebook.com/RNSP">www.facebook.com/RNSP</a> Instagram: @nycheadwaters	General public	Updated regularly
Press Releases	Projects, Events and Public Informational Meetings	Stakeholder groups	Annually as needed
<b>Conferences and Training Programs</b>			
<b>Type</b>	<b>Title</b>	<b>Audience</b>	<b>Status</b>
Stakeholder Engagement	Annual Anglers Symposium River Shorts Film Series 2016	Watershed residents, municipal officials, and project partners, recreation and tourism stakeholders	2014, 2015, 2016, 2017
Research Grants Planning Meeting	Rondout Neversink Research Planning Workshop	Researchers, resource managers, project partners, interested members of the public	2016
Fluvial Geomorphology and Engineering Trainings	Rosgen 5-day Training Rosgen Public Presentation (2009) Intro to ArcGIS Aquatic Organism Passage Training (2012) River Hydraulic Modeling (2014) Knotweed Management Training (2014)	Highway and DPW staff, stream managers, contractors, and program staff	2010-2014
Floodplain Management Trainings	NYS Floodplain and Stormwater Manager's Conference and Certified Floodplain Manager Training NFIP Educational Session CFM Exam Review (annually as needed) Floodplain Mapping Fundamentals Benefit-Cost Analysis Using Depth Grids Community Rating System Workshop Flood Map Basics: Regulatory and Non-Regulatory Products Flood Map Basics-For Planning Boards/ZBAs	Code enforcement officers, planning board members, town board members, program staff, and members of the public.	2010-2018; in partnership with NYS DEC, NYC DEP and Ashokan Watershed SMP
Contractor Trainings	Post-Flood Emergency Stream Intervention (2012)	Local contractors, highway department staff, and project partners	Held for interbasin partners by Ashokan Watershed SMP 2012
Landowner Workshops	Stream Buffers Informational Workshop 2011 Reading the Forested Landscaping 2013 Pollinators Workshop 2014 Knotweed Training 2014 Catskill Waters Project Introduction 2017	Streamside landowners	Annual/Semi-Annual



Public Programs			
Type	Title	Audience	Status
Public Meetings	Town Board Meetings; Other Meetings Elected Officials	Municipal officials	Annual presentations to Town Boards of Denning and Denning; Sullivan County SWCD; meetings with DPW officials regularly
NYC Watershed Partner Meetings	Grant Outreach Meetings Stream Project Meetings NYC Watershed Education & Outreach Meetings Riparian Buffer Working Group Meetings CRISP Meetings FEMA Meetings NYC Watershed Partner Meetings CWT and CWC Meetings	Project partners	Program coordination and reporting annually, as required or needed
Native Plants Material Center	Tri Valley Central School Partnership incorporates a school-hosted CSBI Plant Material Center and support from students on project implementation when logistics allow. Students maintain native plants nursery and infrastructure to steward plant stock for riparian buffer plantings. Students also assist in production of willow beds at second ballfield location.	Grades 6-12	Seasonally

### PROGRAM COORDINATION

Program Coordination			
Type	Purpose	Audience	Status
Watershed Advisory Group	To provide overall guidance and oversight to the program	Project partners, municipal officials, streamside landowners and other community members	Meet 2x per year
Flood Hazard Mitigation Working Group	To exchange information and identify opportunities to improve floodplain management and mitigate flood hazards	Municipal officials, project partners	Meet 2x per year
Highway Managers Working Group	To exchange information and identify opportunities for technical or financial assistance to improve stream management	Highway managers, project partners	Meet 2x per year
Education Stakeholders Group	To engage local educators in delivering educational programming and incorporate stakeholders into decision making	Project partners, watershed educators	Meet 2x per year
Grant Review Committee	To review grants to the SMIP and make recommendations for funding	Project partners	Meet as needed

### STREAM MANAGEMENT IMPLEMENTATION PROJECTS (SMIP)

Category	Project Title	Applicant	Amount	Brief Description	Year
Education	Map Conservation for Town of Neversink	Town of Neversink	\$5,430.00	Late 19th century fabric maps with early landowner parcel information and water features were professionally conserved and digitally copied so that information can be	2015

				available to the public and to study land use history and change.	
Highways and Infrastructure	Erts Brook Culvert Replacement	Town of Denning	\$17,905.00	Culvert with open grate deck replaced with 3 sided concrete structure to mitigate road salt and sand, PAHs and other road contaminants depositing in to Erts Brook, a tributary of E. Branch Neversink River.	2015
Highways and Infrastructure	Streambank Stabilization at New Road Hill	Town of Denning	\$16,059.94	Stacked Rock Wall and instream deflection structures, willow clumps and riparian buffer planting for road protection and water quality improvement at high velocity tributary confluence.	2015
Flood Hazard Mitigation	Claryville Local Flood Analysis	Towns of Denning and Neversink	\$99,064.33	Local Flood Analysis in the hamlet of Claryville	2015
Education	Watershed Learning: Visual Storytelling	Tri Valley CSD	\$15,000.00	Tri-Valley Watershed Learning: Visual Storytelling	2016-ongoing
Education	Tri Valley CSD - Elementary School	Time and the Valleys Museum	\$5,000.00	Travel grants (bus vouchers)	2016-ongoing
Education	Catskill Waters	Keiko Sono/ Fractured Atlas	\$24,241.00	Artist collaboration with resident, local knowledge project	2016-2018
Flood Hazard Mitigation	Large wood obstruction contractor	Ulster County	\$3,300.00	Removal of current debris and post flood response.	2016
Flood Hazard Mitigation	Large wood obstruction contractor	Sullivan County	\$3,300.00	Removal of current debris and post flood response.	2016
Flood Hazard Mitigation	Sundown Local Flood Analysis	Town of Denning	\$49,615.80	Local Flood Analysis in the hamlet of Sundown	2016
Education	Wild About Water	Tri Valley Central School	\$1,000.00	Water cycle education for 4th graders at TVCS	2018
Education	Sullivan BOCES AR Sandbox	Sullivan BOCES	\$2,000.00	Augmented reality sandbox	2018
Education	Stream Stewards	Catskill Center	\$31,568.00	Two interns for outreach at Blue Hole during summer weekends	2018
Education	Waterwheel	Time and the Valleys Museum	\$12,335.42	Replicate water wheel at Time and Valleys Museum	2018
Education	Time and Valleys Museum AR Sandbox	Time and the Valleys Museum	\$2,585.00	Augmented reality sandbox for watershed process education	2018
Highways and Infrastructure	East Branch Culvert Analysis	Town of Denning	\$40,000.00	H&H analysis of four Denning culverts	2018
Highways and Infrastructure	Sugarloaf Rd Culvert Analysis	Town of Neversink	\$10,000.00	H&H analysis of Sugarloaf Brook culvert	2018
Highways and Infrastructure	S-Turn Cost Share	Ulster County	\$500,000.00	Cost Share for Ulster County S-Turn repairs	2018
Research	Fish Survey	USGS	\$174,584.00	Fish shocking survey at 18 locations on Rondout and Neversink basins	2017-2018
Research	Large Wood Study	Colorado State University	\$99,086.00	Large wood and sediment study by Colorado State University	2017-2018