GCSWCD

2021 Annual Report

April 1, 2022

2021 Education & Outreach Updates

2021 Schoharie Watershed Summit

In 2021, the Schoharie Watershed Summit was held virtually due to the on-going COVID-19 pandemic.

VIRTUAL SESSION #1: *16 participants*

View of the Horizon: Invasive Species to Look for this Year
John Thompson (Catskill Regional Invasive Species Partnership)
Invasive species threaten the ecology, economy and our health in the Schoharie watershed. This session shared information about the invasive plants and animals that are spreading into our area and provided guidance for reporting these new threats and helping to slow their spread.

Management Techniques for Common Invasive Plants in the Catskills
Dan Snider (Catskill Regional Invasive Species Partnership)
Dan Snider, Field Projects Manager for the Catskill Regional Invasive Species Partnership, discussed best management practices for common terrestrial invasive plants, including Japanese knotweed, Japanese barberry, Oriental bittersweet and more. He also provided useful invasive species management resources such as iMap Invasives and the IPMDAT.

VIRTUAL SESSION #2: *16 participants*

What's bugging our forests? Impacts of invasive pests on the functioning of Catskill forests
Dr. Gary Lovett (Cary Institute of Ecosystem Studies)
The Catskills are one of the areas of the country hardest-hit by invasive forest pests. In this presentation, Dr. Lovett discussed how these pests are likely to change the tree species composition of Catskill forests, and how that will affect the forest ecosystem functions that we depend on, such as storing carbon and protecting water quality. Dr. Lovett also discussed why so many forest pests get into our country and what we can do about it.

VIRTUAL SESSION #3: *14 participants*

Forests, Meadows, Ledges, & Streams: Using Natural Resource Information for Local Planning & Conservation
Gretchen Stevens (Hudsonia)
The Greene County Natural Resource Inventory, published in 2019, describes important and unusual resources, and their services to the people of the county. The presentation showed how to use the NRI to identify and prioritize features of local importance, and to inform planning, policy-making, and reviews of land development projects.

Special Use Permits
Christopher Eastman (New York State Department of State's Local Government Training Program)
Some uses require additional review and should be granted permission only if the application meets certain conditions. These special uses include gas stations, dog kennels, and uses with drive-through windows. The special use permit is also used for development in environmentally sensitive zones with overlays such as for wetlands, steep slopes, and along scenic ridgelines. Scenarios in which the special use permit tool is most helpful will be discussed, along with rules local boards must follow for reviewing and approving applications for special use permits.

Educational Events

Hunter Elementary School Student Trout Release

- Thursday, May 6th, 2021
- Dolan's Lake (Hunter, NY)
- 26 participants

Kaaterskill Rail Trail Interpretive Walk for Mountain Top Historical Society

- Saturday, June 5th, 2021
- Watershed Assistance Program offered a guided walk along the Kaaterskill Rail Trail.
- 20 participants

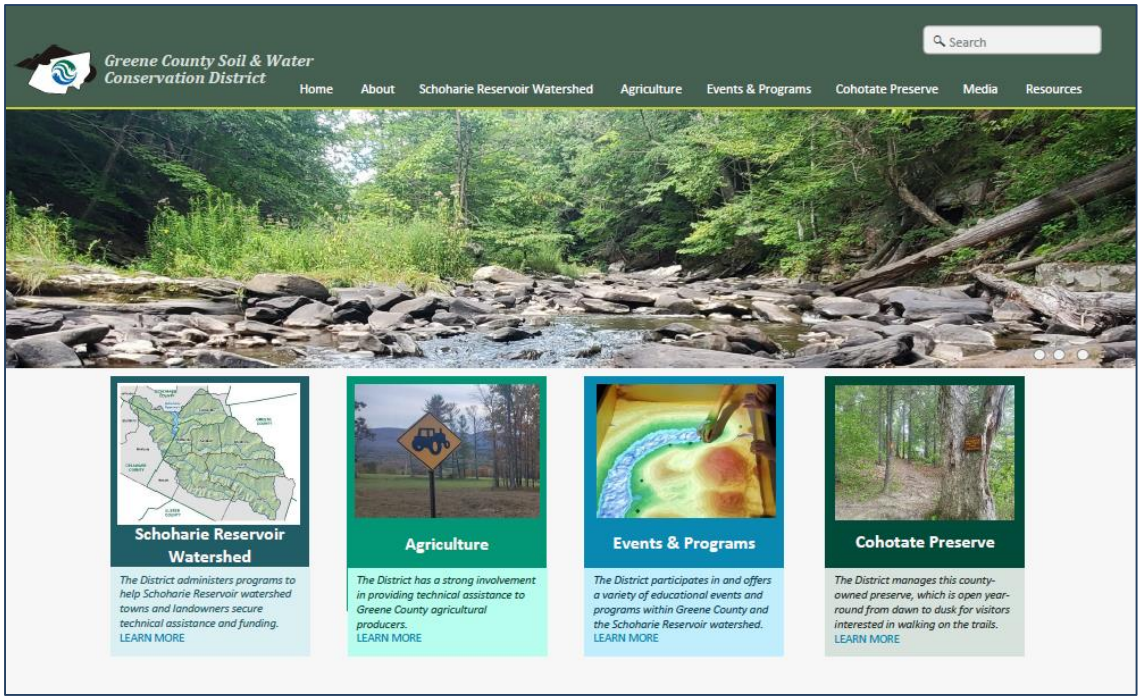
Summer Camp Visit at Mountain Top Arboretum

- Wednesday, July 28th, 2021
- Mountain Top Arboretum (Tannersville, NY)
- 18 participants

Greene County Youth Fair

- July 22nd – 25th, 2021
- GCSWCD table display at the Greene County Youth Fair (Cairo, NY)
- 454 participants

New GCSWCD Website



The new GCSWCD website will have a homepage that will look similar to the image shown above.
(The above image is a concept created by GCSWCD)

- **Continued to work on a GSCWCD website update project**
  - Updating website design
  - Updating website menu items
  - Updating content on webpages
- **Goal is to make a more user-friendly website**
- **Anticipating the updated GCSWCD website efforts will continue in 2022.**

2021 Stream Management Implementation Program (SMIP) Updates

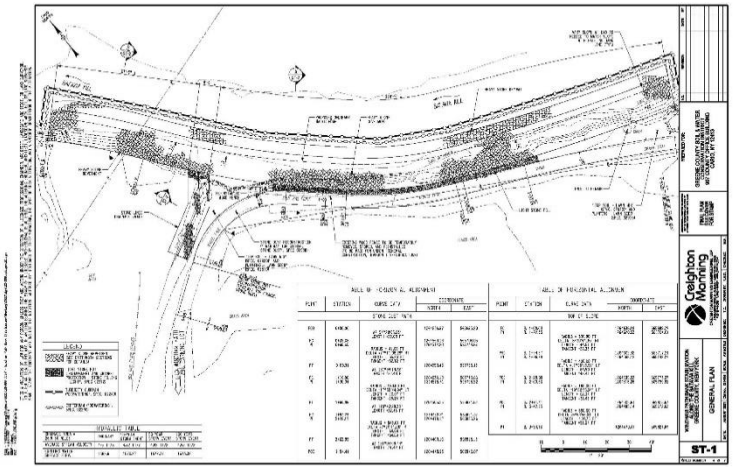
$1,041,870 total funds awarded in 2021

2021 SMIP Awards

Category	Round 23 (Spring 2021)	Round 24 (Fall 2021)
Stream Restoration	• Windham Path Bank Stabilization Implementation **($200,000)** • East Kill Stabilization Near County Route 17 **($200,000)**	
Habitat & Recreation		
Education & Outreach	• Village of Tannersville Earth Day Celebration **($2,000)**	
Planning & Assessment		
Highway & Infrastructure	• County Route 2 Over Unnamed Tributary to Schoharie Creek Culvert Replacement **($200,000)** • Rappleyea Road Culvert Replacement Project **($200,000)** • County Route 17 Embankment Stabilization **($200,000)**	
Local Flood Analysis		• Engineering Services for Manor Kill Streambank Rehabilitation at Pangman Road **($35,000)**
Total	**6 applications** **0 modifications** **$1,006,870.00**	**1 application** **0 modifications** **$35,000.00**

SMIP Projects Completed in 2021

- **Stream Restoration:**
  - Windham Path Bank Stabilization Design
    - Design Complete 8/17/21
  - Windham Path Bank Stabilization Implementation
    - Construction substantially complete on 11/5/21
    - All in-stream work complete
    - Remaining work expected to be completed in 2022



Design sheet for Windham Path Bank Stabilization.

Restored Windham Path along the Batavia Kill.

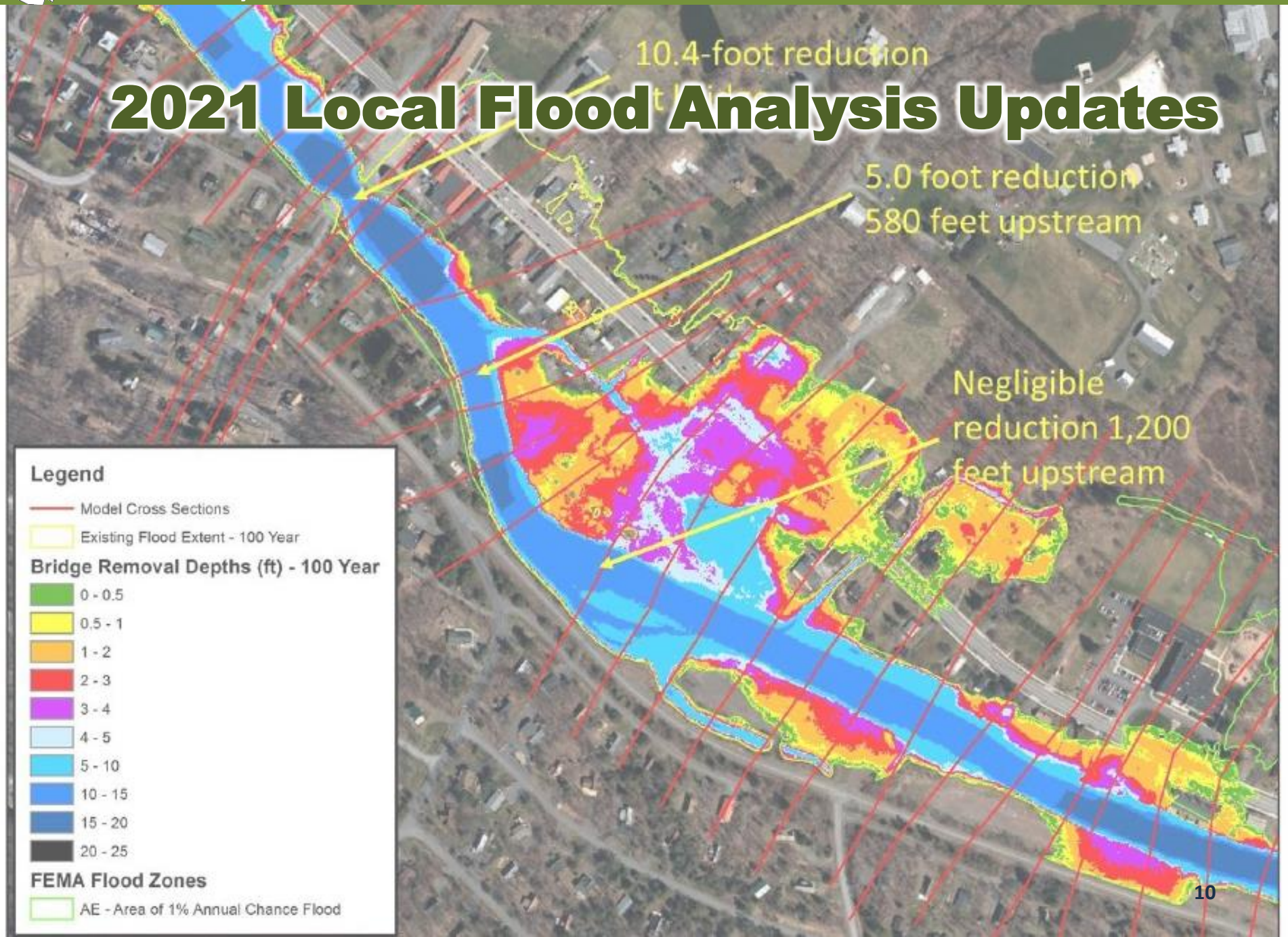
Streambank stabilization along the Batavia Kill.

2021 SMIP Budget Update

Category	Funds Allocated to Date	# of Awards through 22 Rounds (8/1/09-9/15/21)
Education & Outreach	$114,912.20	32
Stream Restoration*	$2,068,433.60	18
Highway & Infrastructure	$1,584,466.51	22
Planning & Assessment	$158,495.81	8
Habitat & Recreation	$168,824.95	16
Local Flood Analysis** Flood Hazard Mitigation**	$1,212,249.34	17
Stormwater & Critical Area Seeding***	$168,488.36	5
Total	**$5,475,870.77**	**118**

- *118 awards (82 completed projects, 8 withdrawn projects, 18 in-process projects, and 10 awards for additional funding for previously-awarded projects)*
- *Next SMIP Round 3/15/22*
- **Category formerly known as "Landowner Stream Assistance" in SMIP Cycles 1 & 2*
- ***Category formerly known as "Flood Hazard Mitigation" in SMIP Cycles 1 & 2. Totals in this category combine LFA & FHM projects.*
- ****Stormwater category is only from SMIP Cycles 1 &2. Stormwater projects are currently funded through Catskill Watershed Corporation.*

2021 Local Flood Analysis Updates



7 LFAs Completed to Date

- **Prattsville –** completed
- **Lexington –** completed
- **Windham –** completed
- **Tannersville –** completed
- **Conesville –** completed
- **Ashland –** completed
- **Hunter –** completed
- **Jewett –** ***in process***

All of the completed LFAs have been accepted/adopted.

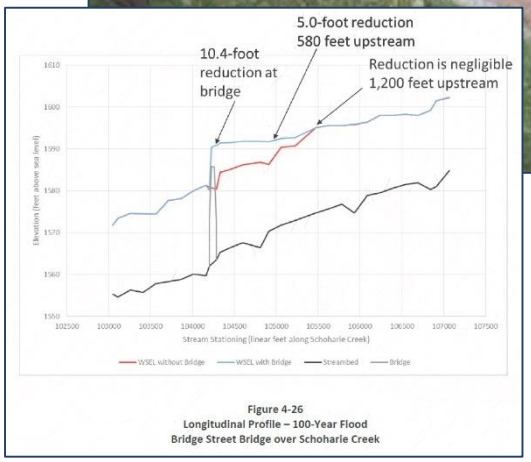


Figure 4-26
Longitudinal Profile – 100-Year Flood
Bridge Street Bridge over Schoharie Creek

Local Flood Analysis Project Updates

Projects in design:

- Sawmill Creek Embankment Stabilization
- Engineering Services for Manor Kill Streambank Rehabilitation at Pangman Road

Erosion along the Manor Kill near Pangman Road Bridge

Geotech drilling, Railroad Avenue

2021 Stream Restoration Project Updates

RED FALL CONTRACT 2 BEFORE

WINDHAM PATH BEFORE

RED FALL CONTRACT 2 AFTER

WINDHAM PATH AFTER

Batavia Kill Stream Restoration at Red Falls – Contract 2

- **Prattsville, NY**
- **Partial funding provided by SMIP**
- **This segment of the Batavia Kill has been the focus of extensive geomorphic and water quality monitoring studies completed by the GCSWCD and DEP since the late 1990s.**
- **The reach has been characterized as the largest contributor of turbidity and suspended sediment in the Batavia Kill watershed.**
- **Contract 2 of the project was completed this year.**
  - This contract included the restoration of approximately 1,300 ft. of the Batavia Kill
  - The project included the creation of 2 constructed riffles and 1 boulder riffle for the purposes of grade control.
  - 32 root wads were installed to provide fish habitat in the project pools.
  - 23,075 tons of stone were imported to supplement on site salvage of rock in order to construct the live stone revetment bank protection and riffle grade control.
  - The project included the installation of 4,056 ft. of fascine, 3,800 live stakes, and 1,595 containerized plants.

Batavia Kill Full Channel Stream Restoration Project at Red Falls Contract 2 Phase 1 bank grading and riffle installation.

Windham Path Bank Stabilization along the Batavia Kill

- **Windham, NY**
- **Partial funding provided by SMIP**
  - 300 linear feet of stream bank stabilized with live stone revetment
  - 240 linear feet of walking path re-constructed
  - 75 linear feet of swale improvements
  - 890 tons of rock riprap installed
  - 500 live willow stakes installed
  - 700 linear foot temporary access road removed and restored

Revetment installation and sand bag cofferdam

Live stone revetment

Walking path

Stream Restoration Project Updates

Projects in design:

- West Kill Streambank Stabilization near Wolff Road
- Batavia Kill Restoration at Red Falls Project 2
- East Kill Restoration at CR 78 Repairs

West Kill Streambank Stabilization near Wolff Rd.

Project Monitoring

- Typical monitoring schedule requires the site to be assessed on the 1st, 2nd, 3rd, and 5th years. The 5th year of monitoring also requires a complete as built of the site.
- **Projects Requiring Monitoring in 2021**
  - 3 project sites were monitored in 2021
    - 2 projects required a complete as built of the site for the 5th years monitoring.
- **Parameters:**
  - Qualitative Assessments:
    - Photographs
    - Visual Inspection
    - Pattern
  - Channel Dimension (Cross Sections):
    - Riffle Area (FT2)
    - Riffle Width (FT)
    - Riffle Mean Depth (FT)
    - Width to Depth Ratio, W/D
    - Pattern
    - Sinuosity, K
    - Longitudinal Profile
    - Water Surface Profile
  - Sediment Transport:
    - Bed Material
  - Biology:
    - Vegetation Plots
  - Other:
    - Structure Survey
    - Wetland Delineation

Lanesville during project monitoring

2021 Catskill Stream Buffer Initiative (CSBI) Updates

12 CSBI projects in 2021
9 RCMPs

2021 CSBI Projects – 5 Spring Plantings

Catskill Streams Buffer Initiative
At the Root of Streamside Protection

1,186 Trees and Shrubs Planted
2,270 Willow Stakes Installed

2021 CSBI Projects – 7 Fall Plantings

Catskill Streams Buffer Initiative
At the Root of Streamside Protection

Tree tubes installed at 8 sites in 2021

2021 CSBI Fall Projects

2021 CSBI Project Summary:

3,495 Feet of Stream Planted

2.75 Acres of Riparian Buffer Restored

Catskill Streams Buffer Initiative
At the Root of Streamside Protection

CSBI Project Monitoring

- **21 CSBI Projects Monitored in 2021**
- **Plots monitored: 79**
- **Trees monitored: 775**
- **Parameters:**
  - Vegetation Plots:
    - Photographs
    - Observation of planting site
      - Noting disturbances/human influence
    - Planted Tree & Shrub Tracking
      - Alive/Dead
      - Height of Individual Plant (m)
      - Width of Shrub (m)
      - Diameter of Tree Trunk
        - » Caliper Reading (cm)
      - Visual Inspection
        - » Predation (Insect/Deer/Human)
        - » Vigor (High/Medium/Low)
        - » Natural Regeneration/Die Back
    - Canopy Cover (%)
    - Ground Cover (%)
      - Including list of ground cover species
      - Noting invasive species

2021 Plant Materials Center Updates

2021 Plant Material Center Updates

- Spring 2021 staff potting-up
  - Potted up 4,200 bare root trees and shrubs
- A deer exclusion fence was installed to protect potted plants, 0.75 acres of woods were cleared to increase usable space, and 3 plant rows were updated.
- Greenbelt delivery from One Nature
  - Fall delivery
  - 630 containerized plants delivered
- PMC Upgrades

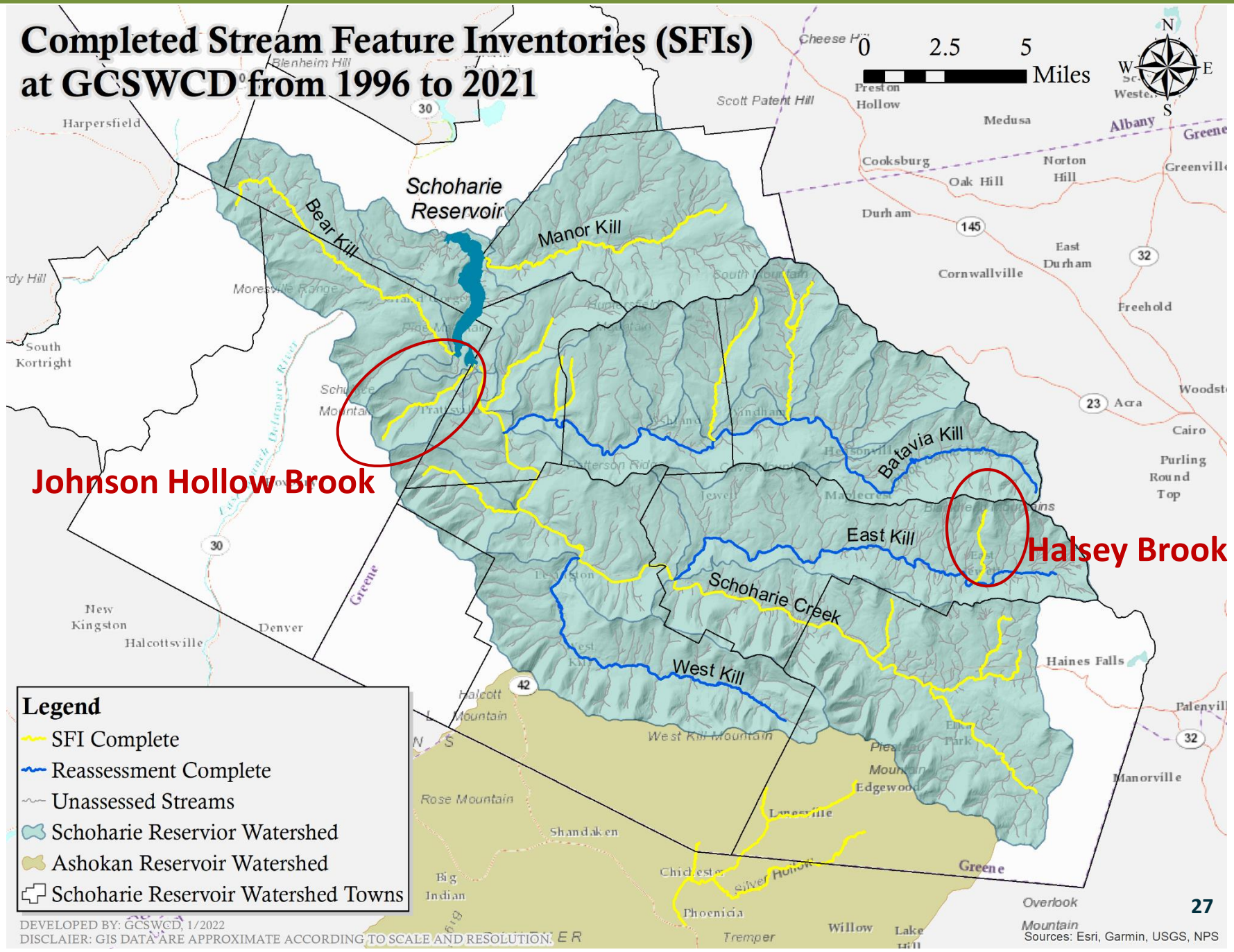
2021 Stream Feature Inventory (SFI) Updates

3.5 total miles of stream assessed in 2021

2 SFIs Completed in 2021

- Halsey Brook
  - Tributary to the East Kill
  - Total stream length: 2.8 miles
  - Assessed length: 1.4 miles
    - Densely forested state land in upper watershed

- Johnson Hollow Brook
  - Located in Delaware and Greene counties
  - Flows directly into the Schoharie Reservoir
  - Total stream length: 4.5 miles
  - Assessed length: 2.1 miles
    - Ran into stream access and permission issues in the upper watershed


Completed Stream Feature Inventories (SFIs)
at GCSWCD from 1996 to 2021
0 2.5 5
Miles
N
S
E
W
Schoharie Reservoir
Bear Kill
Manor Kill
Batavia Kill
East Kill
Schoharie Creek
West Kill
Johnson Hollow Brook
Halsey Brook
Legend
SFI Complete
Reassessment Complete
Unassessed Streams
Schoharie Reservior Watershed
Ashokan Reservoir Watershed
Schoharie Reservoir Watershed Towns
DEVELOPED BY: GCSWCD, 1/2022
DISCLAIER: GIS DATA ARE APPROXIMATE ACCORDING TO SCALE AND RESOLUTION.
Sources: Esri, Garmin, USGS, NPS

2021 Internships

1 intern assisting with projects in 2021

2021 Internships

- **1 SCA Stream Stewardship Assistant**
  - Emma Smith
  - Second term
  - 10-month position (January-November)
  - Accomplishments:
    - Assisted in the SFI for Halsey Brook and Johnson Hollow Brook
    - Helped coordinate 3 SCA volunteer days (1 willow stake preparation day and 2 CSBI planting days)
    - Assisted with vegetation and restoration project monitoring
    - Assisted with CSBI and restoration project plantings
    - Assisted with education programs

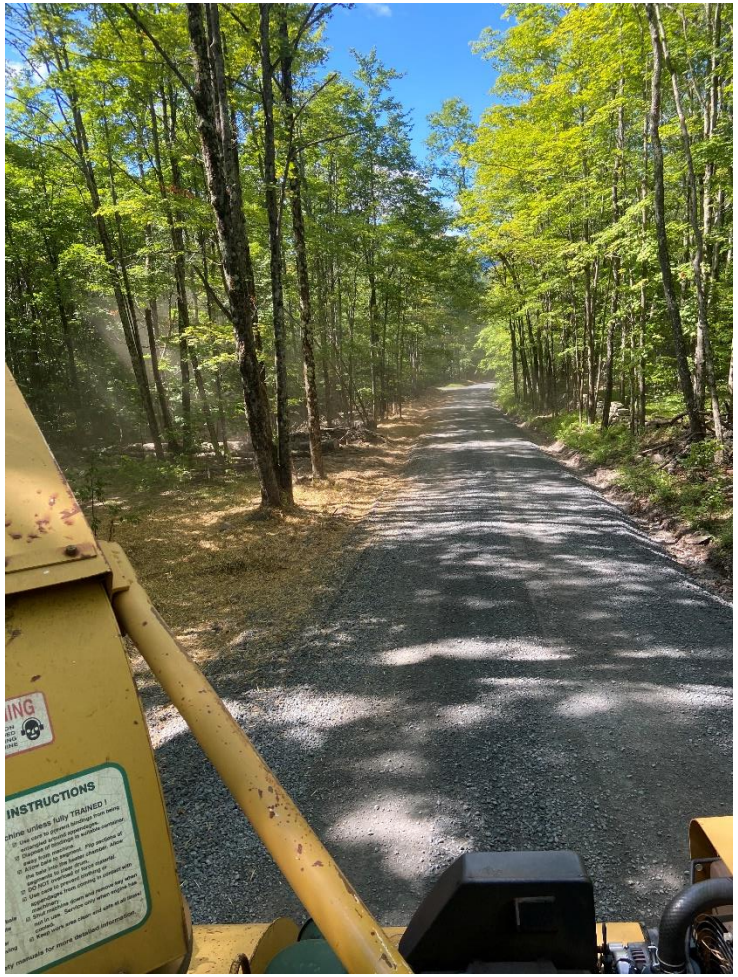
2021 Highway & Infrastructure Updates

2.1 total roadside miles seeded in 2021

2021 Highway & Infrastructure Updates

- Ditch Seeding – Continue to work with highway departments to vegetate roadside ditching

- In 2021, 13 sites were treated totaling 2.1 miles.



2021 Highway & Infrastructure Updates

County Route 17 Embankment Stabilization:

- Road embankment stabilization project is near complete
- Combined with stream restoration project, *East Kill Stabilization Near County Route 17*, in-process
- SMIP funds awarded to support both projects

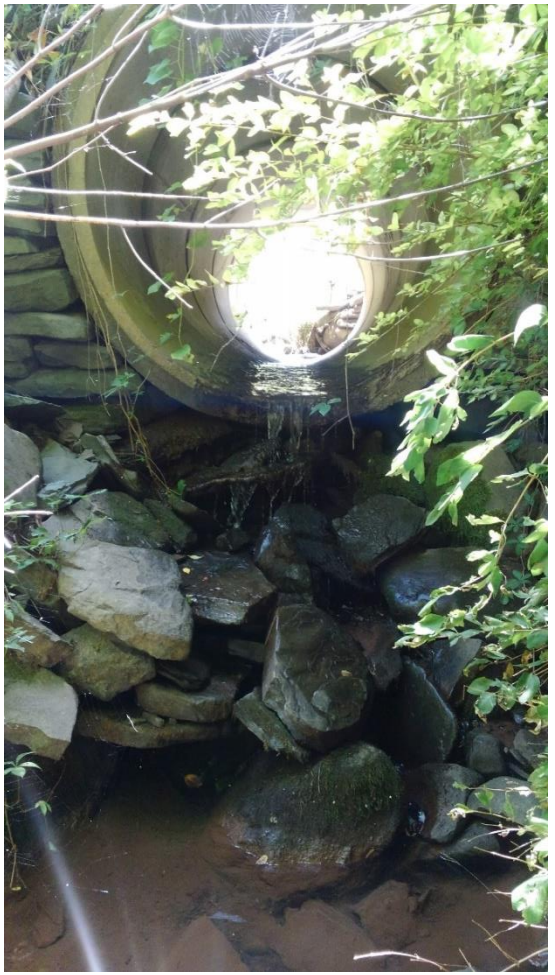
Before and after photos of County Route 17 Embankment Stabilization

Highway & Infrastructure Project Updates

Projects in design:

- County Route 2 Over Unnamed Tributary to Schoharie Creek Bridge Design
- Rappleyea Road Culvert Design Project

County Route 2 culvert over unnamed tributary to Schoharie Creek



Rappleyea Road culvert – perched outlet

2022 Goals & Priorities

2022 Goals & Priorities

- Education/Outreach/Training
  - Recruit Education & Outreach Coordinator
  - Schoharie Watershed Weekends (seasonal)
  - Launch updated GCSWCD website
- SMIP
  - Continue SMIP Cycle 3
  - Host spring and fall SMIP rounds and SWAC meetings
  - Host SWAC subcommittee meetings
- LFA/FHM
  - Hunter Fire Department Relocation
  - Rail Road Avenue Stabilization
  - Manor Kill Near Pangman Road Design
- Assessment
  - SFI of the Manor Kill (tentative)
    - Initial assessment in 2008
- Stream Restoration and Highway & Infrastructure Projects
  - Batavia Kill Stream Restoration at Red Falls
  - Windham Path Bank Stabilization
  - West Kill Streambank Stabilization near Wolff Road
  - County Route 2 Over Unnamed Tributary to Schoharie Creek Bridge Design
  - Rappleyea Road Culvert Design Project
  - East Kill at County Route 17 Repair
- Stream Restoration Project Monitoring
  - 3 project reaches requiring monitoring in 2021
    - 2 projects requiring a complete as built of the site
- CSBI
  - Streamside Landowner Workshop
  - Complete 5 CSBI projects
  - Complete vegetation monitoring at 17 sites
- Operations Staff
  - Working towards increased capacity for in-house project maintenance
  - Increasing Plant Material Center grow-out capacity

Red Falls Upper Reach February 2016

District Funding

In 2021, the District received $3,577,882.09 in total funding. Included in that amount is $178,874.08 from New York State for reimbursement of technical services and conservation projects, a $254,538.00 allocation from Greene County, and $3,144,470.01 through the District's partnership with NYC Department of Environmental Protection.

The District's allocation from Greene County has remained consistent at $254,583.00 for the period spanning 2018—2022; as our overall funding also remained stable with approximately 1% growth from 2020 to 2021.