

DELAWARE COUNTY SOIL & WATER CONSERVATION DISTRICT
STREAM CORRIDOR MANAGEMENT PROGRAM

**DELAWARE WATERSHED
STREAM CORRIDOR MANAGEMENT PROGRAM**

**2021 – 2023 Action Plan for the
East and West Branch of the Delaware River**



Marvin Hollow Grade Control Town of Walton, NY constructed in 2019

**Prepared by:
DCSWCD Stream Program
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Introduction:

A comprehensive Stream Corridor Management Plan (SCMP) for the West Branch Delaware River was completed in 2005 and the East Branch Delaware River (EBDR) was completed in December 2007 by the Delaware County Soil & Water Conservation District (DCSWCD) Stream Corridor Management Program, Department of Environmental Protection (DEP), and Delaware County Planning Department (DCPD). Since their adoption, DCSWCD in partnership with DCPD and DEP have been implementing the 36 recommendations contained in the two plans following priorities established in the Action Plan for each basin. This Action Plan combines the previously separate Action Plans for each basin into one Action Plan for the entire upper Delaware Watershed within the New York City water supply watershed.

During the development of the West and East Branch Delaware River SCMPs, a Project Advisory Committee (PAC) was formed to represent the interests of local officials, residents, businesses, and agencies living and working in the Cannonsville and Pepacton Reservoir watersheds. The PAC assisted in the preparation of the SCMP recommendations and is now working collaboratively to guide the Stream Corridor Management Program (SCMP) in the implementation of the recommendations.

In the implementation of the SCMPs, the PAC consists of all supervisors, mayors or their designated representatives. The PAC members have been instrumental in the development of program rules and selection of projects to be funded. In addition, the PAC has provided guidance to this SWCD as we move forward in our Flood Hazard Mitigation program.

The implementation of the recommendations shall be accomplished through the following program elements:

- ❖ Delaware Watershed Stream Management Implementation Program Grant (SMIP)
- ❖ Local Flood Hazard Mitigation Program (LFHMP)
- ❖ Catskill Stream Buffer Initiative (CSBI) Funding
- ❖ Restoration Project Funding
- ❖ Conservation Reserve Enhancement Program (CREP) Assistance
- ❖ Stream Corridor Management Program Technical Assistance and General Support

In 2020-2021, some action items within the Delaware Action Plan were impacted by the COVID-19 crisis. Delaware County SWCD will continue to follow the guidance from New York State, the US Federal government, local county government, and the Delaware County Soil and Water Conservation District's policies to stop the spread of the COVID-19 virus.

1. Delaware Watershed Stream Management Implementation Program Grant (SMIP)

The Delaware Watershed Stream Management Implementation Program (SMIP) grants, established in 2010, fund eligible stream and floodplain water quality protection construction projects and programs that advance the Stream Management Plan recommendations for municipalities that have adopted the Stream Corridor Management Plan and signed a Memorandum of Agreement with the Delaware County Soil and Water Conservation District.

The SMIP grant funds are typically offered through an annual application process with grants targeted to fulfill the SCMP priorities and the recommendations of the stream management plans. The following section reviews the proposed Action Items related to the administrative aspects of the SMIP.

A. SMIP Administrative Action Items

- 1. Update the grant application, review and award process for SMIP. (SCMP Staff, DEP, PAC)**
 - **Schedule SMIP grant round 2021**
 - i. **Pre-applications deadline March 1, 2021.**
 - ii. **Formal applications will be scheduled in April/May 2021 after site visits.**
 - **Finalize and close out existing SMIP grants from 2017-2018 round**
 - **Continue an open enrollment for Local Flood Analysis-generated projects**
- 2. Maintain information on the status of awarded grants and future grant rounds through the Catskillstreams.org website. (SCMP Staff, DEP)**
- 3. Regularly prepare and distribute press releases on the accomplishments of the recipients of SMIP grants. (SCMP Staff, grant recipients)**
- 4. Expand the scope of the SMIP grant funding to support flood hazard mitigation projects identified through the Local Flood Analysis (LFA) under the Local Flood Mitigation Program (LFHMP).**
- 5. Create opportunities for the delegation of project design tasks to grant recipients, their consultants or consultants to DCSWCD.**

SMIP grants completed in 2020 are listed below:

Recreation and Habitat Improvements					
<u>Project Title</u>	<u>Applicant</u>	<u>Project Description</u>	<u>Length (feet)</u>	<u>Total Project Cost</u>	<u>Status</u>
½ Mile Hiking Trail	Catskill Recreation Center, Inc.	Recreation trail along the East Branch Delaware River	--	\$40,383	Completed
East Branch Delaware River Trout Habitat Improvement	Trout Unlimited	Tag trout and monitor water temperature		\$99,190	Completed
Flood Hazard Mitigation (since 2015)					
<u>Project Title</u>	<u>Applicant</u>	<u>Project Description</u>	<u>Length (feet)</u>	<u>Total Project Cost</u>	<u>Status</u>
Local Flood Hazard Mitigation Analysis	Town of Walton	LFA plan for the West Branch Delaware River	--	\$194,840	Completed April 2015
Local Flood Hazard Mitigation Analysis	Village of Fleischmanns	LFA plan for the Village of Fleischmanns and the Hamlet of Clovesville	--	\$77,250	Completed July 2016
Local Flood Hazard Mitigation Analysis	Arkville	LFA plan for the Hamlet of Arkville	--	\$92,500	Completed May 2017
Local Flood Hazard Mitigation Analysis	Walton Tributaries	LFA plan for Village of Walton on East, West & Third Brook	--	\$119,415	Completed Jan. 2018
Local Flood Hazard Mitigation Analysis	Town of Hamden	LFA plan for the Hamlet of Hamden	--	\$70,000	Completed Dec. 2017
Local Flood Hazard Mitigation Analysis	Town of Andes	LFA plan for the Hamlet of Andes	--	\$79,758	Completed April 2018
Local Flood Hazard Mitigation Analysis	Village of Delhi	LFA plan for Steele Brook, West Branch Delaware River, Elk Creek & Platner Brook	--	\$96,758	Completed Jan. 2018
Local Flood Hazard Mitigation Analysis	Village of Stamford	LFA plan for the Villages of Stamford and Hobart, Hamlet of Kortright and Town of Stamford	---	\$134,750	Completed April 2021
Local Flood Hazard Mitigation Analysis	Town of Roxbury	LFA plan for the Hamlets of Roxbury and Grand Gorge and the Town of Roxbury	---	\$88,668	Completed March 2020
Local Flood Hazard Mitigation Analysis	Town of Halcott	LFA plan for the Town and Hamlet of Halcott	---	\$64,804	Completed 2019
Water Street Floodplain Reclamation Project	Town & Village of Walton	Floodplain restoration & stormwater mitigation in the Village of Walton	640	\$630,760 (\$484,320 WRDA grant)	Completed 2019

2021-2022 SMIP grants are listed below:

Recreation and Habitat Improvements						
<u>Project Title</u>	<u>Applicant</u>	<u>Project Description</u>	<u>Length (feet)</u>	<u>Scheduled for Completion</u>	<u>Funding Awarded</u>	<u>Status</u>
Arkville Recreational Hub Trail Master Plan	Water Discovery Center	Recreation trail along the East Branch Delaware River	---	September 2021	\$2,250.00	In-Progress
Highway/Infrastructure						
<u>Project Title</u>	<u>Applicant</u>	<u>Project Description</u>	<u>Length (feet)</u>	<u>Scheduled for Completion</u>	<u>Funding Awarded</u>	<u>Status</u>
Bull Run Stream Embankment Stabilization	Town of Middletown	Streambank restoration on steep embankment with fine sediment source of turbidity	400 (includes stream channel work)	Phase 1: December 2021 Phase 2: 2022 - 2023	\$350,000 (\$270,000 WRDA)	30% Design
Pines Brook Streambed Stabilization	Town of Walton	Streambed stabilization with grade control	600	Monitor Only	\$275,000	Installed Monitor cross sections 2020
Tributary Grade Control Structures	Village of Walton	Stabilize streambed from erosion at the utility crossings	75	On-Going – Prioritized Based on Risk & Funding	\$75,000	Site #8 : Preliminary Design Sites #4 & #6: 100% Design
Planning and Assessment						
<u>Project Title</u>	<u>Applicant</u>	<u>Project Description</u>	<u>Length (feet)</u>	<u>Scheduled for Completion</u>	<u>Funding Awarded</u>	<u>Status</u>
Carrol Hill Culvert Replacement	Town of Tompkins	Engineer design for culvert replacement	--	2021-2022	\$30,000	Design in Progress with DCDPW
John Tuttle Culvert Replacement	Town of Middletown	Engineer design for culvert replacement	--	2021-2022	\$30,000	Design in Progress with DCDPW

Flood Hazard Mitigation						
Project Title	Applicant	Project Description	Length (feet)	Scheduled for Completion	Funding Awarded	Status
Steele Brook Streambank Stabilization Phase I	Village of Delhi	Streambank stabilization on existing access route to Reservoir Park	125	December 2021	Phase I \$238,700	100% Design Bid Opened May 21, 2021
Steele Brook Streambank Stabilization Phase II	Village of Delhi	Streambank stabilization downstream of Phase I	250	December 2021	Phase II \$250,000 (\$450,000 WRDA grant)	100% Design Bid opened on May 21, 2021
Breakey Motors Floodplain Reclamation project – Design only	Town of Walton	Floodplain reclamation design after the purchase and demolition of Breakey Motors building	625	December 2022	Part of CWC Project	Pending: 2-D Modeling needed to move project forward
West Branch Delaware River at the Confluence of Bagley Brook Bank Stabilization	Town of Hamden	Geomorphologic assessment and bank stabilization design	2,000	December 2022	Potential LFHMA project	Preliminary nutrient load study Drafted; Initial Topo Surveyed
Andes Central School Stream Corridor Restoration	Town of Andes / Andes Central School	Floodplain bench, wall restoration, bridge replacement, sewer line protection/relocation and stream bed repair	1,050	December 2022-23	Potential LFHMA project	30% Design
Village of Stamford South Street Culvert Replacement	Village of Stamford	Replace partially collapsed arch bridge structure that spans WBDR	100	December 2021	Potential LFHMA project	Surveyed DPW to design and install Culvert
Pleasant Valley Brook / EBDR Confluence Debris	Town of Roxbury	Debris removal & minor channel shaping/dimensioning on Pleasant Valley Brook at the EBDR confluence	100	December 2021	Potential LFHMA project	GPS completed 2020 Survey pending Spring 2021

SMIP grant funds are offered to stakeholders to implement recommendations of the stream management plans and to further the evolving priorities of DCSWCD, DEP and the watershed communities. The following sections detail activities supported by the SMIP grant to implement plan recommendations.

Prioritization of Identified Stream Intervention Projects Action Items:

1. **Implement projects (example floodplain reclamation, bank stabilization, etc.) in collaboration with Municipalities. These projects will be identified in the Local Flood Analysis plans and in the East and West Branch Delaware River Stream Corridor Management Plans. (SCMPr Staff)**
 - a. **Breakey Motors Floodplain Reclamation in the Village of Walton scheduled for 2022-2023.**
 - b. **Steele Brook Phase I and II Bank Stabilization scheduled for 2021.**
 - c. **Village of Stamford South Street Culvert Replacement scheduled for 2021.**

2. **Complete approved Delaware Watershed Stream Management Implementation Grant Program projects within the East and West Branch of the Delaware River watershed. A complete list of SMIP grants can be found on catskillstreams.org website. (SCMPr Staff and Sponsor)**

B. Enhance Recreation Opportunities Action Items:

- 1. Provide technical assistance to communities to enhance streamside recreational opportunities. (DCPD, SCMP staff, DEP)**
 - a. East Branch Recreation Access Plan Recommended Projects:**
 - i. Catskill Recreational Center ½ mile trail completed in 2020.**
 - ii. Arkville Recreational Hub Trail Master Plan to be completed in 2021.**
- 2. Continue to work with the East Branch flood commission, municipalities and stakeholder groups in the implementation of the East Branch Recreation Access Plan. (DCPD, SCMP staff, DEP)**
- 3. Continue to work with the West Branch flood commissions, municipalities and stakeholder groups on improving recreation access on the West Branch Delaware River (DCPD, SCMP staff, DEP)**
 - a. Water Street Boat Launch project completed in 2020.**
 - b. Beerston Boat Launch project to be scheduled for 2022-2023.**
- 4. Continue to provide technical assistance to the flood commissions, municipalities and stakeholder groups for recreational opportunities (i.e. boat launch and river walk).**

C. Enhancement of Watershed Fisheries Action Items:

- 1. Provide technical assistance and general direction to local grass-roots efforts, watershed associations and fisheries organizations to enhance existing fisheries. (DCPD, SCMP staff, DEP)**
- 2. Work with the Delaware County Chamber of Commerce, Central Catskills Chamber of Commerce, and the Recreation and Fisheries sub-committees to install boat launch access points along the West & East Branch Delaware River and to promote recreational fishing in the Cannonsville and Pepacton Reservoirs. Support the new boating program through outreach promotional activities such as sponsored fishing days, boating safety and fishing safety courses, etc. (SCMP Staff, DCPD, DEP, EBDR Recreation and Fisheries sub-committee, CWC, DC Chamber of Commerce)**
- 3. Encourage groups to work with municipalities to apply for funding through SMIP for projects that improve fish habitat, angling opportunities and an understanding of and appreciation for the aquatic ecosystem. (SCMP Staff, DCPD, DEP, PAC)**
 - a. Work with Trout Unlimited to plant trees in the riparian buffer with volunteer groups and schools.**
 - b. Work with Trout Unlimited with culvert assessment and provide technical assistance for highway superintendents.**

2. Local Flood Hazard Mitigation Program

In response to major flood events in 2006 and 2011, the Delaware Stream Corridor Management Program partners have advanced the proposal for a watershed wide flood hazard mitigation effort that will identify the most beneficial projects for reducing flood related losses and water quality impacts and provide funds to implement those projects. In coordination with the CWC and at the request and direction of municipal government, the program will assist with the analysis, planning, funding, design and construction of hazard mitigation projects beginning during this Action Plan period. This effort will require the cooperation of all relative government entities, utilize the support of consultants and rely on the local knowledge of community leaders and residents. Funds will be made available for LFA recommended projects through the SMIP.

A. Flood Hazard Mitigation and Flood Recovery Action Items:

- 1. Provide assistance to the Delaware County Planning Department and Delaware County Emergency Services through steering committee meetings for the regular updates of the Multi-Jurisdictional All-Hazards Mitigation Plan. (DCSWCD SCMPr Coordinator)**
 - a. The All-Hazard Mitigation Plan is in the process of being updated – Draft plan can be found online: <https://delaware.mitigateny.org/>**
- 2. Provide documentation of completed flood hazard mitigation projects to the Hazard Mitigation Coordinator. Enhance the All-Hazard Mitigation Plan through the development of Local Flood Hazard Mitigation Plans (LFHMP) and by the implementation of the All-Hazards Mitigation Plan. (SCMPr Staff)**
- 3. Provide assistance as requested by the Director of Emergency Services to the Emergency Operations Center during flood related events. (SCMPr Staff)**
- 4. Maintain a list of historic problem areas where streams impact infrastructure during flood events and correlate to stream gage stage heights. (SCMPr Staff)**
- 5. Work with communities to understand, utilize and revise FEMA floodplain maps. (DCPD, DEP Project Manager, NYSDEC, SCMPr Staff)**
 - a. Continue to work with SLR consultant to submit the East Brook Letter of Map Revision (LOMR) to FEMA.**
- 6. Provide scholarships for training opportunities for Certified Floodplain Managers (CFM) and Code Enforcement credits**
- 7. Work with communities to update local ordinances, laws and comprehensive land use plans to incorporate elements of the Stream Corridor Management Plan, its recommendations and stream stewardship principles. (DCPD, SCMPr Staff)**
- 8. Provide technical assistance to municipalities with emergency stream intervention measures during flood recovery. (SCMPr Staff)**
- 9. Support educational programs for the public and school students that promote a better understanding of meteorology, hydrology, hydraulics and flood issues. (DCPD, SCMPr Staff)**

10. Design and implement flood mitigation practices including but not limited to floodplain reclamation, scientific channel dimensioning, and natural stream design techniques throughout the Delaware Watershed. (SCMP Staff, DEP)
11. Implement the Local Flood Hazard Mitigation Program including the development and refinement of program rules, guidelines, procurement documents as well as providing guidance and outreach to participating communities, support of the consultants, and input on the identification and prioritization of projects. Provide assistance with the acquisition of grant funds and technical support for project design and construction (implementation). (DCSWCD staff, DC Planning staff, DEP)
12. Provide funds for the Local Flood Analysis process and recommended flood hazard mitigation stream projects through the SMIP.
13. Work with the following Flood Commissions to Implement the LFA plan recommendations:
 - Walton Flood Commission
 - i. West Branch Delaware River & Tributaries (East Brook, West Brook, Third Brook)
 - East Branch Delaware Flood Commission including:
 - i. Fleischmanns / Clovesville
 - ii. Middletown
 - iii. Arkville
 - Delhi Flood Commission
 - Hamden Flood Commission
 - Andes Flood Commission
 - Stamford Flood Commission
 - Roxbury Flood Commission
 - Halcott Flood Commission

3. Catskill Streams Buffer Initiative (CSBI) funding

Catskill Streams Buffer Initiative (CSBI), established in 2009, provides a mechanism whereby streamside landowners, with property within the New York City Watershed, can receive technical assistance, educational materials, planning assistance, and funding to improve and maintain their riparian (streamside) areas. CSBI is a part of the overall Stream Management Program, and is a complement to other existing stream management programs. The CSBI program focuses on improving riparian buffer protection for private, non-agricultural landowners who are not covered or supported through other riparian protection programs within the East and West Branch Delaware River watersheds.

The overall goals of CSBI are to inform and assist landowners in better stewardship, and to work with landowners to identify practices to improve their riparian (streamside) areas, through proper management, protection, restoration, or enhancement. To achieve these goals, CSBI will assist riparian landowners throughout the Delaware Watershed by providing:

- 1) Access to technical assistance through their DCSWCD concerning their streamside property.
- 2) Development of Riparian Corridor Management Plans (RCMP) to create awareness about riparian management issues specific to individual properties.
- 3) Development of Best Management Practices (BMP) and prescriptive measures to improve landowner management of their riparian buffer in order to enhance the function and condition of the riparian buffer.
- 4) Assistance with installation of riparian buffer improvement measures, such as native plantings, and other prescriptive projects.

- 5) Educational materials and activities as needed by landowners to understand the critical role of their buffer and how to maintain it in optimal functioning condition.

The Action Items associated with these goals for the years 2021 – 2023 are identified below.

A. Stream Corridor Management Plans for Non-Agricultural Riparian Landowner Stewardship Action Items

1. Continue the implementation of the Catskill Streams Buffer Initiative (CSBI) through the DCSWCD Stream Corridor Management Program Contract funded by DEP. (DCSWCD CSBI Coordinator, DEP Project Manager).
2. Periodically review and update the protocol for prioritizing the implementation of the Catskill Streams Buffer Initiative and strategies for soliciting participation in the program. (DCSWCD CSBI Coordinator, SCMPr Coordinator, DEP Project Manager)
3. Development of a minimum of 24 Riparian Corridor Management Plans (RCMP) by the end of the 2025 DCSWCD/DEP contract. (DCSWCD CSBI Coordinator, DCSWCD SCMPr Staff)
4. Implement a minimum of 5 Riparian Corridor Management Plans per year by means of contractual planting services. (DCSWCD CSBI Coordinator)
5. Installation of at least 2 bioengineering projects by the end of the 2025 DCSWCD/DEP contract. (DCSWCD CSBI Coordinator)
6. Installation of a minimum of 5,000 streambank feet of revegetation by the end of the 2025 DCSWCD/DEP contract. (DCSWCD CSBI Coordinator)

CSBI Projects completed in 2020 are listed below:

CSBI Riparian Corridor Planting Projects				
<u>Project Title</u>	<u>Location</u>	<u>Length (feet)</u>	<u>Project Acres</u>	<u>Status</u>
Kerr’s Creek Riparian Restoration	Town of Walton	1,960	8.75	Completed
SUNY Delhi Service Planting	Town of Delhi	100	0.42	Completed

CSBI Projects scheduled for 2021-2023 are listed below:

CSBI Riparian Corridor Management Planting Projects				
Project Title	Location	Length (feet)	Scheduled for Completion	Status
Old Herrick Road Riparian Plantings (Phase 3)	Town of Middletown	1,300	2021-2022	Phase 1 & 2 Completed
Cal Terry Riparian Restoration	Town of Hamden	300	2021	Planning
Vly Creek Trib Planting-Rauter	Town of Halcott	300	2021	Planning
Mill Brook Planting – Beyea	Town of Hardenburgh	950	2021	Planning
Hardscrabble Planting-Rodregues	Town of Roxbury	600	2021	Planning
East Brook-D'Orazio (Post-Stream Restoration) Planting	Town of Walton	600	2021	Planning
Delaware Basin Invasive Species Control	Delaware Basin	NA	2021	Planning
Beech Hill Post-Knotweed Control Planting	Town of Andes	1,300	2021	Planning
Uplands Center Planting	Walton	2,300	2021	Planning
Vly Creek Restoration-Brush Ridge Associates	Town of Middletown	900	2021	Planning
Mead Road Post Knotweed Control Planting	New Kingston	1,560	2021	Planning
Samuels Knotweed & Restoration	Massonville	300	2022	Application Received 2021
Sturdavant-Delaware Ave	Delhi	440	2022	Application Received 2021
Marvin Hollow Planting	Walton	400	2022	Application Received 2021
Little Delaware Knotweed Control	Delhi	250	2022	Application Received 2021

7. Implement 1 demonstration or educational Riparian Corridor Management Plan per year. (DCSWCD CSBI Coordinator)

- a. **Educational RCMP implementation:**
- b. **Conduct volunteer plantings or educational workshops with community groups and local students.**
- c. **Conduct a volunteer educational workshop on bare-root transplant to containers or tree planting events with local high school students, SUNY Delhi college students and BOCES students to promote the benefits of riparian buffers.**

CSBI Student/Educational Planting Projects & Workshops			
<u>Project Title</u>	<u>Location</u>	<u>Scheduled for Completion</u>	<u>Project Type</u>
Margaretville Elementary Student Planting	Halcottsville/East Branch Delaware River	Fall 2021	Student Planting
Trees for Trout - East Branch Delaware River Planting	East Branch Delaware River	Seasonally 2021-2023	Volunteer Planting
GreenNY Student Planting (NY City Students)	SUNY Delhi OEC; Town of Delhi	Spring 2022 & 2023	Student Planting
Riparian Forest Buffer Walk	Margaretville	October 2021	Workshop
DCMO-BOCES Student Plantings	Walton	Yearly 2021-2023	Student Plantings
Catskill Youth Climate Summit	Catskill Region	October 2021	Workshop
SUNY Delhi Outdoor Education Center Spring & Fall Plantings (SUNY Delhi Students)	Town of Delhi	Ongoing Yearly	Student Plantings
Bare-root transplant Activity – DCMO BOCES/Students	DCSWCD, Walton	Ongoing Yearly	Student Workshop

8. Education and outreach for CSBI shall be accomplished by facilitating at least one riparian workshop for landowners per year. Education and outreach shall also be accomplished by active participation at relevant local events, direct mailings, website usage, and local media. (DCSWCD CSBI Coordinator)

CSBI Education & Outreach Events		
<u>Project Title</u>	<u>Location</u>	<u>Date</u>
Riparian Buffer Working Group	Kingston	Annually
Various Student Events/Plantings	Cannonsville & Pepacton Watersheds	As needed 2021-2023
Walton 4H outreach & planting events	Walton	As needed/as requested 2021-2023
Bare-root transplant Activities – DCMO BOCES/Students	DCSWCD, Walton	Annually
Riparian Walks/Workshops	Various locations	Annually
Forestry Festival – Stream Table / Riparian Buffer Display	Village of Margaretville	Annually*
Cauliflower Festival – Stream Table / Riparian Buffer Displays	Village of Margaretville	Annually*
Delaware County Fair	Town of Walton	Annually*
Youth Climate Summit Workshops	Catskill Region	Annually

* Note: Pending if outreach events occur in 2021 due to COVID-19 pandemic limitations.

9. Secure for all CSBI projects, landowner license and maintenance agreements for access by DCSWCD and DEP to facilitate ongoing maintenance and monitoring. (DCSWCD CSBI Coordinator)
10. Develop planting plans as requested for applicable stream program projects in coordination with stream program staff. (DCSWCD SCMP Pr Staff and DCSWCD CSBI Coordinator)
11. Develop and implement a monitoring program for riparian buffer projects to identify project success and effectiveness. (DCSWCD CSBI Coordinator, DEP CSBI Coordinator)
 - a. Monitoring protocol developed for all implemented CSBI (and supplemental) projects.

CSBI Yearly Project Monitoring	
Year Monitored	Number Projects Sites
2020	20 Completed
2021	28
2022	19
2023	18
2024	20

- b. Monitoring protocol was developed for invasive species monitoring of CSBI planting project locations.
12. Develop local resources to maintain availability of native vegetation planting stock as needed. (DCSWCD CSBI Coordinator)
 - a. Conduct bare-root transplant to containers event with Walton Central School and DCMO BOCES to secure supplemental plants and species for CSBI planting projects.
 - b. Work with SUNY Delhi summer interns to assist in project monitoring, invasive species eradication efforts and maintenance of plant stock for planting projects.
 - c. Collaborate with the DEP Project Manager on determining plant material needs and the coordination of logistics pertaining to delivery of native plant materials for riparian project planting sites.
13. Provide technical assistance to streamside landowners through ongoing coordination with the West-of-Hudson Riparian Buffers Working Group.

B. Implement a Variable Width Riparian Buffer Pilot Program Action Items

1. CSBI will continue to identify eligible sites for implementing variable width buffers. (DCSWCD CSBI Coordinator, DEP Project Manager, DCSWCD SCMP Pr staff)
2. Identify potential sites for demonstration of a variable width riparian buffer pilot project. Implement one demonstration project. (SCMP Pr Staff, DEP Staff, WAP Staff)

C. Implement a CREP/CSBI Riparian Buffer Pilot Program on Non-Agricultural Lands with the USDA Conservation Reserve Enhancement Program (CREP) Action Items

1. Implement the prioritization process for providing technical and financial assistance to the Watershed Agricultural Council (WAC) for fallow land CREP-CSBI projects and identify roles and responsibilities in implementation. (CREP-CSBI Pilot Program Working Group)
2. Conduct stream evaluation and assessment to determine Pilot Program eligibility, including if stream instability issues will preclude projects. Training and ongoing assistance to support evaluations and assessments. (CREP-CSBI Pilot Program Working Group)
3. Provide design support for the development and approval of conservation plans (Riparian Corridor Management Plans) and implementation of projects that facilitate CREP enrollment. (CREP-CSBI Pilot Program Working Group)
4. Provide CSBI cost-share funding to the Watershed Agricultural Council to facilitate fallow land CREP enrollment. (SCMPr Coordinator, SCMPr Staff, DEP Project Manager)
5. Monitor and evaluate the success of the CREP-CSBI projects. (SCMPr Staff)
6. Continue to monitor and evaluate metrics and report to assess the effectiveness of the extended Pilot Program (CREP-CSBI Pilot Program Working Group)
7. The Delaware County CREP-CSBI Pilot Program Working Group shall include: SCMPr Coordinator, SCMPr-CSBI Coordinator, DEP Project Manager, WAC Program Managers and Planner(s), DCSWCD and NRCS.

CREP/CSBI Riparian Corridor Management Planting Projects				
Project Title	Location	Length (feet)	Scheduled for Completion	Status
West Terry Clove Brook Restoration	Town of Hamden	1560	Fall 2021	Planning
Winter Hollow Brook Restoration	New Kingston	2850	Fall 2021	Planning
Upper East Brook – Site 1	Town of Walton	375	2022	Planning
Upper East Brook – Site 2	Town of Walton	1230	2022	Planning
East Brook (D’Orazio) Post Restoration Planting	Town of Walton	500	2021	Planning
Hefele Planting	Town of Walton	200	2022	Planning
East Brook Farm	Town of Walton	2000	2023	Planning

D. Invasive Species Management Action Items

1. Continue to work collaboratively with Delaware County Solid Waste Facility to compost Japanese Knotweed. (SCMPr staff, DCDPW)
 - a. Continue to treat invasive species such as Japanese knotweed on CSBI project sites with a variety of methods including herbicide application and monitor the effectiveness of methods.
 - b. Conduct a Japanese Knotweed pull and clean up educational workshop with local community groups and SUNY Delhi college students.

CSBI Invasive Species Control Projects		
<u>Project Title</u>	<u>Location</u>	<u>Scheduled for Completion</u>
Mead Road Knotweed Control	New Kingston	Ongoing thru 2021
Kelly’s Kayaks Knotweed Control	Halcottsville	Ongoing thru 2021
Depot Street Knotweed Control	Fleischmanns	Ongoing thru 2021
Upper East Brook Road IS Control	Town of Walton	Ongoing thru 2022
Vly Creek IS Control	Town of Halcott	Completed 2020
East Brook IS Control-Siegel	Town of Walton	Ongoing thru 2023
East Brook IS Control-Hobbs	Town of Walton	Ongoing thru 2023
East Brook IS Control-D’Orazio	Town of Walton	Ongoing thru 2023
East Brook IS Control-Parrinello	Town of Walton	Ongoing thru 2023
Delhi – Delaware Ave Knotweed	Town of Delhi	Beginning 2021
Kerr’s Creek Knotweed Control	Town of Walton	2021-2023
Cal Terry Invasive Species Control	Town of Hamden	Ongoing thru 2023
Sturdevant-Delaware Ave	Town of Delhi	Beginning 2021
Little Delaware Knotweed Control	Town of Delhi	Beginning 2021
East Brook Farm Knotweed Control	Town of Walton	Beginning 2021

2. Continue to participate in Catskill Regional Invasive Species (CRISP). (SCMPr staff, DCPD)
3. Working with program partners and local agencies on developing Japanese knotweed control focus group.

4. Restoration Project Funding

Restoration projects utilize new and innovative stream management techniques with educational value. These projects make use of fluvial geomorphic principles and the scale of the project may vary from localized activities such as stream bank stabilization to more extensive stream restoration projects.

A. Debris Management Action Items

1. **Develop a Delaware County protocol for municipalities to manage woody debris in stream systems. (DCSWCD SCMPr Coordinator, DEP Project Manager, DCDPW)**
2. **Design and implement two demonstration projects that utilize the woody debris protocol developed by the SCMPr. (SCMPr Staff)**
 - a. **Steele Brook woody debris removal SMIP grant to be completed in 2021.**
3. **Undertake a periodic review of the woody debris protocol developed by the SCMPr. (SCMPr Staff, DEP Staff)**

B. Stream Gravel Deposition Issues Action Items

1. **Develop and implement an educational and outreach program to teach municipal leaders and community members about the specific stream processes involved in the mobilization and transport of gravel and debris. Continue to promote training in Post-Flood Stream Intervention practices. (SCMPr Staff)**
 - a. **Continue to support the Walton Central School students with the gravel study and encourage additional studies that were funded with a SMIP grant to study sediment issues in streams near the bridges in the Village of Walton. The SMIP grant was completed in 2015, but the program will continue the gravel study in the environmental class curriculum.**
2. **Continue to encourage one or two municipalities to apply for grant funding through the SCMPr to scientifically study stream reaches with identified gravel deposition issues for potential case studies to be used in Item 1. This could be accomplished through the Local Flood Hazard Mitigation Analysis process. (SCMPr Staff)**
 - a. **MacGibbon Hollow stream in the Town of Walton**
3. **Continue to implement and monitor the West Branch Delaware River tributary bedload transport study to utilize passive radio frequency identification (RFID) tracers deployed into three study locations in East Brook tributary. This scientific study will determine the relation of discharge to the movement and displacement of sediment. (SCMPr Staff)**
 - a. **East Brook in the Village of Walton was selected as the study area in (2019). A variety of rocks were collected and measured before the RFID were placed in the drilled holes and epoxied. The rocks were placed back into East Brook stream in approximately the same location. The rocks will be found using an antenna and the location GPS after a significant storm. Monitoring the movement of sediment will continue in 2021-2025.**

4. Design and implement two demonstration projects that utilize the existing gravel management protocol developed by the SCMP. (SCMP Staff)
 - a. Continue to photo monitor the Post-Flood Emergency Stream Intervention project located in the Town of Hamden on Launt Hollow stream that was completed in 2009. The Hamden Highway Department maintains the stream channel to the proper width and depth for approximately 100 linear feet whenever the stream capacity is compromised with gravel.
 - b. MacGibbon Hollow and Marvin Hollow in the Town of Walton
5. Undertake a periodic review of the gravel maintenance protocol developed by the SCMP. (SCMP Staff, DEP Staff)

C. Nutrient Loading Study Action Items

1. Implement the West Branch Delaware River nutrient loading study to assist in the prioritization of projects. This scientific study will determine the relation of discharge to streambank erosion and the loading of Total Phosphorus (TP) and Total Nitrogen (TN) into the West Branch Delaware River. (SCMP Staff)
 - a. The confluence of Bagley Brook and the West Branch Delaware River on the River Haven Farm in the Town of Hamden was selected as a study area. An eroding streambank along a corn field is contributing excessive amounts of sediment to the river system. Several soil samples were taken and sent for laboratory analysis to determine the concentration of TP and TN in the loaded sediment. GIS analysis was used to determine volume of eroded soil. Together, these variables allow for the calculation of total mass of TP and TN loading at this site.
 - b. An eroding streambank along the West Branch of the Delaware River at the Birdsong Farm in the Town of Hamden was selected as a second study area. An eroding streambank along a hay field is contributing excessive amounts of sediment to enter the river system. Several soil samples were taken and sent for laboratory analysis to determine the concentration of TP and TN in the loaded sediment. GIS analysis was used to determine volume of eroded soil. Together, these variables allow for the calculation of total mass of TP and TN loading at this site.
 - c. A draft of the “Two Nutrient Loading Case Studies at Significant Streambank Erosion Sites on the West Branch Delaware River” report is in peer review. This report includes results from the data collected from the two projects listed above.
 - d. Additional sites will be selected for study in 2021-2022 using GIS analysis. Sites will be chosen based on severity of erosion and nutrient content using the same process outlined for the River Haven Farm and Birdsong Farm sites.

D. Utilize Existing Funding Sources Action Items

1. Continue to explore opportunities for utilizing grant funding sources to match SCMP funds for implementing recommendations. (DCSWCD SCMP Coordinator)
 - a. Army Corps of Engineer’s Water Resources Development Act (WRDA)
 - i. Bull Run Stream Slope Stabilization in the Town of Middletown
 - ii. Steele Brook Streambank Stabilization in the Town of Delhi
2. Train staff and others within the watershed on how to prepare grant applications for obtaining additional funds for matching SCMP funds.

E. Demonstration/Restoration Projects for Construction in 2021 – 2022

- 1. Bull Run Streambank Repair, EBDR Middletown**
 - a. This project was recommended by the PAC to fund as a demonstration project for repair of a 2013 Emergency Watershed Protection stream project upon request from the Town of Middletown Supervisor. In 2013, the streambed had been stabilized using 3 hardened riffle structures and the toe of the embankment was protected with rip rap, which are still working. The steep embankment failed in the spring of 2016 and the top area liquefied with the frost thawing out of the soil and sent the whole face sliding down in a debris flow.**
 - b. 2021 Status: Milone and MacBroome, Inc. (now a part of SLR Consulting), an engineering consultant, has been selected to design the project. The project design is currently at 30%. Construction is anticipated in 2021.**

- 2. Steele Brook Streambank Stabilization, WBDR Delhi**
 - a. This project was recommended by the Local Flood Analysis (LFA) for the Town and Village of Delhi, written by a consultant, Woidt Engineering & Consulting, PC, for the Delhi Flood Commission. The project consists of a streambank stabilization on one of the worst slope failures in the Steele Brook watershed that impairs water quality with fine sediment and woody debris.**
 - b. 2021 Status: Delaware County SWCD Stream Staff surveyed the project area in the winter of 2018. Phase 1 and Phase II of the project design is complete and the Delaware County SWCD Stream Staff has applied for the regulatory permits. The project has been awarded to the lowest apparent bidder, with construction scheduled for Summer 2021.**

- 3. East Brook CREP/CSBI Streambank Stabilization on East Brook, WBDR Walton**
 - a. This project was recommended by the CREP/CSBI program to repair eroding streambanks in order to establish a riparian buffer along fallow agricultural fields. This project is in the Town of Walton along East Brook in the West Branch of the Delaware River watershed.**
 - b. 2021 Status: Delaware County SWCD Stream Staff completed a 100% design and have applied for the regulatory permits. The project has been awarded to the lowest apparent bidder, with construction scheduled for Summer 2021.**

- 4. Water Street Boat Launch, WBDR Walton**
 - a. This project was recommended by the Walton Flood Commission to improve recreation access on the newly constructed floodplain reclamation project. This project is in the Village of Walton along the West Branch of the Delaware River.**
 - b. 2021 Status: Delaware County SWCD Stream Staff completed a design and have received the regulatory permits. The project was constructed in the Spring of 2020.**

5. **Village of Stamford South Street Culvert Replacement, WBDR**
 - a. This project was recommended in the Stamford LFA and sponsored by the Stamford Flood Commission to replace an undersized arch bridge that has partially collapsed and resulted in a road closure along South Street.
 - i. **2021 Status:** Delaware County SWCD Stream Staff have partnered with Delaware County DPW to design and replace the culvert. The project is expected to be constructed in 2022.

6. **Grade Control at Utility Crossings on tributaries in the Village of Walton,**
 - a. This project was recommended by the Walton Flood Commission and is a SMIP grant project to protect utility crossings on three tributaries within the Village of Walton.
 - i. **Utility Crossing Site #4: West Brook – Austin Lincoln Park, North – 2021 Status:** Delaware County SWCD Stream Staff completed the 100% design. The project bid advertisement will be published in June 2021 with construction in Summer 2021.
 - ii. **Utility Crossing Site #6: West Brook – East St. Bridge – 2021 Status:** Delaware County SWCD Stream Staff completed the 100% design. The project bid advertisement will be published in June 2021 with construction in Summer 2021.
 - iii. **Utility Crossing Site #8: West Brook – Delaware Street Bridge – 2021 Status:** Delaware County SWCD Stream Staff is working on the 60% design. The project is anticipated to be constructed in 2021.

7. **Breakey Motors Floodplain Reclamation Project, WBDR Walton**
 - a. This project was recommended in the West Branch LFA and sponsored by the Walton Flood Commission to reduce flood impacts within the Village of Walton. This project is in the Village of Walton along the West Branch of the Delaware River.
 - i. **2021 Status:** Delaware County SWCD Stream Staff completed a preliminary survey. CWC paid for the removal of the building and contaminated soils, which was completed in April 2020 through their LFHMA funds. SLR is currently developing 2-D hydraulic model to better study flood impacts and proposed floodplain alternatives. DCSWCD is providing SLR with drone data, survey data, and high water marks surveyed during past storm events to assist in model calibration.

8. **West Branch Delaware River at the Confluence of Bagley Brook, WBDR Hamden**
 - a. This project was recommended by the Local Flood Analysis for the Town of Hamden along the West Branch of the Delaware River written by a consultant, Milone and MacBroom Inc. (now a part of SLR Consulting), for the Hamden Flood Commission. The bank erosion and channel instability is an ongoing problem at the confluence of Bagley Brook. A geomorphic assessment needs to be conducted to evaluate the problem of channel instability and sediment contribution to the West Branch. The information that is gathered will be used for the design of a restoration project.
 - i. **2021 Status:** Delaware County SWCD Stream Staff collected soil data 2019-2020. Topographic survey and Rosgen Level I assessments were completed in summer 2020. A draft of the “Two Nutrient Loading Case Studies at Significant Streambank Erosion Sites on the West Branch Delaware River” report is in peer review.

9. **West Brook SL 5.58 Site on Foreman’s Property, Walton**

- a. This project was the identified after the December 2020 storm event. The Foreman’s own approximately 0.43 miles of property on either side of West Brook. Currently, this land is being used for agricultural purposes and is rented to David Holley, a dairy farmer and a participant of the Watershed Agricultural Program. Excessive sediment deposition toward the upstream end of the Foreman property has contributed to the lateral migration of West Brook and subsequent erosion of West Brook’s right bank. The right bank erosion continues downstream for approximately 425 linear feet to an existing hardened agricultural crossing.
- b. **2021 Status:** Delaware County SWCD Stream Staff working on the 60% design. The project is anticipated to be constructed in 2021.

5. Conservation Reserve Enhancement Program (CREP) Assistance

Provide assistance for the implementation of Conservation Reserve Enhancement Program (CREP) in agricultural areas where streambank stability issues make those lands ineligible for buffer enhancement under the CREP's guidelines.

A. Integration of the Stream Corridor Management Program and the Watershed Agricultural Program Action Items

1. Provide stream assessment training to Watershed Agricultural Program’s planning and technical staff to identify and classify impaired stream segments during the development or revision of individual Whole Farm Plans. (SCMP and WAP Staff)
2. Continue to implement the MOU between DCSWCD and the Watershed Agricultural Council (WAC) and its protocols for providing technical assistance to the Watershed Agricultural Program. (DCSWCD SCMP Coordinator, DCSWCD Executive Director, and DCSWCD Technical Coordinator, DEP Project Manager)
3. Provide assistance to the WAP Planning Staff in techniques for proper placement and planning of stream related agricultural Best Management Practices. (DCSWCD SCMP Staff)
 - a. Complete work on the following CREP streambank stabilization projects
 - i. Willard Frisbee Farm

2021 Status: Preliminary survey completed. Additional survey with unmanned aerial vehicle (UAV) is needed in 2021 to update the design drawings with the extent of bank erosion and monitor.
4. Provide engineering approval, technical support, regulatory permit and individual project design assistance to Watershed Agricultural Program engineers and technicians as per the Protocol identified in action item #2 above. (DCSWCD SCMP Coordinator, SCMP Professional Engineer, and DCSWCD SCMP Staff)
5. Provide a standard operation procedure for floodplain disturbance permits to be filed with the Code Enforcement Officers (CEO) across the county.
6. Provide opportunity for annual floodplain development permit training for Watershed Agricultural Program engineers, technician and planners. (SCMP Staff, CEO)

B. Provide Technical Support to the USDA Conservation Reserve Enhancement Program (CREP) Action Items

1. Continue to develop the prioritization process for providing technical and financial assistance to the WAP on CREP projects. (SCMPr Coordinator, DEP Project Manager, WAP Program Managers)
2. Provide stream evaluation and assessment assistance to the Watershed Agricultural Program planners to determine if stream instability issues will preclude CREP enrollment. Training and ongoing assistance. (SCMPr Coordinator, SCMPr PE, SCMPr technicians, and DEP as needed)
3. Provide design and regulatory permit assistance and engineering approval to the Watershed Agricultural Program engineers and technicians in the preparation of approved stream stabilization designs and projects that facilitate CREP enrollment. (SCMPr Coordinator, SCMPr PE, SCMPr technicians, and DEP as needed)
4. Continue to provide funding to the Watershed Agricultural Program for stream stabilization projects that facilitate CREP enrollment. (SCMPr Staff)
5. In cooperation with the Watershed Agricultural Program, evaluate stream instability issues for remediation on existing CREP sites. (SCMPr Coordinator, SCMPr PE, and SCMPr Technicians)
6. Provide funding to the Watershed Agricultural Program for stream projects that stabilize existing CREP sites. (SCMPr Staff)
7. Continue to monitor and evaluate the success of the bank stabilization projects. (SCMPr Staff)

C. Enhance the Implementation of CREP on NYC Watershed Cropland and Explore Long – Term CREP Contract Action Items

1. Develop an interagency working group to prepare a white paper requesting USDA / FSA to enhance rental payments for CREP riparian buffers on cropland. (WAP Staff, DEP Staff, SCMPr Staff)
2. Explore options to maintain riparian buffers after CREP contract expiration and submit written recommendations. Development of an interagency advisory committee with Delaware County. (WAP Staff, SCMPr Staff, DEP Staff, DC Staff)

6. Stream Corridor Management Program Technical Assistance and General Support

Stream Corridor Management Program staff from each of the partnering agencies (the Delaware County Soil and Water Conservation District, New York City Department of Environmental Protection and Delaware County Planning Department) to provide technical, planning and educational support for a range of stakeholders on water quality related issues such as floodplain management, flood response and recovery, debris and infrastructure management, property protection, aquatic habitat and recreation concerns. Support can include assessments, plans, designs, training workshops and general advice to stakeholders.

A. Provide Assistance to Community Watershed Groups/Associations and Government Entities Action Items

1. Provide technical assistance and general direction to community watershed groups/association and government entities. (DCPD, SCMP staff, DEP)
 - a. East Branch Delaware Flood Commission
 - b. Walton Flood Commission
 - c. Delhi Flood Commission
 - d. Hamden Flood Commission
 - e. Andes Flood Commission
 - f. Roxbury Flood Commission
 - g. Halcott Flood Commission
 - h. Stamford Flood Commission
 - i. Coalition of Watershed Towns
 - j. Recreation Access groups (Catskill Foundation and Water Discovery Center)
 - k. Delaware County Board of Supervisors

B. Participation with the Delaware County Action Plan (DCAP) Action Items

1. Attend regular meetings of the Delaware County Action Plan (DCAP) and advocate for inclusion of Stream Corridor Management Plan and its recommendations into all relevant components of the DCAP. (DCPD Director, DCSWCD Executive Director, SCMP Coordinator)

C. Participation with the Catskill Watershed Corporation Action Items

2. Provide technical assistance as requested for stream related CWC funded projects. (SCMP Staff, DEP Staff, CWC Staff)
3. Explore ways to coordinate stream related education and outreach efforts (such as Catskill Streams and Watershed Education Program) with CWC. (SCMP Staff, CWC Staff)
4. Coordinate with CWC on Local Flood Hazard Mitigation Program including the analysis of flood problems, identification and funding of potential mitigation projects. (Executive Directors and staff of DCSWCD, DEP, DC Planning, and CWC)

D. Provide Annual Floodplain Development Permit Training for Municipal Officials Action Items

1. Provide opportunity for annual floodplain development permit training for local municipal officials. (PAC, SCMPr Staff, DEP, NYS DEC)
2. Provide technical assistance and education on the Community Rating System (CRS) to local municipal officials in the CRS program. (DCPD, SCMPr Staff)
3. Development opportunity for Municipal Officials to obtain credits for participating in educational activities. (DCPD, SCMPr Staff)
4. Support training of Floodplain Administrators (Code Enforcement Officers), Planners and Stream Managers in various aspects of floodplain management through State and Federal programs to enable them to achieve and maintain Certification as Floodplain Managers through the Association of State Floodplain Managers. (DEC, FEMA, ASFM)
5. New York State Department of Environmental Conservation's 4-Hour Erosion and Sediment Control training offered annually to contractors, code enforcement officers, municipal engineers, highway departments and planning boards.

E. Enhance Local Land Use Laws and Ordinances Action Items

1. Provide assistance to local municipalities in development of stream components in local comprehensive plans, local laws and local management practices. (PAC, DCPD, SCMPr Staff, DEP)
2. Provide technical assistance to local municipalities to enhance local laws and local management practices. (PAC, DCPD, SCMPr Staff, DEP)

F. Streamline Stream Work Permitting Action Items

1. Work in cooperation with NYS DEC, US Army Corps of Engineers, DEP, and DCDPW to enhance the authority thresholds of the DCSWCD General Permit as delegated by the NYS DEC for approved stream management practices within the County. (SCMPr Staff, DEP RRE and SMP staff, US Corps of Engineers, DCDPW, Highway Subcommittee)

G. Provide Technical Assistance to Local Highway Departments Action Items

1. Continue to fund, provide technical assistance and support in the 2025 DCSWCD/DEP contract on the Medium Hydraulic Structure Study SMIP contract to evaluate watershed culverts for hydraulic capacity and prioritize them for upgrade through the SMIP. (DCDPW, SCMPr Staff)
2. Provide technical and regulatory permit assistance and educational support to municipalities for sizing and the design of routine culvert replacements. (SCMPr Staff, DCDPW)
3. Enable municipalities to apply for funding through the SMIP grants for infrastructure projects causing stream instability and/or water quality issues. (SCMPr Staff, DCDPW)

4. Support the membership of and attend regular meetings of Municipal Highway Superintendents and keep them up to date on status of SWCD projects, training opportunities and flood recovery efforts.
5. Advise and assist WBDR and EBDR communities and the DCPD with updates to the local Highway Management Plans to address best management practices as they relate to roadway and stormwater infrastructure improvements. (SCMPr Staff, DCPD, DCDPW and EBDR communities)
6. Provide technical assistance to highway departments and DCDPW by reviewing potential stream crossings including; large culverts and bridges. (SCMPr Staff, DCDPW and EBDR communities)
7. Continue to support best management practices for construction of stream crossings through the SMIP by allowing the acquisition of necessary equipment (i.e. dewatering pumps, hydro-seeder, etc.) (SCMPr Staff, DCPD, DCDPW and PAC)

H. Geomorphic Assessments at Bridges and Culverts Action Items:

1. Continue to support the Delaware County Department of Public Work's (DC DPW) evaluation of Medium Hydraulic Structures (culverts) funded through the Delaware Watershed Stream Management Implementation Program grants. (SCMPr Program Coordinator, DCSWCD Engineering staff, DEP Project Manager and DEP Stream Engineering Coordinator and DCDPW)
2. Continue to give advice and/or fund municipalities through the grants program for the replacement of publicly owned stream crossing structures that are causing stream instability and/or water quality issues. (SCMPr Staff)

I. Continuation of Geomorphic Research / Assessments Action Items

1. Perform Rosgen Level II assessment of Steele Brook in Delhi. (SCMPr Staff, Delhi Flood Commission)
2. Identify other river segments requiring geomorphic assessment and management plans. (SCMPr Staff , as needed consulting services)
 - a. Stream Feature Inventories (SFIs) completed in 2017 on Steele Brook and tributary to Elk Creek in the Town of Delhi.
 - b. SFI completed in 2018 on Little Red Kill in the Town of Middletown
 - c. SFI completed in 2019 on Huntly Hollow in the Town of Colchester
 - d. SFI completed in 2020 on the West Branch Delaware River.
 - e. Complete a minimum of 6 SFIs by between 2018 and December 31, 2022.
 - f. Continue using nutrient loading estimates to prioritize SFIs and assessments
3. Perform stream assessment and monitoring using a drone. (SCMPr Staff)
 - a. Project site monitoring and survey
4. Continue bedload transport research in East Brook and its confluence with the West Branch Delaware River in the Village of Walton.

J. Adopt Principles of Stream Stewardship at the Municipal Level Action Items

1. Adoption completed for the following:

Towns:

**Andes
Bovina
Deposit
Colchester
Franklin
Halcott
Hamden
Harpersfield
Kortright
Masonville
Meredith
Middletown
Roxbury
Sidney
Stamford
Tompkins
Walton**

Villages:

**Delhi
Hobart
Margaretville
Fleischmanns
Stamford
Walton**

2. Promote and secure plan adoption and extension of MOUs within East and West Branch Delaware communities. (DCPD, SCMPr Staff)

- a. Memorandum of Understandings (MOUs) have been extended for all municipalities. These MOUs do not have an expiration, but have the opportunity to be terminated by either party upon 30 days written notice.**

3. Encourage municipalities to continue to develop stream stewardship requirements in their local comprehensive plans and land use regulations. (DCPD, SCMPr Staff, DEP)

4. Encourage municipalities to continue to participate in the PAC and Sub-committees. (SCMPr Staff, DEP, DCPD)

K. Develop a Process for Updating the East and West Branch Delaware River Stream Corridor Management Plan Action Items

1. Seek input from PAC as to when to update the East and West Branch Delaware River Stream Corridor Management Plan and the Delaware Action Plan. (PAC, DCPD, SCMPr Staff, DEP staff)

L. Expand Public Education and Outreach Efforts Action Items

- 1. Fund and implement education and outreach activities identified and prioritized by the Project Advisory Committee. (PAC, SCMPr Staff)**
 - a. Complete a minimum of 5 workshops and 5 trainings by the end of the 2025 DCSWCD/DEP contract.**
- 2. Continue to educate municipalities and communities on the importance of floodplain function and the benefits of preserving floodplains, and opportunities for improving flood protection and reducing flood damages through the refinement and use of digital flood insurance rate maps (DFIRMs), the participation in the LFHMP, and other State/Federal programs such as the Community Rating System. (DCPD Staff, SCMPr Staff, NYSDEC)**
- 3. Develop and implement an education and outreach effort to support the LFHMP for a range of involved and affected stakeholders including community officials, involved outside government agencies, landowners, residents, and not for profit groups. (DCSWCD staff, DC Planning Department staff, Department of Watershed Affairs, DEP, CWC)**
- 4. Provide training and education opportunities for new officials appointed to office on the following three topics as made necessary by turnover 1) Getting to Know Your Stream Management Plan and Program; 2) Floodplain Management and the NFIP Program; and 3) Stream Process 101.**
 - a. Getting to Know Your Streams and Stream Management Program booklet was distributed to Town Supervisors, Village Mayors and Highway Departments along with the Delaware Watershed Stream Management Implementation Program grant applications. The booklet features the three topics listed above and can be found on the Delaware County Soil and Water Conservation District's website: www.dcswcd.org**
- 5. Work with and support area schools and BOCES programs to educate students and promote awareness of stream process, floodplain preservation and streamside vegetation. Develop and promote a stream awareness program that can be used in area schools and with youth groups. (SCMPr Staff, DCPD staff, DEP, CWC, BOCES and area schools)**
 - a. Continue to work with the Youth Climate Summit committee to plan a youth environmental conference and provide funding for Delaware County School students that are within communities with Stream Management MOU.**
- 6. Provide training and outreach to area real estate agents and bankers about the importance of preserving floodplains and the required disclosures of floodplain development permitting requirements. (SCMPr Staff, DCPD staff and DEP)**
- 7. Provide up-to-date information to the catskillstreams.org website as well as support for the revision and maintenance of the Catskill Streams website.**
- 8. Participate in the West-of-Hudson watershed-wide education and outreach efforts.**
- 9. Maintain an up-to-date project status and education outreach information on the Catskillstreams.org website.**

M. Scientifically-Based Post-Flood Emergency Stream Intervention Action Items

- 1. Provide Post-Flood Emergency Stream Intervention training to contractors, local municipalities, and agencies on an as needed basis. (Workshop, SCMPr Staff, DEP Project Managers)**
 - a. Provide technical assistance to the State-wide Emergency Stream Intervention, on an as needed basis.**
 - i. Post-Flood training has become a widely accepted practice that is being recognized throughout the State as the preferred practice for stream mitigation after the flood. Many agencies have requested training, which is being provided through Soil and Water Conservation District across New York State as well as through NYS DEC.**
- 2. Continue to provide technical assistance to municipalities with emergency stream intervention measures during flood recovery. (SCMPr Staff)**
- 3. Continue to provide technical review assistance to local planning and town boards when working on projects that include streams, culverts or floodplain infringements. (DCPD, SCMPr Staff)**
- 4. Develop Post-Flood Emergency Stream Intervention Volume II with grade control structures and consideration for sediment supply.**