New York City Department of Environmental Protection

Bureau of Water Supply

Stream Management Program

Final Evaluation of the Delaware County CSBI/CREP Pilot Program

November 2025

Prepared in accordance with Section 4.6 of the NYSDOH Revised 2017 Filtration Avoidance Determination

Prepared by: DEP, Bureau of Water Supply

Abstract

The 2017 Filtration Avoidance Determination (FAD) required the New York City Department of Environmental Protection (DEP) to establish a partnership between the City funded Catskill Streams Buffer Initiative (CSBI) and the federal Conservation Reserve Enhancement Program (CREP) to plant riparian buffers on fallow agricultural lands in the West of Hudson (WOH) watershed. The FAD directed DEP to fund a pilot program administered by the Watershed Agricultural Council (WAC) and Soil and Water Conservation Districts (SWCDs) that aimed to establish metrics to evaluate the effectiveness of this pilot program and ultimately make a recommendation on either establishment or discontinuation of a permanent program.

In November 2019, DEP submitted an initial evaluation report that recommended a two-year extension of the pilot program (NYCDEP, 2019), with a second evaluation report submitted in November 2021 that recommended an additional four-year extension due to the COVID-19 pandemic, which ultimately delayed implementation (NYCDEP, 2021). This final extension allowed for more projects to be completed which afforded DEP the opportunity to better assess the effectiveness of the program. Completed projects were compiled into one of three phases: Phase one encompassed the initial two-year period from November 2017 to November 2019, Phase two represents the timeframe from November 2019 to November 2021 and lastly, Phase three covers the time frame from November 2021 through November 2025. Since the beginning of the pilot, 12 CREP/CSBI projects were completed by the Delaware County Soil and Water Conservation District (DCSWCD). The other SWCDs made the determination after the first phase that they didn't have enough landowner interest to pursue further but would continue to offer CREP if a potential project came through the CSBI.

Program Background

New York City Watershed CREP is a federally funded program administered through the USDA Farm Service Agency (FSA) in partnership with the City and New York State, pursuant to a memorandum of agreement signed in 1998. CREP provides farmers with financial incentives to conserve highly erodible agricultural lands and establish riparian buffers. In the WOH watershed, this program is implemented through the Watershed Agricultural Program (WAP), in partnership with the USDA FSA and Natural Resources Conservation Services (NRCS), WAC, SWCDs and lastly the Cornell Cooperative Extension (CCE). DEP provides the local funding match to implement CREP practices that establish riparian buffers.

Through the NYC CREP, federal and state resources are made available to program participants to enroll into CREP for 10–15-year contracts with participating landowners eligible to receive a one-time signing incentive payment (SIP), a one-time practice incentive payment (PIP), an annual payment and a cost-share payment of up to 50% of eligible costs associated with the installation of the approved practice.

The annual payment consists of a base soil rental rate, that is determined by the onsite soils, 100% of the established county rental rate for establishment of riparian buffer and a maintenance incentive payment for filter strip (CP21) and riparian buffer (CP22) practices. The total annual payment made to each landowner is comprised of the MPL soil rental rate, NYC watershed incentive and lastly the buffer maintenance rate (Table 1). The total annual payment is then multiplied by the number of acres enrolled into CREP. NYC watershed incentive rates have stayed constant since initial payments to enrolled landowners began in 2019, and the total annual payment has remained at $108/acre since 2021.

MPL Soil Rental Rate + NYC Watershed Incentive (% of MPL) + Buffer Maintenance (per ac.) x Acres enrolled in CREP = Total Annual Payment

Table 1. Annual federal incentive rates from 2019-2025 (data collected from Delaware County FSA).

	2019	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
MPL Soil Rental Rate	$48/acre	$48/acre	$53/acre	$53/acre	$53/acre	$53/acre	$53/acre
NYC Watershed Incentive	$57.60/acre (120% of MPL)	$48/acre (100% of MPL)	$53/acre (100% of MPL)	$53/acre (100% of MPL)	$53/acre (100% of MPL)	$53/acre (100% of MPL)	$53/acre (100% of MPL)
Buffer Maintenance	$2 /acre	$2/acre	$2/acre	$2/acre	$2/acre	$2/acre	$2/acre

Through SIP and PIP, the twelve CREP/CSBI planting landowners received $17,717 (SIP) and $47,774 (PIP) (Table 2). In total, factoring in the SIP, PIP and annual rental payments, participating landowners have been paid $82,417.40 through October 2025 (Table 2).

Table 2. Annual Delaware County CREP incentive payments for phases 1-3 (November 2017-October 2025, data from Delaware County FSA).

Landowner	SIP	PIP	2019	2020	2021	2022	2023	2024	2025	Total 2019-2025
1	$6,352	combined w/ SIP	$530	$483	$483	$483	$483	$483	$530.47	$9,827.47
2	$6,140	combined w/ SIP	$547	$ 547	$547	$547	$547	$547	$546.61	$9,968.61
3	$1,239	combined w/ SIP	$144	$131	$131	$131	$131	$131	$131.32	$2,169.32
4 (cancelled after 2020)	$730	combined w/ SIP	$66	$65	-	-	-	-	-	$861
5	$447	$7,514	-	-	-	$483	$483	$483	$483	$9,893
6	$667	$7,849	-	-	-	$720	$720	$720	$720	$11,396
7	$452	$10,184	-	-	-	-	$488	$488	$488	$12,100
8	$382	$3,987	-	-	-	-	-	$104	$413	$4,886
9	$176	$3,780	-	-	-	-	-	$48	$190	$4,194
10	$261	$3,334	-	-	-	-	-	$71	$282	$3,948
11	$402	$5,136	-	-	-	-	-	$109	$434	$6,081
12	$469	$5,990	-	-	-	-	-	$127	$507	$7,093

The CSBI program is a component of DEP's Stream Management Program (SMP) that was developed in 2009 pursuant to the 2007 FAD. CSBI offers a CREP adjacent program for non-agricultural properties in the WOH watershed. Through 2025, 12 projects have been completed through the CREP/CSBI pilot program, and 300 projects have been completed in the base CSBI program amounting to a combined total of 312 plantings spanning 264.5 acres and 29.5 stream miles (Table 3). What drove the creation of the CREP/CSBI pilot program was a policy amendment that was enacted in 2016 by the NYS FSA that allowed fallow agricultural properties to participate in CREP if they met eligibility criteria. After this rule change was implemented, DCSWCD and WAC proposed integrating components of CREP and CSBI, with the goal of accelerating riparian buffer implementation in the WOH watershed.

Table 3. CSBI base program and CREP/CSBI pilot program projects completed through 2025.

	All projects (2009-2025)	CSBI Projects (2009-2025)	CREP/CSBI Project (2017-2025)
Number of projects	312	300	12
Stream length (miles)	29.5	24.8 (84%)	4.7 (16%)
Area (acres)	264.5	167.7 (63%)	96.8 (37%)

The 2017 FAD also required DEP to work with other SMP partners in the Ashokan, Schoharie and Rondout/Neversink basins to offer CREP as an option to landowners within the existing framework of CSBI. The SMP partners all took the same basic approach to identifying eligible parcels and solicitating landowners. To date, apart from Delaware County, no other CREP/CSBI plantings have been completed in other WOH watershed basins.

In the 2021 evaluation report, DEP recommended extending the pilot program to allow for more projects to be completed, while also attempting to meet the goal of 6-10 landowners enrolling annually in Delaware County and lastly whether a dedicated CREP/CSBI planner would enhance the number of riparian planting projects above the CSBI base program average, which is typically five new projects annually (NYCDEP, 2021).

Delaware County Pilot Program

Since the start of the pilot program in 2017, the Delaware County team has facilitated the installation of 12 CREP/CSBI projects at a total implementation cost of $459,216.50 (Table 4). This figure does not include PIP, SIP or annual incentive payments. DEP funded 83% of the costs through site prep, maintenance and planting costs with USDA contributing a 17% cost share. CREP/CSBI pilot projects resulted in revegetation of 96.8 acres and 4.7 miles of stream in Delaware County. As detailed in Table 4, completed projects are broken into the three phases. In previous reports, DEP detailed specific costs associated with the riparian planting itself but did not include costs associated with site prep and maintenance. The extension of the pilot through 2025 has allowed for more data collection including the detailed costs associated with each project (site prep, ongoing maintenance, planting costs, etc.). It is important to note that many of these completed projects will still receive maintenance annually and thus additional costs will be incurred.

During Phase one, a total of 20.3 acres and 1.68 miles were planted across four projects, with 11.99 acres enrolled in the CREP program, with a federal cost-share of $18,077 (14%) applied to the implementation of those plantings (Table 4). The remaining 8.4 acres were enrolled into the base CSBI program. DEP funded 86% of the costs incurred during phase one.

Phase two resulted in an additional 17.5 acres and 0.97 miles of stream being revegetated from two planting projects (Table 4). Of the total acreage planted, 11.13 acres were enrolled in the CREP program, and the remaining 6.37 acres were enrolled into the base CSBI program. DEP funded 84% of the costs incurred during phase two.

In Phase three, an additional 58.9 acres and approximately two miles of stream from six plantings was added to the overall program (Table 4). Of the total acreage added, 21.4 acres were added to the CREP program, and 37.5 acres were added to the base CSBI program. DEP funded 82% of the costs incurred during phase three.

Table 4. Delaware County CREP/CSBI pilot program implementation summary for phases 1-3 (November 2017-November 2025).

Project Count	Total length - Stream ft.	CREP acres	CSBI acres	USDA funds	DEP funds
1	2,500	4.94	0.00	$ 7,940	$ 33,832.15
2	2,500	5.10	6.96	$ 7,675	$ 40,245.16
3	2,060	1.34	0.42	$ 1,549	$ 21,370.50
4	1,825	0.61	0.97	$ 913	$ 15,688.76
Sub-total (Phase 1)	**8,885 (1.68 miles)**	**11.99 ac.**	**8.35 ac.**	**$ 18,077.00**	**$ 111,136.57**
5	3,550	6.65	5.48	$ 9,811	$ 51,983.49
6	1,560	4.48	0.89	$ 9,232	$ 44,622.69
Sub-total (Phase 2)	**5,110 (0.97 miles)**	**11.13 ac.**	**6.37 ac.**	**$ 19,043.00**	**$ 96,606.18**
7	1,515	4.52	1.25	$ 12,730	$ 45,655.32
8	1,185	3.82	3.74	$ 4,984	$ 26,574.91
9	580	1.76	2.70	$ 4,726	$ 11,248.35
10	1,000	2.61	2.89	$ 4,167	$ 16,376.47
11	1,900	4.02	2.20	$ 6,420	$ 12,776.80
12	4,410	4.69	24.78	$ 6,106	$ 62,588.90
Sub-total (Phase 3)	**10,590 (2 miles)**	**21.42 ac.**	**37.56 ac.**	**$ 39,133**	**$ 175,220.75**
Grand-total (Phases 1-3)	**24,585 (4.7 miles)**	**44.54 ac.**	**52.28 ac.**	**$ 76,253**	**$ 382,963.50**

Assessment of Evaluation Metrics

Pursuant to the 2017 FAD, evaluation metrics for the CREP/CSBI pilot program were established by an interagency committee of watershed partners and FAD regulators to achieve two broad goals: (1) determine the level of landowner interest in CREP/CSBI projects and parcel characteristics belonging to interested landowners, and (2) determine the process for CREP/CSBI collaboration across various agencies within the WOH watershed.

Goal 1: Determine the level of landowner interest in CREP/CSBI partnership projects and characteristics of parcels of interested landowners.

Metric 1.1 – Based on remote sensing, the estimated number of potentially eligible acres

Initial GIS analyses done by DCSWCD and WAC estimated approximately 1,279 acres of land as being potentially eligible for the CREP/CSBI program in the WOH watershed, comprised of 762 acres in Delaware County and 517 acres in the other counties (NYCDEP, 2021). In DCSWCD's and WAC's initial assessment, a 100-foot uniform buffer was used to identify potentially eligible landowners (maximum width allowed under CREP = 100 feet). The CSBI program has no established maximum width, thus a wider buffer can be installed in addition to the CREP buffer. Maximum planting widths are unique to each project and depend on the soils, landowner interest and topography of the site.

The higher number of potentially eligible acres identified within Delaware County as opposed to the other counties within the NYC watershed lends itself to increased presence of agriculture in Delaware County, fallow and active operations (Table 5, Figure 1).

Table 5. Agricultural land use of WOH basins, 2019 (Dewitz and USGS, 2021).

Basin	Basin size (sq. miles)	Agricultural land use (sq. miles)	Agricultural land use (%)
Ashokan	254.5	1.5	0.6%
Cannonsville	454.9	83.9	18.4%
Neversink	92.1	1.1	1.2%
Pepacton	370.3	27.7	7.5%
Rondout	95.0	2.9	3.1%
Schoharie	314.1	9.5	3.0%
	1580.9	126.6	

Land use data from 2019 was used to provide a historical description of the land uses in the WOH watershed during the initial assessment of potentially eligible landowners. Sub-basins were delineated, and land use data was overlayed on each sub-basin to determine the amount of agricultural land use in each sub-basin. The two land uses that were combined and redefined as agricultural land use were "Pasture/Hay" and "Cultivated Crops". Total land used for both uses was combined to provide an outlook on overall agricultural land use activities within each sub-basin:

Pasture/Hay + Cultivated Crops = Agricultural Land Use

In total, the WOH watershed covers approximately 1,580 square miles, of which approximately 126.6 square miles is attributed to agricultural uses (Table 5). WOH watershed wide, agricultural land use makes up approximately 8% of the overall land use. Agricultural land use is highest in the Delaware Basin, particularly the Cannonsville (18.4%) and Pepacton (7.5%) watersheds (Table 5, Figure 1).

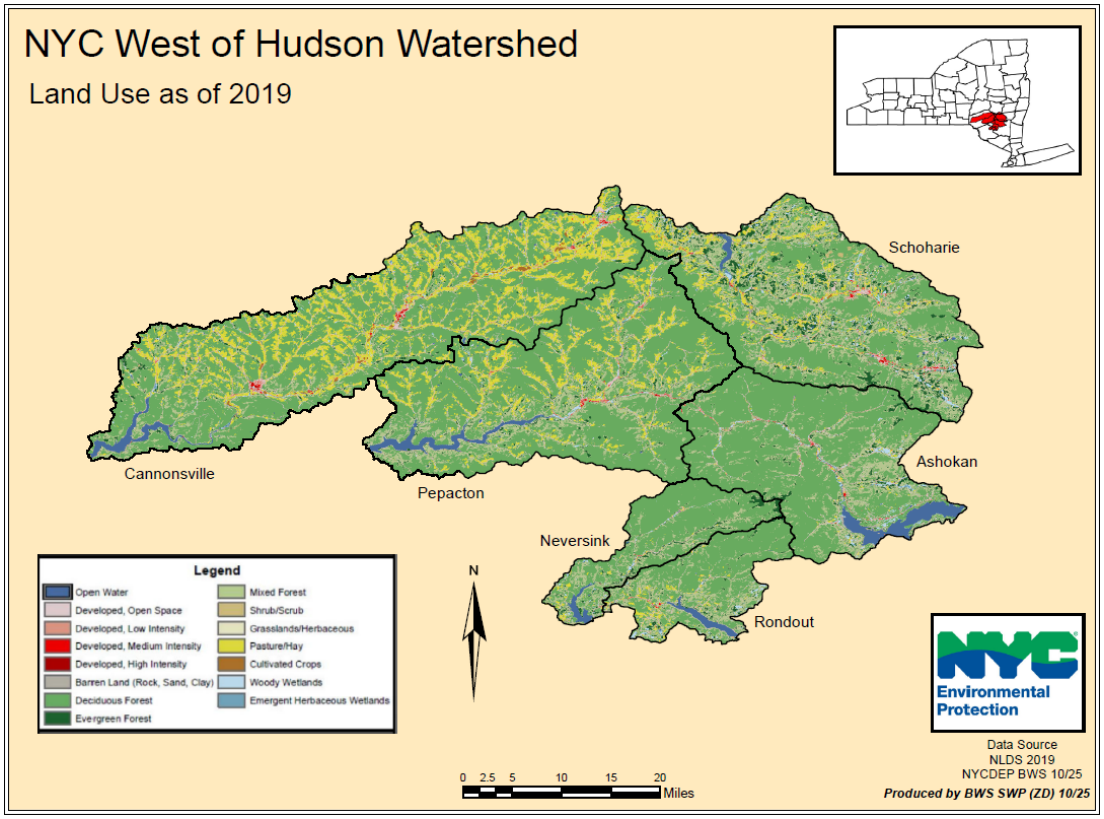

Figure 1. *NYC West of Hudson (WOH) Watershed 2019 Land Use.*

Based on initial estimates of potentially eligible planting acreage in the Delaware Basin (762 acres) and acreage enrolled into the program through the 12 completed plantings (96.8 acres), there are roughly 665 acres of potentially eligible planting lands in the Delaware Basin.

Metric 1.2 Based on remote sensing and the landowner survey, the estimated number and range of acres of interest landowners.

In Phase one, a two-step survey approach was completed by DCSWCD and WAC that identified 46 potential landowners for a combined 90.9 acres. During Phase two, landowners that were not part of the original survey pool expressed interest in the pilot program, which increased the estimated total acreage to 122.6 acres (NYCDEP, 2021).

During Phase three, a third targeted outreach effort was deemed to be unnecessary as DCSWCD and WAC are continuing to work through interested landowners from their first two outreach efforts. As DCSWCD and WAC continue these efforts and dwindle down on interested landowners from their initial outreach efforts, they will revisit their outreach efforts to other landowners within priority sub-basins.

Metric 1.3 Prioritize and select potential areas based on sub-basin, proximity to current/legacy farms, soil loss/erosion potential as identified from landowner survey.

During Phase one, DCSWCD and WAC prioritized 24 sub-basins within the Cannonsville and Pepacton watershed, based on the relative amount of non-forested lands, the proportion of agricultural buffer land, soil loss/erosion potential, number of upstream animal units and potential plantable buffer within 100-feet of water (Figure 2). The top six sub-basins were all located in the Cannonsville basin, primarily due to the large amount of non-forested land (Table 5, Figure 2). The top six priority sub-basins include: East Brook, Beers Brook, Upper Little Delaware, Platner Brook, Mallory Brook and Bagley Brook.

Identification efforts of priority areas have led to six targeted plantings that span 57.4 acres and 2.7 miles of stream within the top priority basin, East Brook (Landowners 1, 2, 3, 4, 8 and 12, Figure 2).

Implementation of CREP/CSBI plantings in other higher priority sub-basins has been limited by landowner interest. Therefore, the Delaware team have shifted to completing projects in lower priorities basins, such as the Platte Kill sub-basin (priority 12), with two completed plantings covering 17.9 acres and 0.9 miles of stream (Figure 2, Landowners 5 and 7).

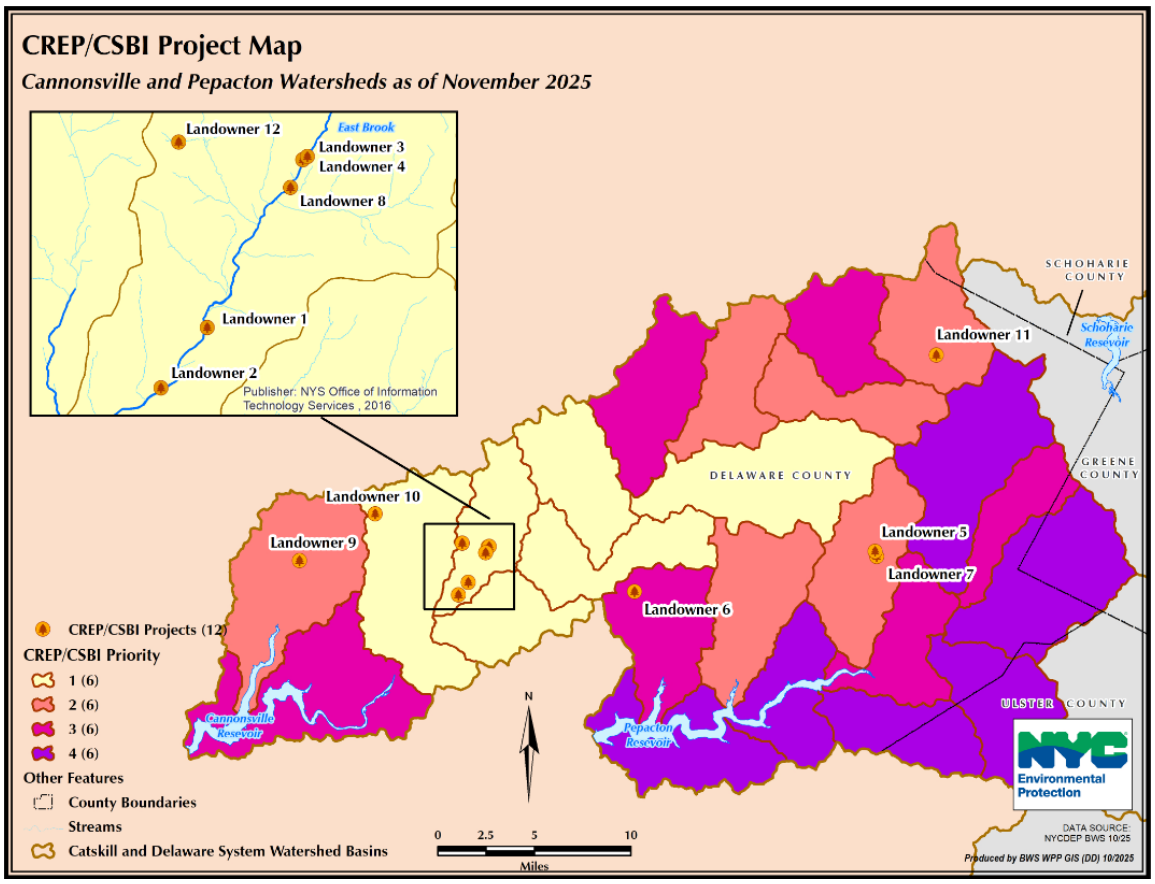

Figure 2. *Completed CREP/CSBI project locations within prioritized sub-basins.*

Metric 1.4: For landowners selected in high priority areas, the estimated area or linear feet of instability and invasive species present.

The goal of this metric was to better understand potentially eligible acreage for the CREP/CSBI program based on the likelihood that they may require additional work prior to planting, such as streambank stabilization or invasive species control. Assessing linear feet of stream instability and invasive species through the top six priority sub-basins would require an immense amount of staff time that may not have ultimately led to interested landowners. Thus, DCSWCD and WAC have worked with onsite conditions of interested landowners and have worked to identify and remedy streambank instability and any invasive species present. Of the 12 sites, one needed bank stabilization (760 feet) and nine needed invasive species management (17.9 acres) that included either brush hogging, herbicide treatment or both techniques.

Metric 1.5: For responders of the initial survey who submitted their contact information, a second in-depth survey will be sent out with specific information pertaining to the program. The survey will have a goal of reaching a 45% response rate (approximately 55 individuals). Their responses will be tracked for the purpose of better understanding the obstacles to participation.

Initial responses from the first two landowner surveys within Phase 1 included a 59% response rate and served as the blueprint for project implementation. Respondents were asked to rank six programmatic benefits of the CREP/CSBI program: (1) water quality protection, (2) streambank stabilization, (3) stream/wildlife health, (4) invasive species control, (5) practices installed at no cost and (6) financial incentives. Survey responses from Phase 1 indicated that most sought-after result from a riparian planting was water quality protection and the financial incentives were ranked as the least important result (NYCDEP, 2021). The project team followed up with a subset of landowners in phase two to better understand the project components landowners prefer.

After a positive response rate from the two initial targeted outreach efforts, DCSWCD and WAC are still working through interested landowners, so a third round of targeted outreach has been deemed unnecessary at this time. It would be beneficial to continue to have respondents rank the six programmatic benefits of the CREP/CSBI program as DCSWCD and WAC focus their efforts on lower priority basins to help drive future decisions of the program and better understand obstacles.

Metric 1.6 Based on the prioritization of sub-basins and second survey results, one-on-one contact will be made with at least 15 individuals within the prioritized sub-basins. Different types of outreach can be used depending on the preference of the landowner (phone, email, face-to-face). If there are insufficient landowners in the priority areas, landowners from the survey outside the priority areas can also be contacted. This will track landowners' ultimate decisions on how, or if, they will participate in the program (enroll in CREP/CSBI, CSBI, or not enroll). Information collected from this more in-depth survey, and from subsequent one-on-one conversations will be used to improve future outreach. '

The first two rounds of surveys that were sent to selected Delaware County landowners served their purpose and established initial contact with interested landowners in priority sub-basins. The original surveys only indicated whether landowners were conceptually interested in a potential CREP/CSBI project. Evaluating future enrollment potential involves one-on-one contact to understand program benefits and constraints for each specific property. DCSWCD and WAC directly contacted a total of 25 landowners to discuss a potential project on their property (16 were contacted during Phase 1; nine were contacted during Phase 2). These contacts resulted in eight out of the twelve completed CREP/CSBI projects. The remaining four landowners that enrolled in the program heard about the program through various outreach events and contacted DCSWCD and WAC to enroll.

Goal 2: Determine the process for CREP/CSBI collaboration.

Metric 2.1 Components of CREP and CSBI programs that were or will be implemented. Of the projects that were completed or are in design, how many projects have or will have: (a) Riparian Corridor Management Plans (RCMPs); (b) increase planting densities through CSBI; (c) increased buffer width/size through CSBI; (d) ongoing invasive species mitigation through CSBI; (e) each type of maintenance and why; (f) what plant sizes are used, and from what sources; and (g) feet of instability addressed. In a narrative summary, potentially with case studies, qualitatively assess which program components worked well together versus which did not.

a. **Riparian Corridor Management Plans (RCMPs):** are provided to participating landowners in the CSBI base program and thus the CREP/CSBI program. RCMPs are developed by DCSWCD in combination with an NRCS Conservation Plan that is a requirement for participating CREP enrollees. Landowners for all twelve completed projects have been provided with a RCMP. An additional three landowners that are considering having a CREP/CSBI planting installed on their property have also been provided with RCMPs. RCMPs continue to be a useful document in describing the framework and phases of the project.

b. **Increased planting densities through CSBI:** During Phase one, CREP cost-shared up to 125 plants per acre based on a maximum allowed plant spacing of 19-feet. Federal rules changed during Phase two which resulted in a total allowable investment per acre ($5,512.47), instead of the plants per acre/maximum plant spacing approach. In Phase three, the maximum investment per acre depended on the size of the plants being used. If potted plants were used, the maximum investment per acre increased to $6,611.18 and if bare root plants were used the maximum investment costs decreased to $4,008.87 per acre. The CSBI program typically uses a planting density of 8-to-12 feet for shrubs and 10-to-12 feet for trees and has no cost cap per acre for plantings. Combining the CSBI program with a CREP planting allows more plants to be installed per acre.

c. **Increased buffer width:** the maximum allowable buffer width under CREP is 100 feet from a stream. There is no maximum buffer width in the CSBI program. The maximum width planted through a CSBI project differs from site to site and is based on the topography and soils of the site. Combining the facets of CREP and CSBI on a project site allows for a wider buffer to be installed, ultimately resulting in projects being customized to the site-specific conditions and pollutants.

d. **Ongoing invasive species mitigation:** Invasive species mitigation has and will continue to be an essential part of the ongoing success of these riparian plantings. It is a requirement of CREP that invasive species are mitigated prior to a planting. CREP does not fund invasive species treatment, thus CSBI pays all costs associated with invasive species mitigation.

Generally, project sites require pre and post planting invasive species mitigation, so the overall costs associated with this activity can constitute a significant portion of the overall cost of a project. Invasive species mitigation efforts have been used at nine of the twelve completed plantings. Brush hogging has been used at nine of the completed sites to mitigate invasive species prior to planting. Herbicide treatments prior to planting have been used at six out of the twelve completed plantings. The remaining six sites did not have a high enough density of invasive species to warrant mitigation.

Pre and post planting treatment durations vary based on the severity of invasive species present. Since the pilot program's inception, 17.8 acres have been treated for invasive species at cost of $75,441 via herbicide treatment and brush hogging. This figure includes invasives species mitigation prior to planting. Brush hogging has been used as a means of site prep at nine out of the twelve completed sites, for a total cost of $20,105. CREP will fund a portion of this site prep work in year one. The CSBI program funded $18,856 and CREP funded the remaining $1,249. While costs associated with brush hogging are generally lower than those associated with herbicide treatments, brush hogging only temporarily mitigates invasive species. Targeted herbicide treatments have been deemed the most effective means of mitigation by DCSWCD. However, its usage is not without concerns as herbicides can have negative health and environment consequences if not used properly and some landowners do not want it to be used on their land.

e. **Type of maintenance:** the extent of annual maintenance is dependent on the site. CREP provides a cost-share for year one of plant competition maintenance, while the CSBI program covers all costs associated with annual competition maintenance after year one. Nine out of the twelve completed plantings have used annual herbicide treatments used as the means to prevent weed competition around installed plants. The remaining three have utilized alternative methods such as plastic or coconut fiber weed mats. Through 2025, annual weed maintenance has cost $39,617.36, with the CSBI program funding $36,718.36 and the CREP funding the remaining $2,899. Other types of maintenance require upkeep of tree tubes and plastic, or coconut fiber weed mats if used. DCSWCD concluded that herbicides to control growth around installed riparian plants was the most effective and efficient means of maintenance, although landowners ultimately have the final say on maintenance techniques used on their properties. The use of herbicides to reduce plant competition in this program and its potential effects on water quality in the NYC watershed needs to be further studied by DEP.

f. **Plant sources/sizes:** the CSBI policy of procuring plants from within a 300-mile radius from the planting site is still being utilized. Generally, contractors for CREP/CSBI plantings in Delaware County are required to procure the plants themselves and they are locally sourced. The size and type of plants used varies by site and is dependent on onsite soils and landowner preference.

g. **Feet of instability addressed:** Prior to enrolling in CREP, a streambank stabilization project was required for Landowner 1 that resulted in 760 feet of bank instability being addressed. That project was completed in 2021 at a cost of $234,300 and repaired in 2022 after storm damage at a cost of $58,180. This $292,480 to make the project CREP eligible was not calculated into the CREP/CSBI cost summary.

h. **Debris management/removal:** CREP does not fund the removal of debris and will not approve a CREP contract until the site is fully cleared of debris. In the past, DEP has funded nominal debris removals at one planting site. However, to qualify for public funds to install conservation practices on their land (riparian buffer installation) and receive publicly funded incentive payments (SIP, PIP, annual incentive payment), landowners should be responsible for removing debris from their property. Factoring in debris removal from a site drives up costs associated with a project and potentially hazardous materials onsite could further complicate and ultimately delay a project. This type of remediation effort is beyond a riparian buffer planting initiative. DEP cannot continue to support the funding of debris removal from project sites under CREP/CSBI as this is a landowner's responsibility for program participation.

Metric 2.2 List of program constraints/limiting factors (e.g., time necessary for each administrative step in process, landowner indecision).

Several programmatic constraints and limiting factors were identified in the first two phases of the pilot that continue to be challenges. This includes landowner willingness to participate, contracting work (bid package development, hiring contractors, CREP enrollment contract) and both uncertainty and delays in federal funding. The CREP program funds a small portion of the overall work compared to the CSBI program, however, lapses in federal funding have led to project implementation delays. While these challenges continue to persist, DCSWCD and WAC have continued to implement projects and work through each challenge with interested landowners.

Metric 2.3 Funds contributed from the federal government; funds contributed from DEP via CSBI.

Through 2025, the Delaware County pilot program cost a cumulative total of $980,541.32 of which DEP paid $821,870.92 or 84% (Table 6). Implementation costs (site prep, planting, maintenance) accounted for 47% of DEP's investment, with the remaining 53% funding the WAC CREP/CSBI Coordinator.

Factoring in initial and annual landowner incentive payments ($82,417.40) and project implementation costs ($76,253), FSA funded a total of $158,670.40 (16%) through October 2025. Annual payments to participating landowners will continue after 2025, based on the time they signed up for the program and the duration of their contract (10-or-15 year).

Table 6. Delaware County CREP/CSBI pilot program cost-share summary through 2025 (USDA costs provided by FSA).

Program Cost	USDA Funds	DEP Funds	Total Funds
Project implementation	$ 76,253	$ 382,963.50	$ 459,216.50
Landowner Incentive Payments (through 2025)	$ 82,417.40	$ -	$ 82,417.40
WAC CREP/CSBI Planner (through Aug. 2025)	$ -	$ 438,907.42	$ 438,907.42
Total	**$ 158,670.40**	**$ 821,870.92**	**$ 980,541.32**
Percent of Total	**16%**	**84%**	**100%**

Metric 2.4 Number of acres and/or linear feet planted. Number of acres of invasive species receiving treatment. Linear feet stabilized if part of pilot.

Twelve completed CREP/CSBI projects resulted in 24,585 feet (4.7 miles) and 96.8 acres of buffer being planted. One project (Landowner 1) required streambank stabilization prior to planting, which resulted in 760 feet of streambank stabilization using armoring techniques. Out of the twelve completed projects, six have had herbicide treatments and nine sites have had brush hogging used as a means of invasive species mitigation. That coupled with a pre-treatment for an upcoming planting has amounted to 17.8 acres being treated through the span of the pilot program.

Metric 2.5 Where used, herbicide use is tracked and reported: (a) begin to monitor efficacy of maintenance options (i.e., herbicide vs. mowing, vs. weed mats, etc.), and (b) track the number of landowners who elect for each type of maintenance and why (i.e., herbicide, mowing, weed mats, etc.)

Herbicides have been utilized at nine out of the twelve completed sites for annual competition suppression. Herbicides were not used on the remaining three projects, but plastic or coconut fiber weed mats were instead used for competition suppression. A limited comparison between the effectiveness of coconut fiber versus plastic weed mats was made on one completed planting site. The plastic weed mat was determined to be more effective in preventing weed growth as the coconut fiber weed mat quickly decomposed. DCSWCD concluded that herbicide treatments were the most effective and efficient means of eliminating plant competition and required little to no maintenance beyond annual treatments. Potential health and environmental impacts to the NYC Watershed as a result of herbicide use were not evaluated in this pilot but need to be further studied by DEP.

Metric 2.6 Estimated number of contracts a planner can implement per year, with details on the nature of contracts (e.g., planting only versus planting and invasive species or bank instability work).

The number of projects advanced through this program was influenced by several factors including federal funding delays, landowner recruitment/indecisiveness, unwillingness of landowners to implement projects and contracting limitations. Delays on the federal level of re-certifying the Farm Bill led to lapses in signing of contracts and ultimately delayed project implementation. In the second evaluation report, six annual planting projects were determined to be a reasonable target moving forward. While this target has not yet been met, the plantings that have been included in the program have been expansive and have ultimately required years of site prep and planning. Projects that require invasive species mitigation or stream bank work can have a much longer timeline than sites that require little site prep. While six annual planting projects is still a reasonable goal to work towards, annual project implementation will depend on landowner willingness, size and complexity of the projects, and site-prep. Nine out of the twelve completed projects required some sort of site prep to implement a planting.

Metric 2.7 Number of landowners following Operations and Maintenance Agreements for the length of the pilot program.

Landowners are encouraged to check and straighten tree tubes, protect plants from damage or mowing, and contact DCSWCD or WAC if there are any concerns or damage (e.g., flood damage). According to DCSWCD, all twelve landowners have followed their Operations and Maintenance agreements throughout the pilot program.

Ashokan, Schoharie and Rondout/Neversink Basins

To date, no CREP/CSBI plantings have been completed in the other SMP basins. DEP will continue to support the implementation of the CREP/CSBI framework in the remaining SMP basins as a compliment to the CSBI program.

Conclusions and Recommendations

The 2017 FAD required the DEP to establish a partnership between the City-funded CSBI and the federal CREP to enable CREP to be implemented on fallow agricultural lands through the CSBI in the WOH Watershed. This was initiated by DCSWCD and WAC proposing to integrate components of CREP and CSBI, with the goal of accelerating riparian buffer implementation in the WOH watershed after a policy amendment that was enacted in 2016 by the FSA that allowed fallow agricultural properties to participate in CREP.

The first evaluation report was completed in 2019 and summarized program components and SWCD and landowner interest. Riparian corridor management plans, increased planting densities, increased buffer width, maintenance and increased plant sizes were identified as potential benefits of program collaboration.

DCSWCD completed four CREP/CSBI projects and the other SWCDs completed landowner surveys that resulted in eight potential CSBI projects, but no CREP-CSBI projects. The CREP/CSBI pilot program was extended for two additional years (until November 2021) in Delaware, Greene, Schoharie, and Ulster counties to allow for more time to evaluate program effectiveness.

The second evaluation was completed in 2021 and summarized recruitment efforts and two additional projects in Delaware County. Based on follow up with landowners, Greene, Sullivan and Ulster County SWCDs reported that federal contracting requirements coupled with modest rental and stewardship incentive payments were insufficient to compel landowners with less than one acre of riparian buffer to enroll. They lack the large fallow agricultural lands that exist in Delaware County. However, they remain willing to offer CREP/CSBI to larger parcel owners when they come into the base CSBI program in the future, but they decided not to actively pilot/promote the program. DCSWCD installed two large CREP-CSBI projects in 2021, bringing the total to six over five years. DEP recommended the pilot be extended through 2025 to enable DCSWCD to further explore interest, expand landowner recruitment, and implement additional projects.

Although only 12 of the total 312 riparian buffer projects completed since 2009 are attributed to CREP/CSBI, these projects accounted for 37% of the total program acres and 16% of the total program stream lengths planted. By offering CREP as a supplement to the existing CSBI program it allows for larger buffer width and planting density, promotes the use of larger plants, facilitates maintenance and provides financial incentives to landowners to entice participation. It was originally estimated that there were approximately 8,000 acres of fallow agricultural lands in the WOH watershed that may be eligible for CREP. Through the course of the pilot this was further refined to 1,279 acres with 762 acres in Delaware County and 517 acres in other counties. Through the eight-year pilot period, 12 projects were completed in Delaware County covering approximately 97 acres. No CREP/CSBI projects were completed in the other Counties. It was estimated early in the pilot that a dedicated planner would implement 6-10 projects per year. However, due to low demand and the complexity of designing/implementing projects the completion rate averaged 1.5 projects per year. Nevertheless, the projects that have been completed through this pilot program have provided additional acreage of riparian revegetation in the Delaware Basin and have contributed to meeting the Revised 2017 FAD CSBI deliverable of revegetating a minimum of 10 streambank miles throughout the WOH watershed.

DEP funded 84% of the $980,541 associated with the 12 CREP/CSBI pilot projects, which includes project implementation and funding the WAC CREP/CSBI Coordinator position. FSA funded 16% of the $980,541 through incentive payments to landowners and project implementation. When the cost of the full-time CREP/CSBI Coordinator is removed the cost share of City contributions becomes more equitable at 59% of total project costs. Based on the findings of this report, DEP continues to support the SWCDs offering CREP as an incentive to

landowners with fallow agricultural properties, within the framework of the existing CSBI program managed by the SWCDs under the current intergovernmental agreements with DEP.

Current CSBI program funding is adequate to incorporate CREP as an option under CSBI without the need for additional CREP specific funding at this time. Based on the program data analysis, both the low average annual completion rate and substantial proportion of the total project costs, the need for a CREP/CSBI Coordinator position cannot be substantiated. DEP funding for this position will be discontinued as of June 30, 2026. Should the paradigm or demand for CSBI/CREP change in the future, DEP is open to revisiting the program needs with our stream partners as we do with all other program components.

While this pilot program did not meet the annual project implementation goals set forth in the previous reports, the projects completed through this pilot have provided additional riparian buffer revegetation in the Delaware Basin. Looking to the future, other CREP/CSBI projects are in development including one landowner under contract for planting in Spring 2026 and five additional landowners that are potentially interested in riparian plantings. Moving forward, further efforts should be made to target more landowners in priority sub-basins where pollutant filter strips have greater value, and the widespread use of herbicide should be further examined to better understand potential unintended environmental and health side effects.

Citations

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