

delta institute



Photo by Harrison Fitts.

*MARKET-BASED
CONSERVATION IN THE
KALAMAZOO RIVER
WATERSHED*

FINAL COMPREHENSIVE REPORT, SPRING 2024

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EXECUTIVE SUMMARY

In the Great Lakes region, phosphorus pollution degrades water quality,¹ harms wildlife,² and negatively affects the health and economies of regional communities.³ Phosphorus is an essential macronutrient required for plant growth and is applied as fertilizer to croplands to enhance crop yields. However, phosphorus is readily removed from agricultural fields by water runoff and soil erosion and transported into streams, wetlands and lakes – deteriorating watersheds through the process of eutrophication. Prior research suggests that farmers can reduce phosphorus loss from agricultural fields while maintaining yields by adopting soil conservation Best Management Practices (BMPs), such as cover crops or no-till, in concert with nutrient management BMPs (e.g., subsurface placement, avoiding winter applications).^{4,5,6} In addition to reducing nutrient loss, soil conservation BMPs may also improve habitat and water quality by decreasing pollutants such as sediment and pathogens resulting from cropland erosion.⁷ Therefore, both the US Department of Agriculture Natural Resource Conservation Service (USDA-NRCS) and the US Environmental Protection Agency's (EPA) Great Lakes Restoration Initiative (GLRI) promote the adoption of soil conservation BMPs by farmers to reduce phosphorus pollution and restore water quality in the Great Lakes. This project was focused on creating an innovation to spur adoption of soil conservation BMPs through a special round of GLRI funding.

Delta Institute, with Allegan County Conservation District, and Michigan Farm Bureau (the “Project Team”), created and implemented an innovative program to reduce excessive phosphorus loading in the Kalamazoo River Watershed associated with agricultural sources through a market and performance-based incentive. The program’s goals were to enroll soil conservation BMPs on up to 6,600 acres at target locations in the Kalamazoo River Watershed and reduce phosphorous load by 5,000 lbs. into the Great Lakes. Performance-based programs can provide a more targeted approach to investing in cost-share for soil conservation BMPs when program funding is limited. Instead of paying for implementing a particular conservation practice, such as cover crops or riparian buffers, in terms of acres or feet, they calculate farmer payments based on the net environmental improvements that arise from that practice.

The Project Team administrated and implemented a “reverse auction” to incentivize farmers to adopt soil conservation BMPs to reduce nutrient losses. In a reverse auction, farmers enter bids to provide phosphorus loading reductions at the lowest cost by implementing conservation practices. Delta Institute paid farmers whose bids were accepted for those reductions. The payments were based on estimates of reduction expected and farmers’ ability to implement the practices at a cost lower than the maximum allowable price set by the program. The Project Team utilized advanced modeling tools to estimate reductions. Semiannual photographic verifications were performed to ensure conservation practices were being implemented.

The success of this program was measured by:

1. Estimated pounds of phosphorus reductions from conservation practice implementation throughout Great Lake watersheds, and,
2. Acres receiving technical or financial assistance on nutrient management in priority watersheds.

In total, five producers engaged in the program to implement 981.5 acres of soil conservation

BMPs across 30 agricultural fields – spanning 2070.4 acres total. The implementation of soil conservation BMPs reduced phosphorus runoff into the Kalamazoo River Watershed by an estimated 5,452.74 lbs. and reduced nitrogen runoff by an estimated 14,480.06 lbs. The reduction goal was met successfully on less acreage than initially planned – a testament to the effectiveness of this program.

This program represents a fundamental change from the traditional cost-sharing conservation model and demonstrates a novel, market-based approach to implementing soil conservation BMPs and reducing nutrient runoff into crucial watersheds of the Great Lakes. The pay-for-performance program shifts the focus to investing in pollutant reductions that lead to measurable water quality improvements and paying producers for reducing the negative environmental impacts. This market-based approach has also been recently applied in several Midwestern watersheds, (e.g., the Great Miami River watershed, the Ohio River Basin and the Rabbit River watershed (another GLRI funded project) providing a solid basis for launching this in the Kalamazoo River Watershed. Performance-based conservation programs potentially provide a more effective way of reducing nutrient pollution, as they are tied to environmental outcomes and offer a way to begin an ecosystem-focused, sustainable approach to land management and farming.

About Delta Institute

Established in 1998, Delta Institute is a Chicago-based nonprofit organization that collaborates with communities to solve complex environmental challenges across the Midwest. We envision a region in which all communities and landscapes thrive through an integrated approach to environmental, economic, and social challenges.

As a 501c3 nonprofit with a 2020 Platinum Seal of Transparency from GuideStar, Delta serves as a trusted advisor, technical provider, and project implementation expert for partners across the public, private, nonprofit, and community sectors. We rely on both philanthropic and earned revenue, specifically through grants, charitable contributions, and fee-for-service contracts.

Our work takes us to cities like Chicago, St. Louis, Gary, and Milwaukee; to Great Lakes coastal towns; and to rural communities with thousands of acres of farmland and waterways.

Visit us online at www.delta-institute.org.

Acknowledgements

- This project was produced with generous support from the US Environmental Protection Agency (EPA) to support the objectives of Action Plan 3 of the Great Lakes Restoration Initiative (GLRI) to protect and restore the chemical, physical, and biological integrity of the Great Lakes Basin ecosystem.
- Allegan County Conservation District, a unique local unit of State Government, that utilizes state, federal, and private sector resources to solve today's conservation problems. The guiding philosophy of the Allegan County Conservation District is that decisions on conservation issues should be made at the local level, by local people. For more information on Michigan Conservation Districts, visit the Michigan Association of Conservation Districts webpage at <http://www.mACCD.org>.

- Michigan Farm Bureau, which represents Michigan’s agriculture diversity, from crops and livestock to fruits and vegetables, greenhouses, forestry and more. Representing farms of all sizes and varying styles of production including conventional and organic practices, Michigan Farm Bureau is the voice of Michigan agriculture, one of Michigan’s primary economic drivers. For more information on Michigan Farm Bureau, visit the Michigan Farm Bureau’s webpage at <https://www.michfb.com/>.

This document and the tools provided aim to be action oriented and to provide the most current, correct, and clear information possible, but some information may have changed since publication. We encourage practitioners to reach out to us at delta@delta-institute.org with questions, corrections, or to discuss implementation challenges.

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PROGRAM OVERVIEW

Funding Background

Under the [Clean Water Act](#) (1972), the [United States Environmental Protection Agency](#) (US EPA) has authority to, “award grants for planning, research, monitoring, outreach and implementation projects in furtherance of the [Great Lakes Restoration Initiative \(GLRI\)](#) and the [Great Lakes Water Quality Agreement \(GLWQA\)](#)”.⁸ Signed in 1972 under the Clean Water Act, the GLWQA is a binational agreement between the US EPA and [Environment and Climate Change Canada](#) to ensure cooperative efforts towards stewardship and restoration of the Great Lakes. Further desire to engage in proactive watershed restoration led to the authorization and publication of the first Great Lakes Restoration Initiative (GLRI) Action Plan. The GLRI provides funding to, “strategically target the biggest threats to the Great Lakes ecosystem”, which are identified as Focus Areas in 5-year [Action Plans](#).^{9,10} Under the GLRI, the US EPA has awarded over \$11.5 Million in grants to address nutrient runoff from agriculture and stormwater nonpoint sources.

This project has been funded by the US EPA under assistance agreement GL00E02796 to Delta Institute to support this market-based agricultural conservation program in the Kalamazoo River Watershed. This project was funded by the US EPA’s GLRI to support Focus Area 3: Nonpoint Source Pollution Impacts on Nearshore Health. The commitments outlined in the Action Plan are to implement systems of conservation practices on farms and in streams to reduce and treat nutrient runoff and increase adoption of enhanced nutrient management practices to reduce risk of nutrient losses from farmland.

The contents of this document do not necessarily reflect the views and policies of the US EPA, nor does the US EPA endorse trade names or recommend the use of commercial products mentioned in this document.

Delta Institute would also like to acknowledge Allegan Conservation District and Michigan Farm Bureau for their generous contributions to the project.

Program Partners

Allegan County Conservation District

The Allegan County Conservation District is a local unit of State Government comprised of Allegan County in the southwest corner of Michigan. The District is supported by a combination of local, State, Federal, and private sector funds. The mission of the Allegan County Conservation District is to help all land users wisely manage the resources of Allegan County in an economically sustainable way and to preserve the natural resources for future generations. This is accomplished through direct implementation, education initiatives, and facilitating partnerships.

The District is a reliable educational resource for Allegan County residents on a wide variety of conservation questions. It acts as a public access point for assistance on natural resource planning, permitting, and land management. This frequently includes invasive species

identification and treatment, best management practices for soil health and stormwater management, and native planting recommendations. Clients are then referred to relevant agencies or contractors if specific services are required, and when services aren't available, the District strives to fill that gap by offering them directly. Examples of this include planning and installation of native prairie and pollinator habitats, no-till drill rental, native tree and plant sales, and the development of non-commercial land management plans.

The District is a partner to the local agricultural community through programs that address issues such as nutrient runoff and pollution. A number of local, State, and Federal programs exist to help manage natural resources on agricultural lands. The District helps clients identify which programs best fit their needs and then ensures they can access those programs. Frequently, this starts with MAEAP (Michigan Agriculture Environmental Assurance Program), which helps farms identify their environmental risks and create a plan to address them. Over 300 farms in Allegan have gone through this process to address their environmental risks. Still more participate in other agricultural conservation programs through the District.

The Kalamazoo phosphorous reduction program is one of several watershed-scale pollution reduction programs implemented by the District in recent years by incentivizing practices on cropland that prevent nutrient runoff in the watershed. These projects are part of a larger effort to normalize soil health principles: maintaining soil cover year-round, minimizing disturbance, promoting plant diversity, and keeping living roots in the ground. The District utilizes many partnerships and funding sources to accomplish these goals.

The District continually monitors the needs of the residents and farmers of their county and works in partnership with other conservation organizations to set local priorities, develop action plans, and implement solutions to natural resource issues.

Michigan Farm Bureau

The Michigan Farm Bureau (MFB) is a prominent agricultural organization dedicated to serving the interests and needs of farmers across the state of Michigan. One of the primary functions of the Michigan Farm Bureau is to represent the interests of its members at the local, state, and national levels. Through lobbying and legislative efforts, the MFB works to shape policies that benefit farmers and address issues such as agricultural sustainability, land use, water management, and rural development. By actively engaging with lawmakers and policymakers, the organization aims to create a favorable environment for the agricultural sector to thrive.

The MFB hosts events, conferences, workshops and offers educational programs to empower farmers with the latest information and technologies as well as adapt to evolving industry trends. The MFB also offers a range of insurance products such as property and casualty insurance, health insurance, and life insurance. Additionally, the MFB supports local agricultural initiatives, youth programs, and community projects that contribute to the overall well-being of rural areas.

Program Objective

This program served as a marketplace for phosphorus reductions. By implementing soil conservation Best Management Practices (BMPs), such as cover crops or conservation tillage, farmers that participated in the program were able to sell their phosphorus reductions.

Participants submitted bids reflecting the cost of implementing the practices. Delta Institute bought phosphorus reductions by selecting bids based on cost effectiveness, at the lowest price per pound of phosphorus loading reduced with a price ceiling determined by the program rules. Winning bidders were notified after the application period closed and received payment for the phosphorus kept on the fields. The goal of the program was to maximize adoption and cost-effectiveness of reducing phosphorus loss and improving water quality in the Great Lakes.

Eligibility

Participants

Eligible participants included:

- Landowners, or
- Operators with legal authority to make decisions about soil conservation BMPs.

Soil Conservation Best Management Practices (BMPs)

Practices eligible for enrollment in the program were new applications of:

- Cover crops,
- No till,
- Strip till, and,
- Combination of the above tillage and cover cropping practices if appropriate.

Practices were to be implemented according to the Natural Resources Conservation Service (NRCS) standards as outlined below in the “Verification” section. Eligible practices already receiving cost-share from an Environmental Quality Incentive Program (EQIP), Conservation Stewardship Program (CSP), Conservation Reserve Program (CRP), or other federal conservation program were ineligible for the program. Cover crops were not able to be harvested and sold, per NRCS standards. Participants were allowed to participate in other ecosystem market programs where incentive payments are based on performance, except for phosphorus. Eligibility to participate in other environmental market programs (e.g. carbon credits) depended on that program’s rules.

Land

Eligible farm fields were those which had not had the selected BMP(s) implemented on them within the past year. A farm field was eligible if any portion of the field was located within the project area (see, “Project Geography” section for more information).

Agreement Length

The program ran from February 2021 to February 2024. Participants who enrolled in the first auction round in February 2021 were able to sign up for a two-year agreement, which was the longest term available to remain within the original project timeline (prior to COVID complications, the program was scheduled to run from February 2021 to end in February 2023).

After extending the program to end in February 2024, agreement lengths for Auctions 2 and 3 remained at two years.

Reverse Auction Framework

The Project Team set up a reverse auction to purchase phosphorus reduction “credits” resulting from implementing soil conservation BMPs in the target subwatersheds. With a reverse auction, producers submit a bid to reduce a certain quantity of phosphorus by implementing qualifying soil conservation BMPs. Implementation of these practices must be within fields that currently lack the BMP and don’t currently receive cost-sharing from other programs. This project only paid for the implementation of new practices.

To encourage long-term investment into conservation, the program was set up to incentivize the longest possible agreements within the allowed project timeframe. The program established a maximum allowable price for phosphorus that was used to determine whether a bid is accepted. The max allowable price was modified to prevent strategic bidding.

Reverse Auction Proposed Components:

Agreement Length	Maximum allowable price per lb. of phosphorus	Eligible Practices	Auction Frequency
1- 2 years	<ul style="list-style-type: none"> • Auction 1: \$26.44 per lb. • Auction 2: \$0.00 per lb.* • Auction 3: \$30 per lb. 	No-Till, Mulch Till, Reduce-Till, Cover Crops	<ul style="list-style-type: none"> • Auction 1: Winter 2021 • Auction 2: Summer 2022 • Auction 3: Winter 2022.

* No maximum price due to no bids being submitted.

Bid Applications

Submission

Sealed applications were submitted using the *Bid Application Form* (See Appendix 1).

Participants were required to submit separate bid applications for each field. Participants were permitted to submit multiple bid applications for all the fields they would like to implement phosphorus reducing practices. Multiple bid applications could be submitted with one Bid Application Form. There was no limit on the maximum number of applications each participant could submit.

Bid Price

The [Great Lakes Watershed Management System](#) modeling platform was used to determine phosphorus reductions and their associated cost-effectiveness. The model is free to use and was publicly available to sellers to simulate practice implementation and resulting reductions.

Participants were encouraged to work with Program staff to use the model and estimate phosphorus reduction potential to inform bids. If a bid was submitted without modeling results, Program staff ran the model and determined expected reductions and cost-effectiveness. Fields with steep slopes that are at higher risk for erosion were expected to result in greater reductions.

Bid Selection

Bids were ranked based on cost-effectiveness of the practice, i.e. the cost per pound of phosphorus loading reduced by implementing the practice. A maximum price per pound of phosphorus was set once the bids were received and changed between application periods. Once the maximum price was set, the winning bids were those that fell below maximum price.

The program was uniform-priced, and all winning sellers were paid the same price per pound of phosphorus at the rate of the top winning bid. This means that payments may have been higher than the bid price but were never lower than the bid price.

The Bid Application Form (Appendix 1) was required to be submitted and filled out completely to enter the program and participate. The program administrator reserved the right to reject bids if the application was incomplete. Expected total pounds of phosphorus loading reduced per year were based on modeling results, to estimate cost-effectiveness (price/lb. phosphorus).

- Applicants were notified when their bid application was received within 7 days of receipt.
- Bids were ranked in order of cost-effectiveness.
- Participants were notified by phone 2 weeks following the application period close date, and within 2 weeks after the application period close date by mail and email regarding the status of their application.
- Notice of Award and Agreement were mailed and emailed to participants with winning bids within 2 weeks after the application period close date.
- Participants had 2 weeks to accept the award and execute the Agreement following notification of award.
- If participant submitted and was awarded multiple bids, they were included in one Agreement.

Program administrators reserved the right to accept bid modifications including but not limited to field boundaries or conservation practices.

Application Periods

Application periods occurred twice each year during the program period. The winter application period opened December 1st, 2020, and closed February 28th, 2021. The summer application period opened June 1st, 2021, and closed August 31st, 2021. The final application period opened December 1st, 2021, and closed February 28th, 2022. Participants were permitted to submit a sealed bid any time during the application period of each auction.

Agreements

Agreements were executed within two weeks of receiving a Notice of Award letter to accept the

award. The agreement was between the eligible participant and Delta Institute. Delta Institute was the recipient of the grant, provided by the United States Environmental Protection Agency, under assistance agreement GL00E02796 (See, Funding Background for more information). Winners were required to submit a completed W9 form and documentation of land ownership/lease together with an agreement to receive payment.

Payments

Phased payments were made upon agreement execution and verification of implementation, based upon agreement duration. For two-year agreements, payments were split into three parts, with 35 percent upon agreement execution, 35 percent at the conclusion of year one verification, and 30 percent at the conclusion of year two verification.

The initial payments were processed within 30 days and mailed within 60 days of agreement execution. There were two payment windows in addition to the agreement execution payment:

- September 1st – 30th, for tillage practices, verification documentation submitted by August 1st.
- January 1st – 31st for cover crops, verification documentation submitted by December 1st.

All verification documentation was submitted to Delta Institute in order to receive payment (outlined below in the Verification section). If implementation and/or verification was delayed due to adverse weather conditions or other extraneous circumstances, verification and payments were made during the following payment period.

Verification

Program staff arranged appointments in advance and conducted field visits to verify practice implementation after planting for tillage practices, and after harvest for cover crops. Participants consented to program staff site visits.

The following guidelines were used to certify the agreement practice and explain what is needed in order to successfully complete installing the chosen practices. USDA-NRCS practice standards and job sheets were provided for each practice the participant chose. For all practices, the report from GLWMS outlining expected modeling reductions was generated by Program staff to supplement the Bid Application Form (Appendix 1).

The following practices were all eligible to be installed under the guidelines of this project:

- No Till (329) – 1-year practice lifespan
- Strip Till (329) – 1-year practice lifespan
- Cover Crops (340) – 1-year practice lifespan

Each practice had specific requirements to be met to be certified:

No Till/Strip Till - Fields were inspected for residue cover after planting with a goal of 80 percent soil coverage (may differ based on cropping history). This practice was clearly defined in the practice standard and the job sheet (attached to the agreement). To meet the no till or strip till practice requirements, all field equipment to be used was recorded on the job sheet and photo documentation was obtained by Program staff after implementation.

Cover Crops - Job sheet was thoroughly discussed with Program staff to help determine appropriate cover crop species, variety, and planting dates (utilizing resources such as: [Midwest Cover Crop Council](#) or NRCS). Planting dates may have been adjusted according to weather conditions. [MSU Enviro Weather](#) was able to determine if a larger planting window would be feasible. Photo documentation was obtained by Program staff. If Program staff were not able to get pictures, a date stamped picture from the producer was accepted. Participants were required to provide Program staff with seeding rates and cover crop species information.

Agreement Implementation and Modification

Practices were to remain as planned, designed, and implemented as indicated in the agreement between the participant and Delta Institute. It was understood that the participant may terminate the cover crop to plant a commodity crop for that growing year. The cover crop may not be the participant’s commodity crop (e.g. winter wheat that will be harvested for commodity purposes the following spring/summer). Once the commodity crop was harvested, it is understood that the participant will follow with a cover crop, meeting USDA-NRCS standards and specifications.

It was understood that practices were to be implemented as indicated in the job sheet. Agreement modifications were to be addressed according to the following steps:

- If the area where a planned practice has less than a 25 percent change in implementation, the participant must provide a verbal notification to Program staff stating why there was a change in implementation.
- If the area where a planned practice has greater than a 25 percent change in implementation, the participant must provide written documentation to Program staff to request agreement modification and appropriate rationale for the change in implementation. The payment will be adjusted accordingly to reflect expected phosphorus reduction. The price per pound of phosphorus will remain unchanged. The Program administrator reserves the right to accept or deny the change requested.
- If any change in implementation is requested and accepted by the Program administrator, Program staff will work with the participant to see if implementation can be applied on any other eligible land that the participant owns, leases or otherwise has the right to farm in order to maintain the agreement phosphorus reductions.
- If for any reason written documentation was not provided, and implementation did not meet the signed agreement, the Program administrator reserves the right to require the participant to return all funds paid to the participant through this agreement.

MAJOR WORKFLOWS

The Project Team was comprised of Delta Institute (“Delta”), Allegan County Conservation District (ACCD) and Michigan Farm Bureau (MFB). The major workflows of this project were:

Project Period	Activities
3/1/2020 - 9/30/2020	<ol style="list-style-type: none"> 1. Developed the quality assurance project plan (QAPP) and submitted it to EPA for approval. 2. Developed program administration structure.

	<ol style="list-style-type: none"> 3. Determined parameters for the reverse auction including eligible land and practices, auction timelines, verification and bid award processes, and payment schedules. 4. Conducted simulations of BMPs to estimate phosphorus reductions and identify high priority areas. 5. Drafted outreach plan that included the list of materials to develop, events/webinars/activities to share info about auction, partners to help distribute auction outreach materials.
10/1/2020 - 3/31/2021	<ol style="list-style-type: none"> 1. Drafted supporting documentation needed to implement the auction including program factsheet, auction rules and instruction for participating, application form, agreement templates, and implementation tracker. 2. Hosted two webinars to provide an overview of the program and answer questions. 3. Launched and hosted first auction.
4/1/21 - 9/30/21	<ol style="list-style-type: none"> 6. Executed the agreements for bids submitted during the winter auction and made payments. 7. Verified on-farm BMPs implementations. 8. Payments issued to farmers. 9. Launched and hosted the summer auction.
10/1/21 - 3/31/22	<ol style="list-style-type: none"> 10. Evaluated the outcomes from Winter 2021 and Summer 2021 auctions, and launched and hosted the Winter 2022 auction. 11. Requested and was awarded a no-cost one-year extension from EPA, to allow an additional auction in Winter 2022. 12. Conducted multi-level outreach efforts over four months to enroll more participants. 13. Verified on-farm BMPs implementations. 14. Payments issued to farmers.
4/1/22 - 9/30/22	<ol style="list-style-type: none"> 15. "Conservation Partner" signs created and installed. 16. Verified on-farm BMPs implementations. 17. Payments issued to farmers. 18. Performed environmental benefit calculations. 19. Collected feedback from partners/farmers.
10/1/22 - 3/31/23	<ol style="list-style-type: none"> 20. Verified on-farm BMPs implementations. 21. Payments issued to farmers. 22. Performed environmental benefit calculations. 23. Collected feedback from partners/farmers.
4/1/23 - 09/30/23	<ol style="list-style-type: none"> 24. Verified on-farm BMPs implementations. 25. Payments issued to farmers. 26. Performed environmental benefit calculations. 27. Collected feedback from partners/farmers.

Delta Institute

Timeline: March 1, 2020 – February 28, 2024

Goal 1: Project Administration

Goal 1 Activities:

- Review and Approve Quality Assurance Project Plan (QAPP).
 - Authored by Allegan Conservation District for Delta Institute.
- Manage the Reverse Auction, including:
 - Reverse auction rules and legal requirements.
 - A FAQ for participants.
 - A payment plan and schedule.
 - An accounting system to track activity.
 - Forms required to complete a transaction.
 - Reporting to the Program Administrator on results and challenges.
 - Educational materials for farmers.
- Provide grant reporting.
- Organize regular partner check-in calls.

Goal 2: Project Implementation and Outreach

Goal 2 Activities:

- Develop outreach plan and produce outreach materials.
- Support outreach plan implementation, team creation of needed materials (e.g. workshop agendas/materials, factsheets/guidance documents, press releases).
- Host/coordinate meetings, workshops.
- Reverse auctions to enroll farmers in the program (3 auctions total).

Goal 2 Deliverables:

- An outreach plan to educate and enroll farmers in the program via reverse auction and associated outreach materials.
- Quarterly documentation of activities (e.g. auction materials, workshop agendas/attendance numbers, model outputs/maps for estimation, and verification of reductions, etc.) conducted to achieve enrollment.
- Verification - including documentation templates and processes.

Allegan Conservation District (ACCD)

Timeline: August 1, 2020 – January 31, 2024.

Goal 1: Project Administration

Goal 1 Activities:

- Develop the Quality Assurance Project Plan (QAPP):
 - Project description, methods, and objectives.
 - Modeling procedures (STEPL and GLWMS).
 - Assessment of data quality.
 - Verification procedures.
- Assist with Reverse Auction set up:
 - Review of program and educational materials.
 - Distribution of educational materials to producers.
- Prioritize and quantify phosphorus reductions.
- Participate in check-in project calls at the request of Delta Institute and provide reporting, including:
 - Monthly project implementation updates
 - Feedback on project administration and documentation
- Monitor and verify conservation practice implementation.
- Document program enrollment and reductions, including:
 - Paperwork required to complete a transaction.
 - Quarterly reporting to Delta Institute on results and challenges.
- Participate in regular check in project calls.
- Provide in-kind match contributions as well as documentation thereof from ACCD partners supporting outreach activities.

Goal 1 Deliverables:

- Create QAPP for Delta Institute submission to EPA.
- Maps/spreadsheets documenting prioritization.
- Quarterly documentation of match activities and contributions.

Goal 2: Project Implementation and Outreach

Goal 2 Activities

- Review outreach plan and outreach materials.
- Implement outreach plan, team create needed materials (e.g. workshop agendas/materials, factsheets/guidance documents, press releases).
- Host/coordinate meetings, workshops.
- Assist participants to ensure correct and timely completion of job sheets, bid application, agreements, and other program documents.

- Conduct field and site visits to verify practices are properly installed and any issues are documented.
- Reverse auctions to enroll farmers in the program (3 auctions total).

Goal 2 Deliverables:

- An outreach plan to educate and enroll farmers in the program via reverse auction and associated outreach materials.
- Monthly documentation of activities (e.g. auction materials, workshop agendas/attendance numbers, model outputs/maps for estimation, and verification of reductions, etc.) conducted to achieve enrollment.
- Verification - including documentation templates and processes.

The Michigan Farm Bureau (MFB)

Timeline: July 2020 – March 2022.

Goal 1: Project Implementation and Outreach

Goal 1 Activities:

- Implement portions of the outreach plan pertaining to communication via print newsletters and online communication platforms.
- Advise outreach plan development.
- Participate in regular check in project calls.

Goal 1 Deliverables:

- Quarterly documentation of match activities and contributions

PROJECT GEOGRAPHY

The Kalamazoo River flows west approximately 175 miles (281 km) from Hillsdale County, MI into Lake Michigan near Saugatuck, MI. The river's watershed drains over 2,000 square miles (3218 km²) of southwest Michigan (Figure 1). The Kalamazoo River was identified an Area of Concern by the US EPA under the 1987 Great Lakes Water Quality Agreement and designated a Superfund site under the Michigan Natural Resources and Environmental Protection Act 451 due, in part, to sediment contamination from polychlorinated biphenyl (PCBs) waste generated by paper mills. Beyond contaminated sediment removal, the US EPA also supports dam removal and habitat restoration as remedies to this Area of Concern.¹¹

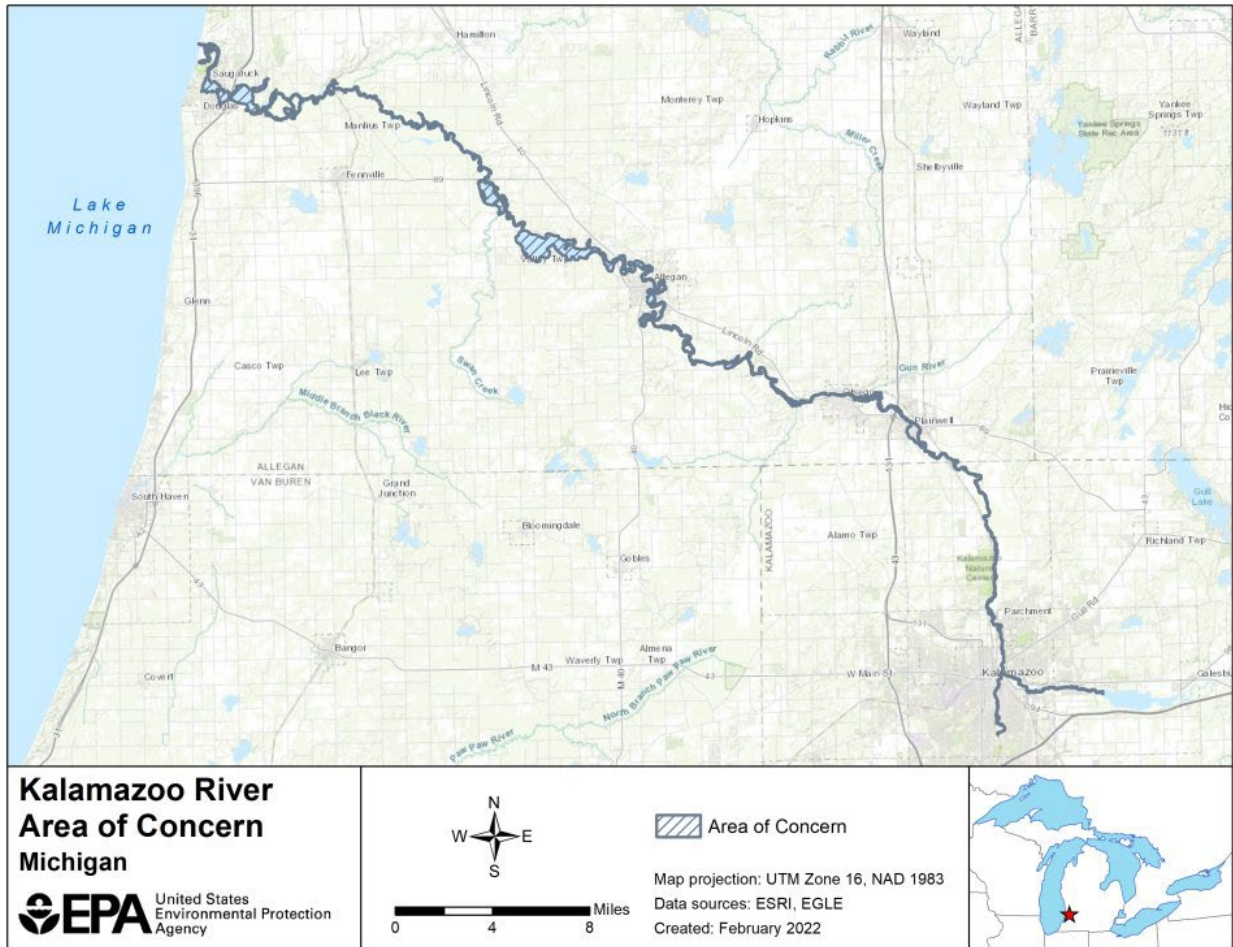


Figure 1: Boundary Map of Kalamazoo River. Source: US Environmental Protection Agency.

The project occurred within seven subwatersheds of the Kalamazoo River (HUC 04050003) located in west central Michigan (Figure 2). The subwatersheds that made up the project area were:

- Woodside Cemetery (HUC 040500030703),
- Trowbridge Dam (HUC 040500030905),
- Schnable Brook (HUC 040500030904),
- Tannery Creek (HUC 040500030906),
- Baseline Creek (40500030902),
- Lake Allegan-Kalamazoo River (HUC 40500030907), and
- Pine Creek (40500030903).

Initial subwatersheds include Tannery Creek (040500030906); Trowbridge Dam (040500030905); Woodside Creek (040500030703); and Schnable Brook (040500030904). Baseline Creek (04050030902), Pine Creek (04050030903), and Lake Allegan (040500030907) were added in 2021. All project locations are within the state of Michigan, and include the following counties: Allegan County, Barry County, Kalamazoo County, and Van Buren County. This includes congressional districts MI-6 and MI-3.

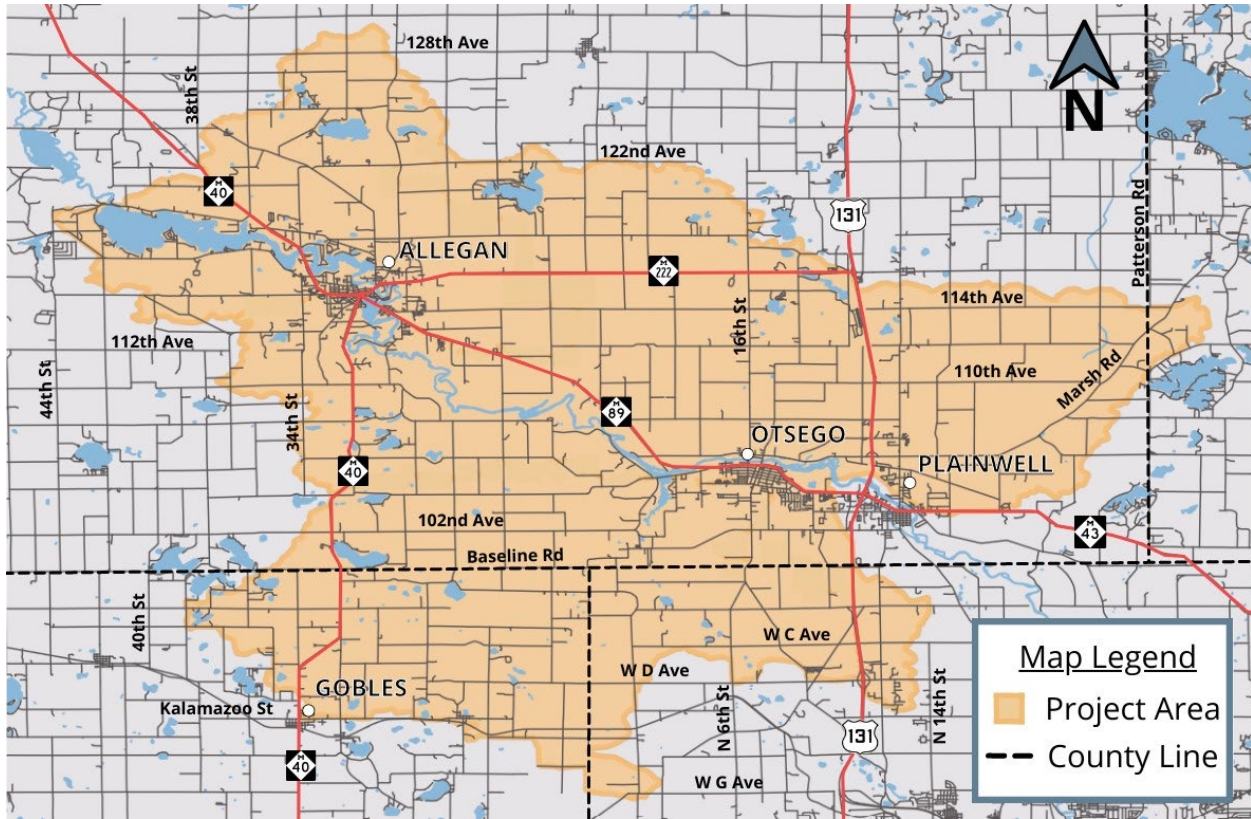


Figure 2: Project geography - four subwatersheds of the Kalamazoo River (HUC 04050003). Source: Delta Institute, Allegan Conservation District.

Watershed Prioritization

Lake Allegan has a listed impairment to the other indigenous aquatic life and wildlife designated use caused by excess phosphorus and the corresponding total maximum daily load (TMDL) goals have not been met since its establishment in 2000. The four subwatersheds initially selected for this project (040500030904, -0905, -0906, and 0703) were those upstream of Lake Allegan with the highest potential for phosphorus contribution according to the Kalamazoo River Watershed Management Plan.

Three additional subwatersheds (040500030902, -0903, and 0907) were added to the project scope in a 2021 modification. The addition of these subwatersheds improved the geographic continuity of the project area while contributing to the goal of reducing nonpoint source phosphorus contributions to Lake Allegan.

During the development of the outreach plan, a more refined prioritization method was implemented. Using existing GIS data and analysis tools, the project team created a shapefile

containing randomized one-acre plots on agricultural land use areas. These plots were then analyzed in GLWMS for phosphorus loading reductions assuming a transition from conventional farming to no till with cover crops. An interpolation analysis from the resulting shapefile was used to create the heat map in Figure 3. This map was then used as an outreach tool for the project team to prioritize cold calling, and to show potential participants which of their fields would be most likely to have a successful bid at a favorable price.

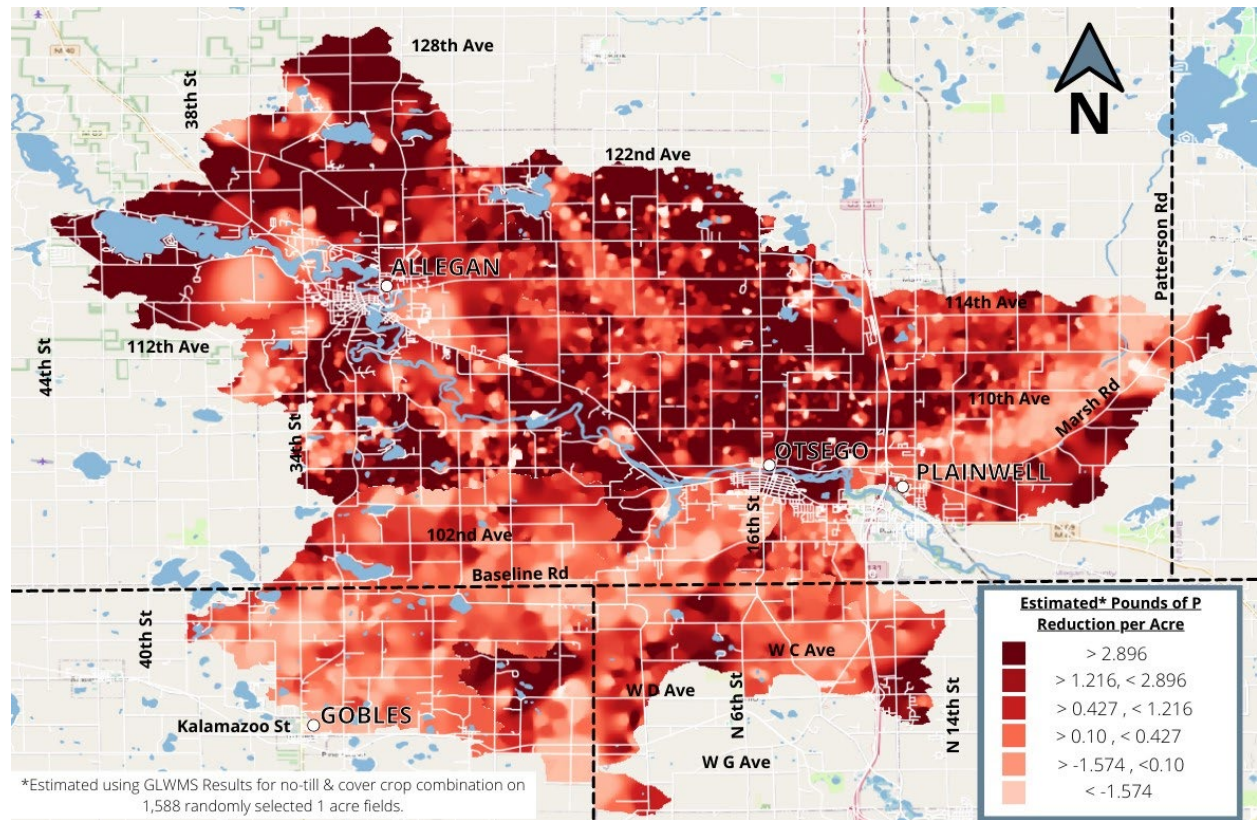


Figure 3: Prioritized Watershed Map. Source: Delta Institute and Allegan Conservation District.

QUANTIFICATION METHODOLOGY

The Great Lakes Watershed Management System ([GLWMS](#)) is a tool developed by the Michigan State University Institute for Water Research and combines a number of existing data sets and models including the Spreadsheet Tool for Estimating Pollutant Loads (STEPL) to give estimated nutrient reductions from implementation of soil conservation BMPs. Field acreage was reported based on GIS shapefile data uploaded to GLWMS. All nutrient estimates were reported in pounds per year. Nitrogen is an additional nutrient included in the STEPL simulation. Although this data was included in the report, it was not used for the purposes of the Phosphorus Reduction Auction.

OUTREACH AND ENGAGEMENT STRATEGIES

This type of program is a fairly new concept to agricultural producers and education around the

perceived barriers was key for success. Farmer engagement involved developing an outreach plan, creating supporting materials, and conducting outreach events. Events included hosting education/promotional events and advertising the program through various media. Promotional materials included mailers, flyers, FAQs, advertisements, PowerPoint slide decks, a Facebook page, and social media post templates.

To promote the Winter 2021 Auction, the Project Team hosted two webinars to provide an overview of the program and answer questions. This included producing a video outlining the program's rules, which was available to farmers as an additional online resource. The Project Team also enlisted the support of the Michigan Agriculture Environmental Assurance Program (MAEAP) Technician for Allegan County, who conducted in-person outreach by recommending the program to farmers in the project area. Producers learned about Best Management Practices (BMPs) that reduce phosphorus loading, decision support tools to quantify environmental outcomes and price discovery.

To help farmers submit bids, the Project Team conducted simulations of BMPs to estimate likely reduction rates and identify high priority areas. The analysis was conducted using the Great Lakes Watershed Management System (GLWMS) model and was used to further target outreach and be included as a lookup table in the auction materials to inform bid amounts. Producers were able to make informed decisions when submitting bids through this innovative market-based approach.

The Michigan Farm Bureau supported outreach by sending out mailers about the program to 560 addresses within the eligible program area. Program flyers were also made available in printed form at the Allegan Conservation District office as well as at participating partners; program materials were also available on both the District's and Delta Institute's websites. The program was promoted in an advertisement in the local newspaper, *Allegan County News*, and through their social media accounts. The program was further promoted through paid Facebook posts from the District's page. The Project Team also included information about the program in the Michigan Agri-Business Association electronic newsletter and distributed program fliers at the local farmers market. Allegan Conservation District hosted a field day that was attended by 100 participants.

To encourage more participation in the Winter 2022 Auction, which opened December 1, 2021, and closed February 28, 2022, Delta Institute, Allegan Conservation District (ACCD), the Michigan Agriculture Environmental Assurance Program (MAEAP) Technician for Allegan County, and Michigan Farm Bureau (MFB), conducted a multi-level outreach effort over four months to enroll more participants. Some of these outreach and promotion activities included a live radio interview promoting the project and "office hours" at local public places to encourage one-on-one conversations with program staff. Additionally, MFB supported outreach by sending two mailers describing key information about the program to 560 individual addresses within the program area again in February 2022.

Both ACCD and MFB also engaged attendees and provided printed program fliers at multiple conferences and convenings to promote the program. These events include the Cultivating Resilience Farm Field Day, Manure Management Meeting, and the Growing Together Conference; it is estimated that a total of 480 attendees were engaged between these three events. Additionally, ACCD and MFB staff promoted the program at the Michigan Horticulture, though an attendee estimate is not available. The social media promotion involved paid and

unpaid Facebook posts from the District's page and an individual page created specifically for the project. Paid posts resulted in 52,262 impressions among Facebook users. Impressions are defined as the amount of times content from our page or about our page enters a user's screen. These paid posts also resulted in 271 direct link clicks. As part of a final push to increase participation, we also promoted the auction through radio spots. We had 149 advertisement spots featured on WKZO (590 AM · 106.9 FM), a Kalamazoo-based radio station. ACCD's executive director also participated in an interview with WKZO that highlighted the program.



Figure 4: Project Sign at Participating Farm. Source: Allegan Conservation District.

Project signs were created by Delta and Allegan Conservation District and were approved for production by US EPA (Figure 4). All project signage complied with US EPA guidance and photo verification was documented for the signs that were placed by Allegan Conservation District at all participating farms.

SUMMARY OF RESULTS

The first auction opened December 1st, 2020, and closed February 28th, 2021. Seven farmers submitted 29 bid applications. The Project Team established a bid price below the cap (\$26.44/lbs. of phosphorus) to determine winning bids. In total, three farmers were awarded 14 bids resulting in 503.4 acres being enrolled and 2,509.6 lbs. of phosphorus to be reduced over the course of the agreement term. The three farmers received a total of \$66,352.76. Agreements were executed with the farmers and payments were made for practice implementation.

The team then hosted a summer auction, which opened June 1st, 2021, and closed August 31st, 2021. Despite extensive outreach and expressed interest in the program from area farmers, no new bids were submitted. Please see the "Lessons Learned" section below for more information.

The final auction opened December 1st, 2021, and closed February 28th, 2022. In total, three farmers were awarded 18 bids resulting in 478.04 acres being enrolled and 3,036.98 lbs. of phosphorus to be reduced over the course of the agreement term. The three farmers received a total of \$86,599.95. Agreements were executed with the farmers and payments were made for practice implementation.

In total, a cumulative sum of \$152,952.71 was paid to five farmers for 22 bids, resulting in 981.5 acres being enrolled in soil conservation BMPs across 2,070.40 acres resulting in a reduction of 5,546.58 lbs. of phosphorus runoff over the course of the program.

	Number of Participating Producers	Acres of BMPs Enrolled	Total Acres (including uplands)	Estimated Phosphorus Reduction (lbs. per year)	Final Auction price per lbs. phosphorus	Payments
Auction 1	3	503.46	1,137.60	2,513.60	\$26.44/lb.	\$66,352.76
Auction 2	0	0	0	0	0	0
Auction 3	3	478.04	932.80	3,036.98	\$30/lb.	\$86,599.95
Total	5	981.50	2,070.40	5,452.74	n/a	\$152,952.71

LESSONS LEARNED

COVID-19 Pandemic

The project schedule was delayed due to the COVID-19 pandemic. The project officially began in March 2020, at the time when quarantine began, and staff and partners had to adjust to working remotely/virtually. This resulted in an approximately four-month delay that prevented the team from being able to conduct the first auction in Summer 2020. In order to have a successful auction, which hinges on high participation rates, outreach and farmer engagement that was initially planned for the Spring and early Summer 2020 had to be postponed to Spring 2021. The team adjusted the number of auctions held during the project period to accommodate the conditions associated with the pandemic while still seeking to meet the enrollment and reduction targets for the project.

Conducting outreach during the pandemic presented challenges of limited person-to-person interactions and engagement. Informational meetings had to be conducted virtually and had low participation. To address this, the team used existing networks to promote the program, such as the Michigan Agri-Business Association. The Michigan Farm Bureau sent additional mailers beyond our initial outreach planning to farmers in the eligible project area, while Allegan County Farm Bureau shared information about the program via their social media channels. The Project Team amplified program promotion through ads in the local newspaper, *Allegan County News* (both print and online). Furthermore, the Project Team worked with local cover seed suppliers to distribute program fliers in instances where clients visited in person.

Barriers to Participation

Limited Engagement

No new bids were submitted during the Summer 2021 auction due to limited engagement on the part of farmers. The Project Team expected a low participation rate due to timing of the auction as well as other competitive cost-share payments for cover crops offered through several Farm Bill conservation programs. Though familiarity with this program was growing among potential participants within the program area, conducting effective outreach was challenging due to COVID-19-related restrictions and making meaningful contact with eligible farmers. During this time, Michigan Farm Bureau noted a decrease in engagement from producers across all their programs due to a general dissatisfaction with virtual interactions and the increased logistical burden associated with fewer in-person activities.

The vast majority of outreach occurred via digital or print media rather than in-person activities (one field day was hosted by the Allegan Conservation District, and other in-person engagements occurred opportunistically and on an individual basis). The team adapted its outreach approach based on changing restrictions and analysis of engagement trends with farmers. As previously mentioned, the Project Team utilized existing networks to promote the program via partnership with the Michigan Farm Bureau, who sent two mailers to farmers in the eligible project area, while Allegan County Farm Bureau shared information about the program via their social media channels. We amplified program promotion through ads in the local newspaper (both print and online) and on Facebook. Furthermore, we worked with local cover crop seed suppliers to distribute program fliers in instances where clients visited in person and disseminated information about the program through Michigan Agri-Business Association newsletter. We learned that paid Facebook posts tend to reach the biggest audience while being most cost-effective. For example, two paid posts reached an estimated 6,250 people and gained 153 engagements over a period of 21 days. Future projects will utilize and refine social media promotion as well as additional in-person events, preferably with participation from current participants.

Competition with Cost-Share Programs

Competition with other conservation programs may have been one factor preventing enrollment in this program. The average payments generated by cover crop adoption alone for this program were approximately \$15/acre on a maximum two-year agreement, compared to \$52.17/acre on at least a three-year agreement through USDA's Environmental Quality Incentives Program (EQIP). Even though EQIP applications for only cover crops are unlikely to be funded, this disparity may be a significant factor which discouraged participation. Additionally, news of upcoming federal carbon sequestration programs caused some applicants to retract their bids in the hopes that they may receive a better payment or a longer agreement term through future programs.

Project Geography

During the project's first year, we encountered several farmers interested in participating but whose fields lie within watersheds outside the eligible project area, which restricted their

participation in the Summer 2021 auction. To overcome the project’s participation and outreach challenges and achieve project goals, we proposed adding three additional HUC12 subwatersheds to the eligible project area: Baseline Creek, Pine Creek, and Lake Allegan (Figure 5). The US EPA approved this geography expansion. Adding these three subwatersheds to the project’s geography widened the overall participant candidate pool and in turn increased overall participation rates.

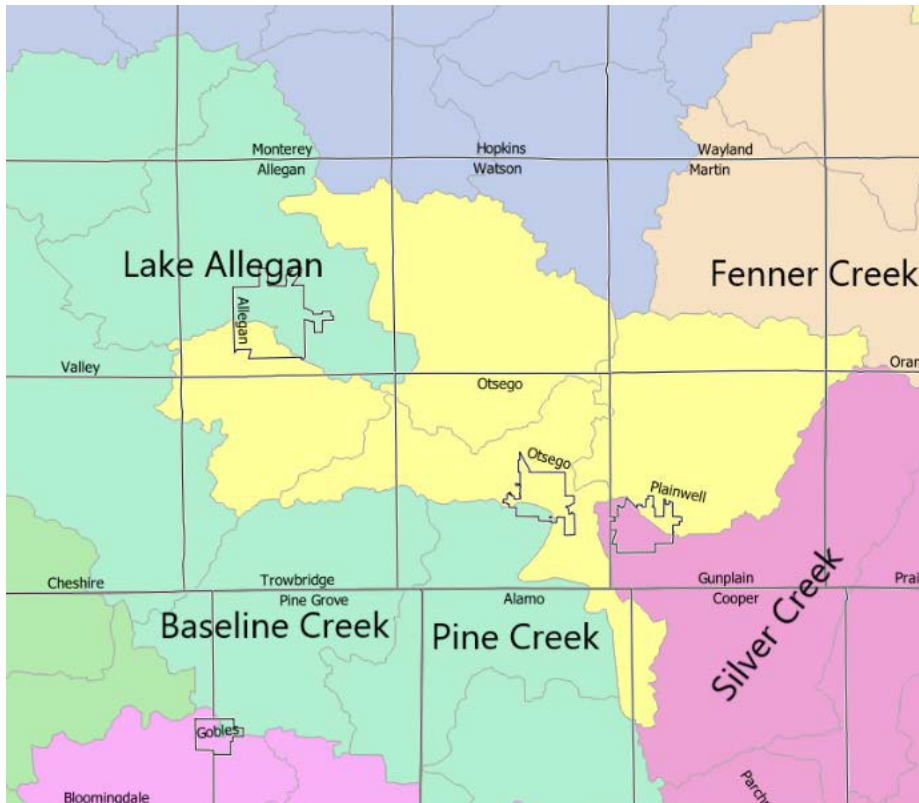


Figure 5: Map showing the addition of three additional HUC12 subwatersheds to the eligible project area: Baseline Creek, Pine Creek, and Lake Allegan.

Watersheds in yellow were in the early project geography. The proposed three additional watersheds, shown in blue/green, are within the main stem of the Kalamazoo River. These watersheds were selected based on their ability to reduce nonpoint source phosphorus loads that are critical to meeting the Lake Allegan Total Maximum Daily Load (TMDL) (addressing impairments for indigenous aquatic life and wildlife due to phosphorus and algae). These three watersheds are among the top 10 of 78 contributors of phosphorus to Lake Allegan. Of the watersheds hydrologically connected to the current project area, they are second only to the Fenner Creek watershed in phosphorus contributions to Lake Allegan, based on calculations from the TMDL (Table 1). We chose not to include the Fenner Creek watershed in the project area because a separate grant project was funding implementation of the same BMPs, which would hamper efforts in this project to fund new implementation efforts.

Table 1: Project watershed (current and proposed) characteristics: cropland, estimated number of farms,

and estimated phosphorus load. Data: Allegan Conservation District

HUC12	Name	Acres Cropland	% Cropland	Estimated number of farms **	Estimated P load (lb./yr.)^
4050003 0905	Trowbridge Dam-Kalamazoo River	5,836.53	36.40	30	15,037.8
4050003 0703	Woodside Cemetery-Gun River	11,082.59	50.89	57	23,304.1
4050003 0904	Schnabel Brook	11,411.96	49.19	58	27,569.2
4050003 0906	Tannery Creek-Kalamazoo River	3,728.22	29.92	19	11,422.5
4050003 0902	Baseline Creek*	11,218.70	47.88	57	17,110.1
4050003 0903	Pine Creek*	9,575.65	44.97	49	12,302.1
4050003 0907	Lake Allegan-Kalamazoo River*	9,007.43	31.28	46	26,702.5
* Expanded watersheds ** Farm number estimated by dividing cropland acres by Allegan County's average size of farm (196 ac) ^ STEPL estimated P load (lb./year)					

Agreement Length

Short-term agreements were identified as one of several barriers to participation. Participants who enrolled in the first auction round in February 2021 were able to sign up for a two-year agreements, which was the longest term available to remain within the project time. Any participants in subsequent auctions would have agreement terms shorter than two years. As we conducted program outreach, we learned that those who declined to participate indicated that, in addition to short agreements, the effort needed to apply and learn about how a new program operates was perceived to outweigh the benefits. This resulted in no participants engaged in our second round of auctions.

Therefore, to reach the project goals, Delta requested a one-year extension to the project timeline in order to offer 2-year agreements to producers who enrolled in the 2022 auctions, overcoming the initial barrier to participation and encouraging long-term implementation of practices and allowing current participants an opportunity for a one-year renewal, supporting longer term adoption of conservation practices.

The Project Team believed that being able to offer longer agreement terms to early participants

and ensuring new participants could enter into a two-year agreement would reduce barriers to entry and lead to higher participation rates.

RECOMMENDATIONS

The success of this market and performance-based agricultural incentive program suggests that direct payments to farmers are an effective mechanism to promote the adoption of soil conservation BMPs and reduce phosphorus pollution in the Great Lakes. Therefore, to engage more producers in future programs like this, the Project Team recommends utilizing digital outreach on social media platforms in conjunction with traditional advertising, increasing payments for farmers to compete with programs like EQIP or carbon credit markets, expanding the geographic scope to allow more participation from interested farmers, and to offer longer agreement lengths. The need for program participation (e.g., agreement signing, verification, payments) needs to be as simplified and streamlined as possible for participants.

To drive efficiency and optimize cost effectiveness, the performance payment for pollution reduction can be further tied to a market-based credit trading program where transactions can be structured as bilateral trades, sole-source offsets, an auction, or an exchange market. While a pollution credit trading program requires a regulatory framework, it is also feasible to apply the market-based transactions outside a credit trading program to conservation programs at a localized scale to improve cost effectiveness of conservation investments where traditional conservation program models fall short.

It remains to be seen as to whether incentive frameworks like “reverse auctions” will attract producers outside of this pilot program at scale. However, it stands to reason that producers who are interested in adopting soil conservation BMPs but hesitate due to the up-front costs of implementation or concerns of short-term yield losses, may opt to engage in programs that allow them to control their acreage enrollment and practice. Additionally, due to the pay-for-performance framework of this program, farm fields that could provide the greatest estimated environmental outcomes from soil conservation BMP implementation were prioritized. These fields were largely steeply sloped and prone to erosion. Therefore, producers may also opt to enroll these less farmable, marginal acres into this type of program to protect their soil and earn extra income.

NEXT STEPS

The Project Team will present the Program Structure, Results, Lessons Learned and Recommendations to policy makers, researchers and producers at upcoming meetings and conferences. In doing so, Delta Institute seeks to raise awareness of such incentive programs and pursue opportunities to utilize existing conservation cost-share program infrastructure, like the Michigan Agriculture Environmental Assurance Program, to expand this program into other crucial watersheds. Practices beyond cover crops and no-till may also be incorporated as eligible soil conservation BMPs, such as regenerative grazing or agroforestry, to assist more producers to protect water quality and prevent soil degradation.

REFERENCES

1. Liebman, M. Z., & Schulte, L. A. (2015). *Enhancing agroecosystem performance and resilience through increased diversification of landscapes and cropping systems*. *Elementa* 3, 41. <https://doi.org/10.12952/journal.elementa.000041>
2. NOAA. (October 5, 2017). *What is eutrophication?* <https://oceanservice.noaa.gov/facts/eutrophication.html>
3. S.J. Hwang. (2020). *Eutrophication and the Ecological Health Risk*. *Int. J. Environ. Res. Public Health*. 17(17): 6332. [doi:10.3390/ijerph17176332](https://doi.org/10.3390/ijerph17176332)
4. J. Lory. (2018). *Agricultural Phosphorus and Water Quality*. Soil and Fertilizer Management, MU Extension, University of Missouri-Columbia.
5. Carver, S., N.O. Nelson, K.L. Roozeboom, G.J. Kluitenberg, P.J. Tomlinson, Q. Kang & D.S. Abel. (2022). *Cover crop and phosphorus fertilizer management impacts on surface water quality from a no-till corn-soybean rotation*. *J. Environ. Manage.* 301: 113818. <https://doi.org/10.1016/j.jenvman.2021.113818>
6. Verbree, D.A., S.W. Duiker, P.J.A. Kleinman. (2010). *Runoff Losses of Sediment and Phosphorus from No-Till and Cultivated Soils Receiving Dairy Manure*. *J. Environ. Qual.* 39: 1762–1770. [doi:10.2134/jeq2010.0032](https://doi.org/10.2134/jeq2010.0032)
7. E. Audia, L.A. Schulte and J. Tyndall. (2022). *Measuring changes in financial and ecosystems service outcomes with simulated grassland restoration in a Corn Belt watershed*. *Front. Sustain. Food Syst.* 6:959617. <https://doi.org/10.3389/fsufs.2022.959617>
8. US EPA. (October 5, 2023). *Great Lakes Funding Authority*. <https://www.epa.gov/great-lakes-funding/great-lakes-funding-authority>
9. US EPA. (October 11, 2023). *Great Lakes Restoration Initiative (GLRI)*. <https://www.epa.gov/great-lakes-funding/great-lakes-restoration-initiative-glri>
10. US EPA. (2010). *GLRI Action Plans (2010 – 2024)*. <https://www.glri.us/documents#actionplan>
11. US EPA. (October 6, 2023). *Kalamazoo River Area of Concern*. <https://www.epa.gov/great-lakes-aocs/kalamazoo-river-aoc>

APPENDIX 1: BID APPLICATION FORM

Contact Information

Name: _____ Date: _____

Phone: _____ Email: _____

Mailing Address: _____

City/Town: _____ Zip: _____

Preferred method of communication: Email Mail

Is the applicant a Certified Disadvantaged Business Enterprise: Yes No

I hereby certify that the above information is true and correct to the best of my knowledge. I understand that false information may disqualify me from the program.

Signature _____ Date: _____

Submit the completed Application Form to the Allegan Conservation District at 1668 Lincoln Rd. Allegan, MI 49010 or bonne.matheson@macd.org. **Bid applications must be received by the Allegan Conservation District by application period close (February 28th for winter applications, August 31st for summer applications).**

Program participants are required to submit a completed W9 form and documentation of land ownership/lease and contract to receive payment.

Field Information

Please attach maps of field(s) and GLWMS model output (provided by Program staff) to this form. Form can be duplicated and reused to accommodate additional fields. Clearly label all fields. Program staff can produce a map if none are available. Applicants can bid the same price for all fields to simplify the application process. Field tract numbers may be included with field labels if available.

To be completed by Program staff						
Field label	Practices	Bid Price (\$/acre)	Acres	Estimated Reduction	Price per Pound	Bid ID
	<input type="checkbox"/> No till <input type="checkbox"/> Strip till <input type="checkbox"/> Cover crops					
	<input type="checkbox"/> No till <input type="checkbox"/> Strip till <input type="checkbox"/> Cover crops					
	<input type="checkbox"/> No till <input type="checkbox"/> Strip till <input type="checkbox"/> Cover crops					
	<input type="checkbox"/> No till <input type="checkbox"/> Strip till <input type="checkbox"/> Cover crops					
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