FINAL REPORT of the FOURTEEN MILE CREEK/GOOSE CREEK-OH RIVER WATERSHEDS IMPROVEMENT PROJECT

IMPLEMENTATION PHASE

EPA Clean Water Act Section 319 Grant

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Sponsored by: Clark County Soil and Water Conservation District

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Final Report of the Fourteen Mile Creek/Goose Creek-OH River Watershed Improvement Project

Implementation Phase

INTRODUCTION, PROJECT GOALS AND OBJECTIVES

About the Watershed

The Fourteen Mile Creek/Goose Creek-OH River Watersheds encompass 108,192 acres. The majority of the area in the watersheds is found in the eastern portion of Clark County however, a small part of the southeastern corner of Scott County and a small area in the southwestern corner of Jefferson County are also included in the watersheds. There are over 265 miles of streams and roughly 1,540 miles of ditches within the watersheds. Additionally, there are 1,738 acres of wetlands in the watersheds.

The land use in the central and northern portions of the combined watersheds is evenly split between agricultural and forestry with a small percentage of urban, wetland and open water. The southern portion of the watersheds have an increasingly large urban area. Also, in the southern portion is the former Indiana Army Ammunition Plant; a six thousand acre tract that is now being managed and developed by the River Ridge Development Authority (RRDA). The RRDA leases, and occasionally sells, tracts for advanced manufacturing, distribution and industrial companies. One of the largest tenants in this area has built a facility that is more than 1 million square feet of roofed structure.

Other than the 6,000 acres under the control of the RRDA, the majority of the land in the watersheds is farmland of average (80 – 100 acres) and small (<25 acres) tracts. Many of these tracts contain livestock on pastures or small lots; there are instances where livestock have direct access to streams. Other concerns observed during a windshield survey conducted prior to developing the watersheds' management plan included: harvested crop land had less than 50% cover crop which could indicate the possibility of erosion concerns and also failed or mismanaged septic systems which do contribute to E.coli found in streams. The Clark County Soil Survey shows that soils in the watersheds have restricted permeability, shallow depth to bedrock and shallow depth to saturated zones; all contributing factors to improper septic system operations.

Further review of the Clark County Soil Survey shows that several soil types in the watersheds have a karst component. Karst is defined as a landscape with topographic depressions such as sinkholes and caves, caused by underground solution of limestone bedrock. This landscape features underground streams and aquifers which supply many wells and springs used for drinking water. The hollow nature of karst terrain results in a very high pollution potential, because streams and surface runoff entering sinkholes or caves bypass natural filtration through the soil profile and provide a direct conduit for contaminants.

In October 2013, the Clark County Soil and Water Conservation District (SWCD) applied for and received a Section 319 grant to produce a watershed management plan (WMP) for these watersheds. Shortly thereafter, a local Steering Committee was formed and began meeting to identify goals and objectives that would address water quality concerns. The Steering Committee, tasked with the development of the WMP, consisted of key stakeholders from a variety of backgrounds including landowners, educators, technical experts and concerned citizens. This group believed that many problems in the watersheds stemmed from the fact that landowners had an insufficient understanding of water quality issues and how their actions could make a difference. Therefore, the initial Steering Committee for the development of the WMP desired to increase the knowledge and understanding of water quality issues held by landowners through education and outreach efforts. The ultimate goal of the project was to develop a comprehensive watershed management plan that documented the current status of water quality within the watershed, outline a vision for its future, and recommend a clear strategy for implementing watershed/water quality improvements.

In March 2018, the watershed management plan for the Fourteen Mile Creek/Goose Creek-OH River Watersheds was approved by IDEM and the U.S. EPA. Later in 2018, the Clark County SWCD was awarded a Section 319 grant for their Fourteen Mile Creek/Goose Creek-OH River Watersheds Improvement Project in order to implement best management practices on the land. This grant was implemented over a 4 year and 3 month period, finishing in March 2023.

Project Goals, Objectives and Achievements

The Fourteen Mile Creek/Goose Creek-OH River Watershed Project had six project goals, created during the development of the WMP, and they are as follows:

Goal 1: Reduce soil erosion and sedimentation so current water quality conditions are protected or improved. Currently, sediment load within the watersheds is 50,635 tons per year. This is 47,405 tons of sediment above the target level.

Objectives to reach the goal: *In 5 years, decrease the sediment load by 20% (10,127 tons/year). *In 10 years, reduce the sediment load an additional 40%. *In 20 years, reduce the sediment load an additional 60%. *Add 100 acres of riparian buffers and filter strips to the watersheds in 20 years.

Results: Utilization of best management practices through the watershed improvement project's cost-share program resulted in a sedimentation reduction of 5,720.8 tons/year (a 20.48% reduction) during the slightly over 4 year program period (Exclusion Fence – 23.3, Alternative Watering Systems – 54, Grassed Waterway – 171.5, Heavy Use Area Protection (HUAP) – 211, Animal Walkway & Trails – 16, Critical Area Planting – 3, Cover Crops – 4,217, and Forage Seeding 1,025). The first objective is over 50% met during the 4-year period of the project. In addition, during the time of the project, a pasture improvement workshop and a demonstration farm visit featuring best management practices were co-sponsored, a workshop

on the benefits of cover crops was planned and conducted, and field days or workshops promoting the benefits of best management practices were promoted.

Evaluation: As this is an on-going goal with objectives listed for the next 16 years, continued efforts to inform and educate landowners regarding the benefits retaining soil structure in place to maintain or improve productivity will be required. Two or three of the best management practices that return the most in terms of reducing sedimentation appear to be establishing and improving forage stands, incorporating cover crops as a "normal" practice, and installing HUAP's especially at livestock facilities.

Goal 2: Increase public awareness on how individual choices and activities impact the watersheds.

Objectives to Reach the Goal: * Create an educational program and materials to deliver to stakeholders regarding the value and importance of working to protect the health of the watersheds. * Increase educational signage at applicable, highly visible, locations in the watersheds within a 10 year period. * Conduct educational workshops and programs to help foster learning, and a passion for protecting the watersheds.

Results: The newsletters, news releases and brochures developed and published during this implementation phase featured insights into the benefits of using best management practices to not only return more profits to an operation but also to enhance the environmental and health benefits of the watersheds (10 newsletters, 14 news releases, 10 brochures). The efforts in the area of septic system operations also provided stakeholders information that stressed the health benefits to individuals and the environment as well as the financial benefits of proper septic system operation and maintenance. A watershed website and Facebook page was also maintained, with regular updates during the four year period of this project. Provided information to high school and middle school science educators about watersheds and nonpoint source pollution. The project coordinator also participated in local wellhead protection group meetings and events.

Evaluation: This is another on-going goal with objectives listed for the next 16 years. With that in mind, future funds and partners should be sought out to follow through with the progress that was made during the past four years.

Goal 3: Reduce E. coli concentrations throughout the watershed to meet water quality standards within the next 20 years.

Objectives to Reach the Goal: * Promote BMP's that control livestock direct access to streams to landowners. * Seek outside sources to fund data collection for progress monitoring of E. coli levels in the watersheds. * Promote proper septic maintenance for landowners in the watersheds by hosting workshops, and distributing educational materials. * See a delisting of stream segments impaired for E. coli from IDEM's 303 (d) list within 20 years.

Results: While the best management practices provide no hard data nor numbers on the load reduction for E. Coli for their installation, we do know that several of the BMP's our project utilized do result in E. coli concentration reductions. Those specific practices and the number or size of those practices are as follows: Exclusion Fencing – 1,875 ft., Alternative Watering Systems – 3, Grassed Waterways – 1, Heavy Use Area Protection (HUAP) – 12 (23,251 sq. ft.), Roof Runoff System – 1, and Animal Trail/Walkway – 1 (11,072 sq. ft.). A workshop was conducted on Property Transfer Inspections for Septic Systems that was well attended and received by realtors; materials were also distributed at this workshop and are provided in another location of this Final Report.

Evaluation: Significant progress was made with regard to making stakeholders aware of the dramatic health risks associated with high E. coli levels in the watersheds' environment. However, this could be a very costly goal to see come to fruition; not just from the testing expense but also if septic repairs need to be made. That isn't saying that efforts to accomplish this goal should not be attempted as it is a very critical component for the health of the watersheds and everyone who lives in the watersheds area. Again, another on-going goal with objectives listed for the next 16 years.

Goal 4: Protect and enhance critical habitat and the unique natural areas of the watersheds as well as threatened, endangered, and rare species.

Objectives to Reach the Goal: * Practices installed to protect or restore critical areas in 10 years. * Habitat improvement and protection measures promoted in the watersheds by the hosting of educational workshops, and distribution of educational materials. * Stakeholders educated on current state endangered, rare, and invasive species in the watersheds.

Results: Materials that were distributed to high school and middle school science teachers as described in Goal 2 above discussed the effects of improper watershed management and the actions/attitudes of individuals can have on aquatic habitat. The newsletters that were produced discussed the importance of improving aquatic habitat in the watersheds. While none of the brochures that were created for the project covered aquatic habitat, one did specifically emphasize the importance of pollinators. On a few occasions the watersheds project did cooperate with the local invasive plant group to educate/inform landowners about invasive plant species and how to remove them.

Evaluation: Another goal with long-term objectives reaching into the next 16 years. Efforts were made to accomplish some aspects of the goal but, most of those efforts were in the area of education and not the installation of practices other than the seeding of a small critical area (0.3 acre) near a stream. However, if we consider a reduction of sedimentation (Goal 1) as efforts to protect and enhance aquatic habitat, then progress and success was achieved. Additional stream monitoring will need to be done to fully determine if the efforts have positively impacted aquatic habitat.

Goal 5: Reduce or eliminate trash and litter currently found in natural areas of the watersheds and change public perception that litter and trash in these areas is acceptable.

Objectives to Reach the Goal: * A decrease in roadside and stream bank litter through cleanups and outreach efforts. * An increase in signage discouraging public littering. * A decrease in the number of trash bags of litter cleaned up annually from the watersheds.

Results: The project assisted with or co-sponsored 3 clean-up events within the watersheds during the 4-year project (the Ohio River Sweep and two Charlestown State Park stream clean-ups). The project also co-sponsored 2 used oil collection events and sent information to residents regarding alternative used oil recycling in a year that a local event wasn't held due to COVID.

Evaluation: Good progress toward accomplishing this goal was made but with trash/litter this is an ongoing effort. Partners will be in constant need to make progress in this effort. Partners we have worked with so for in this effort are: Farm Bureau, Inc., DNR, City of Charlestown. Signs as mentioned in the Objectives would possibly be helpful in areas where heavy debris is found.

Goal 6: Reduce nutrients (nitrogen and phosphorous) in the waters of the watersheds to acceptable or target levels.

Objectives to Reach the Goal: * A 20% decrease (121,611.8 N lbs./yr.; 24,586.2 P lbs./yr.) in the nutrient loads in 5 years. * An additional 30% decrease (145,934.16 N lbs./yr.; 29,503.44 P lbs./yr.) in the nutrient loads in 10 years. * An additional 50% decrease (170,256.52 N lbs./yr.; 34,420.68 P lbs./yr.) in the nutrient loads in 20 years. * Partnerships formed with other agencies and organizations that would result in the reduction of excess nitrogen on agricultural lands.

Results: Reductions in the nutrient load as a result of the BMP's installed during the project resulted in 5,915.8 P lbs./yr. and 11,841.6 N lbs./yr.; quite a difference in the goals for the short-term (1-5 years). Besides the promotion of the Septic Smart Week virtual workshops, we also conducted the live septic inspection workshop which included information on septic system maintenance.

Evaluation: Looking at the effects of BMP's alone, we know that we probably won't achieve to objective levels just using BMP's alone. Looking at where the largest nutrient reductions from BMP's are achieved we find that cover crops and the conversion of crop land to pasture/forage may be the once with the greatest potential for nutrient reductions. Without ongoing monitoring, we can't determine the effectiveness of our educational efforts in terms of the septic system maintenance. It is believed that there are perhaps more failing or failed septic systems and more livestock with direct stream access in the watersheds than our initial windshield survey indicated. Fixing the septic system problem could prove to be very costly.

EVALUATION OF PROJECT OUTCOMES

Project Outcome: Reductions of 7,898.6 tons of sediment, 8,586.2 lbs. of phosphorous, and 16,506.8 lbs. of nitrogen per year. Measures of Success: 600 acres of cover crops, 150 acres of forage/biomass plantings, 15 acres of critical area plantings and 6 acres of grassed waterways installed.

Marginal success – achievement in progress

During the project sediment was reduced by 5,720.8 tons (72.4% of goal of 7,898.6 tons), phosphorous was reduced by 5,915.8 pounds (68.9% of goal of 8,586.2 lbs.) and nitrogen was reduced by 11,841.6 pounds (71.7% of goal of 16,506.8 lbs.) per year. However, the actual acres that the BMP's were applied to show 1,402.1 acres of cover crops (compared to 600 acres in the Measure of Success), 164 acres of forage/biomass plantings (compared to 150 acres in the Measure of Success), but the critical area plantings was only 0.3 acres (14.7 acres below the Measure of Success figure of 15 acres) and the grassed waterways installed was only 1.22 acres (4.78 acres below the Measure of Success figure of 6 acres). Several producers who planted cover crops were first timers who have been reading about crop benefits from cover crop plantings in popular press and took advantage of the cost-share program to try it out on their farms. It is believed that they will continue to use cover crops and that may influence other producers in the future.

Project Outcome: Reduction in E. coli entering streams. Measures of Success: 18,000 sq. ft. of heavy use area protection, 10,560 feet of fencing, and 6 stream crossings.

Marginal success – achievement in progress

During the project 23,251 sq. ft. of Heavy Use Area Protection was installed (5,251 sq. ft. more than the 18,000 sq. ft. in the Measure of Success) but only 7,910 ft. of fence and no stream crossings were installed (2,650 ft. of fence less than the Measure of Success of 10,560 ft.) and 6 less stream crossings. With only the three practices specified, there may have been a greater amount of success had other practices known to contribute to a reduction of E. coli also been considered; i.e. – Alternative Watering Systems (3 installed), Grassed Waterway (1 installed), Roof Runoff System (1 installed), and Animal Trail/Walkway (11,072 sq. ft. installed). Heavy use area protection structures were popular with livestock producers and it is believed that others will want to install these in the future after seeing their benefits to both animals and people after this winter.

Project Outcome: Increase public awareness and provide public education. Measures of Success: # of cost-share participants, # of people who attend workshops and field days, results from survey at educational events, # of volunteers who help at events, # of informative publications sent out to landowners.

Marginal success – achievement in progress

There were 20 different cost-share participants during the grant period; some of those participants had multiple projects in multiple years. Due to COVID, we were somewhat limited in our ability to conduct live educational workshops and field days but, we were able to conduct 5 of these events during the grant period and had 119 participants. Surveys were used for 4 of

the educational workshops/field days and in all cases, participants indicated that the information presented was helpful and pertinent to their operations; in the case of the ag production events, participants said they would prefer hand-on/in-field workshops vs. classroom style meetings; in the case of the septic workshop most participants were realtors (a completely new audience for SWCD programming) and those participants said this program answered questions they had and gave them insight that might help their clients, that they were interested in attending more trainings of this type and they suggested that future offered trainings include continuing education credits. The cover crop program also included PARP credit and participants appreciated this addition as well as the sponsorship for the credit fee which was secured from IN Soybean Checkoff. At the 3 clean-up events we assisted with there was 80 volunteers. Several informative publications were sent out to landowners including 11 newsletters, 10 fliers/brochures/fact sheets, information on alternatives for used oil collection mailed to 110 people because COVID prevented us from conducting an annual used oil collection event after the first year of the grant, and information about 2 classroom educational programs from EPA sent to 86 classroom science teachers.
Three factors certainly hindered our ability to report that this Project Outcome was a success - - The long delay in getting the additional cost-share funds confirmed so we could promote the availability after we had told many producers that they would have to be put on a wait list; by the time we actual were assured that these additional funds were available there was less than 12 months to spend the funds; COVID nearly put the project on hold due to the fact that office time for staff was limited due to federal staffing health safety protocols, this limited the ability to conduct educational workshops and fields as well as effective promotion of the cost-share component; Following the initial on-set of COVID the supply chain was disrupted significantly to the point that many of the materials required to complete some cost-share projects were either not available or their price was increased by 20% or more causing a concern by landowners and the need for us to request a change in our previously established hold-down prices.

Project Outcome: Litter and trash within the watersheds is reduced. Measures of Success: Decrease in number of trash bags of litter cleaned up through clean-up events from beginning to end of project.

Marginal success – achievement in progress

During the time of the project, we worked extensively with an established group of volunteers who cleaned throughout the streams and creeks particularly in the area of the state park on an annual basis. The first 2 years, we provided them with their trash bag needs for the event however, in the third and fourth years they reported that they had a sufficient number of bags that they would not need us to donate more. While this isn't an exact accounting of the number of bags of trash collected each year, it does indicate that potentially the number was on the decline. It is felt that this group will continue their annual effort as this volunteer group is quite dedicated to this effort.

COMPLETION OF TASKS

Tasks A and E

The Grantee shall develop and promote a cost-share program to implement best management practices (BMPs) such as cover crops, forage and biomass planting, critical area planting, grassed waterways, filter strips, fencing, and others that address the water quality concerns outlined in the Fourteen Mile/Goose Creek-OH River WMP.

The Grantee shall expand and promote the existing cost-share program as outlined in Task A.

Completed

The cost-share program was approved on March 26, 2019. Cost-share program was revised to increase hold-down rate on February 17, 2021 due to COVID limiting availability of materials and thus driving up costs. The cost-share program was revised to increase the cost-share rate to 75% on May 5, 2022. The program has been promoted through displays at county fairs, newsletters, posters at ag related businesses, Facebook posts, and postcards. The cost share program was revised to remove the $15,000 per farm maximum in February 2023.

See Appendix A for documents related to these tasks.

Task B and F

The Grantee shall implement the approved cost-share program described in Task A. BMPs shall conform to the Natural Resources Conservation Service Field Office Technical Guide (NRCS FOTG) or other applicable, approved specifications. BMPs shall be implemented only in critical areas as described in the Fourteen Mile/Goose Creek-OH River WMP. Up to seventy-five (75) percent of the cost of BMPs will be provided by the federal Section 319 funds (with the exception of Comprehensive Nutrient Management Plan development, where up to ninety (90) percent of the cost will be provided), and at least twenty-five (25) percent must be provided by the landowner or other non-federal source as match. Design costs may be included in the total cost of the BMP, and will be reimbursed after the BMP is implemented. All BMPs must meet the terms and conditions of the 319A or 319U Cost-Share Form, including documentation of actual costs for all BMPs. Urban BMPs (319U Form) must be approved by the IDEM Project Manager before grant funds are allocated to the BMP project. The Grantee shall utilize the Region 5 Load Estimation Model (or other approved model) to provide, when applicable, sediment and nutrient load reductions for every BMP implemented as a result of this project, including BMPs not funded with this grant. The Grantee shall geolocate all BMPs installed as a result of this Grant.

Section 319 funds may not be used to comply with any National Pollutant Discharge Elimination System (NPDES) permit or Sate rule. The Grantee shall assure that all animal feeding operations (AFO) that receive financial assistance pursuant to this grant have a CNMP in place. Any AFO that is subject to NPDES permit requirements or is designated to e a concentrated AFO (CAFO) under 40 CFR Section 122.23 is ineligible for Section 319 funding.

All Geographic Information System data created or modified by the Grantee for delivery to the State shall meet the Indiana State Agencies Arc/Info Data Collection Standards except for

Metadata. Metadata shall meet the Federal Geographic Data Committee (FGDC) standard called the Content Standard for Digital Geospatial Metadata. Any deviation from either standard must have prior written approval from IDEM. All Global Positioning System data collected by the Grantee for delivery to the State shall include IDEM's Method Accuracy Description Codes. Any deviation from this requirement must have prior written approval from IDEM. The Grantee shall submit a copy of GIS layers to the State.

The Grantee shall implement the expanded cost-share program in accordance with the requirements outlined in Task B.

Complete

A total of 45 practices were installed through the cost-share program. Landowners received between sixty (60) percent and seventy-five (75) percent cost share on these practices for eligible costs. Practices included: cover crops, fence, pipeline, alternative livestock watering systems, grassed waterways, heavy use area protection, forage and biomass seedings, roof runoff systems with underground outlet, animal trails and walkways, and critical area plantings. A total of $125,572.97 (55.42% of the combined cost-share dollars available) was dispersed for these practices.

Task C

The Grantee shall conduct an education and outreach program designed to bring about behavioral changes and encourage the implementation of BMPs that will lead to reduced nonpoint source pollution in the watersheds. The Grantee shall, at a minimum:

*Conduct no less than eight (8) field days or workshops to educate watershed residents, including producers and landowners, about nonpoint source pollution, water quality, and/or the importance of incorporating the BMPs outlined in the Fourteen Mile/Goose Creek-OH river WMP. Field day or workshop topics may include, but are not limited to: cover crops, no-till, pasture management, residue and nutrient management, and soil health. Post-event surveys shall be conducted to evaluate the effectiveness of the event.

Complete

1. Co-sponsored Eden Shale Farm Field Day with Clark County Cattlemen's Association with follow up with watershed residents that attended (10/12/19).
2. Co-sponsored Pasture Walk (9/14/21), distributed survey
3. Cover Crop workshop (10/5/22), survey at event
4. Presentation on HUAPs at Clark County Cattlemen's Annual Meeting (2/24/22), follow-up with landowners who expressed interest
5. Promoted existing field days/workshops in the region (Purdue fencing school at SIPAC, Conservation Tillage workshop in Dearborn County, KY fencing school and KY grazing school) and offered registration funding for watershed producers *(this item was permit due to COVID preventing in-person workshops/field days for nearly 2 years of this 4 year project).*

*Develop and distribute no less than ten (10) newsletters, ten (10) news releases, and ten (10) fliers/brochures/fact sheets to watershed residents to promote the cost-share program, field

days, BMPs and watershed activities. The number of residents on the mailing list shall be recorded and included in the final report.

Complete

The mailing list consisted of 471 landowners.

Newsletters – Spring 2019, Fall 2019, Winter 2020 (Feb.), Summer 2020 (July), Fall 2020 (Oct.), Late Fall 2020 (Dec.), Spring 2021, Fall 2021, Winter 2022 (Jan.), Spring 2022 (April), and Winter 2023.

News Releases – Project update, oil collection event (Q1), Cost-Share funding (Q2), Cover Crops (2 articles), HUAPs (1 article) (Q3), Grazing Corn Stalks (Q4), Poor Forage Quality in 2019 (Q4), article in SWCD Annual Report (Q5), Septic improvements and available funds (Q14), Clean Sweep event (Q14), Septic Workshop (Q14), Cost-Share Funds news release (Q15), Workshop sponsorship news release (Q15).

Fliers/brochures/fact sheets – oil collection event flier (Q1), cost-share program brochure (Q2), 4 fact sheets and 1 event flier for use at invasive plant group's plant sale event (Q7), revised cost-share program brochure (Q9), flier on hay bale storage (Q10), fact sheet on New Benefits of adding Red Clover to Beef pastures (Q17).

*Conduct no less than three (3) septic system workshops to educate homeowners on the importance of septic system care and maintenance. Post-event surveys shall be conducted to evaluate the effectiveness of the event.

Complete

Conducted virtual septic workshop during Septic Smart Week (1090 received the paid ad post , viewed articles and videos) (Q3).

Conducted workshop on Property Transfer Inspections for Septic Systems (post event survey conducted)(6/2/22).

Conducted virtual septic workshop during Septic Smart Week (Q15).

*Promote watershed activities and provide information about the project through presentations, displays, and/or handouts at no less than three (3) meetings or events of local agencies, local government officials, environmental groups, civic groups, or other community organizations.

Complete

Watershed display at Clark County Cattlemen's Annual Meetings (March 2019, Q5 and Q10).

Project display at three county fairs (Clark, Scott and Jefferson) (2019).

Watershed display at Clark County SWCD Annual Meeting (Q5).

Watershed display at local invasive plant group's plant sale event (Q7).

Watershed display at SWCD spring plant sale (Q10).

*Conduct no less than three (3) clean-up events along roads, tributaries, and/or waterways of Fourteen Mile/Goose Creek-OH River watershed to encourage public involvement in the project. The number of volunteers shall be recorded and included in the final report.
Complete
Co-sponsored clean-up event at Charlestown State Park (3/16/19) – 45 volunteers
Ohio River Sweep (6/15/19) – 30 volunteers
Co-sponsored clean-up event at Charlestown State Park (3/20/21) – 35 volunteers

*Maintain and update the project's current website with information on the project and activities no less than quarterly.
Complete
Update on project and used oil collection event (Q1); Information on cost-share program, River Sweep Event, and Smart Septic Week (Q2); Newsletter and article on Drought Risk Management (Q3); Newsletter (Q6); Update with reference to "Conservation at Work" video series (Q7), Newsletter (Q8); Newsletter (Q9); Watershed Interactive Map, National Water Quality Month, and announcement for Pasture Walk (Q11); Newsletter (Q12); Newsletter, article on Winter & Frozen Ground (Q13); Newsletter, update on funding for septic improvements, and announcement about Septic System Workshop (Q14); Update and posts on Septic Smart Week (Q15); Newsletter (Q17).

Other Activities
Co-sponsored used oil collection and recycling event (4/2/19) – 1,270 gallons used oil collected from 22 residents; 7 volunteers.
Sent out 110 letters to past participants of used oil collection and recycling event about options for recycling used oil (Q10) since COVID prevent live event in 2020 and 2021.
Participated in annual meetings of the local wellhead protection group and the Indiana Forage Council (Q9).
Sent information on two EPA educational programs (Watersheds and Nonpoint Source Pollution) to 86 high school and middle school science teachers (Q12).
Distributed information via mail and e-mail on Orange County cover crop field day, the availability of cover crop webinar and Forage Friday Forums webinars.

Task D
The Grantee shall prepare and submit an electronic copy of a progress report to the State with each invoice, on at least a quarterly basis. A total of no less than sixteen (16) quarterly progress reports shall be prepared and submitted by the Grantee to the State. The Grantee shall prepare and submit one (1) electronic copy and one (1) hard copy of a final written summary project report to the State by the close of this project, including an electronic copy of all products produced as a result of this project.
Complete
Sixteen of sixteen (16 of 16) quarterly progress reports have been submitted to date. A final quarterly report and a final report will be submitted by 3/31/2023.

BEST MANAGEMENT PRACTICES

- **Fencing** 7,910 feet
- **Alternative Watering Systems** 4
- **Heavy Use Area Protection** 13 structures, 23,251 sq. ft.
- **Roof Run-off System and Underground Outlet** 1
- **Animal Trails and Walkways** 1 11,072 sq. ft.
- **Critical Area Planting** 1 0.3 acres
- **Cover Crops** 1,402.1 acres
- **Forage/Biomass Seeding** 164 acres
- **Grassed Waterway** 1 1.22 acres

The Fourteen Mile Creek/Goose Creek-OH River Watersheds Improvement Project has decreased the following sediment and nutrients from entering the Fourteen Mile Creek, Goose Creek, Ohio River or one of the many tributaries by the following amounts:

Estimated Load Reductions from agricultural BMPs installed:

5,720.8 tons per year of sediment
5,915.8 pounds per year of phosphorous
11,841.6 pounds per year of nitrogen

In addition, we also know that some of the BMPs installed had a positive effect on reducing the amount E.coli coming from these operations but, without a formula or approved mechanism to quantify the estimations of load reduction for E.coli, that environmental and health savings (reduction) is not reported. BMPs known to reduce E.coli are as follows: Fencing, Alternative Watering Systems, Heavy Use Area Protection, Roof Run-off Systems, Animal Trails and Walkways, and Grassed Waterways.

MONITORING RESULTS

There was no stream/site monitoring requirements in the Implementation Phase of the Fourteen Mile Creek/Goose Creek-OH River Watersheds Improvement Project.

PUBLIC PARTICIPATION

The public was involved in all aspects of our project as several of the project goals contained a public education component. Primarily, newsletters, information distributed at events, print media news releases, and social media outreach were our means of keeping in touch with the public throughout the project. The public responded by their participation in our events, clean-up efforts and their application for the cost-share assistance offered to implement BMPs. In addition, our Steering Committee members, Technical Advisory Committee members and the local project sponsor (Clark County Soil and Water Conservation District Board of Supervisors) were actively engaged in reviewing the progress of the project and offering input regarding ways to further involve the public.

As we were able to have more direct contact with people (after much of the threat of COVID had passed, and unfortunately after nearly half of the project had also past) it became obvious that people had concerns about our environment and interest in the project. This was evidenced by attendance at our Septic Workshop being mostly realtors (a group that we had had very little contact with in the past), continued support of volunteers at clean-up events, and a renewed interest by landowners to do BMP projects. The Watershed's Facebook page generated some interesting demographics that could be helpful in planning and conducting future environmental and water quality efforts: there were 102 followers of the page with 67% of those followers being female; ages of these followers ranged between 35-65.

PARTNERSHIPS

This project had many organizations that partnered and assisted to ensure the educational events, promotional efforts and the cost-share program was successful. The organizations who helped with the project included:

- Clark County Harmful Invasive Removal Project (CCHIRP)
- Clark County Cattlemen's Association
- Clark County Farm Bureau, Inc.
- City of Charlestown
- Charlestown State Park
- County Health Departments (Clark, Scott and Jefferson Counties)
- Indiana Department of Environmental Management
- Indiana Onsite Wastewater Professionals Association
- Indiana Soybean Alliance
- Indiana Corn Marketing Council
- Indiana State Department of Agriculture
- IDNR Division of Nature Preserves
- Hoosier River Watch Volunteers
- Natural Resource Conservation Service
- Oak Park Conservancy District
- Purdue Cooperative Extension Service
- Purdue Pesticide Program
- Soil and Water Conservation Districts (Clark, Scott and Jefferson Counties)
- USDA Farm Service Agency – Clark County

SUCCESSES, CHALLENGES and LESSONS LEARNED

Less than half-way through the project, COVID was rampant in the US and our area was no exception. Infection levels in Clark County were so high at times that staffing was limited to 3 or less members in the office at any one time. This drastically impacted educational efforts for the project to the point that live meetings, workshops and field days were not possible for almost 2 years. As a result, Steering Committee Meetings were conducted via conference call but it was nearly impossible to conduct any educational programming. This resulted in us being creative and IDEM being cooperative as we scrambled to offer the eight required field days/workshops found in Task C. Therefore, a lesson learned for potential future projects would be to plan to incorporate virtual workshops into any educational efforts as well as in-person events.

Utilizing all the available cost-share funds was impacted by not only by the COVID outbreak and the limitations the pandemic put on making one-on-one contacts with potential applicants but also by the long-term effects COVID had on the supply chain. Materials needed to construct some of the BMPs were either not available or limited in their availability. This increased costs and with the uncertainty of the economy, many potential applicants simply choose to "wait and see" where their personal finances were headed before making a commitment toward improvements. Another factor limiting our ability to utilize all the cost-share funds was when we were finally approved and notified that additional cost-share funds would be available we had less than 12 months to utilize them with no possibility of being granted an extension for the project.

Once we were able to again conduct live programming, we offered two workshops that we successful and quite encouraging. The workshop we offered on Septic System Inspections at the Time of Property Sales was well attended and primarily by a group we had never really worked with before, realtors. As we planned this program and discussed it with the Indiana Onsite Wastewater Professionals Association, we were warned that realtors would probably be the main opponents to this proposal. However, our experience was just the opposite. The realtors were very interested in the topic, acknowledging that they would be recommending this process to their clients (both sellers and buyers) in the future and indicating that they would be interested in attending similar programs in the future and even offered to assist with planning these workshops and possibly obtain continuing education credits.

The other workshop we conducted live was a program on Cover Crops. While our attendance was very low, the encouraging thing observed was the improvement in cooperation between agencies that had been sorely missed in the area for some time. Speakers from both NRCS and Purdue Extension worked together to present a very informative program and to provide PARP re-certification training to those attending. We also were able to get a sponsor for the PARP fee

so producers didn't have any expense at all. It is hoped that this will be the start of a renewed interest and commitment toward multi-agency cooperation for the benefit of all agricultural interests.

Interest in many of the BMPs seemed to pick up during the last six months of the project, due in part, we feel, to word of mouth advertisement and a postcard reminding landowners that the project would be ending soon. Unfortunately, by that point, time was not on our side and there were some inquiries that did not produce applications because deadlines could not be met. A thought we would offer is that the time of year that the project concluded may have impacted whether a planned practice could be completed (i.e. winter is not the time to put in a heavy use area protection or work on drainage issues), so perhaps an early fall conclusion date rather than a late winter date might be better. Either way, procrastination is probably a bigger factor. Either way, there are about six approved applications still on hand that never got completed. Perhaps there are a few other folks who had waited to see what their post-pandemic funding capabilities might allow and the deadline slipped past them.

FUTURE ACTIVITY

For the most part, the future activities of our project are educational, and will target landowners, the general public, and our public officials as to the quality of our waters and the effects their actions have on that quality. Activities will also rely on maintaining a good working relationship with the partners that we connected with during this project.

The Steering Committee, at their final meeting, expressed an interest and recommendation that the Clark County Soil and Water Conservation District Supervisors seek additional funding through IDEM's EPA 319 grant process.