

**V.B.1a. Project Title:** Tri-State Western Lake Erie Basin Phosphorus Reduction Initiative

**V.B.1b. Project Manager:** Stephen Shine, Phone: 517 284-5606; [shines@michigan.gov](mailto:shines@michigan.gov);  
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**V.B.1c. Name of lead partner submitting the application and other collaborating partners:**

Lead Partner: Michigan Department of Agriculture and Rural Development (MDARD)

**Lead Collaborating Partners:** Western Lake Erie Basin (WLEB) Partnership, State of Ohio Departments of Natural Resources, Environmental Protection Agency, and Agriculture; State of Indiana Departments of Agriculture, Natural Resources, and Environmental Management; State of Michigan Departments of Natural Resources and Environmental Quality.

**Other Collaborating Partners:** The Nature Conservancy, Ducks Unlimited, Michigan and Ohio and Indiana Farm Bureaus, LimnoTech; The Ohio State University and Extension, Heidelberg University, Purdue University, University of Toledo, US Geological Survey, USDA Agricultural Research Service, Nester Ag LLC., Conservation Action Project, Lenawee Conservation District, and Washtenaw County Drain Commission, Indiana Corn/Soybean Alliance, Sandusky Watershed Coalition, Ohio Soil and Water Conservation Districts, Tri-State Watershed Alliance, Beneficial Reuse Management/Gypsoil Grand, Maumee River Basin Commission, Ohio Federation of Soil and Water Conservation Districts, Werling Demonstration Farms, Indiana Association of Certified Crop Advisors, ACRES Land Trust, as well as Steuben, Wells, Nobel, DeKalb, Allen and Adams counties Soil and Water Conservation Districts.

**Other partners:** Environmental Defense; Ohio Environmental Council, Michigan State University, University of Michigan, US Corp of Engineers, the Andersons Inc., Ohio Agri-Business Association, Crystal Flash.

**V.B.1d. Mailing address and telephone number of lead partner:**

Michigan Department of Agriculture and Rural Development  
P.O. Box 30017  
Lansing, MI 48909  
517-284-5606 (Stephen Shine)

**V.B.1e. Funding pool applying for:** Critical Conservation Area—Great Lakes Region

**V.B.1f. Short general summary of project and description of resource issues to be addressed, including the primary resource concern and how the partner proposes to gauge success and monitor results of the project. Secondary resource concerns may also be included.**

The *Tri-State Western Lake Erie Basin Phosphorus Reduction Initiative* is a multi-state project to protect the western basin of Lake Erie by reducing phosphorus (P) and sediment loading, and harmful algal blooms (HAB). This will be achieved by working with partners and farmers to identify priority sources of nutrients and sediments and implementing conservation practices and technology to address them. Project partners have identified NRCS conservation practices and innovative demonstration practices that farmers can implement using EQIP and ACEP cost share funds to protect soil health, water quality and quantity, and prevent fish and wildlife degradation.

A diverse team of partners will use a targeted approach to identify sub-watersheds for focus, farmer access to public and private technical assistance, new and on-going innovative conservation practices and expertise for modeling and evaluating outcomes. It will leverage \$20 million in NRCS cost-share dollars

with nearly \$36 million in partner contributions to impact the Western Lake Erie Basin (WLEB). The environmental outcomes will reduce phosphorous, especially dissolved reactive phosphorus (DRP), and sediment loadings to Lake Erie as called for in the Ohio Phosphorus Task Force Report and move Lake Erie towards goals being developed in the GLWQA Annex 4 Nutrient Strategies. Long-term project success will be defined as whether the adjusted decrease in nutrient and sediment loadings to Lake Erie yields a corresponding decrease in the frequency, extent, and impacts of algal blooms.

The partners will gauge success and monitor results using project-wide water quality monitoring and watershed modeling conducted by national experts from multiple scientific entities and institutions. The work will occur at multiple levels via a nested approach, which will provide project analysis at every scale from HUC 6 to HUC 12. Partners involved in monitoring and evaluation will include: Heidelberg, Ohio State, Toledo, Purdue, Michigan State, and Michigan Universities, State Environmental Protection Agencies, USDA-ARS, USGS, NOAA, LimnoTech, state water quality monitoring agencies, Ohio Extension and Sea Grant, and Lake Erie Charter Boat Captains Association. Tools to be used include the USDA CEAP (Apex model) Study, both pre- and post-project; SWAT and SPARROW Modeling; HAB Bio-mass measurements, the NOAA Cyanobacteria Index, and sampling of stream flows and nutrient loadings at 17 separate stream stations as well as both a pre- and post-project farmer perceptions social science study.

**V.B.1g. Specify the geographic focus of the project such as hydrologic unit codes for watersheds, habitat areas for wildlife, political jurisdictions of state and local governments, agricultural land uses, or other means of identifying project areas.**

The geographic focus of this project is the Western Lake Erie Basin sub-watersheds from Sandusky in the south to River Raisin in the north that includes HUCs 04100001 through 04100011 in Indiana, Michigan, and Ohio. Within this area, the work will target critical areas to focus resources and outcomes based on the modeling information available and experience of the partners. Seventeen priority HUC areas have been identified. (See attached map for details.) Ohio has 70% of the land area, while Michigan has 18%, and Indiana the remaining 12 % of the basin. Approximately 76% of the land in the entire watershed is in agriculture, primarily row crops. Livestock is less prevalent, with manure accounting for a little less than 25% of the total nutrients applied in the watershed.

**V.B.1h. Application Form SF-424, Application for Federal Assistance. Applicants must use this form as the cover sheet for each project application.**

See attached SF-424 form.

**V.B.1i. Applicants must also clearly state, by project objective, how they intend to leverage federal funds along with partner resources (identify in-kind and cash contributions).**

See attached worksheet for details. Please note that the provided worksheet did not incorporate administrative in-kind support of \$1,487,395 into the Financial sheet of the worksheet. The primary goal of this multi-state project is to protect the western basin of Lake Erie by reducing phosphorus (P) and sediment loading, and harmful algal blooms (HAB). This will be achieved through outreach and education from project leaders and partners, by providing technical assistance from federal and nonfederal sources to work with partners and farmers to identify sources of nutrients and sediments and implementing conservation practices and technologies to address them by working closely with NRCS staff to assure compliance with NRCS standards. Project partners have identified NRCS conservation practices and innovative demonstration practices that farmers can implement using EQIP and ACEP cost-share funds to protect soil health, water quality and quantity, and prevent fish and wildlife degradation. The lead partners for the WLEB Partnership and partner states will annually report the project progress.

**V.B.1j. Form 424A, Budget Information – Non-Construction Programs.**

See attached 424-A form.

**V.B.1k. Proposed project start and end dates (not to exceed a period of 5 years), and a table showing how much FA and TA funds are being requested from covered programs by fiscal year. TA funds, if requested, should include only those funds needed by the partner to carry out identified activities.**

January 1, 2015 through December 31, 2019.

**V.B.1l. A budget table, by fiscal year, that describes the activities and resource contributions.**

See attached budget table by activity.

**V.B.1m. Describe the intended producer and landowner**

The intended producers and landowner participants are primarily the farmers in the initial priority watershed areas. Other farmers in the basin that are interested and eligible to participate will be involved as well. The focus will be on farmers growing row crops as this is where EQIP and ACEP practices can improve nutrient and sediment management to reduce the impact to the tributaries and WLEB.

**V.B.1n. Describe the land that will be the focus of the project (e.g., cropland, grazing land, forest land, and incidental land uses.)**

This project will focus on the cropland and incidental land, which makes up 76 percent of land in the Western Lake Erie Basin. Cropland is eligible to participate in EQIP and ACEP programs. Priority focus will be on the 17 sub-watersheds identified on the attached map. The priority area encompasses 634,336 acres of cropland.

**V.B.2. Letter of support from applicable NRCS State Conservationist.**

See the attached letter of support from the Michigan NRCS State Conservationist.

### **V.B.3. Natural Resources Objectives and Actions.**

The Primary Resource Concerns that will be addressed include: 1) Water Quality and 2) Soil Health. The Secondary Resource Concerns include: 1) Water Quantity and 2) Fish and Wildlife Habitat. These resource concerns were identified through analyzing research data and models, and evaluating programs and watershed plans in WLEB during meetings facilitated by the WLEBP Leadership Team.

**Water Quality:** Nutrient impairment continues to plague Lake Erie impacting an \$11.5 billion tourism industry and causing increased treatment costs to public water supplies. The total phosphorus annual loads have been below the 11,000 metric tons over the past 15 years; however, the dissolved reactive phosphorus (DRP) loads have nearly doubled on average during that same time period, primarily from nonpoint sources, including farmland. Not only is DRP coming from surface runoff, it is also occurring through tile drainage. Preliminary data shows that both tile drainage and surface runoff are major sources of the phosphorus loadings to Lake Erie. Cropping systems that include several of the following: nutrient management, erosion control practices, and water management practices, will help keep nutrients out of the Lake. New methods of outreach, including CCAs, will assist in reaching a broader farmer audience throughout the WLEB.

**Soil Health:** The health of the soil determines how effectively and efficiently rainwater and dissolved nutrients either infiltrate into the soil or run off the soil surface, to surface drains or directly into ditches and streams. Healthy soils not only have balanced physical and chemical properties they also have an active biological community. With primarily high clay soils in the WLEB, compaction and subsequent low biological activity is prevalent. Cropping systems that include several of the following: residue management, cover crops, crop rotation, and nutrient management, will help increase the soil's health. New practices such as adding gypsum will be tested as it shows promise in increasing infiltration.

**Water Quantity:** While efforts to reduce nutrient loading will reduce the size of algal blooms, rainfall patterns and heavy storm events will continue to drive the extent of algal blooms. Slowing the flow of water to assist in dropping out nutrients and sediment before they reach the Lake will help decrease the overall extent. Land management practices such as ditch design, wetlands and grassed waterways can help slow the flow of the water thereby decreasing the nutrient and sediment loads even during high flow events. New practices such as saturated buffers, blind inlets, agricultural drainage treatment wetlands, and tile drainage bioreactors will be installed in demonstration areas to increase adoption of these practices.

**Fish and Wildlife Habitat:** Throughout the basin, several streams once biologically diverse, including many freshwater mussels, have become degraded over time due to sediment deposition, dredging and stream manipulation. Habitat for migratory birds has declined also due to development and wetland destruction. Fish and wildlife habitat improvement can be completed in a way that not only helps the intended species thrive, the practices can also help slow the flow of water to the Lake, process nutrients, and increase water quality. These practices include: wetland restoration, field borders, filter strips and grassed waterways.

Input from farmers has been considered and incorporated into this proposal to address new technologies and practices, communication with farmers, agribusinesses, and conservation groups, and timing of program sign-ups. Several of the project partners engaged a "producer focus group" consisting of farmer leaders from all three states within the WLEB. Programs currently ongoing in the region, including the 4R Nutrient Stewardship Certification Program, the Michigan Agriculture Environmental Assurance Program (MAEAP), and Conservation Cropping Systems Initiative, were included in the discussion of targeting geographies and practices to better meet the needs of water quality, soil health, water quantity, and fish and wildlife habitat.

The project also drew from and align with several strategic documents including: 1) WLEBP Strategic Plan, 2) The Ohio Phosphorus Task Force Phase II Report, and 3) The 2012 Revised Great Lakes Water

Quality Agreement, in particular Annex 4, Nutrients Strategy. Because Lake Erie will be the first to have established loading and concentration targets under Annex 4, the WLEB RCPP project will provide a template for eventual use throughout the Great Lakes region.

Working with NRCS, the WLEB RCPP will accelerate land treatment with EQIP and ACEP cost-share funds. Tools and research findings will be used to guide practice selection and practice placement, support ranking systems, and evaluate program impacts. Tools include the USDA-NRCS Maumee CEAP special study, USDA-ARS CEAP Cropland/Wildlife assessment, four Soil Watershed Assessment Tool (SWAT) Watershed Modeling projects, the Western Lake Erie Ecosystem Model (WLEEM), Spreadsheet Tool for Estimating Pollutant Load (STEPL), the OSU/USDA-ARS edge of field phosphorus monitoring and phosphorus index (P index) studies.

While each geography is unique and targeted outreach and practices will help get practices located in the right places and in the right amounts, the true impact of the RCPP WLEB project may have longer lasting impacts. The longevity of practices and the number of engaged partners throughout the watershed that help sell conservation can help change attitudes and thus water quality and soil health long into the future. Considering the unknowns, the project has the following project objectives:

- I. With the help of the Project Advisory, Communications, and Technical Teams, evaluate and promote the program's conservation systems cost-share, effectiveness, and accomplishments on a semi-annual basis. A lead RCPP representative from each state will be part of the three teams.
  - a. The Project Advisory Team will meet quarterly, and as lead sponsor of the RCPP, MDARD will chair this Team. The Advisory Team may establish state specific subcommittees that will provide support and expertise to the Advisory Team and to the project partners in implementing the project. Members of the Project Advisory Team shall at least include the following: Western Lake Erie Basin Partnership (WLEBP) Leadership Team Members (or their designee); state CCA Board member (or their designee); state Agribusiness Association Board member (or their designee); Farmer Leader from each state; and County SWCD and/or District Conservationist from each state. The purpose of the advisory team will be to:
    - i. Provide advice and council to project partners to implement the project,
    - ii. Leverage additional resources and cooperation between WLEB partners and project entities to increase project effectiveness, and
    - iii. Provide a multi-state, multi-organizational vision for the project partners.
  - b. The Communications Team will meet as needed and elect its own chair. Members of the Communications Team shall at least include representatives from the following organizations: Ohio, Michigan, and Indiana USDA-NRCS and state government, state farm organizations, agribusiness association, Conservation District, commodity organization, and research entity. The purpose of the Communications Team will be to:
    - i. Assist the project partners in branding, messaging, and communicating project opportunities to both potential project participants and to the general public;
    - ii. Develop common news releases, informational materials, share and distribute the communications workload;
    - iii. Coordinate signup announcements; and
    - iv. Annually publicize project successes and accomplishments.
  - c. The Technical Team will meet as needed and elect its own chair. Members of the Technical Team shall at least include representatives from the following: USDA-NRCS and ARS, state government, CCA boards, Conservation District, commodity organization, and land grant universities. The purpose of the Technical Team will be to:
    - i. Identify and deliver new and promising technology;
    - ii. Advise on the effectiveness of project land treatment scenarios and BMPs; and

- iii. Annually share results of water quality monitoring, watershed modeling projects, and new research findings.
  - d. Complete required annual and final reports.
  - e. Environmental Outcome: Increased data on effectiveness, adoption and support for conservation practices and Farm Bill programs.
  - f. Measurement: Attendance at outreach events, adoption of practices relative to outreach efforts, and conducting farmer, public and agribusiness surveys.
  - g. Funding Source: Federal TA, Non-federal TA
- II. Develop and promote a unified brand, “Western Lake Erie Basin – Agriculture taking Action,” a conservation education toolbox, customizable for Program partners to share information about the RCPP WLEB Program offerings, partnering opportunities, and achievements, by December 2019.
  - a. In coordination with the Project Advisory Team, the Communications Team will create examples of public education material including customizable field day and workshop flyers and press releases, talking points, specific outreach items for the Amish populations, and maps. The toolbox will be hosted on the WLEB website for partners to access. The coordinated practices that are promoted will follow the “ACT”(avoid, control, and trap strategy) as recommended in the Ohio Phosphorus Task Force Phase II Report.
  - b. Environmental Outcome: Increased adoption and support for conservation practices and Farm Bill programs.
  - c. Measurement: Attendance at events, and adoption of practices following outreach efforts.
  - d. Funding Source: Federal TA, Non-federal TA
- III. Install at least 380 acres of wetlands through ACEP to slow the flow of water during high flow events and increase habitat, by December 2019, working toward a 41percent reduction of dissolved phosphorus.
  - a. Environmental Outcome: Less flooding, decreased turbidity, increased habitat, capture sediment and nutrients, reduced amount of phosphorus delivered to Lake Erie
  - b. Measurement: HUC 8 watershed monitoring and visual observations
  - c. Funding Source: Federal TA, Non-federal TA, Federal FA, Non-federal FA
- IV. Reduce sediment and nutrient loading from the project area into the Western Basin of Lake Erie, using a suite of EQIP practices working towards a 41percent reduction of dissolved phosphorus.
  - a. The Conservation Districts and watershed groups will work with farmers to evaluate their environmental risks and develop plans to address those risks.
  - b. Environmental Outcome: Reduced amount of phosphorus delivered to Lake Erie thereby reducing the size and frequency of harmful algal blooms in Lake Erie.
  - c. Measurement: GLEEM, SWAT and CEAP modeling, watershed monitoring at HUC 8 level.
  - d. Funding Source: Federal TA, Non-federal TA, Federal FA, Non-federal FA
- V. Expand the number of CCAs that help write 590 nutrient management plans that address soil health, variable rate application, nutrient placement, and application timing to over 50 by March 2016.
  - a. The 4R Nutrient Stewardship Certification Program will engage agri-businesses, in particular CCAs, to provide farmers with workable nutrient management plans.
  - b. Environmental Outcome: Decreased phosphorus leaving the fields through surface or subsurface flow, timing and placement recommendation of phosphorus to keep phosphorus in the field.
  - c. Measurement: Edge of field and tile drainage monitoring conducted by USDA-ARS, social survey results regarding change of practices.
  - d. Funding Source: Non-federal TA

- VI. With at least five demonstration areas that will be created or will be expanded throughout the basin by September 2017, showcase both emerging technologies and system approaches to transfer information to landowners, conservation and agribusiness staff.
  - a. In Michigan, the Center for Excellence will be used to demonstrate applied research on local farmers' fields. Each year the Center for Excellence Committee looks at the latest technology and research, conservation methods and residue management available in the agricultural industry. Indiana will partner with the Conservation Cropping Systems Initiative and host events at one of their hub farms. The hubs provide regionally centralized locations for training opportunities. The states and their partners will also work with nutrient management comparison plots to document water quality benefits, cost savings, and improved net return by improving fertilizer application methods based on soil testing by soil management zones.
  - b. Environmental Outcome: Increased adoption of conservation systems, decreasing nutrients in the streams and increasing the health of the soil.
  - c. Measurement: Water quality monitoring, Solvita soil test comparison.
  - d. Funding Source: Federal TA, Non-federal TA, Federal FA, Non-federal FA
  
- VII. Evaluate the impact of the RCPP WLEB Program to water quality, soil health, water quantity and fish and wildlife habitat, continually and at the culmination of the program and share this information broadly.
  - a. Environmental Outcome: Understand the impact of the systems of conservation practices and inform USDA, environmental, conservation, agricultural, research and governmental groups about which practices work well for future targeting and funding decisions.
  - b. Measurement and Calculation: GLEEM, SWAT, CEAP, STEPL, water quality monitoring, Solvita soil test, biomass measurement, cover crop and/or tillage transect data and implemented practice benefits.
  - c. Funding Source: Non-federal TA, Federal FA, Non-federal FA

While state and federal governments have launched numerous voluntary and regulatory programs to address nutrient management, education and outreach efforts by agencies and partners will be critical to the implementation of conservation programs by farmers. Effective communication and educational tools will motivate farmers to make voluntary changes in their practices to improve their soils' health and the overall health of the WLEB. Our branded message, "WLEB – Agriculture Taking Action" will assist the tri-state effort in speaking with one voice when reaching out to all audiences.

Through the utilization of partners' strengths and contributions, the project will maximize the promotion of conservation dollars available to farmers. As illustrated in the attached letters of support, partners include a unique collaboration among agricultural businesses, farm organizations and commodity groups, CCAs, researchers, and others. Education events will be held in cooperation with SWCDs, county Farm Bureaus, livestock associations, commodity groups, NRCS, and agriculture businesses. Working with non-traditional partners allows the project to reach a number of audiences several different times and with innovative approaches, including farmer-led informational sessions with technicians, field days, Lake Erie tours and educational workshops, and demonstration sites.

We will also educate the public on private land management, conservation practices and water quality. An additional innovative approach includes involving elected officials and producers on a trip to water bodies, either a river in their community or to Lake Erie, to see the algal blooms and talk about what the various agencies can do to contribute to the protection of the water. In addition, to better gauge the social factors of the Western Lake Erie Basin, a summit featuring a panel discussion focused on the topic of "Approaches to Limiting Phosphorus in our Waterways" will be held.

**V.B.4. Detailed application requirements.**

**V.B.4a. A detailed map, accompanied by a narrative description of the geographic area covered by the application.**

See attached map.

**V.B.4a.i. Describe the location and size of the proposed project area.**

While cropland farmers in the entire WLEB will be eligible to participate in the project, the targeted area for focused outreach and technical assistance is found in four to eight sub-watersheds in each state. The attached map shows the spatial location of the targeted area. The following table indicates total land acres in each sub watershed, which sums to 855,037 total acres of land targeted for this project.

**Priority Areas Total Acreage by Hydrologic Unit Code (HUC)**

Name	HUC	Area Acres	States
Floodwood Creek-River (Raisin)	041000020307	36,650	MI
Camp Drain-River (Raisin)	041000020308	10,718	MI
Stony Creek	041000010107	35,099	MI
Covell Drain-Bean Creek	041000060106	29,728	MI
Cedar Creek-Frontal Lake Erie	0410001007	130,804	OH
Headwaters Blanchard River	0410000801	90,680	OH
Rock Creek-Sandusky River	0410001111	74,174	OH
Swan Creek & Bad Creek	0410000903, 0410000907, & 0410000908	172,017	OH
South Turkeyfoot Creek	0410000901	95,257	OH
Flatrock Creek-Auglaize River	0410000712	107,218	OH
Nickelsen Creek	041000040503	16,491	IN
Blue Creek	041000040405	13,493	IN
Trier Ditch	041000050101	18,041	IN
Marsh Ditch-Maumee River	041000050106	12,384	IN
Black Creek	041000050104	12,283	IN

**V.B.4a.ii. Briefly describe the major land uses of the area with special emphasis on the lands that will be included in the project.**

Agriculture is the major land use in the largest watersheds in Indiana, Ohio and Michigan, Maumee and River Raisin, respectively. Sandusky and the smaller watersheds in Michigan also contain agricultural land as well as residential, commercial and industrial uses. The focus of this project is agricultural cropland. The following table indicates cropland acres in the priority watersheds by cumulatively by state.

State	Priority HUC	Total Acres*	Total Cropland Acres
Indiana	Trier Ditch (041000050101) Black Creek (041000050104) Marsh Ditch-Maumee River (041000050106) Nickelsen Creek (041000040503) Blue Creek (041000040405)	72,692	58,229
Michigan	Covell Drain-Bean Creek (041000060106) Floodwood Creek-River (Raisin) (041000020307) Camp Drain-River (Raisin) (041000020308) Stony Creek (041000010107)	112,195	81,151
Ohio	Bad Creek (0410000903) Upper Swan Creek (0410000907) Lower Swan Creek (0410000908) Cedar Creek-Frontal Lake Erie (0410001007) Flatrock Creek-Auglaize River (0410000712) South Turkeyfoot Creek (0410000901) Headwaters Blanchard River (0410000801) Rock Creek-Sandusky River (0410001111)	670,150	494,956

\*Acres were found using U.S. Department of Agriculture National Agricultural Statistics Service-CropScape.

**V.B.4a.iii. Briefly describe why the particular area was chosen, including the scientific basis for choosing the area, and why targeted conservation in this area will contribute to CCA priorities.**

The WLEB was chosen as the target area for this project because of the human, ecological and economic significance of the Basin and the long history of the WLEB Partnership working with Indiana, Michigan, and Ohio state agencies to address the causes of the algal bloom. The western basin of Lake Erie is an invaluable resource to the people and economy of the watershed. The lake provides a thriving tourism, boating and sports fishing sector valued at over \$12.5 billion annually as well as a water supply for industry and agriculture. It also supplies drinking water to 11 million people in the basin. In each of the last two years, microcystin toxins at levels exceeding the World Health Organization drinking water standard were detected in drinking water coming from Lake Erie. In 2013, Carroll Township drinking water, serving 2,000 residents, was shut off and in 2014, the Toledo drinking water, serving 500,000 residents, was shut off. Nutrient and sediment runoff occurs across all economic sectors of the basin. This project focuses on the agricultural sector as the conservation practices eligible for NRCS funding and innovative demonstration projects are the tools needed to rapidly address rural sources of pollutants.

From an ecological point of view, the WLEB provides regionally significant habitat (identified in at least 15 state and federal conservation plans) with more than 300 species of birds. The area's wetland habitats are vitally important to migratory birds and fish. This region serves as a primary migration corridor for 27 species of waterfowl and is the most important migration staging area for American black ducks on the continent.

Wetlands in this area also provide critical habitat for a variety of state and federally threatened and endangered species, including snakes, eastern prairie fringed orchid and prairie wedgrass, white

catspaw mussel, bald eagle, black tern, common tern, king rail, osprey, trumpeter swan, snowy egret, American bittern, upland sandpiper, least bittern, and many others.

Wildlife use is one of the primary reasons landowners choose to restore wetlands and native grasslands. The direct benefits of wetland and grassland restoration on wildlife populations are relatively easy to quantify; however, other ecological functions provided by these habitats are less understood and much more difficult to quantify. Wetlands improve water quality by trapping sediments and removing organic and inorganic nutrients and toxic materials. Wetlands also mitigate flood and storm surge events, recharge aquifers, and provide habitat for a diversity of wildlife. Establishing native grasslands adjacent to or near wetlands provides an important buffering effect and compounds the water quality functions that wetlands provide. Wetland drainage in this region has eliminated many of these functions and has contributed to reduced water quality and impacted water quantity. In the WLEB, nutrients, siltation, organic enrichment/DO, direct habitat alteration and exotic species have been identified as major causes of aquatic life impairment (Ohio EPA 2008). Wetlands have been found to reduce nitrate (nitrogen) up to 80%, nitrate (ammonia) up to 95%, phosphorous up to 92%, sediment up to 70%, and coliforms (in constructed wetlands) up to 90% (Gabor, et al. 2001). Jordan, et al. (2003) reported that wetland restoration in agricultural fields results in a significant improvement in the quality of surface water runoff.

Additionally, this area has some very innovative programs to address environmental risk on farms. The Michigan Agriculture Environmental Assurance Program (MAEAP), Michigan's regulatory certainty program for agriculture, 4R stewardship program with certified crop advisors and the agri-business community and the Indiana partnership for ACEP activities.

**V.B.4a.iv. Outline on the map or describe in the application the areas that need conservation treatment, and identify the number of acres involved.**

See V.B.4a.i, above.

**V.B.4b. Describe the consideration of cost-effectiveness of the proposed approach in terms of achieving the stated goals of the project. Briefly describe whether and how the application contributes to the efficient use of funding compared to at least one alternative approach, which may include an "as is" scenario describing the cost-effectiveness of current program delivery in the project area. The partner is encouraged to consider other alternative approaches to achieving the stated goals of the project and the relative cost-effectiveness of these approaches, and why the approach described in the application was chosen.**

This project is interested in locating practices in the best places at the lowest cost to impact water quality. There are two ways to target funding. One is to target how the funding is reaching the landowners and the other is to target practices in an area and reach out to landowners. This project has chosen to do both in different areas. For example, using SWAT modeling is a strategy for locating practices in identified higher risk areas. While leveraging the networks of different farmers groups that the local CD technicians and CCA serve, targets nutrient management practices that can be applied in the priority areas.

**V.B.4c. A description of how the partner(s) will collaborate to achieve the objectives of the partnership agreement and the roles, responsibilities, and capabilities of the partner(s). Applications that include resources from other than the submitter of the application must include a letter or other documentation from the other partners confirming this commitment of resources (letters may be in addition to the 20-page limit). Potential partners should also describe whether and how the project will coordinate with other local, State, or national activities, including regional plans adopted by government entities that address resource concerns identified in the project area.**

This project will coordinate with local, state, and national activities in the WLEB. The project plans draw from and align with several strategic documents including: 1) WLEBP Strategic Plan, 2) the Ohio Phosphorus Task Force Phase II Report, and 3) the 2012 Revised Great Lakes Water Quality Agreement, in particular Annex 4, Nutrients Strategy, because Lake Erie will be the first to have established loading and concentration targets under Annex 4. The existing local, state and regional partnerships will be leveraged to successfully implement this project.

**V.B.4d. A description of the project timeline, not to exceed 5 years in length, and project implementation schedule which details when the potential partners anticipates finishing the project and submitting annual reports and final report.**

The *Tri-State Western Lake Erie Basin Phosphorus Reduction Initiative* will commence on January 1, 2015 and conclude December 31, 2019. The project administrators will annually submit progress reports following the close of the fiscal year and the final report will be submitted no later than December 31, 2019. See the Natural Resources and Objectives, pages 4-8, of this proposal for detailed objectives and activities as well as the project timeline table.

**V.B.4e. A listing and description of the conservation activity plans, conservation practices, enhancements, wetland restoration activities, easement acquisition activities, and other partner activities to be implemented during the project timeframe and the general sequence of implementation of the project. Include TA efforts that will be made by the partner and those that the partner requests NRCS provide using eligible approved conservation practices and enhancements. List easement acquisition activities to be implemented by the partners and how they will be submitted by the partners/applicants to NRCS for review and approval. Describe any activities that are innovative or include outcome-based performance measures implemented by the partner.**

The priority EQIP BMP practice number and name for this project are identified below.

1. 340--Cover Crops
2. 590--Nutrient Management Planning Basic and Enhanced
3. 329--No till, strip till, modified no till
4. 590--P/Nutrient Placement
5. 620--Underground Outlet/Blind Inlet
6. 354--Tile outlet control structures/drainage water management
7. 590--Variable Rate
8. 328--Cropping rotation including wheat

The three state partners have estimated the acreage and estimated costs of implementing the priority practices based on cost share funds available in each state. For example, \$9.2 million will be used to install cover crops and 380 acres of wetland easements are planned.

The Top Five Preferences for RCPP Demonstrations are:

1. Blind inlet
2. Treatment Wetlands
3. Saturated buffers
4. Ditch Design (2-stage ditches)
5. Drainage Water Management

Under the ACEP fund, SWCD and/or Conservation Districts (CD) will promote ACEP funds availability. CD technicians will perform outreach and other technical assistance activities such as practice preliminary layout, assistance with NRCS application and practice implementation. NRCS staff will authorize approval of the completed practice implementation.

This is another method of targeting is to target practices where they need to be placed and reach out to the specific landowners. This approach is how the project team is planning to place wetlands. For example, Indiana is using the Maumee Basin River Commission's floodplain maps and impact to flooding. Michigan will use similar tools and local knowledge to identify potential landowners to participate in ACEP practices. Conservation Districts and other partners will reach out to landowners that can assist with flood reduction and offer ACEP practices, like wetlands.

Nutrient management plans are a practice that needs to be completed on all acres. Traditionally, the project partners engage with the SWCD or Conservation Districts in this work. Each state has its own state Certified Crop Advisers (CCA) program directed by a board and managed/housed with each state's Agri-Business Association. Each state Agri-Business Association executive director has agreed to help train CCA, along with USDA-NRCS, to learn how to appropriately complete the condensed 590 Nutrient Management form to meet the nutrient management requirement in each state. While the training will be held separately, each state will target the CCAs living or working in the project area. While many Conservation District and USDA-NRCS staff currently have the skillset to complete nutrient management plans for growers, the CCAs that are more familiar with the fields and the grower's management will be able to more rigorously evaluate each field and suggest further evaluation of specific resource concerns. The Conservation District and/or USDA-NRCS staff will review the nutrient management plan completed by the trained CCA and discuss options to address any resource concerns identified by the CCA. The trained CCA is not required to identify solutions to any resource concerns only to identify them within the condensed nutrient management plan.

**V.B.4f. A description of the plans for assessing and evaluating the results of the project along with plans for reporting on progress to achieve the objectives of the application. Priority will be given to projects where the partner can provide resources or services or conduct activities to evaluate effects of conservation practices and activities implemented through the project.**

***Outcome Evaluation and Reporting Progress:*** Watershed monitoring and modeling will occur at multiple levels via a nested analysis approach. The analysis will provide not only pre- and post-snapshots of the project effectiveness, but will provide the project in an adaptive management resource to guide targeting and conservation practice selection, priority areas, etc. An analysis system, as outlined below, will determine if the project was effective in reducing phosphorus nutrient and sediment loadings, changing farmers' attitudes and behaviors, and the impact of stacking conservation practices.

- 1) Throughout the entire basin there will be three analysis conducted to evaluate the program: the Maumee CEAP Intensive Study, Western Lake Erie Ecosystem Model (WLEEM), and a social impacts farmer survey. The NRCS CEAP evaluation will provide a pre- and post-project comparison throughout the agricultural acres in the entire watershed. The Maumee CEAP Intensive Study will be finished late 2014, providing a level of intensiveness not found in previous studies, with potential accuracy to the HUC 12 level. This pre-project snapshot of current conservation and its effectiveness will be used as the baseline condition. The WLEB RCPP partners are requesting that NRCS nationally schedule and fund a five-year update to coincide with the conclusion of the project, to serve as the post-project evaluation. This will not only capture conservation applied by the project, but the synergistic effects of conservation applied through other efforts. This pre-post CEAP evaluation will benefit NRCS beyond this project, across the Great Lakes Region and nationally.

- 2) At the HUC 8 Scale, Heidelberg University, Ohio EPA, and USGS will operate water quality monitoring and gauging stations on the mouths of all the major tributaries (HUC 8 outlets) in the project area. These stations will quantify trends in nutrient and sediment loadings over the life of the project, and the cooperating partners will compare this to pre-project trends.
- 3) At the Edge-of-Field level, ARS and the Ohio State University (OSU) have 11 stations measuring runoff and sediment/nutrient loadings from individual farm fields. This data will be used to calculate current models (e.g., Ohio P-Index, SWAT and GLEEM). The data will be shared with the WLEBP and beyond.
- 4) For Lake Erie, the University of Toledo will annually calculate a measure of biomass production, while NOAA will annually develop a cyanobacteria index. These two measurements will show not only yearly trends, but also give pre- and post-project snapshots that will indicate the progress in diminishing the severity of the algal blooms. The information will be used and shared.
- 5) Shifts in farmers' perceptions, attitudes, and understanding of Lake Erie's water quality, their farm's impact and conservation practices that help both will be evaluated. The pre-survey was completed by OSU this spring and the post-survey will occur after year four, as OSU will seek funding to do a follow-up social science study. This information will indicate whether there has been any change in perceptions, attitudes or conservation implementation during the project.
- 6) Project partners will work with the Western Lake Erie Ecosystem Model (WLEEM) developers to employ the WLEEM capability to compute impacts of BMPs on sediment and nutrient loadings (and movement) in Lake Erie, and resulting algal biomass production. The WLEEM model and partners will help answer the question, "how much conservation is enough and what combinations of practices are effective?"
- 7) Project partners will annually evaluate the environmental impacts of the practices installed by producers through science-based calculations such as STEPL or other science-based methodology. These calculations methodologies enable quantification of practice benefits such as phosphorus and sediment reductions.

**V.B.4g. Partners should consider different approaches for evaluating project outcomes and propose the best approach given partner resources and capacity. Approaches may include, but are not limited to, the following: identification of issues of concern and related priority source areas within a watershed, followed by an assessment of relevant conservation implemented in the critical areas to address the identified resource concern(s); monitoring at field or applicable broader scale to document the effects on conservation practices installed; or simulation modeling to estimate practice effects.**

The project partners considered the consequences of doing nothing to address nutrient and sediment loading in the WLEB and the continued risk of HAB and chose this partnership option to reduce the nutrient and sediment loading. By partnering with NRCS and bringing other partners to the table, federal funds are leveraged, more practices will be installed on cropland in the priority areas as well as other areas of the Basin, and the WLEB benefits with reduced HAB.

**V.B.4h. Identify potential criteria to be used by NRCS to evaluate and rank agricultural producers' or landowners' RCPP applications in the project area that are linked to NRCS' overarching metrics for judging the success of the program: solutions, contributions, innovation, and participation. Those criteria should reflect local priorities in addressing the primary resource concern as well as local considerations for conservation implementation.**

This project will use national EQIP ranking and work at the state level with NRCS to modify or develop new practices as appropriate, based on the demonstration projects or other research efforts. The project team seeks to have common local questions and ranking points to the extent possible so that all farmer participants in the project area have the same opportunity to participate in the additional cost share funds available through the project.

**V.B.4i. An estimate of the percentage of eligible producers and landowners in the project area who may participate in the project, along with an estimate of the total number of participants located in the project area.**

The project team believes it may reach a total of 1,200 producers and landowners. Many more farmers will have been introduced to the program through outreach and education opportunities. Of that total, Indiana plans to reach at least 200, Michigan 300, and Ohio 700.

The agricultural governmental agencies, including the Soil and Water Conservation Districts (SWCD), and the non-governmental agencies, like The Nature Conservancy, have a rich heritage of working successfully with the producers in the Western Lake Erie Basin (WLEB). Conservation districts maintain an array of programs, all designed to develop and implement local solutions to natural resources problems. A primary focus of the districts is education, where they develop natural resource stewards. The entities have used federal, state, and local funds to fund programs that help the producers make practical farming changes to conservation farming for over thirty years. As a result, the producers trust the agencies and have a level of respect for the employees and listen to their advice on conservation farming practices.

A lot of the producers attend the education events presented by the SWCDs and/or their partners to learn about the new Ag technology, conservation practices, and to see demonstration sites of Best Management Practices (BMPs). The SWCD board chairs work with the NRCS agency and local producers through locally lead meetings to identify local natural resource concerns that can be addressed through the installation and implementation of BMPs that protect and improve the natural resources within the county. In addition, the agencies and their partners have a great working relationship with CCAs and Ag retailers in the priority sub-watersheds. Working collaboratively, the governmental and non-governmental agencies and other stakeholder groups and farmers can conserve important natural resources, while maintaining community well-being.

**V.B.4j. If applicable, indicate how the project will help producers in the area in “assisting producers in meeting or avoiding the need for natural resources regulatory requirements.” Briefly describe the regulation or potential regulation; the impact or potential impact of the regulation on producers, including any economic impact or impact on production; what mechanism will allow project activities to be considered under regulation.**

Each state has different institutional structures impacting the natural resources regulatory requirements. For Ohio farmers, there is a real risk that failure to voluntarily solve the Lake Erie algal problem could result in increased public pressure resulting in new regulations for the Lake Erie Watershed. This program will provide a voluntary approach that, if successful, may reduce the risk of additional future regulations. While the agriculture community seeks voluntary approaches to addressing nonpoint source pollutants, Indiana and Michigan farmers face the same challenge of increased public pressure to regulate agricultural operations. Michigan has incentives in state law related to accidental or unanticipated discharges that are available only to farmers who are operating consistently within MAEAP standards. This project will assist farmers in becoming eligible for MAEAP verification via conservation planning and implementation.

**V.B.4k. A description of any requested adjustments of terms, by program, with an explanation of why the adjustment of terms is needed in order to achieve the objectives of the project. If a partner is requesting specific program flexibilities that depend on detailed participant or project information, the application must provide the needed information. Partners should contact the appropriate NRCS State Conservationist, or his or her designee, to determine the specific information that may be required.**

This project is requesting development of a new Water and Nutrient management plan Conservation Activity Plan practice (W&N-CAP). Research has shown nutrient loadings directly related to quantities of both surface and tile water leaving WLEB fields. NRCS will develop a W&N-CAP practice that will allow farmers to receive assistance in designing a customized plan to integrate drainage water management structures in their tile systems, and other appropriate conservation buffer/water retention practices with their nutrient management planning.

The project also requests the flexibility to shift financial assistance across state boundaries, with approval of NRCS, when it is appropriate to achieve the desired outcomes for the project.

There are four different working SWAT models in the project area. If the various watershed modelers have access to the data for program practices installed (with appropriate privacy safeguards and under mutually agreed conditions), they could model and quantify the environmental impacts of the practices installed under the RCPP program. It is requested that NRCS nationally work with the project partners to develop a process for what can be shared and how it can be shared to enable the watershed modelers and universities working in the basin to report the project results and quantify benefits. It is understood that this will have to be completed with appropriate privacy safeguards, but that may be done by aggregating data and results at the HUC 12 or HUC 8 level, use of confidentiality agreements, etc.

**V.B.4l. If the project will request an alternative funding arrangement, include a detailed description of the proposed arrangement.**

Not applicable to this project.

**V.B.4m. If the proposal includes any activities that are not covered by one of the NRCS conservation practice standards, briefly identify the beneficial and adverse effects of those activities on affected natural resources (soil, water, air, plants, and animals) and specially protected resources (e.g., cultural and historic resources, wetlands, threatened and endangered species, etc.). If these other actions are covered by an existing National Environmental Policy Act (NEPA) document, provide the name of the document, a link, or indicate how a copy can be obtained.**

Based on conversations with state NRCS staff, the project team believes that the standard NEPA form NRCS state offices use for practice implementations should be sufficient for the proposed demonstration practices as well as the conservation practices implemented through this project.

**V.B.4n. Certifications: SF-424B – Assurances, Non-Construction Programs. All applications must include this document.**

See attached SF 424B form.

**V.B.4o. The following items must be obtained prior to entering into an agreement with the Federal Government. Applicants are encouraged to apply early for their DUNS number and SAM registration.**

DUNS #: 805335577

MDARD is registered with SAM.