

Great Lakes Basin Program GLRI Project

Upper River Raisin Riparian Protection Program

Size: watershed
Grant Amount: \$103,954
Year awarded: 2012

Sponsor

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Submitted Project:

Size: watershed
Budget: \$103,954
Savings: 26,118

Background

Sediment Sources

Agriculture is a significant land use in the project area, covering 73% of the Upper River Raisin watershed (of which two targeted HUCs are a part) and 42% of Iron Creek, the third targeted HUC. The project area represents the highest water quality in the Watershed. Twenty-one species of mussels, including a number of state-listed species, have been identified in the Watershed. Mussel abundance, richness and diversity are the greatest in the Upper River Raisin, while downstream areas are significantly more degraded. The combination of relatively high water quality and abundant agriculture creates a significant opportunity to demonstrate how semi-permanent and permanent best management practices can be used together to significantly reduce sedimentation and erosion problems. A concentrated effort to guide agricultural management practices in this area will reduce the need to undertake more costly efforts in the future, as pressure from the agricultural market or development alters management practices and land use. Implementing permanent conservation easements will transform best management practices into permanent landscape features, stopping some properties from contributing to high sediment loads in perpetuity. This project is intended to ensure that three sub watersheds permanently do not contribute to high sediment loads in the Lake Erie basin.

The River Raisin Watershed covers approximately 1,059 square miles (677,800 acres) and drains from the north and west, entering Lake Erie at Monroe Harbor. According to the River Raisin Watershed Management Plan, approved by the state of Michigan in 2009, the conversion of land to intensive agriculture has resulted in massive nonpoint source contributions to total suspended solids (TSS), severely diminishing water quality across the Watershed (RRWMP, p.62).

This project was funded by the Great Lakes Restoration Initiative, and is maintained through the Great Lakes Basin Program for Soil Erosion and Sediment Control at the Great Lakes Commission.



This watershed-scale project covers three USGS twelve-digit Hydrologic Unit Codes (HUCs) in the Iron Creek and Upper River Raisin sub-watersheds; the Iron Creek (041000020106), Town of Manchester – River Raisin (041000020105), and Norvell-Manchester Drain – River Raisin (041000020104) HUCs encompass 76.8 square miles. These three sub watersheds are more heavily forested, with a greater quantity of wetlands, than the watershed as a whole. Specifically, the Upper River Raisin sub watershed (of which the Town of Manchester – River Raisin and Norvell-Manchester Drain – River Raisin sub watersheds are a part) is 73% agriculture, 11% forest and 1% wetlands. Iron Creek is 42% agriculture, 21% forest and 10% wetlands.

These areas have been targeted for protection activities in the River Raisin Watershed Management Plan, based on the relatively healthy nature of this portion of the River. As such, projects that support conservation and protection of these important lands will provide significant water quality benefits in downstream areas. The partnerships and financial resources already invested in these sub-watersheds, including the River Raisin Watershed Management Plan and the Upper River Raisin Riparian Protection Project (EPA 319 Clean Water Grant), will support the sedimentation reduction practices implemented by this project and encourage the future adoption of these practices across the Watershed.

This project assumes that conservation and protection take place at several levels, from individuals seeking information about best management practices, to large scale landowners looking to undertake long term stewardship and protection efforts. Landowners will be provided with opportunities to learn about the role their private land management plays in protecting the watershed. Education materials will explain the fiscal and environmental benefits of undertaking best management practices, including conservation easements. A subset of the landowners who participate in one-on-one education conversations will be encouraged to undertake permanent conservation easements and will be assisted by Legacy Land Conservancy in these efforts. With a coordinated effort, the opportunity exists to create synergies between education efforts, semi-permanent and permanent best management practices, and develop a 'virtuous circle' of greater understanding and interest in the Watershed, along with enhanced personal responsibility for watershed impacts.

The River Raisin Watershed was historically wetland, grassland or forest before undergoing a major land use change to agriculture between 1830 and 1900 (RRWMP, p.28). Agricultural lands are currently used to produce mostly corn, soybeans, wheat and vegetables (RRWMP, p.48). In the project area, the Upper River Raisin as a whole is 73% agriculture, 11% forest and 1% wetlands. Iron Creek is 42% agriculture, 21% forest and 10% wetlands (RRWMP, Table 5-16, p.99). Agricultural land use contributes to increased flashiness in the Watershed, especially where riparian areas are cleared to remove a source of weeds and diminish cover for crop-damaging wildlife. Where these areas have been cleared, more water flows overland directly into the river, rather than percolating through the soil profile (RRWMP, p.48). In conjunction with tilled land, erodible soils, and hilly topography, these areas are of concern due to their potential contribution to a high sediment load in the river.

The topography in the project area consists of gently rolling hills with highly variable soils (RRWMP, p.24). Soils in the project area derive from glacial parent material, including end moraines, glacial outwash sand and gravel, and glacial till of varying textures. Soil types are primarily of well drained loamy sands and sandy soils, and very poorly drained loamy-much soils (RRWMP, p.24). Forty-six percent of soils in the project area are highly erodible or potentially highly erodible.

Objective

This project will permanently reduce sediment loads in the River Raisin Watershed by layering agricultural sediment reduction best management practices with conservation easements. Best management practices include planted filter strips and riparian buffers designed to remove sediment from agricultural runoff. Establishing conservation easements will shift these traditional best management practices from temporary practices dependent on the landowner to permanent features of the landscape. The Upper River Raisin

Riparian Protection Project, 2010-0022, funded under the Section 319 Nonpoint Source Management Program, is an existing program designed to preserve pre-settlement land cover in those areas of the River Raisin Watershed which have been minimally disturbed by agriculture, through outreach, education and long term land protection efforts. Seen as an extension of the 319 project, this project targets three sub watersheds with high percentages of agricultural land where efforts to preserve natural land cover already exist, contributing to an aggregate solution to high sediment loads in the Lake Erie Basin.

Goals

- 1) Expand the use of sediment-reducing best management practices under the Environmental Quality Incentives Program (EQIP) in the project area.
- 2) Maximize the use of funding from the Environmental Protection Agency's Great Lakes Restoration Initiative (GLRI) for expanded EQIP efforts in the River Raisin Watershed.
- 3) Increase farmland easement applications to the Washtenaw County Natural Areas Program from the project area.
- 4) Strengthen the partnership between the Legacy Land Conservancy, the Raisin Valley Land Trust, the Washtenaw County Conservation District and the Natural Resources Conservation Service.

Readiness to Implement Project

Do you have the staff resources, including design engineering assistance, to accomplish the project? Are the designs complete or nearly complete? If relying on NRCS for engineering assistance do you have some formal agreement between you and NRCS?

Filter strip design and implementation will be carried out through the local NRCS office. NRCS has been a part of developing this application. Upon award, Legacy and NRCS will enter into a formal Memorandum of Understanding to implement this portion of the project.

Legacy has adequate resources to complete the permanent conservation easements anticipated by this program. Robin Burke, Land Protection Coordinator, will be responsible for implementing these easements. Legacy Land Conservancy has completed 96 projects, and holds 60+ conservation easements, over half of which are farmland protection projects.

Are permits required for this project and if so, have they been issued?

No permits are required.

Do you need an easement/landowner permission to implement your project?

A portion of this project involves permanent conservation easements, which will be developed through this project.

List approved grants over \$25,000 received from other sources within the past three years. Include the Grantor's name and a brief description of the projects.

- Upper River Raisin Riparian Protection Project (EPA 319 Grant), funded by Michigan Department of Environmental Quality. (\$395,138)
- Anonymous Foundations #1: \$225,000 - general program
- Anonymous Foundation #2: \$75,000 - general program
- Herrick Foundation: \$250,000 - land protection endowment challenge grant
- Anonymous Grantor #3: \$192,000 - Webster Township/Arms Creek land protection.

What partnerships (outside of your organization) have you established to help implement this project? List your partners.

This project is part of the River Raisin Partnership. The River Raisin Partnership (RRP) was formed in 2010 by Legacy Land Conservancy, Raisin Valley Land Trust, Stewardship Network, and the River Raisin Watershed Council. This group, which has since expanded to include Conservation Districts, The Nature Conservancy, and local parks and recreation organizations, is devoted to protecting the quality of the River Raisin. Its primary focus is the headwaters portions of the River Raisin, which include the HUCs of this target area. The Raisin Valley Land Trust, Washtenaw County Conservation District and Natural Resources Conservation Service will provide support in implementing this grant proposal.

Partner descriptions

Legacy Land Conservancy is a 501 (c)(3) organized in 1971 to protect farmlands and natural areas in southern Michigan. Legacy was the first local land trust in Michigan. In 2008, it became one of the first conservancies in the nation to have its practices accredited. Legacy has protected nearly 5000 acres throughout Washtenaw and Jackson Counties. Of Legacy's 96 land protection projects, 36 involve working farms. The River Raisin is part of the water protection priority areas identified by Legacy, and it holds conservation easements on 579 acres in the Watershed.

Legacy's operating budget is approximately \$500,000 annually, including donations, foundation grants and government grants. Audited financials are available on request.

Legacy is a partner in the Upper River Raisin Riparian Protection Project, 2010-0022, funded under the Section 319 Nonpoint Source Management Program established by the 1987 amendments to the Clean Water Act. The Riparian Protection Project is designed to preserve pre-settlement land cover in those areas of the River Raisin Watershed - specifically the Upper River Raisin, Goose Creek, and Iron Creek sub-watersheds - which have been minimally disturbed by agriculture.

The Raisin Valley Land Trust is a 501 (c) (3) and follows Land Trust Alliance Standards and Practices. It was formed in 1992, and has protected 600 acres in the Watershed to date. RVLT is a partner in the River Raisin Partnership and, due to their local presence, provides valuable connections with landowners in the target area. Combined with the broader technical reach of Legacy, RLVT brings an important grassroots dimension to partnership activities.

The Washtenaw County Conservation District (WCCD) is a local agency of Michigan state government that assists Washtenaw County landowners and residents with the conservation and management of their natural resources. It was first formed in 1948. WCCD provides direct technical assistance and referrals to other conservation entities. WCCD is co-housed with the USDA Natural Resources Conservation Service and provides a bridge to NRCS programs for the project.

The USDA Natural Resource Conservation Service (Washtenaw County) (NRCS) was originally formed in 1935. NRCS works with landowners through conservation planning and assistance designed to benefit the soil, water, air, plants, and animals that result in productive lands and healthy ecosystems. The conservation programs of NRCS are extensively used by private landowners to resolve water quality problems, reduce erosion, and protect farmland. Washtenaw County NRCS has one of the Midwest's leading farmland protection efforts through its extensive use of the Federal Farm and Ranchlands Protection Program. This program is carried out in cooperation with Legacy and other local entities. While NRCS will not participate financially in this project, their involvement is critical. This project will help them extend their limited resources to market EQIP and other water quality beneficial practices to farmers. Close cooperation between NRCS and the permanent conservation organizations will result in more use of cost sharing practices, greater permanence for those practices and, ultimately, greater use of Federal Farm and Ranchlands Protection funds in the area.

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Legacy Land Conservancy Staff

Robin Burke, Land Protection Coordinator. As Legacy's Land Protection Coordinator, Robin is assigned 50% to the River Raisin projects and 50% to farmland protection. The extension of the Upper River Raisin project to farmland will merge these two areas, and extend her work in the River Raisin to __%. Robin holds a masters degree in Landscape Architecture from the University of Michigan School of Natural Resources and Environment. Robin will be responsible for targeted landowner identification, landowner outreach and education and the development of conservation easements.

Susan Lackey, Executive Director. As Legacy's Executive Director, Susan will be responsible for overall project management and assisting with the development of conservation easements. Susan joined Legacy in 2005 after a career in economic development and urban planning. Under her leadership, the budget has doubled, and lands protected have increased by 177%.

Erika Taylor, Operations Management. Erika holds an undergraduate degree in natural resources management from Cornell, and an advanced business degree. She is responsible for all grant management, including project accounting and recording.

Washtenaw County Conservation District Staff

Dennis Rice, Executive Director Dennis will work with Robin on landowner outreach and education, with a particular effort in developing referrals to NRCS conservation programs. Dennis has been with the District since July, 1981. Dennis has a Bachelor of Science degree in Natural Resources, from The University of Michigan.

For watershed projects only, is there a state approved watershed plan (or one in development) that includes your designated implementation HUCs? If yes, does the watershed plan denote specific sediment reduction BMPs and list implementation locations for those BMPs? What other on-going conservation activities are taking place in the HUCs? Are there any existing project being implemented such as a Water Quality Act, or Section 319 project? Is there an established watershed council or steering committee involved with the project? If yes, briefly describe the mission of the group. When was it established, how often does it meet, what is the average attendance at the meetings? If not, what is your plan for broad based community involvement in implementing the project?

State approved watershed management plan

The River Raisin Watershed Management Plan was approved by the state of Michigan on October 16 of 2009. The northern reaches of the Watershed, including the land covered by the proposal, are identified in the Management Plan as targets for conservation and protection of water quality. Plan writers have noted that conservation programs are widely used by farmers throughout the Watershed. However, these practices have not had the desired effect, due largely to their opportunistic nature (RRWMP, p.101). Plan writers encourage the strategic use of these programs (RRWMP, p.115). This proposal addresses the fact that best management practices are but one step toward reducing sediment loads and are not, in themselves, permanent. Partnering with the NRCS and WCCD to implement best management practices while completing permanent conservation easements on agricultural land is an approach that will outlast the temporary nature of NRCS contracts and weather the changing pressures of agriculture values on plowing practices. The integrated approach presented by this proposal is designed to maintain the relatively high quality of the project area, and increase the effectiveness of ongoing conservation efforts through implementing conservation easements in addition to traditional cover-based best management practices.

The Watershed Management Plan identifies conversion of natural land cover to agriculture as the primary cause of sediment that impairs and threatens water use, and prioritizes the conservation and restoration of natural land as the first objective in reducing sedimentation. The Upper River Raisin Riparian Protection

Project (EPA 319 Clean Water Grant) addresses this objective at several levels, educating community members and landowners while coordinating long term and even permanent land protection efforts. The Watershed Management Plan's second objective in restoring hydrology and sediment loads is to improve management of storm water and drainage in cropland systems (RRWMP, p.114). As such, the sediment control emphasis of this project will function as Phase 2 of the Riparian Protection Project, permanently reducing downstream sediment loads. This proposal addresses concerns raised by increased levels of sedimentation, through encouraging sound water quality stewardship practices, such as filter strips, riparian buffers, and establishment of permanent land protection in and around stream banks. The efforts of this project will serve as examples of what can be implemented across the watershed in the future, through the continued collaboration of the River Raisin Partnership organizations and others, extending sedimentation reductions over time.

The methodology for implementing this project is intended to build on prior work in the River Raisin Watershed, and establish demonstration projects to encourage similar implementation across the watershed. The Upper River Raisin Riparian Protection Project (EPA 319 Clean Water Grant) is designed to encourage non-agricultural land owners to enter into more intensive stewardship activities and permanent land protection, as a means of reducing the potential of additional sedimentation load due to land conversion, increased impervious surface and poor management practices. This proposal builds directly on that work with a new set of stakeholders. Lenawee Conservation District is also engaged in a program to auction BMPs and, where overlap exists, this project will work to encourage the participants in that program to move the next step into permanent land protection.

By prioritizing parcels of land for their potential to decrease sediment loading, the project will identify individual landowners to approach with farmer-focused education materials. These materials will address a common lack of understanding of the fiscal and environmental benefits of implementing sediment reduction best management practices while emphasizing that conservation easements are a best management practice that makes a permanent difference.

The River Raisin Watershed Council is a partner in the River Raisin Partnership. The Council currently lacks staff and is undergoing reorganization. In collaboration with the Washtenaw County Conservation District and the Raisin Valley Land Trust, Legacy Land Conservancy will meet individually with landowners identified in the prioritization process, referring them to the NRCS for cost share programs in support of sediment reduction best management practices, and encouraging conservation easements where appropriate. Because this is a relatively small target group of high priority land owners, this method of communications will be more effective than large scale public efforts.

The results of the project will also be publicized through local media releases and the communications outlets of the partners, including newsletters, websites and public meetings. In addition, Legacy Land Conservancy, Washtenaw County Conservation District and the RVLTL will take advantage of the opportunity to share results with a broader audience of conservation professionals at conservation forums in Michigan and beyond, including the Stewardship Network Annual Conference, Heart of the Lakes Summit and Land Trust Alliance national Rally for the Land.

Project Work Area

HUC: 041000020104 - Norvell Manchester Drain-River Raisin, Michigan

HUC: 041000020105 - Town of Manchester-River Raisin, Michigan

HUC: 041000020106 - Iron Creek, Michigan

Total Area: 49152

Agricultural Area: 31583

Forest Area: 14768

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Urban Area: 573

Priority Areas:

The first step in this project will be identification of priority landowners. These landowners will those who hold working farms with significant frontage on stream corridors draining directly to the main stem of the River Raisin or are located at the outlet of a sub watershed, clay soils, highly erodible soils and expressed interest in EQIP and other USDA-NRCS conservation programs that encourage sedimentation reduction.

Implementation

Implementation Strategy

The direct sediment control emphasis of this project is demonstrated through the use of best management practices which are designed to remove sediment from agricultural runoff and increase infiltration. Best management practices, including the installation of filter strips and riparian buffers, will be implemented according to state NRCS standards of practice. The practices act directly to slow the flow of water over land, increase infiltration, and remove sediment from agricultural runoff. Placing permanent conservation easements on select properties will perpetuate the benefits of sediment management practices.

Two nontraditional approaches to sediment control are used in this project: First, the combined use of sediment-removing best management practices with conservation easements is a nontraditional approach that allows practices dependent on the landowner to become permanent landscape features – meaning they will never contribute to sediment loads in the Watershed; Second, the prioritization of placing perennial vegetation at the toe slopes of sub watersheds and confluences of smaller-order streams which draws on preliminary findings of the Science-based Trials of Row crops Integrated with Prairies (STRIPs) project. The STRIPs project is an interdisciplinary effort by a team of researchers, educators, and extension specialists studying the integration of prairie into row-cropped agricultural systems at the Neal Smith National Wildlife Refuge in Jasper County, Iowa. Findings show that replacing 10-20% of rowcrops with perennial prairie at the toe slope of a small watershed can lead to sediment loss reduction of approximately 90% (<http://www.nrem.iastate.edu/research/STRIPs/research/index.php?page=Ecohydrological>).

This project will develop a soil erosion reduction goal based on the Load Reduction Worksheet developed by the Michigan Department of Environmental Quality. This worksheet estimates the amount of pollutants, including Total Suspended Solids (TSS), avoided by retaining land in an undeveloped state. This tool is accepted by the Environmental Protection Agency in evaluating the efficacy of easements purchased using '319' funds. This worksheet estimates the benefits of various practices, including but not limited to conservation easements. According to this worksheet, two completed easements, encompassing a total of 104 acres, would result in a 13,836 pound per year reduction in TSS contributed to the River Raisin. Conservation easements insure this reduction in perpetuity; 692 tons of TSS will be avoided over 100 years.

Additionally, the project will assume that where sizeable perennial plantings (in the form of filter strips or other buffers) can be implemented at the toe slope of small watersheds that are otherwise row-cropped, sediment loss may be reduced by approximately 90%, as suggested by the STRIPs project. The development of a soil erosion reduction goal based on these two sources will create projects that demonstrate the efficacy of upland sediment control, setting the stage for the implementation of similar projects across the River Raisin Watershed.

Technical Assistance

Technical assistance is not required for this project. BMPs (particularly filter strips) will be implemented using the USDA-NRCS EQIP program. One goal of this project is to increase the amount of EQIP funds to farmers in this Watershed.

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BMPs

Name: Filter strips

Type: Agronomic/Cover-based

Acres: 11

Cost: 0

Description:

Filter strips will be implemented according to state NRCS standards of practice. Filter strips act directly to slow the flow of water over land, increase infiltration and remove sediment from agricultural runoff. The partnership will complete 15 filter strip projects over three years, with each landowner holding a 10-year contract to maintain the filter strip(s). Cumulatively over 10 years these projects will save 135 tons of soil from erosion. Through EQIP a landowner can receive \$418.00 per acre of filter strip.

Start Date: April 2013

End Date: March 2015

Incentive Method: Cost share

Incentive Rates: \$418 per acre

Total Soil Savings: 118

Name: Permanent Conservation Easements

Type: Easements

Acres: 104

Cost: \$23,000

Description:

This project will result in two permanent agricultural conservation easements, encompassing an estimated 104 acres (Legacy's current conservation easement average is 52 acres.) The language of the conservation easement will require the landowner to complete a conservation plan in collaboration with the NRCS. The easement - and the language requiring an NRCS conservation plan - is permanent; therefore this benefit will continue each year, perpetually. Based on the practices typically included in an NRCS conservation plan, as compared to the most intensive agricultural practices, 26000 tons of soil erosion will be avoided over 100 years.

Start Date: 0

End Date: 2015

Incentive Method: permanent easement

Incentive Rates: 0

Total Soil Savings: 26000

Media Campaign

Kickoff:

During the second quarter of the project, a media event will be held at a priority-identified property within the Watershed. The purpose of this kick off event will be to explain the importance of agricultural conservation practices to water quality in the River Raisin. This event will be supported by Legacy Land Conservancy's social media efforts, including email newsletters, Facebook, Twitter and other platforms.

It will be supplemented by a bus-tour of the priority area (one hour maximum), which will provide an opportunity for participants to: 1) understand the inter-relationship of agriculture and natural lands within the target area; and 2) explore already protected lands and/or those where landowners have been implementing BMPs, such as cover crops and filter strips.

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Ongoing:

Most of the outreach on this project will be accomplished by one-on-one meetings and small group meetings with targeted landowners. Additionally, partners will use their standard communications vehicles, including newsletters, web sites and social media to promote this program. Partners will arrange to attend planning commissions and township boards in all the targeted townships to explain this program and the benefits it and similar ongoing efforts will achieve in protecting the water quality of the Upper River Raisin.

Finally, partners will arrange for presentations at appropriate state and national programs, such as: 1) Stewardship Network annual conference; 2) Heart of the Lakes (Michigan) Annual Summit; 3) Land Trust Alliance Midwest Rally; and 4) Land Trust Alliance national Rally for the Land.

Sustainability

As indicated (above) the Upper River Raisin is a protection priority for Legacy Land Conservancy. It is part of an area known locally as the Emerald Arc, which forms a natural greenbelt for the 5 million people of southern Michigan and serves to protect the River Raisin, Huron and Upper Grand River watersheds. As such, Legacy is committed to continuing the work of this project beyond its time frame. The initial grant will provide an intensive effort to launch a protection strategy and raise visibility of sedimentation reduction cost sharing and land protection options.

Permanent land protection is frequently a long term process, depending on family, financial, estate planning and related issues. Thus, while this project will show progress during its three year term, it will continue to bear fruit for many years in the future if Legacy and its partners in the River Raisin Partnership continue to work with the targeted landowners.

Additional funding through the Section 319 Nonpoint Source Management Program may be pursued to support the implementation of practices outlined in this project across the Watershed and FRPP and Washtenaw County Farmland Protection funding will be sought to continue this work at a less intensive, but nevertheless appropriate, level.

End:

At the conclusion of the project, partners will create a local press release highlighting the successes of the project and honoring participating landowners. Partners will also coordinate with the Washtenaw County Conservation District to honor participating landowners at the Conservation District's annual dinner.

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