Great Lakes Basin Program GLRI Project:

Stopping Sediment at its Source in the Rocky River Watershed

Size: watershed
Grant Amount: $400,000
Year awarded: 2011

Sponsor: Cuyahoga Soil & Water Conservation District
Address 1: 6100 West Canal Rd.
City: Valley View
State: Ohio
Zip: 44125
Telephone: 216-524-6580 x14

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Submitted Project:

Total Grant Amount Requested (from budget developed below): **$400,000**

Match Amount (not required but encouraged):

In-Kind: **$20,358**
Cash: **$95,871**

Total Project Soil Savings (add the savings from the estimates given below for all the BMPs you have proposed to be installed): **18,340**

Congressional District(s) project is located. OH-10, OH-13, OH-16.

II. Project Background

Sediment Sources

Briefly describe the sediment loading issues, including sediment sources, in your watershed and their relevance to sediment loadings to a Great Lake.

The sediment loading to Lake Erie from the Rocky River is approximately 70,560 tons/year, or the equivalent of 240 tons/square mile/yr. This is 15 times the estimated background loading of 4704 tons/year (16 tons/square mile/yr) (Whiting, 2003). Although the 2001 Rocky River TMDL does not directly address sediment, the Rocky River Watershed Action Plan (RRWAP) identifies siltation, embedded substrate or sediment loading as a problem in well over 70% of the watershed.

Sediment sources in the watershed vary by land use. Urban and suburban development is the most important factor impacting water quality and aquatic habitat in the Rocky River Watershed. New developments, both large and small, have been commonplace for more than 50 years. The lower portion of the watershed,

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.

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including the Baldwin Creek subwatershed, is almost entirely urban and suburban. In fact, impaired stream segments in the watershed are associated almost exclusively with developed areas (RRWAP page C-1). While overall land use in the watershed is only 14% urban, this development is largely concentrated in its headwater systems. Channel destabilization caused by storm water runoff is a major source of sediment in urban and suburban areas, such as Cleveland's southwest suburbs, including the communities in the Baldwin Creek subwatershed. Sediment contributions from construction sites have historically been issues in these areas, as well.

In the watershed's rural areas, which are mainly located in Medina and Lorain Counties, soil loss from fields in row crop production, especially during periods of the year when the soil is bare, is an issue of primary concern - especially in the highly agricultural Mallet Creek and Plum Creek subwatersheds. Stream bank erosion is also an issue in rural areas, usually in association with inadequate riparian buffers bordering fields, historical ditching or other stream modification, and small housing developments.

Readiness to implement project

Describe your ability to readily implement conservation practices proposed in this project. Include the following:

What fund raising activities from other sources have you engaged in, including local public and private sources, to fund watershed projects? As part of this, 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.

Ohio EPA Water Resource Restoration Sponsorship Program (2011) - $365,000
For the removal of 3 low-head dams and in-stream habitat improvement and channel stabilization along the lower 0.5 miles of Baldwin Creek.

Ohio EPA Surface Water Improvement Fund (2010) - $147,000
Also for the removal of 3 low-head dams and in-stream habitat improvement and channel stabilization along the lower 0.5 miles of Baldwin Creek.

USEPA Great Lakes Restoration Initiative (2010) - $1.3 million
For the Euclid Creek Lecustrine Refuge Project, which will create a five-acre lucustrine wetland in lower Euclid Creek.

Ohio Department of Natural Resources Watershed Coordinator Grant (2010) - $105,000
A 3-year grant in support of the Rocky River Watershed Coordinator position, with the goal of implementing the Rocky River Watershed Action Plan.

National Fish & Wildlife Foundation Sustain Our Great Lakes (2009) - $98,000
To conduct a storm water retrofit opportunities inventory and prioritization in the Abram Creek, Baldwin Creek and Euclid Creek watersheds, and the development of a residential BMP incentive program in the upper Abram Creek subwatershed.

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?

The Rocky River Watershed Action Plan, which includes the Baldwin Creek, Mallett Creek and Plum Creek HUCs, was endorsed by the Ohio Department of Natural Resources and the Ohio Environmental Protection Agency in 2006. While the RRWAP does not include an explicit, numerical sediment reduction goal, it calls for

the protection and restoration of riparian corridors, streambank restoration, the passage and enforcement of meaningful contruction site sediment and erosion control policies, and increased land-based controls in order to reduce the impacts of sediment loading and embedded substrate. It goes on to indicate sediment loading as an issue in almost every subwatershed, including the proposed implementation HUCs – Baldwin Creek, Mallett Creek and Plum Creek. Furthermore, streambank erosion locations are specifically identified in the Baldwin Creek Watershed, where the RRWAP prescribes at least 7500 linear feet of streambank stabilization and channel restoration activities to control sediment loading. Additionally, preliminary modeling using the BASINS program suggests that the Mallett Creek subwatershed is the largest per acre contributor of sediment from upland sources in the Rocky River Watershed, while Plum Creek is the second largest contributor (out of 11 HUC-12 subwatersheds).

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?

Baldwin Creek Dam Removal: The Baldwin Creek Dam Removal and Habitat Enhancement project, funded through the Ohio EPA Surface Water Improvement Fund and Water Resource Restoration Sponsor Program (WRRSP), will remove 3 small dams along the lowermost 0.5 miles of Baldwin Creek in Berea. As part of the project, ~1000 feet of eroding streambank upstream of the dam sequence will be stabilized, generating annual soil savings of __ tons/yr. The project is expected to go to construction in late 2011.

Construction Site Erosion and Sediment Control: The five communities in the Baldwin Creek subwatershed are Phase II communities, and as such are implementing NPDES MS4 permit requirements controlling sediment and erosion on development sites.

Farm Bill Programs: Farm Bill programs, such as CRP, EQIP and CREP are available for agricultural lands throughout the watershed. These programs are largely underutilized in the Mallett Creek and Plum Creek subwatersheds, however. This is due to a number of factors, but is primarily due to the land ownership situation. The vast majority of the farmland in these subwatersheds is rented, and is farmed on year-to-year agreements. This creates a situation in which operators are reluctant to invest in many types of improvements.

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?

The Rocky River Watershed Council (RRWC) is a project partner. Established in 2002, it is a 501c3 nonprofit citizens group dedicated to the protection and restoration of the Rocky River and its tributaries. It is governed by a 15-member Board of Trustees, which meets monthly. The RRWC also hosts quarterly public meetings with speakers. Attendance at these meetings ranges from 25-90. In addition, a project steering committee will be convened semiannually to direct the project. This steering committee will include the project partners and local farmers.

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

Project partners include the Medina County Soil & Water Conservations District, Lorain Soil & Water Conservation District, NRCS, FSA, the Cities of Berea, Middleburg Heights, Parma, North Royalton and Strongsville, and the Rocky River Watershed Council.

Watershed/ Project Work Area

*List up to three **12 digit USGS HUC codes** that comprise your watershed implementation area:*

- 041100010104 (Mallett Creek)
- 041100010107 (Plum Creek)
- 041100010202 (East Branch below Healey Creek, including Baldwin Creek)

Enter the total acres are in the selected HUCs:

- 041100010104: 11,533
- 041100010107: 11,215
- 041100010202: 23,388

Enter the number of acres in those HUCs that are in the following land uses:

- *Agriculture including pasture landuse:*
  - 041100010104: 7822
  - 041100010107: 7133
  - 041100010202: 5749
- *Forest including brushland landuse:*
  - 041100010104: 3099
  - 041100010107: 3270
  - 041100010202: 12,615
- *Urban, suburban, industrial, commercial and rural residential landuse:*
  - 041100010104: 529
  - 041100010107: 585
  - 041100010202: 3741

Is your proposed area upstream from a significant dam? If so, explain why the reservoir is not acting as a sediment trap, especially for clay particles, and how your project is reducing sediment in the Great Lakes.

There is no significant dam downstream of these HUCs. The Baldwin Lake Dam on the East Branch of the Rocky River in Berea would have been considered significant at one time, but has silted in so much that the channel upstream of the dam is now ~3 times the width of the downstream channel, at its widest point.

*Describe the **Priority Areas** within the watershed where you are going to concentrate your efforts, list by geographic area or narrative description of specific conditions.*

The agricultural practices will be targeted in the Mallett Creek and Plum Creek subwatersheds. Within these watersheds, the practices (except livestock exclusion) will further target areas in row crop production. Areas considered Highly Erodible Land will be further prioritized. The cost-share on these practices will be structured in such a way so as to incentivize incorporating the selected practices over a larger area.

The streambank stabilization practices will be targeted in the Baldwin Creek subwatershed, which is characterized by medium-high density suburban residential land use that was developed largely during the 1960s and 1970s, before modern storm water control practices were required. This has led to altered hydrology and destabilization of streambanks and channels. The RRWAP includes a map of known areas of streambank erosion, and these areas will be further targeted.

III. Implementation

Project start date will be October 1, 2011

Implementation Strategy

Briefly describe the specific methodology(ies) you are going to use to implement the project. These can be traditional or creative nontraditional efforts. ***While 100% cost-share is allowed it is not encouraged.*** *Include such items as:*

- *The types of BMPs you are planning to install i.e. tree planting, easements, conservation tillage, streambank stabilization, hay in rotation, sediment basins, buffers, other*
- *timeline for implementation*
- *priority areas identification process*
- *incentive methods*
- *equipment purchases*

Soil loss from fields in row crop production, especially during periods of the year when the soil is bare, is an issue of primary concern - especially in the highly agricultural Mallet Creek and Plum Creek subwatersheds. The following practices are being proposed to address this situation. Cost share rates and targets for the amount of a particular practice to be deployed through the project were developed by the project team, including representatives from Cuyahoga and Medina SWCDs, NRCS, FSA, ODNR-Division of Soil and Water Resources, the Rocky River Watershed Council and local farmers.

Cover Crops: The experience of farmers in these subwatersheds is that generally, by the time in the fall when cover crops would be planted, the fields are too wet to get the equipment out. There has been some success in neighboring counties with aerial seeding of cover crops, which we will promote through this program – participating operators will have the option of aerial or conventional seeding, all available at the same cost-share rate. Because the project start date will be in October, this will be highly promoted beginning on the project initiation date, in order to have a full three cycles of cover crops during the life of the grant (the practice will generally be implemented in the fall of the year). The project will provide a 75% cost share, up to $35/acre. An additional $5/acre bonus will be provided to any operators deploying the practice over more than 75 acres in a given year, to incentivize moving beyond the trial stage. Priority areas will include any fields in row crop production in the Mallett and Plum Creek subwatersheds. Highly Erodible Lands and fields within 250 feet of a stream channel will receive priority within that subset. The target is 100 acres in Year 1, 300 acres in Year 2 and 500 acres in Year 3.

Filter Strip/Buffer: Operators deploying this practice will establish vegetated filter strips adjacent to streams. Cool or warm season grasses will be eligible. Minimum width will be 33 feet and will be reimbursable up to 60 feet. The practice will be cost-shared at a rate of $200/acre/year, and will only be eligible in the first year of the project, in order to get the practice on the ground for the maximum number of years. The target is 10 acres, which is sufficient to buffer ~8700 feet of stream channel (at an average width of 50 feet).

Conservation Tillage/Residue Management: Very few farmers in the target subwatersheds utilize no-till practices (especially for corn), due to the soil conditions and lost revenues (or the perception thereof). However, a few operators are incorporating conservation tillage practices such as vertical till and zone till. The goal of the project is to expand both the number of operators utilizing these practices, and the number of acres over which the current operators are using them. A per acre payment will be made ($10/acre for zone tillage, $15/acre for vertical tillage). An additional $5/acre bonus will be paid to all participating operators (utilizing both the rental equipment and the equipment purchase option, as well as those who already own the implement but expand its use) who incorporate the practice on over 100 acres within the project watersheds, in order to expand the practice beyond the trial stage. The target is 1000 acres/yr. This practice category will be implemented throughout the three years of the grant, but will be primarily utilized in the fall of each year (1st and 4th quarters of each year).

Grassed Waterway: Since much of the land being farmed in the target watersheds is rented year-to-year, operators (and owners, to a lesser extent) have been hesitant to implement engineered practices such as grassed waterways. This project will overcome this by having the option of entering into a contract with the operator instead of the owner (though still requiring verification/permission from the landowner). The cost share rate for grassed waterways will be 75%, up to $5000/acre. The project goal is to install 3 acres in year 1 and 7 acres in year 2. Outlet and/or grade control for grassed waterways will also be available, at a rate of 75% up to $5000, for 4 structures.

Livestock Exclusion: While not problematic throughout the target subwatersheds, specific areas of concern in Mallet Creek and Plum Creek will be addressed through livestock exclusion fencing. The cost share rate will be 75%, up to $1 foot for 2-strand fencing. Watering systems will also be made available at a 75% cost share rate, up to $500. The project goal is 7500 feet of exclusion.

Streambank Stabilization: Streambank stabilization practices will be targeted to the HUC that contains Baldwin Creek (041100010202). Priority will be given to sites within the actual Baldwin Creek subwatershed, and sites within the Baldwin Creek subwatershed that are identified as being within streambank erosion areas targeted by the RRWAP will receive higher priority still. Property-owners will be expected to hire their own contractors, and plans will need to be approved as meeting NRCS standards before any construction begins or payment is made. Only soft engineering practices will be approved, except in extreme circumstances. A cost-share ranging from 50% to 75% (up to $56.25/linear foot) will be provided, depending on the severity of the erosion at the site. Factors to be used to determine the severity of erosion and therefore the cost share rate will be the Bank Erosion Hazard Index (BEHI) score at the site (as determined by project staff) and the length of eroded streambank being restored. The purpose is to provide a higher cost share to the streambank erosion sites contributing the most sediment to the system. The project goal is to restore 2500 feet of eroding streambank over the three years of the project.

Technical Assistance

Grant money can be used to pay for technical assistance. Briefly describe the technical assistance required to implement the project over a three year period. You will be required to provide in-kind office space, administrative support, computer and other equipment, general office supplies, and other items and services required to perform their job. This can be shown as match.

Technical assistance will be utilized to administer and coordinate the program and contracts, provide project outreach and promotion, work directly with the operators and landowners to design and implement the various practices, certify that practices have been completed in compliance with standards. Delivery of technical assistance will occur through the local SWCDs (Cuyahoga, Lorain and Medina). Overall project coordination, administration and promotion will be provided by the Cuyahoga SWCD Rocky River Watershed Coordinator. The watershed coordinator will also deliver the technical assistance for the streambank stabilization portion of the program in the Baldwin Creek subwatershed. The Medina and Lorain SWCDs will be responsible for administering the agricultural BMPs in their respective portions of the Plum Creek and Mallett Creek subwatersheds. Administration of these program elements will be performed by the District Administrators and Administrative Assistants, while direct technical assistance related to the practices will be provided by the District Technicians.

BMPS - Fill out all that apply (A-E):

A. Agronomic/Cover-based Practices (BMPAs) installed by Landowners/Landusers with incentives paid for with this grant (ex. Cover Crops, conservstion tillage, no-till.) *If you have more than three BMPAs, copy and paste BMPA1 section and change the number as appropriate.*

BMPA1

Description: Cover Crops

Check the quarters the task is to be started and completed:

Quarter	1	2	3	4	5	6	7	8	9	10	11	12
Start/Complete	X											X

Number of acres/units of BMP to be installed during project: **900 acres**

Incentive method: **cost share per acre installed**
and rates: **75% (up to $35/acre), plus $5/acre bonus if installed on more than 75 acres**

Expected soil savings from BMPA1: **4000** total tons over the life of the BMPs.

BMPA2

Description: Conservation Tillage (Zone and Vertical Till)

Check the quarters the task is to be started and completed:

Quarter	1	2	3	4	5	6	7	8	9	10	11	12
Start/Complete	X											X

Number of acres/units of BMP to be installed during project: **3000 acres**

Incentive method 1: **share on acres of practice**
and rates: **$10/acre zone till, $15/acre vertical till** *(additional $5/acre bonus if practice completed on more than 100 acres)*

Incentive method 2:

Expected soil savings from BMPA2: **7500** total tons over the life of the BMPs.

BMPA3

Description: Filter Strip/Buffer

Check the quarters the task is to be started and completed:

Quarter	1	2	3	4	5	6	7	8	9	10	11	12
Start/Complete	X			X								

Number of acres/units of BMP to be installed during project:10 acres

Incentive method: **cost share per acre installed**
and rates: **$200/acre/year**

Expected soil savings from BMPA3: **720** total tons over the life of the BMPs.

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.

BMPA4

Description: Livestock Exclusion

Check the quarters the task is to be started and completed:

Quarter	1	2	3	4	5	6	7	8	9	10	11	12
Start/Complete	X							X				

Number of acres/units of BMP to be installed during project:10 acres

Incentive method 1: **cost share per foot installed**
and rates: **75% up to $1/ft**

Incentive method 2: **cost share per watering system**
and rates: **75% up to $500/system**

Expected soil savings from BMPA3: **2870** total tons over the life of the BMPs.

B. Engineering Practices (BMPEs) installed by Landowners/Landusers with Financial Assistance provided for with this grant (ex. Grass Waterway, Streambank Stabilization.) *If you have more than three BMPEs, copy and paste BMPE1 section and change the number as appropriate. All engineering practices must be approved by NRCS or an equivalent professional engineer.*

BMPE1

Description: Grassed Waterways (and outlet protection/grade control)

Check the quarters the task is to be started and completed:

Quarter	1	2	3	4	5	6	7	8	9	10	11	12
Start/Complete	X							X				

*Number of acres/units of BMP to be installed during project:***10 acres**

Incentive method: **cost share per acre installed**
and rates: **75% (up to $5000/acre)**

Incentive method 2: **cost share per practice installed for outlet protection/grade control for grassed waterways)**
and rates: **75% (up to $5000/practice) for 4 practices**

Expected soil savings from BMPE1: **2300** total tons over the life of the BMPs.

BMPE2

Description: Streambank Stabilization

Check the quarters the task is to be started and completed:

Quarter	1	2	3	4	5	6	7	8	9	10	11	12
Start/Complete	X											X

Number of acres/units of BMP to be installed during project: **2500 feet**

Incentive method: **cost share per foot stabilized**
and rates: **50-75%, up to $56.25/linear foot)**

Expected soil savings from BMPE2: **950** total tons over the life of the BMPs.

C. Agronomic/Plant-based Practices installed by Landowners/Landusers with the use of equipment purchased by this grant for which you retain ownership (ex. No-till Planters or Drills, Residue Management machines and Residue Management Attachments and tools.) *If you have more than two Equipments, copy and paste Equipment 1 section and change the number as appropriate.*

D. Alternate (ALT) Incentive Methods (ex. pay per ton/unit reduced/increased) *List each unit separately (ex. Pay per ton of sediment reduced rather than pay for a particular BMP.) If you have more than one ALT, copy and paste the ALT1 section and change the number as appropriate.*

ALT1

Description: Bonus per acre payment for installing practice on a larger number of acres for tillage and residue management practices

Check the quarters the task is to be started and completed:

Quarter	1	2	3	4	5	6	7	8	9	10	11	12
Start/Complete	X											X

Number of acres/units of BMP to be installed during project: **3900 (as reported above)**

Incentive method: **bonus per acre once threshold is reached**
and rates: **additional $5/acre**

Expected soil savings from ALT: ____included in above sediment reductions____ total tons over the life of the BMPs.

E. Easements, purchased in part or whole with grant funds, over which you or your assigns retain ownership. *If you have more than one type of Permanent Easement (EASP), or Temporary Easement (EAST) copy and paste the EASP1 or EAST1 section and change the number as appropriate.*

Note: The first quarter is from October 1, 2011 to December 31, 2011. *A written contract will be required between you and the landusers/landowners to fund conservation practices with GLBP funds. The contract will include among other items, the type, number and location of each practice to be installed as well as the cost-share/incentive rate to be paid for each practice. (We will also use the signed contract as proof of commitment of funding for reimbursement of your expenses.)*

Media Campaign

1. You will be required to conduct a kickoff event in the first quarter of the project. *You are specifically to invite, among others, all members of congress who have a portion of their district within your watershed project boundaries, the media and the chairperson of the Great Lakes Commission delegation from your state. Describe how and what you will do to meet this requirement.*

The kickoff event will be a field day to demonstrate the eligible practices. As part of the field day, there will be a wade-in/sechhi dip-in at a local creek to illustrate the sediment issues that we are addressing through the project. The event will be promoted through partner websites and social media pages, the local media outlets, and through organizations such as farm bureau.

2. You are also required to establish an on-going outreach campaign. *Describe your on-going outreach campaign strategy for the general public/media, landowners/landusers and elected officials*

The outreach strategy consists of two parts:

1. Educating the general public in the watershed about sediment, its effect on water quality, what can be done to limit it, and about the project in general. This will be accomplished through partner newsletters, web sites, and social media outlets, presentations at Rocky River Watershed Council meetings, and articles in local papers.
2. Direct outreach/promotion to potential program participants. Mailings describing the program will be sent to riparian landowners in the Baldwin Creek Watershed, and all operators in the Mallett Creek and Plum Creek subwatersheds. Additionally, at least 1 field day will be held each year, to familiarize potential participants with the suite of practices available through the program.