

# Great Lakes Basin Program GLRI Project

## Buffalo Creek Erosion & Sediment Control Project

**Size:** small scale  
**Grant Amount:** \$30,000  
**Year awarded:** 2012

**Sponsor:** Erie County Soil & Water Conservation District  
**Address:** 50 Commerce Way  
**City:** East Aurora  
**State:** New York  
**Zip:** 14052

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### Submitted Project:

Size: smallscale  
Budget: \$30,000  
Savings: 1,020

### Background

#### Sediment Sources

An April 2012 technical assistance visit revealed that Joint Board site 9-35 is experiencing extensive severe erosion along Buffalo Creek. Streambank erosion has historically been a major cause of sediment pollution within the watershed. The Erie County Soil and Water Conservation District continues to address streambank erosion problem areas along Buffalo Creek through the implementation of best management practices.

In 1949, The Erie and Wyoming County Soil and Water Conservation Districts' formed a Joint Watershed Board to function as the local sponsor to complete the Buffalo Creek Watershed Project, a pilot flood control project authorized by the 1944 Flood Control Act with the goal of reducing silt and sedimentation in the Buffalo River portion of the Buffalo Harbor by controlling streambank erosion and by promoting best management practices on farms and riparian properties throughout the watershed. Over 300 Joint Board projects were successfully installed in the Buffalo River watershed stabilizing over 57 miles of streambank through various methods including armoring banks with rock, installing beneficial shrubs and sloping and seeding of exposed bank areas. Completed in the 1960's, the project reduced sedimentation in the lower Buffalo River by an estimated 40% with a 25% reduction in dredging costs in the Buffalo Harbor.

Buffalo Creek, along with Cayuga and Cazenovia Creeks are the three main waterbodies/sub-watersheds of the larger Buffalo River Watershed. The Buffalo River begins at the confluence of Cayuga and Buffalo Creek near the Buffalo city limit. Cazenovia Creek joins the river further downstream within the designated Area of Concern (AOC) identified in the Lake Erie Management Plan. The Buffalo River then empties into Lake Erie at the Buffalo Harbor near the mouth of the Niagara River.

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.



The Erie-Wyoming Joint Watershed Board has the responsibility to annually inspect and maintain the Joint Board sites. While the majority of these streambank stabilization structures are intact and stable, the 2008 erosion inventory report reveals over 70 high priority sites totaling 3,670 linear feet of severely disturbed streambanks actively contributing sediments into Buffalo Creek and subsequently into the Buffalo River. In addition to the erosion inventories, the Erie and Wyoming County Soil and Water Conservation District and USDA Natural Resources Conservation Service staff frequently respond to requests for technical and financial assistance from riparian landowners.

The NYS Department of Environmental Conservation's Priority Waterbodies List (PWL), revised in 2010, states that minor impacts stress aquatic life due to elevated silt and sediment loads in the Lower Buffalo Creek segment from streambank erosion and other nonpoint source inputs. Conversely, the revised PWL indicates no known impacts/use impairments in the upper watershed. The non-impacts designation is contrary to the Erie and Wyoming County Soil and Water Conservation District's erosion inventories which provide direct evidence that erosion problems are still occurring throughout the watershed as sediments from streambank erosion continue to be a major pollutant of concern.

The April 2012 investigation at the 9-35 site documented extensive streambank erosion with raw exposed banks and numerous mature trees falling into the creek obstructing and directing streamflow into the bank and exacerbating the erosion conditions. Due to the severity and high potential to worsen and jeopardize the stability of stabilization structures downstream, this site is considered a priority for repair. With a yearly appropriation of approximately \$7,000, the cost associated with restoring priority sites currently exceeds the dollars available in the operation and maintenance funds. This funding gap potentially allows one project to be addressed every few years at best. With secured funding, a minimal investment now will allow the Joint Watershed Board and Erie and Wyoming County Soil and Water Conservation District's to continue efforts to improve water quality and aquatic habitat along Buffalo Creek through the reduction of ongoing sedimentation.

### **Readiness to Implement Project**

The Erie County Soil and Water Conservation District has the ability and staff resources necessary to accomplish the proposed project. Required project design work is completed after grant funding is secured and site surveys performed and is carried out by the project technician and/or engineer. There is an existing agreement with the local Natural Resource Conservation Service (NRCS) for engineering assistance including design review and approval. Permits are typically required for all streambank projects and are applied for and acquired prior to project commencement. Temporary landowner easements are required for project ingress and egress and are acquired prior to the project start.

As streambank erosion remains a primary source of sediment pollution in the Buffalo Creek watershed, the District consistently applies for funding to install erosion and sediment control, water quality protection and habitat improvement conservation projects. The successfully implemented past and current projects (within the last 3 years) described below illustrate the District's ability to maximize grant funding through a shared cost approach. Where applicable, the District has been able to petition for and utilize private landowner, municipal, state and county dollars as local match to grant funds.

In 2009 the District completed project work on the *Buffalo Creek Watershed Riparian Habitat Restoration Project (Partnership Phase II)*. The project was funded through the NYS Department of Environmental Conservation via the state Environmental Protection Fund/Water Quality Improvement Grant. This project reduced sedimentation and improved water quality and aquatic habitat at 10 sites by stabilizing approximately 2,090 linear feet of eroded streambanks utilizing combined methods of rock riprap where necessary and biotechnical and/or natural stream design restoration techniques. Total grant dollars including local match was \$512,826.

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In 2010 the District completed the *Eighteenmile Creek Streambank Stabilization Partnership Phase I*. 19 sites of severe streambank erosion were stabilized with bioengineering and rock riprap techniques totaling approximately 4,260 linear feet of restoration. The District will be completing *Phase II* of this project in 2011 on a total of 10 additional sites. Both Phase I and II of this project are funded through the NYS Department of Environmental Conservation via the state Environmental Protection Fund/Water Quality Improvement Grant. Total grant dollars awarded for Phase I was \$362,706 and \$292,342 for Phase II.

The District also completed the *Eighteenmile Creek Streambank Restoration and Erosion Control Project* in 2010, which was funded through the Great Lakes Commission/United States Department of Agriculture. This project, which is a highlighted New York state project on the Great Lakes Basin Program website, reduced sediments by stabilizing 400 linear feet of eroded streambank and improved aquatic habitat by reestablishing the riparian stream buffer. Total grant funds awarded was \$30,000.

In early 2011 the District was awarded an *Agricultural Implementation grant for the Upper Buffalo River (Buffalo Creek) Watershed -Round 16* through the New York State Agricultural Nonpoint Source Abatement and Control Grant for implementation of agricultural best management practices in the Upper Buffalo River Watershed. At a grant total of \$675,631, this partnership with the Wyoming County District will address agricultural water quality concerns across the entire watershed and provides increased benefit of water quality protection to all downstream communities and Lake Erie source water. This project is the third phase of implementation for this watershed and continues the momentum of water quality protection in the agricultural community that has been completed by Soil and Water Conservation District's and the USDA Natural Resources Conservation Service.

Partner agencies involved with the Buffalo Creek Streambank Stabilization Project include but are not limited to the following:

- USDA Natural Resources Conservation Service
- NYS Department of Environmental Conservation
- U.S. Army Corps of Engineers
- Marilla Snowmobile Club
- Private landowners

The Buffalo Creek Erosion and Sediment Control Project will contribute to ongoing regional efforts within the watershed to plan, prioritize and coordinate a comprehensive approach to address water quality impairments and restoration of aquatic habitat. The proposed project will also enhance the sediment reduction goals for the *Buffalo River Watershed Erosion and Sediment Control Project* which was selected for funding under the 2011 Great Lakes Basin Program for Soil Erosion and Sediment Control - Great Lakes Restoration Initiative Watershed Program. This project involves the treatment of 8 Joint Board sites directly related to the proposed 9-35 site and will stabilize approximately 1,500 linear feet of severe erosion. To date, one project has been completed with 3-4 projects scheduled for installation in 2012.

The proposed 9-35 site was selected based on the historic Joint Watershed Board goal of reducing sedimentation, the severity of the erosion, the potential for impacts to downstream streambank stabilization structures and the relation to the future planned work of the *Buffalo River Watershed Erosion and Sediment Control Project*

While there is no state approved watershed plan within the proposed site 9-35 project HUC, the Erie County Soil and Water Conservation District and Joint Erie-Wyoming County Watershed Board have prioritized the need to continue efforts that compliment past conservation activities within the Buffalo River. The successful implementation of the proposed 9-35 project is consistent with restoration goals established by plans developed for the lower Buffalo River watershed, see described below.

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As required under the Great Lakes Water Quality Agreement, a Remedial Action Plan (RAP) has been completed for the Buffalo River Area of Concern with goals of remediating bottom sediments, continue on-going programs to address nonpoint source pollution restore fish and wildlife beneficial use and improve and protect habitat. The RAP focuses on the Buffalo River from its' upstream start where Cayuga Creek enters Buffalo Creek to the mouth as it enters Lake Erie near the Niagara River.

The Buffalo River Ecological Restoration Master Plan (ERMP) was also recently developed with regional stakeholder input by the U.S. Environmental Protection Agency/Great Lakes National Program Office. The goals of the ERMP are aimed toward protection and restoration of water and habitat quality within the Buffalo River Corridor and its' tributaries and to help resolve impairments to fish, wildlife and benthos communities (river bottom dwelling plants and animals) including population degradation and habitat loss. The ERMP extends its' focus upstream beyond the Buffalo River AOC to the first impassable fish barrier (low head dams or waterfalls) on each of the main tributaries (Buffalo, Cayuga and Cazenovia Creeks).

### **Project Work Area**

HUC: 041201030205 - Pond Brook-Buffalo Creek, New York

Total Area: 16

Agricultural Area: 6

Forest Area: 5

Urban Area: 5

### **Priority Areas:**

The proposed HUC area is not upstream from a significant dam.

The priority area of the proposed Buffalo Creek Erosion and Sediment Control Project is:

Erie-Wyoming Joint Board Site 9-35:

The project site is located on Buffalo Creek on the east side of West Blood Road in the Town of Elma, Erie County on property owned by Mr. David Appleby. There are existing land rights and access available. The majority of the existing stabilization structure has been severely damaged leaving the bank soils exposed with heavy sedimentation occurring. Numerous mature trees have fallen into the channel creating an obstruction to streamflow. The proposed project will stabilizing approximately 400 linear feet of the eroded left bank through in the installation of a series of rock stream barbs placed up to the bankfull elevation to control/realign the thalweg away from the toe of bank in combination with biotechnical plantings (live stakes, wattles, willow whips) installed along the entire length of the project to increase bank stability between the barbs and improve the riparian corridor.

### **Implementation**

#### **Implementation Strategy**

Streambank stabilization best management practices shall be installed at the proposed Buffalo Creek Erosion and Sediment Control Project. The Erie County Soil and Water Conservation District performs site surveys and reconnaissance on all project sites. Fluvial geomorphological techniques recognized by the USDA Natural Resources Conservation Service including the Rosgen stream classification system are applied to the site data in developing a project design. The District design procedure follows NRCS Practice Standard 580 for *Streambank and Shoreline Protection* and all designs are approved by the local NRCS or District engineer. Due to the combination of existing severe erosion conditions and the high potential for ice scour in the Buffalo Creek watershed, it is typically necessary that a streambank design incorporate some form of rock armoring to ensure the stability of the treatment over the projected lifespan. This may include longitudinal peaked stone toe protection, grade control weirs and stream barbs/vanes. The District also integrates bioengineering practices into every project site as a soft approach to stabilization and to improve riparian vegetation and habitat.

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Commonly used techniques include live stakes, pole/whip plantings, wattles/fascines, brush layering and live siltation.

Priority areas are identified through several methods including annual Joint Watershed Board erosion inventories of the Buffalo River watershed, technical assistance requests and site visits addressing landowner concerns along riparian properties as well as county and municipal surveys and contacts that identify critical watershed problem areas.

Incentive methods shall not be utilized for the proposed project, however the District anticipates an approximate 25% local match to the requested Great Lakes Restoration Initiative grant funds. This local match will be a combination of District personnel services (project survey, design, contracting and construction inspection), Joint Watershed Board cash appropriations, and private landowner cash and/or in-kind labor. The District anticipates the majority of GLRI grant funds will be used for project construction.

The timeline for implementation is as follows:

Survey 10/12 - 11/12  
Design 12/12 - 03/13  
Site showing/contract letting 05/13 - 07/13  
Construction 06/13 - 09/13  
Project evaluation 09/13 - 10/13  
Project close/administration 10/13 - 11/13

### **Technical Assistance**

No grant funds will be used to pay for technical assistance.

### **BMPs**

Name: Streambank Stabilization

Type: Engineering Practices

Acres: 1

Cost: 32,000

### **Description:**

The proposed project site 9-35 will have streambank stabilization bmps installed. Site surveys need to be completed and analyzed for final streambank stabilization design technique selection. The completed design shall be approved and signed by the local NRCS or District engineer. Single and/or combined techniques will be installed along the eroded areas of the project site. Techniques utilizing rock riprap shall be used only where necessary and will potentially include toe and slope rock protection, longitudinal peaked stone toe protection, grade control weirs and stream barbs/vanes. Bioengineering techniques like live stakes, pole/whip plantings, wattles/fascines, brush layering and live siltation will also be installed at the project site in combination with any required rock.

Start Date: October 2012

End Date: November 2013

Incentive Method: n/a

Incentive Rates: n/a

Total Soil Savings: 1020

### **Media Campaign**

#### Kickoff:

The Erie County Soil and Water Conservation District will host a watershed awareness event which will begin at the District office with a presentation highlighting past and future stream restoration projects in the

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watershed. The presentation will be followed by a tour of select project sites that represent the need for continued conservation and protection of the local and regional watershed resources. Invitations to the event will be extended to the NYS chairperson of the Great Lakes Commission, the local congressional, county legislative and municipal representatives, the local media, Erie and Wyoming County Soil and Water Conservation District Board of Directors and Joint Watershed Board as well as all partner agencies.

Ongoing:

On-going outreach shall include watershed updates in the District's bi-annual newsletter *Conservation Connections* and through public event displays at various County events held throughout the year.

End:

At the projects' completion, a project summary will be developed and submitted via press release to a local watershed news publication. In addition, project information shall be listed on the District webpage as part of a watershed/stream project listing and update.

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