



Abstract for Lake Erie Protection Fund
Implementing Best Local Land Use Practices

The Chagrin River Watershed Partners, Inc. represents 94% of the watershed through the membership of 36 communities and park districts. With this funding CRWP had 4 objectives to assist Members with adoption and use of comprehensive storm water management and riparian and wetland setback regulations, including:

- Analyze the impact of setbacks on property values.
- Provide training for setback implementation.
- Demonstrate floodplain restoration as a storm water BMP.
- Provide tools necessary to ensure storm water BMP function and funding

The research on setbacks determined that adoption of riparian and wetland setbacks have no impact on property values. Training materials were developed and two workshops were completed to help attendees gain a better understanding of the function, implementation, and variance options for riparian and wetland setbacks. CRWP created a guidance document and case studies to assist local design and review engineers in using floodplain restoration as a storm water BMP. Finally, a model inspection and maintenance agreement was developed to ensure the long term maintenance of storm water BMP's. A companion guidance document "Funding the Long-Term Operation and Maintenance of Stormwater Best Management Practices" was also completed to provide options for funding these maintenance activities.



Technical Report for Lake Erie Protection Fund
Implementing Best Local Land Use Practices

Project Summary

Through this grant, the Chagrin River Watershed Partners, Inc. (CRWP) has addressed four issues that had previously limited the implementation of regulations concerning storm water management. Since our beginning in 1996, CRWP has recommended that our member communities adopt regulations for riparian and wetland setback zoning and comprehensive storm water management. Storm water management addresses quality, quantity and facilitates the use of nonstructural and distributed storm water practices, such as open space protection, impervious cover limits, and bioretention. We have developed model regulations to assist communities in implementing these practices. Our work with members in adopting these regulations has highlighted four issues that limit their widespread implementation.

The issues addressed through this project were:

1. Concern about the impacts of setbacks on property values.
2. Inconsistent implementation of setbacks.
3. Poor understanding of floodplain restoration as a component of storm water management.
4. Few tools to ensure long-term operation and maintenance of storm water management practices.

Objective 1: Analyze the Impact of Setbacks on Property Values

CRWP analyzed the impact of riparian and wetland setbacks on the value of parcels in Russell Township, Auburn Township and Bainbridge Township (Geauga County), City of Aurora (Portage County), City of Kirtland (Lake County), and the Village of Chagrin Falls (Cuyahoga County). These communities have been implementing riparian and wetland setback zoning for a minimum of 2 years. The final report "Hedonic Analysis of Riparian/Wetland Setbacks" was completed by Cleveland State University's Center for Housing Research and Policy in September 2006.

This report presents the analysis of the market for single-family houses and condominiums in the above listed communities of the watershed from 1999 to 2005. Several questions were analyzed in this report including:

- Is there a single impact of riparian setbacks across communities since 1999?
- Is there an impact that changes over time, whereby setbacks are becoming more or less important?
- Do setbacks impact the housing market significantly, but differently across communities?
- Do setbacks impact the land market?

Across all analyses completed, there was no statistical evidence that setback zoning impacts prices of property. Dr. Mikelbank presented this information to CRWP's Board of Trustees in September 2006.

Products: See attached report on "Hedonic Analysis of Riparian/Wetland Setbacks" completed by Cleveland State University's Center for Housing Research and Policy and an accompanying Power Point presentation. This report is also posted on CRWP's website at http://www.crwpp.org/Projects/hedonic_analysis_riparian_wetland_setbacks.htm.



Outcome: The report and presentation addressed concerns about the perceived negative impact of setbacks on property values. This research can facilitate widespread adoption of riparian and wetland setbacks in the Chagrin and Lake Erie watersheds.

Objective 2: Provide Training for Setback Implementation

CRWP provided two trainings, and associated educational materials, for professional advisors responsible for implementing setbacks in their communities. CRWP worked with Ohio Environmental Protection Agency (Ohio EPA) and U.S. Army Corps of Engineers (USACE) to clarify the relationship between zoning setbacks and Clean Water Act Section 401 and 404 permits. To prepare for these trainings, CRWP staff surveyed communities on implementation concerns, variance requests, and possible case studies for workshop materials.

The trainings were held on May 17, 2006 at Holden Arboretum and on May 2, 2007 at Lake Metroparks Lake Farmpark. These trainings used case studies from subdivisions in Auburn Township, Bainbridge Township and Kirtland displaying the riparian and wetland setback concepts as well as how to deal with variances. Easy-to-use reference handouts were given to attendees. These handouts explained which stream and wetland impacts trigger which Ohio EPA and USACE authorities. The case studies demonstrated effective ways to balance community efforts to control the location of development on parcels with the reasonable use of land. These trainings included site visits to identify riparian and wetland setbacks and discuss common questions in the field. The case studies are transferable to communities across the Lake Erie basin.

Products: Objective 2 resulted in 2 training sessions including handouts of case studies, permitting information, and presentations. The packets, lists of workshop attendees, and PowerPoint presentations are attached.

Outcome: Community officials, planners, and zoning inspectors that attended the setback implementation trainings gained a better understanding of the functions of riparian areas and wetlands, implementation strategies for riparian and wetland setbacks, relationship to Ohio EPA and USACE authorities, and options for variances by balancing front, side, riparian and wetland setbacks on parcels to yield the best development.

Objective 3: Demonstrate Floodplain Restoration during Development

Assist local professional advisors in evaluating floodplain restoration as a component of storm water management. Provide educational materials, training, and technical assistance for the design of floodplain restoration demonstration projects as a component of a development's overall storm water management plan.

Due to a lack of suitable demonstration projects, CRWP submitted a Project Revision request to revise the project to develop case studies to illustrate floodplain restoration and provide a workshop for interested engineers, planners, and decision makers. Research of other states regulations showed that floodplain restoration has not been regularly used as a storm water BMP. Currently, ODNR and researchers from the Ohio State University are developing criteria for the use of floodplain restoration as a storm water BMP for the Rainwater and Land Development Manual. As this research is ongoing, CRWP determined that insufficient information was available to create materials and training on this tool. A guidance document and case studies were developed to act as an intermediate guidance for developers and engineers. The guidance document explains the importance of floodplains and provides



guidelines for several types of floodplain restoration that may be used as a storm water BMP. Using floodplain restoration as a storm water BMP will require approval by Ohio EPA on a case by case basis. The case studies illustrate the concepts detailed in the guidance document. One case study is focused on storm water management on a mock development site, while the second case study focused on a natural, ecosystem restoration on property owned by Lake Metroparks. While the second case study objectives are focused on an ecological approach rather than storm water management, the concepts will assist to illustrate the concept of floodplain restoration and how this concept can be used on a development site. The guidance document and case studies will increase the understanding of floodplain restoration and the questions that must be answered to promote floodplain restoration as a storm water BMP.

Products: Objective 3 resulted in a guidance document, “Floodplain Restoration and Storm Water Management: Guidance and Case Study”. The first case study, using a mock development site, includes a short report on pre-existing conditions, design considerations, storm water management, cost of project, and a plan view of the site layout. The second case study, on Lake Metroparks property, includes an outline of the objective and actions formed on each part of the property, a spreadsheet on the cost of the project, and a plan view of the site layout. These documents are attached. The workshop was not completed as the research and approach to approving floodplain restoration is still evolving in the State of Ohio.

Outcome: Currently, floodplain restoration as a storm water BMP must be approved by Ohio EPA on a case by case basis. The guidance document, created for local design and review engineers, lists techniques and considerations for the design of restored floodplains and explains how floodplain restoration increases the flood control, erosion control, and water quality protection functions of floodplains. As research continues on floodplain restoration as a storm water BMP, Ohio EPA, ODNR and OSU will prepare additional guidance on this tool. CRWP will continue to work with these agencies to promote floodplain restoration as a storm water BMP where appropriate.

Objective 4: Provide Tools Necessary to Ensure Storm Water BMP Function & Funding

CRWP developed a model inspection and maintenance agreement and guidance for Members on effective long-term funding options for BMP maintenance. Successful BMP inspection and maintenance agreements were reviewed by CRWP and used to draft CRWP’s model agreement. This model was reviewed by Ohio EPA, ODNR Division of Soil and Water, SWCDs, and CRWP Member communities and revised accordingly. CRWP’s model inspection and maintenance agreement has been distributed to CRWP Members, Ohio EPA, and other communities upon request. This model inspection and maintenance agreement can be tailored to individual communities and BMPs to meet Ohio EPA requirements.

CRWP also reviewed various methods of state and national funding mechanisms for storm water programs to develop a guidance document highlighting the advantages and disadvantages of each funding approach. “Funding the Long-Term Operation and Maintenance of Stormwater Best Management Practices” was finalized in October 2008.

Products: See attached the guidance document, “Funding the Long-Term Operation and Maintenance of Stormwater Best Management Practices” including the model inspection and maintenance agreement. This report is posted on CRWP’s website at http://www.crwp.org/phase_2_implementation/mcm_5_post_construction.htm



Outcome: The implementation of long-term maintenance agreements will sustain the efficiency of BMPs throughout the watershed and reduce costs associated with BMP failure. The Ohio EPA website references the CRWP model inspection and maintenance agreement with a link on their Storm Water Program website at http://www.epa.state.oh.us/dsw/storm/ms4_index.html.