



HABITAT PROTECTION AND RESTORATION PROJECT FINAL REPORT GUIDELINES

Final reporting requirements consist of (1) a completed profile of the grant for posting to the public Great Lakes Fishery Trust (GLFT) website (see below), (2) a narrative response to GLFT final report questions (see following section), and (3) a final financial report (form and instructions attached).

PROJECT PROFILE

Your profile should be no more than three pages in length (preferably two). As the profile will be published to the GLFT website, please strive to communicate in language accessible to a general audience. The primary intended purposes of the profile are to (1) provide an overview of the work funded by GLFT and characterize results and achievements in an accessible manner, and (2) help interested parties access further resources or materials germane to the effort. The profile should follow this format:

Synopsis

- **Project Title: Spanning the Jordan River – Chestonia Bridge Project**
- **Grantee Organization – Conservation Resource Alliance**
- **Project Team** (Please list all members of the project team who should be credited with contributions to the work, including name and institutional affiliation.)

Charlevoix County Community Foundation, Conservation Resource Alliance, Herbert H. & Grace A. Dow Foundation, Harry A. & Margaret D. Towsley Foundation, Great Lakes Fishery Trust, Frey Foundation, J.A. Woollam Foundation, Oleson Foundation, Grand Traverse Band of Ottawa & Chippewa Indians, Natural Resources Conservation Service, Antrim County Road Commission, Antrim Conservation District, Friends of the Jordan River, Michigan Department of Environmental Quality, Michigan Department of Natural Resources – Aquatic Habitat Program, National Fish & Wildlife Foundation – Sustain Our Great Lakes Program, U.S. Fish & Wildlife Service – Great Lakes Basin Fish Habitat Program, U.S. Environmental Protection Agency – Great Lakes Restoration Initiative

- **Contact Person** (Please identify the person(s) who should be contacted with questions about the work, providing a name, institutional affiliation, and e-mail address for each.)

Kimberly Balke, Project Manager – CRA, kim@rivercare.org

Kira Davis, Program Manager – CRA, kira@rivercare.org

■ **Grant Amount**

\$100,000

■ **Time Frame**

November 25, 2015 to December 31, 2017

■ **Focus Areas** EHSFP Habitat Protection and Restoration (including Dam Management)

■ **Brief Project Summary** (In 100 words or less, provide a summary of the project, including its purpose and key results.)

The Chestonia Bridge project involved 20 partner entities stacking hands to complete the replacement of the Old State Road twin 16' wide culverts on the Jordan River with a fully spanning 90' long concrete I-beam bridge. The previous culverts were aging and significantly undersized, thus causing pool formation at the inlet and outlet, embankment erosion, and increasing stream velocities five-fold, which prevented the passage of aquatic life at different life stages and stream flows. The new bridge fully reconnects 48 miles of river and tributaries to the Jordan mainstem and Lake Charlevoix downstream, and restores the natural stream dynamics.

Project in Context

This orientation to the project should provide key background information on its purpose, location (where appropriate), and broader significance. You may wish to consider:

- Background research identifying a need for the work
- Stakeholder identification of a need for the work
- Specific focus of the work as it relates to Great Lakes ecology/resources
- Relationship to other related products/services/programs
- Intended audience/population to be served

Goals of the Effort

In this section, identify the key goals and/or the specific purpose of the effort.

The Jordan River is part of the Lake Michigan watershed and is a high quality, cold water stream and State designated Natural River and Blue Ribbon Trout Stream. The most severe anthropogenic problem on the mainstem was the Old State Road crossing where twin 16' wide culverts constricted flows, increased stream velocities 5-fold, and caused scouring and erosion. The culverts were perched at least 2' above what should have been the true natural stream bottom and were undersized; the resulting wide, fast pool had water velocities that measured up to 11.9 feet/second. This velocity was a danger to paddlers, prevented passage of some fish and aquatic species at various life stages, and prohibited the natural movement of water, wood, gravel and sand. The culverts directly impacted at least 2,000 feet of river up and downstream with pools at the inlet and outlet measuring over 100 feet wide and either shallow with loose sand or scoured to over 15' deep. The site was replaced in 2017 with a 90' long concrete span bridge (Chestonia Bridge) that spanned the Jordan River and some of its floodplain, restored ecological connectivity, and improved surrounding habitat. The Chestonia Bridge Project was a collaborative effort of Conservation Resource Alliance (CRA) and its many partners including federal, state, tribal, local, and private entities.

Results

In this section, briefly summarize the key findings or results of the project. Identify the results (e.g., fishery habitat restored, products developed, outreach engaged in, participation/use of materials achieved, feedback received).

The “Spanning the Jordan River – Chestonia Bridge Project” was a partnership of 20 entities led by Conservation Resource Alliance (CRA) that worked together over a four year period to plan, design, fundraise and construct a fully spanning crossing on the Jordan mainstem. The river restoration project provided multiple ecological benefits. First, excess sedimentation of 7 miles of downstream river from erosion and runoff at the site was stopped. A 90’ span bridge with paved approaches and runoff spillways eliminated embankments of fill around and above the culverts that used to erode from foot traffic and road runoff. Second, a bridge now allows natural transport of woody debris, gravel, sediment and detritus throughout the Jordan River from an estimated 48 miles of forested, coldwater upstream habitat. Third, full passage for all aquatic species during all life stages during ordinary stream flows and high water events is provided. Fourth, natural stream and floodplain functions are returning and dimensions gradually stabilizing.

Construction logistics entailed the Chestonia Bridge (90’ long, 34’ road width, 11’ wide vehicle lanes, 6’ wide shoulders, 54” high railing) being completed by Grand River Construction Company during February – July 2017. Construction progressed overall as anticipated with the following major tasks completed by the contractor:

- Culvert removals
- Dewatering, footings poured and pilings driven
- Set seven 88’ beams weighing 26 tons each
- Poured concrete bridge deck and walls
- Bridge rail and guard rail installation
- Completion of paving, spillways, rock placement and erosion control measures
- Opening bridge and road to traffic occurred mid July 2017
- Bridge plaque commemorating partners and funders was installed

With the success of the Chestonia Bridge project appreciated by the partners and the rural northern Antrim and Charlevoix County communities, relationships are strengthened and experience is gained to tackle the next important restoration needs in the rivers and tributaries of the overall Lake Charlevoix Watershed.

Products and Resources

List, and provide addresses for, related websites developed for or through the project or that provide additional information. Provide site title, full address, and a brief (one- to two-sentence) description of the relevant content.

List any other communications outlets, publications, media coverage, etc. for the work. If these are available online, please hyperlink the listing. Items that are *planned* or *in process* should be so designated.

- <http://friendsofthejordan.org/>

This website is home to the Friends of the Jordan River Watershed. Updates on the project can be found in several of their newsletter links for the project including spring/summer 2015, spring/summer 2016 and fall/winter 2017 issues. FOJR is a registered non-profit organization with a membership of roughly 3,500.

- <https://www.rivercare.org/>

This website is the Conservation Resource Alliance's, and contains updated information on the Jordan River Chestonia Bridge project and the overall "Jordan River Watershed River Care" effort. The Chestonia Bridge Project is portrayed on CRA's website with the photo report and fact sheet both available to those interested under the "River Care Projects Update" link. CRA has and continues to do email outreach to their database of 5,000 of the "Jordan Homewaters" update that includes the links to these materials. Additional information on the project can be found under the "news/press releases" tab. The Chestonia Bridge Project was the front page story in the CRA 2017 winter newsletter and also covered in the spring 2017, spring 2016, spring 2015, fall 2014 newsletters; these materials can be found under the "news/newsletters" tab.

FINAL NARRATIVE REPORT

Background/Overview

1. Briefly summarize the project description as outlined in the original proposal.

The Jordan River is part of the Lake Michigan watershed and is a high quality, cold water stream and State designated Natural River and Blue Ribbon Trout Stream. The most severe anthropogenic problem on the mainstem was the Old State Road crossing where twin 16' wide culverts constricted flows, increased stream velocities 5-fold, and caused scouring and erosion. The culverts were perched at least 2' above what should have been the true natural stream bottom and were undersized; the resulting wide, fast pool had water velocities that measured up to 11.9 feet/second. This velocity prevented passage of some fish and aquatic species at various life stages, and prohibited the natural movement of water, wood, and stream substrate including gravel and sand. The culverts impacted at least 2,000 feet of river up and downstream with pools at the inlet and outlet measuring over 100 feet wide and either shallow with loose sand or scoured to over 7' deep. The site was replaced in 2017 with a 90' long concrete span bridge (Chestonia Bridge) that spanned the Jordan River and some of its floodplain, restored ecological connectivity, and improved surrounding habitat. The Chestonia Bridge Project was a collaborative effort of Conservation Resource Alliance (CRA) and its many partners from federal, state, tribal, local, and private entities.

2. Was the project completed as originally intended? If not, indicate how the final outcome(s) differed from what was anticipated. Does your experience suggest that original expectations were realistic? What factors hindered or helped progress?

The project was completed as intended with the construction timeframe being the primary difference that triggered the need to extend the GLFT grant from December 2016 to December 2017. Final fundraising concluded in the summer of 2016, and bidding the project out at that time for a fall construction would have been a challenge. There were benefits to changing the construction timeframe by a year that added to the success of the overall restoration and recreational access work at the Old State Road culverts on the Jordan River. Benefits included bidding the project out in fall 2016, giving contractors sufficient time to develop bids and plan for the following 2017 spring which resulted in more competitive bids that financially afforded doing the nearby Cokirs Creek box culvert with flexible private foundation grants, in addition to the Chestonia Bridge. Another benefit was allowing additional time for Michigan Department of Natural Resources (MDNR) to design and secure funds for the adjacent recreational access site so that it too was built in 2017, ensuring that angler and paddler access to this popular river location was not interrupted.

Outcomes

4. Whether they were intended or unintended, what do you consider the most important benefits or outcomes of this habitat restoration project?

The river restoration project provided multiple ecological benefits. First, excess sedimentation of 7 miles of downstream river from erosion and runoff at the site was stopped. A full span bridge with paved approaches and runoff spillways eliminated embankments of fill around and above the culverts that used to erode from foot traffic and road runoff. Second, a bridge allows natural transport of woody debris, gravel, sediment and detritus throughout the Jordan River from an estimated 48 miles of forested, coldwater upstream habitat. Third, full passage for all aquatic species during all life stages during ordinary stream flows and high water events is now accommodated. Fourth, natural stream and floodplain functions are returning and geomorphology dimensions gradually stabilizing.

5. What activities were pursued in relationship to intended outcomes, and to what extent did you achieve the intended outcomes listed in your proposal?

Construction of Chestonia Bridge (90' long, 34' road width, 11' wide vehicle lanes, 6' wide shoulders, 54" high railing) was completed by Grand River Construction Company during February – July 2017. Construction progressed overall as anticipated with the following major tasks completed by the contractor:

- Culvert removals
- Dewatering, footings poured and pilings driven
- Set seven 88' beams weighing 26 tons each
- Poured concrete bridge deck and walls
- Bridge rail and guard rail installation
- Completion of paving, spillways, rock placement and erosion control measures
- Opening bridge and road to traffic occurred mid July 2017

- Bridge plaque commemorating partners and funders was installed

6. What audience(s) were you particularly hopeful of reaching? To what extent did you reach them? Did you receive any feedback?

The target audiences were varied and included:

- Public and private entities related to river management throughout the Great Lakes region
- Residents of the 4-county area in Northwest Michigan (Grand Traverse, Kalkaska, Charlevoix Counties)
- Friends of the Jordan River board and members
- Leaders and municipalities of the 4-county area in Northwest Michigan noted above
- Jordan River landowners
- Jordan River recreationists (anglers, river guides, hikers, paddlers, snowmobilers)

These audiences were reached through a variety of ways including but not limited to:

- March 6, 2017 open house in East Jordan for both Chestonia Bridge and recreational access site with CRA, MDNR and ACRC all hosting
- CRA newsletters, email, website and Facebook updates
- Presentations for specific interest groups including East Jordan Rotary Club, Charlevoix County Community Foundation Board, Antrim County Road Commission Board, Antrim County Commissioners and staff, Jordan Township, Lake Charlevoix Watershed Steering Committee, CRA Board, and other Foundation staff/board.
- Site visits before, during and after construction for partners as requested

General feedback for this project was positive with the exception of some local residents being leery of the significant change of going from culverts to a bridge, in that they would lose a swimming hole and the river bottom would “drop.” CRA repeatedly noted that almost all of the Jordan mainstem crossings have bridges, and the end result of this project would be similar in characteristics to those sites up and downstream of the Old State Road culverts. CRA staff also reminded people of the ecological and safety benefits a bridge would bring to the river and the rural Antrim County area. The culverts could have potentially lasted up to another 20 years if they didn’t get undermined by water first but the embankment above the culverts only had another year left, if that. If the crossing were left as is, replacement was still inevitable and in an emergency crossing failure situation, none of CRA’s grantors would fund a project in a crisis reaction mode and further damage to the river would be unfixable. Lastly, CRA noted that the ongoing illicit recreational access trespassed onto private land at the popular swimming hole and drive-in site, with the landowner losing over 12’ of streambank over the last 20 years. When the bridge was open to both paddler and vehicle traffic in July 2017, CRA and partners received significant positive feedback regarding the

aesthetics of the site with Jordan River no longer being so constricted from aging culverts and erosion no longer being a problem.

7. What relationships or opportunities were developed or strengthened through the work?

Project partner relationships were strong and communications continued throughout the timeframe primarily via working meetings, on-site visits, phone conference, and email outreach. During bridge construction, CRA distributed regular updates via email to database members regarding construction progress, milestones, and river access impacts. CRA staff, board and partners held a site tour in August 2017. A ribbon cutting event is planned for spring/early summer 2018 so that the adjacent recreational access can also be included. Primary funders and partners included the following:

- Charlevoix County Community Foundation
- Conservation Resource Alliance
- Herbert H. & Grace A. Dow Foundation
- Harry A. & Margaret D. Towsley Foundation
- Great Lakes Fishery Trust
- Frey Foundation
- J.A. Woollam Foundation
- Oleson Foundation
- Grand Traverse Band of Ottawa & Chippewa Indians
- Natural Resources Conservation Service
- Antrim County Road Commission
- Antrim Conservation District
- Friends of the Jordan River
- Michigan Department of Environmental Quality
- Michigan Department of Natural Resources – Aquatic Habitat Program
- National Fish & Wildlife Foundation – Sustain Our Great Lakes Program
- U.S. Fish & Wildlife Service – Great Lakes Basin Fish Habitat Program
- U.S. Environmental Protection Agency – Great Lakes Restoration Initiative

This was a flagship project for Charlevoix County Community Foundation, in that they contributed the most funding towards a river restoration site in their history to date and spanned their grants multiple years in order to fit their giving portfolio. CCCF also helped CRA with networking in the private foundation community to bring other such grants to the table at the front end of the overall fundraising effort and provide the critical match needed for state/federal grant applications. CCCF was critical to the success of this project and truly took the “watershed approach” with prioritizing this Jordan River site especially since it is actually located in Antrim County, not Charlevoix County.

8. Was an evaluation included as part of this project? If so, what were the key findings? (Please attach a copy of the evaluation report.)

Pre-BMP monitoring in the form of morphological survey work 800' up and downstream including 3 cross sections in both reaches were completed during the design phase and post-BMP monitoring of the stream channel is planned for summer 2018 in order to give sufficient time for the stream to respond to the full span, bottomless nature of the bridge. Changes in channel dimensions, sediment movement, and velocities will be documented and shared as an example of stream response to a road/stream crossing replacement of culverts with a bridge on a river mainstem. After construction, water surface elevation shots were taken upstream of the crossing and it did drop an estimated 18" at the site with the engineer projecting up to 24". This dynamic was due in part to the culverts actually setting 2' above what should have been the true stream bottom. Photos of the stream responses can be found in the attached project photo report.

Related Efforts

9. Was this project a standalone effort or was there a broader effort beyond the part funded by the GLFT? Have other funders been involved either during the time of your GLFT grant or subsequently?

The Jordan River Chestonia Bridge project is part of the overall "Jordan Watershed River Care" effort as highlighted in the attached map that shows past, present and future restoration needs. The Chestonia Bridge project also ran parallel to the Cokirs Creek crossing replacement and Chestonia Boating Access Site on the adjacent, upstream State land parcel. These two related sites will be fully complete by summer 2018 and have totaled an estimated \$450,000 in additional funding from state and private sources. The Chestonia Bridge project catalyzed this much needed recreational site work, since recreational use was formerly focused on private land downstream of the old culverts where erosion and safety issues were increasing in severity.

The following entities helped either fund or provide in-kind help for the construction phase of this project, with CCCF and USFWS also funding the design phase:

- Charlevoix County Community Foundation
- Conservation Resource Alliance
- Herbert H. & Grace A. Dow Foundation
- Harry A. & Margaret D. Towsley Foundation
- Great Lakes Fishery Trust
- Frey Foundation
- J.A. Woollam Foundation
- Oleson Foundation
- Grand Traverse Band of Ottawa & Chippewa Indians
- Natural Resources Conservation Service
- Antrim County Road Commission
- Antrim Conservation District
- Friends of the Jordan River
- Michigan Department of Environmental Quality
- Michigan Department of Natural Resources – Aquatic Habitat Program
- National Fish & Wildlife Foundation – Sustain Our Great Lakes Program
- U.S. Fish & Wildlife Service – Great Lakes Basin Fish Habitat Program
- U.S. Environmental Protection Agency – Great Lakes Restoration Initiative

10. Has there been any spinoff or follow-up work related to this project? Did this work inspire subsequent, related restoration projects involving you or others?

The Chestonia Bridge effort serves as a flagship connectivity project in the Great Lakes region for providing the primary benefits of ecosystem restoration to a high quality river and the secondary benefits of improved infrastructure, outdoor recreation, and community safety. This was the second concrete span bridge project that CRA helped manage and serves as a model large-scale connectivity effort that can be duplicated in other watersheds. The scale of this project was significant in the number of partners and funders involved, the cost of construction, and the multi-year nature of fully completing the site. CRA and local partners have prioritized additional sites in the Jordan watershed including crossing replacements and instream habitat on both the mainstem and tributaries, and will be working toward addressing those sites in years to come. The relationships built during the Chestonia Bridge project provide a strong foundation to continuing restoration work throughout the Jordan and neighboring Boyne River watersheds.

Communication/Dissemination

11. List publications, presentations, websites, and other forms of formal dissemination of the project deliverables, tools, or results, including those that are *planned* or *in process*.

Presentations and updates were given by CRA staff at in-progress design meetings, East Jordan Rotary Club meeting in February 2016, township meetings, Lake Charlevoix Steering Committee meetings, and the March 6, 2017 joint public open house hosted by CRA, ACRC and MDNR. Articles, hand-outs, and a representative presentation are listed in the “Attachments” section of this report on the last page.

12. Please characterize your efforts to distribute and encourage use of products, processes, programs, etc. developed through this grant.

CRA has and continues to do email outreach to their database of 5,000 of the “Jordan Homewaters” update that includes the links to both the specific Chestonia Bridge project and overall watershed focus materials. The Chestonia Bridge Project is portrayed on CRA’s website with the photo report and fact sheet available to those interested, as well as the “Jordan Homewaters River Care” map that highlights past, present and future restoration site needs. CRA emailed out meeting agendas and notes, and regular project updates to the Jordan River specific part of the database throughout the overall 4-year project period that included fundraising, design and construction.

Reflections

13. Please describe any unanticipated benefits, challenges or surprises, and/or important lessons learned over the course of the project.

The primary challenge was addressing illicit, ongoing, heavy recreational use at the Old State Road culverts that had been tolerated by the Road Commission and downstream landowner for years, though was undesirable to both. Going from two undersized culverts at the site to a fully spanning bridge with federally required guardrail specifications meant that recreational access at the outlet would become difficult with having to hop over guardrail, and the 100' wide outlet pool (locals referred to it as the "swimming hole") would gradually return to the true stream width of an estimated 50'. Some local resident animosity towards these changes did occur; CRA and partners responded with increased outreach. Outreach activities included CRA facilitating meetings during the design phase that were open to the public, email updates to a database set up solely for Jordan River interested people, and the public open house held in March 2017 hosted by CRA, MDNR and ACRC in East Jordan.

CRA has worked on many bridge projects on various rivers over the last 20 years, and the local push back towards losing popular swimming holes caused by undersized culverts is not uncommon. After all project completions, the adversaries eventually realize that they can still swim at the same river spots, that a bridge is safer for vehicle traffic and does indeed look much nicer than aging culverts with eroding embankments. CRA's approach consistently includes communication, patience and tolerance when receiving opposition to these river restoration projects.

14. What recommendations (if any) would you make to other project directors working on similar efforts or to the GLFT?

Having a constant, consistent project manager is key to the success of an effort that spanned multiple years and had several significant facets. For a project of this magnitude it is better to have a qualified team of staff under one organization that fulfills the project manager role, each person with strengths attuned to different responsibilities and issues. The primary tasks of budgeting, bookkeeping, outreach, private and public dollar fundraising, meeting agendas and notes documentation, photo documentation, contract paperwork review, proposal development, grant management and funds flow, and communications with various partners and the public, all require staff attuned with the proper capabilities, experiences, and strengths. The overall Chestonia Bridge project scope expanded to address the adjacent Cokirs Creek crossing replacement and corresponding river recreation access site; this resulted in a higher complexity of ensuring all partners were working together, managing design/construction costs so that each grant was tailored to specific site(s), and paying close attention to construction sequencing. The network of CRA staff working on the Jordan River project proved efficient and strong, providing a "check and balance" approach where one staff left off another picked up with assigned roles in the overall effort.

Pictures

15. Provide at least three photos of the completed project (if applicable).

Please see the separately downloaded photo report from December 2017 for a comprehensive photo illustration of the Jordan River Chestonia Bridge Project.

16. The GLFT requires each project it funds to have suitable permanent public acknowledgement of GLFT assistance. If applicable, the GLFT will provide a sign to you (via mail) and requires photo verification of the posting of the sign before it will process your final reimbursement request.

It's our understanding that the bridge plaque (noted on the page 14 of the photo report) commemorating all major partners and funders including the GLFT is sufficient for this requirement.

Attachments

17. Please attach any reports or materials developed through the grant.

Attached please find the following items:

- Jordan River Chestonia Bridge Project Photo Report – December 2017
- Jordan River Watershed River Care Map
- Jordan River Chestonia Bridge & Cokirs Creek Project Fact Sheet 2017
- Jordan River March 2017 presentation for public open house
- Chestonia Bridge Project Press Release from January 23, 2017 (other press releases available upon GLFT request)
- “New Chestonia Bridge Over the Jordan Opened in July,” article in Jordan Valley Voices, Fall/Winter 2017 newsletter
- “Chestonia Bridge Over Jordan River to Close for Construction,” article in the Traverse City Record Eagle, January 25, 2017
- “Water Under the Bridge on the Jordan River,” article in the CRA Catalyst Fall/Winter 2017 newsletter