COLORADO HEALTHY RIVERS FUND GRANT AGREEMENT #CCRR4 - CARBONDALE CRYSTAL RIVER RESTORATION AND WEAVER DITCH EFFICIENCY PROJECT, COLORADO BASIN

FINAL REPORT

Prepared for:

Colorado Watershed Assembly
Colorado Healthy Rivers Fund Grant

Attn: Diane Kielty
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Grantee and/ or Fiscal Agent Town Of Carbondale

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Introduction

In 2017 the Town of Carbondale, with partners Aspen Valley Land Trust, Roaring Fork Conservancy, American Rivers, and Public Counsel of the Rockies teamed up to develop a plan to restore and enhance a one-half mile, 18-acre reach of the Crystal River. The plan brings forth improvements to the river which flows through the Town of Carbondale, and improve the efficiency of the town owned Weaver Ditch head gate and diversion.

Background

The state of the Crystal River has been the focus of the community for many years with the conflicts of use and desires for a river system which is less distressed and functions in a more natural way. In 2016 after extensive survey work, public input and inventory of the Crystal River, the Roaring Fork Conservancy published the “Crystal River Management Plan”. The management plan brought forth a foundation of selected segments of the Crystal River which were considered to be of high priority to re-establish riparian habitat and increase river channel stability. In general the management plan states the following for this section of the river:

“The reaches of Crystal River between Thompson Creek and the confluence with the Roaring Fork exhibit the most degraded overall functional condition. This pattern most strongly reflects late summer modifications to the hydrological regime and cascading impacts on channel hydraulics, water temperature, habitat quality and availability, and biotic structure. The dominant nature of the impacts to streamflow and habitat suggest that management strategies that focus on these two variables” (Crystal River Management Plan)

Aspen Valley Land Trust and the Town of Carbondale have engaged in efforts to restore the Crystal River as it flows through RVR since 2013. In 2014 an initial project scope was based on restoring the entire 1.5-mile reach of the Crystal River as it flows through RVR. The resulting conceptual restoration plan for this section length of 1.5 miles was determined to be too extensive with the available financial resources. In 2017, the project goals evolved to reflect a first step towards improving instream and riparian habitat along the river. The focus shifted to the publically accessible Riverfront Park and the adjacent reach of river which encompasses a one-half mile reach.

The one-half mile reach is located along the Town of Carbondale-owned Riverfront Park in River Valley Ranch (RVR) subdivision. Riverfront Park lies between the Carbondale Fish Hatchery and Crystal Bridge Drive (see attached illustration Exhibit 1), The Crystal River Management plan describes this reach as being severely to unsustainably impaired. The Crystal River restoration and Weaver ditch efficiency plan brings forth opportunities for the Town of Carbondale to act on a major goal of the 2015 Carbondale Parks & Recreation Master Plan for improved connectivity between the community and its rivers. This project offers a unique opportunity for the community to come together with a common goal of restoring the Crystal River. The objective is to maintain the park’s character and passive use as a wildland park, improve the health of the ecosystem, and enhance the educational experience.
Exhibit 1 overview of project area

This plan includes water efficiency measure replacing the Weaver ditch head gate and diversion with a structure that can be retrofitted with telemetry based automated head gate system in the future. The intake from the river to the head gate will be modified to accommodate varying flow regimes and allow for less channel disruption to divert water from the river during low flow periods. Historically water diverted to the Weaver is through using a “push-up dam”, piling large rocks and river material pushed into place by heavy equipment to form a partial dam across the river. Push-up dams require frequent maintenance. One of the important benefits for this project is to install a minimal-maintenance diversion structure that reduces sedimentation and also improves fish habitat and passage. Future head gate automation will allow the diversion structure to open and close according to demand on the ditch system in real-time, better serving our customers and ultimately keeping more water and energy in the river.

There are five schools within a short walk of River Front Park. This park will provide a setting and demonstration model that could generate public and private landowner interest in restoring more of the river. This will provide an opportunity to seed additional restoration projects along the Crystal River in the future.
The project goals consist of:

1) Restore the ecological integrity of the riparian zone through streambank stabilization, reconnection of the floodplain, and replace invasive weed communities and plant monocultures with healthy and diverse riparian plant regimes, while preserving healthy bird and wildlife habitat.

2) Develop a long term, self-sustaining solution to improve river channel stability, fish habitat and spawning areas by promoting conditions that support and enhance instream biotic structure and diversity.

3) Create a self-sustaining diversion and head gate structure for the Weaver Ditch to function as part of the river system while improving the water delivery for the Town of Carbondale and consistent with future ditch improvements and efficiencies

4) Enhance passive user experiences of the Town of Carbondale Riverfront Park through interpretive signs, trails, gathering spaces, and educational programs.

Methods

The requested grant monies were targeted to be used to fund the planning, design, and permitting for the project. Funding sources included grant monies from Colorado Healthy Rivers $15,000, Colorado Water Conservation Board WSRF $20,700, Environment Foundation Funding (Aspen Ski Company) $9,300, Colorado Water Conservation Board Watershed restoration grant $90,000, Pitkin County Healthy Rivers $5,000, Town of Carbondale $20,000, and in kind contribution of $20,000.

In September 2017 a request for Proposal/Information was advertised for the Crystal River Restoration and Weaver Ditch Efficiency Project. Upon reviewing the proposals a team led by River Restoration with Lotic Hydrologic and DHM design was selected. The Town of Carbondale along with the stake holder group applied for the above grant funds which include the Colorado Healthy Rivers Watershed Assembly to perform planning design and outreach for this project. In June 2018, the Town entered into a contractual agreement with River Restoration based on the proposal they presented (drop box link: Proposal Detail).

In 2018 River Restoration, DHM Design, and Lotic Hydrologic conducted a thorough site survey and analysis of the Crystal River and adjacent riparian habitat (drop box link: 2018.12.05_Crystal River Restoration_Report). The site survey identified which parts of the river and riparian system were functioning in a healthy way, and which parts were not.

In April and May 2019, the consultant team presented the results of their site assessment, along with conceptual restoration and enhancement alternatives to the public. Public comments were accepted between 4/22/2019 and 5/24/2019 (see drop box link: Public Comments).

In the summer 2019, the project stakeholders considered the public input and selected the preferred alternative which is reflected in the 60% plan submittal (drop box link: CrystalRiverRestorationProject-60perPlans-Oct2019).

TASKS

Data Collection and Analysis

Sub-task 1A - Project Management and Coordination

Sub-task 2 - Site Inventory and Assessment (Survey)
• Stakeholder input and Existing Data Review
• River and Trails Assessment
• Field Inventory and Analysis, Vegetation Mapping
• Rapid Wetland Community Survey and Assessment
• Riparian Systems and Habitat Assessment
• Environmentally Sensitive Lands
• Wildlife and Plant Species
• Fisheries Habitat Assessment
• Restoration Opportunities Survey
• Corridor Recreation, Education and Interpretation Opportunities
• Survey/Documentation

Sub-task 3 - Hydrologic and Hydraulic Analysis (dropbox link: 2018.12.05 _Crystal River Restoration_ Report_.pdf)

Sub-task 4 – Public Meetings and Stakeholder Involvement (drop box link: TOC Restoration Meeting.pdf)
Meetings and site visits were held with stake holders and organization representatives from the following organizations:
  Audubon Society
  American Rivers
  Colorado Parks and Wildlife
  RVR home owners Association
  Town of Carbondale public meeting
  Roaring Fork Conservancy
  US Forest Service White River National Forest, Aspen-Sopris Ranger District
  Aspen Valley Land and Trust
  Pitkin County Healthy Rivers
  Colorado Water Conservation Board
  Stream Restoration Coordinator
  Colorado Basin Roundtable
  Colorado Division Water resources (Division 5)
  Carbondale Parks Commission
  Carbondale Board of Trustees
  Public Council of the Rockies
Colorado Parks & Wildlife, Audubon Society and Trout Unlimited

Sub-task 5 – Conceptual Alternatives Development
• Alternatives Development
  • (drop box link: commentsCopy of Crystal River Project - Alternatives Notes 053119.xlsx, Crystal River Online Comments as of 20190528.xls)
  • Construction Cost Estimate (drop box link: Costs\2019 Implementation Fundraising Ideas (2020).xlsx, POGG1,PDAA,201900002560_90K grant terms .pdf, Crystal-Project Budget - Phase 3)
  • Presentation to Stakeholders and the Public

Results
The results of the above mentioned tasks have resulted in a plan which addresses the scope of the project with input from the stakeholders and the community at large. The plan has prompted a goal for fund
raising and conceptual phasing of plan implementation. The next steps will be to continue fund raising and proceed with a request for proposal to construct the project.

(drop box link: CrystalRiverRestorationProject-60perPlans-Oct2019)

**Conclusions and Discussion**

Our objectives have been met through on going stake holder and community outreach. As previously mentioned, there has been a comprehensive process beginning in 2013 to initiate restoration practices along the Crystal River through Town. The importance of the Crystal River in the community and the Roaring Fork Valley is demonstrated in the Crystal River Management Plan and the inventory provided through the Crystal River Management Plan, and the Crystal River Restoration and Weaver Ditch Efficiency Project. One of the main objectives within the planning process has been to develop a self-sustaining project requiring minimal long term maintenance. This area is within the Carbondale Parks Department park system. Routine site visits are expected to occur for site condition, and work plans.

Communication amongst the stakeholders has been critical to the success of the project thus far. The Weaver Ditch efficiency portion of the project was assessed as two different projects. The river diversion was included with the Carbondale Crystal River Restoration and Weaver Ditch Efficiency Project and the inventory of the Weaver Ditch was performed separately. These were considered to be different skill sets for the ground work which could then be combined for implementation in the field. To date these are best to remain as separate projects.

This project will remain a foundational project for future work along the Crystal River. The lessons learned with the design and implementation will serve future restoration and habitat improvement along this river corridor. The Crystal River Management plan and Crystal River Restoration Report and Crystal River Restoration Project Plan will more than likely remain foundational documents for future projects and plans.

**Actual Expense Budget**

Include the actual budget including all cash match and in-kind match funding. It is helpful to use the same format as that of the Budget template provided for the scope of work. The planning, design, and permitting for the project is anticipated to cost $200,000 and take over a year to complete. The project was preliminarily awarded $130,000 in grant funding earlier this year from two separate Colorado Water Conservation Board funds ($100,000 from the Watershed Restoration Grant Fund and $20,700 from the Water Supply Reserve Fund), as well as $9,300 grant from the Environment Foundation.

The remaining $70,000 needed for the planning phase will be funded in part by the Town of Carbondale and in-kind contributions from the partnering organizations and other funds, as needed.

**Appendix**

*See drop box link Crystal River*
References

Crystal River Management Plan
CrystalRiverRestorationProject-60perPlans-Oct2019
2018.12.05_Crystal River Restoration_Report_
04-26-2018 - Crystal River Restoration PR.pdf