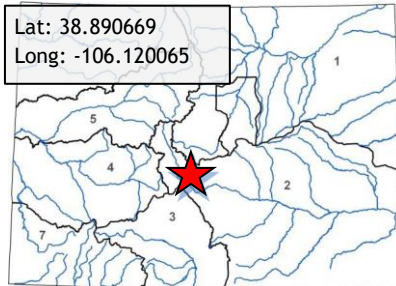


Water Plan Grant Application



L O C A T I O N
Counties: <i>Chaffee</i>
Drainage Basin: <i>Arkansas</i>

D E T A I L S	
<i>Total Project Cost:</i>	\$266,436.00
<i>Water Plan Grant Request:</i>	\$114,610.00
<i>Recommended amount:</i>	\$114,610.00
<i>Other CWCB Funding:</i>	\$0
<i>Other Funding Amount:</i>	\$122,326.00
<i>Applicant Match:</i>	\$29,500.00
<i>Project Type(s):</i>	Construction
<i>Project Category:</i>	Watershed Health and Recreation
<i>Measurable Result:</i>	3,800 LF of Stream Restored, 14 acres of Habitat Restored and 2,500 Coloradans Impacted by Engagement Activity

Project Overview: This application is focused on restoration treatment, monitoring, and adaptive management of the 0.7-mile, 14.2-acre reach of Fourmile Creek as a pilot project to demonstrate low-tech restoration of degraded stream-wetland beaver complexes to reestablish natural ecological processes that deliver multiple benefits.

By restoring Fourmile Creek to a naturally-functioning Stage-0 system through extensive, targeted willow plantings and installation of Beaver Dam Analogue structures, this project aims to mitigate high rates of sediment influx into the system, improve water detention in the system, improve floodplain connectivity and encourage (or mimic) sustained beaver activity. Upon completion, this project will be monitored to report on the effectiveness of this restoration strategy and to document hydrological changes to groundwater levels and streamflow. The resulting data will inform the effectiveness of restoration on Fourmile Creek while simultaneously providing a model with documented benefits that can be applied at landscape scale across the State.

This applicant has previously received a Water Plan Grant which supported the Envision Recreation in Balance Sediment Control Grant, and supported the groundwork of this project application. Further, the goals of this project are directly aligned with numerous components and action items associated with the Thriving Watersheds, Vibrant Communities and Resilient Planning focus area in the 2023 Water Plan, and is also integrated with the 2020 Chaffee County Community Wildfire Protection Plan, the Rocky Mountain Restoration Initiative Upper Ark Thrives Project and the 2021 Chaffee County Outdoor Recreation Management Plan.



Figure 1. Potential improvements along Fourmile Creek's floodplain as a result of this project.

Funding Recommendation: CWCB staff is recommending this project for full funding of \$114,610.00

**COLORADO**Colorado Water
Conservation Board

Department of Natural Resources

Colorado Water Conservation Board

Water Plan**Water Project Summary**

Name of Applicant	Chaffee County Community Foundation
Name of Water Project	Chaffee County Fourmile Creek Multi Benefit Restoration Project
Grant Request Amount	\$114,610.00
Primary Category	\$114,610.00
<i>Watershed Health & Recreation</i>	
Total Applicant Match	\$29,500.00
<i>Applicant Cash Match</i>	\$19,500.00
<i>Applicant In-Kind Match</i>	\$10,000.00
Total Other Sources of Funding	\$122,326.00
<i>Chaffee Common Ground Fund</i>	\$100,201.00
<i>USFS In Kind Services</i>	\$22,125.00
Total Project Cost	\$266,436.00

Applicant & Grantee Information

Name of Grantee: Chaffee County Community Foundation
Mailing Address: PO Box 492 Buena Vista CO 81211-0492
FEIN: 264,604,474

Organization Contact: Cindy Williams

Position/Title:

Phone: (720) 935-0094

Email: cindy@envisionchaffeecounty.org

Organization Contact - Alternate: Betsy Dittenber

Position/Title: Executive Director

Phone: 7022356230

Email: betsy@chaffeecommunity.org

Grant Management Contact: Cindy Williams

Position/Title:

Phone: (720) 935-0094

Email: cindy@envisionchaffeecounty.org

Grant Management Contact - Alternate: Betsy Dittenber

Position/Title: Executive Director

Phone: 7022356230

Email: betsy@chaffeecommunity.org

Engineering Contact: Mark Beardsley

Position/Title: Principal

Phone: 7198391497

Email: mark.ecometrics@gmail.com

Description of Grantee/Applicant

Chaffee County Community Foundation is a non profit acting as the fiscal agent for Envision Chaffee County.

Type of Eligible Entity

- ☐ Public (Government)
- ☐ Public (District)
- ☐ Public (Municipality)
- ☐ Ditch Company
- ☐ Private Incorporated
- ☐ Private Individual, Partnership, or Sole Proprietor
- ☒ Non-governmental Organization
- ☐ Covered Entity
- ☐ Other

Category of Water Project

- ☐ Agricultural Projects
Developing communications materials that specifically work with and educate the agricultural community on headwater restoration, identifying the state of the science of this type of work to assist agricultural users among others.
- ☐ Conservation & Land Use Planning
Activities and projects that implement long-term strategies for conservation, land use, and drought planning.
- ☐ Engagement & Innovation Activities
Activities and projects that support water education, outreach, and innovation efforts. Please fill out the Supplemental Application on the website.
- ☒ Watershed Restoration & Recreation
Projects that promote watershed health, environmental health, and recreation.
- ☐ Water Storage & Supply
Projects that facilitate the development of additional storage, artificial aquifer recharge, and dredging existing reservoirs to restore the reservoirs' full decreed capacity and Multi-beneficial projects and those projects identified in basin implementation plans to address the water supply and demand gap.

Location of Water Project

Latitude	38.890669
Longitude	-106.120065
Lat Long Flag	Stream location: Coordinates based on general location on stream
Water Source	
Basins	Arkansas
Counties	Chaffee
Districts	11-Arkansas: Headwaters to Salida

Water Project Overview

Major Water Use Type

Type of Water Project Construction / Implementation

Scheduled Start Date - Design

Scheduled Start Date - Construction 5/1/2023

Description

This grant will fund restoration treatment, monitoring, and adaptive management of the 0.7-mile, 14.2-acre reach of Fourmile Creek as a pilot project to demonstrate low-tech restoration of degraded stream-wetland beaver complexes to reestablish natural ecological processes that deliver multiple benefits. This demonstration project is

the first phase of a greater restoration opportunity in the Fourmile Creek/Sevenmile Creek watershed, which is one of many similarly degraded riverscapes where the approach could be applied in Chaffee County and regionally.

Fourmile Creek was historically a Stage-0 stream-wetland complex, but in its current degraded state (an incised channel flowing through a dried riparian zone, Stage 3-5) it has lost its ability to perform important natural functions. The project will provide benefits identified in regional planning efforts including to: (1) Mitigate the impacts of currently accelerated sedimentation and potential post-wildfire sediment impacts; (2) attenuate flash flood energy; (3) enhance habitat for wildlife species in decline such as Bighorn sheep and Mule deer augmenting in-progress landscape-scale treatments; (4) provide a natural wildfire refuge and fuel break connected to in-progress landscape-scale fire-mitigation treatments; (5) enhance drought resilience; and (6) improve fishery health.

Restoration treatments are designed to mimic beaver activity and to promote long-term reoccupation of beavers on Fourmile Creek. Project objectives will be scientifically monitored to report on the effectiveness of this strategy and to document hydrological changes to groundwater levels and streamflow. The combination is intended to not only restore this stream reach but to also provide a model with documented benefits that can be applied at landscape scale.

Measurable Results

	New Storage Created (acre-feet)
	New Annual Water Supplies Developed or Conserved (acre-feet), Consumptive or Nonconsumptive
	Existing Storage Preserved or Enhanced (acre-feet)
	New Storage Created (acre-feet)
1	Length of Stream Restored or Protected (linear feet)
	Efficiency Savings (dollars/year)
	Efficiency Savings (acre-feet/year)
14	Area of Restored or Preserved Habitat (acres)
	Quantity of Water Shared through Alternative Transfer Mechanisms or water sharing agreement (acre-feet)
	Number of Coloradans Impacted by Incorporating Water-Saving Actions into Land Use Planning
2,500	Number of Coloradans Impacted by Engagement Activity
Other	
Develops a model for similar projects regionally by providing an intensive program to measure, analyze and report project outcomes including to streamflow and ground water levels and sharing outcomes with diverse stakeholders.	

Water Project Justification

The Chaffee County Fourmile Creek Multi-Benefit Restoration Project was conceived to promote Colorado's vision, articulated as four intertwined action areas in the Colorado Water Plan (Page 1-9 of the 2023 Draft). A Watershed Health and Recreation Project, this Partner Action promotes CWCB's vision through the Thriving Watersheds partner action category (Page 6-3). The project developed through a collaborative community-driven integrated planning and implementation approach to managing finite water resources for long-term resilience and reliability, meeting both community and ecosystem needs. This approach echoes the Colorado Water Plan vision of Resilient Planning by "integrating local planning strategies, prioritizing collaborative solutions, and building adaptive capacity and resilience" (Page 6-44). This process exemplifies the One Water Ethic (Page 6-6) and CWCB's vision for Vibrant Communities that balance water supply and demand needs with their environment and urban (or rural, in this case) landscape (Page 6-6).

This balance is especially challenging on the Upper Arkansas Basin, where water supply and demand challenges are especially strict and where seemingly every drop of water that falls is counted and allocated. Citizens

understand and are constantly reminded of the importance of water to their lives and economy, recognizing both the consumptive use needs and the value of water resources for thriving, healthy, and, therefore, resilient watersheds with functional aquatic ecosystems. While the support for the project is primarily for its environmental benefits, the community also has great respect for the acute pressure on water administrators struggling to meet the demands of water users and interstate compacts. The community sees this project as a creative natural infrastructure solution that addresses multiple environmental issues while adhering to the State's laws and regulations for water rights and water quality. A large portion of the funding for this project will go to monitoring the hydrological response of the stream health improvement measures to begin quantifying the potential impacts on water use. These data, combined with an evaluation of the ecological response, will provide much-needed practical information to help community leaders strike that balance as we seek innovative ways to support thriving watersheds within Colorado's legal and regulatory framework (Page 6-6).

The Chaffee County Fourmile Creek Multi-Benefit Restoration project was originally identified as an innovative solution to growing sedimentation concerns related to historical land use, increasing wildfire risk, and exploding recreational use pressure (Page 24, EcoMetrics Report). The key innovation, at its core, is a rather simple one: to let nature take care of it. When healthy and functioning, stream-wetland ecosystems like the one that naturally occurs on Fourmile Creek are extremely efficient at retaining and processing sediment. So, one solution to the County's problem of increasing sedimentation is simply to restore ecological health on degraded riverscapes, a strategy that fits perfectly with the Colorado Water Plan's vision for thriving watersheds: to enhance watershed health (Page 6-32). Restoring watershed health also serves many other environmental issues at the forefront of community concern because healthy and functional stream-wetland ecosystems, like the one that could be restored on Fourmile Creek, also provide the critical habitat that is limiting and causing decline in native species, the water detention processes that attenuate flash floods and recharge the alluvial aquifer for drought resilience, refugia and potential fire breaks that provide wildfire resilience, and many other benefits including the potential for a robust fishery and other recreational uses (Page 25, EcoMetrics Report). CWCB's desire for carefully planned multi-benefit projects over patchwork efforts with narrow purposes is a theme communicated throughout the Colorado water Plan (e.g., Page 6-32).

The project is a Partner Action for Healthy Lands, as defined on Page 6-34, in the category of Thriving Watersheds. The Colorado Water Plan specifically calls out floodplain reconnection and nature-based solutions on Page 6-34, noting that "projects that reconnect floodplains to waterways and restore wetlands and riparian habitat along headwater streams can enhance habitat, slow flood flows, and improve water quality. These kinds of projects enhance the natural environment, but they also help provide clean water supplies for both municipalities and agriculture." This is exactly what the Chaffee County Fourmile Creek Multi-Benefit Restoration project was conceived to do (see Pages 9-13, EcoMetrics Report). The project also perfectly meets the definition of riparian and aquatic habitat improvement (EcoMetrics Report), about which the Colorado Water Plan has this to say: "Resilient river systems require seasonal flow fluctuations and provide complex and connected aquatic and riparian habitats that sustain stable, diverse, abundant, and reproducing populations of aquatic and riparian species. Efforts to improve riparian and aquatic habitat are important to the recovery of native and imperiled species" (Page 6-34). The naturally complex and connected aquatic and riparian habitats we aim to restore on Fourmile Creek are indeed critical to the recovery of native and imperiled species whose decline the community and local wildlife managers have resolved to reverse.

The Chaffee County Fourmile Creek Multi-Benefit Restoration project is also a good example of a Partner Action for Wise Water Use (also defined on Page 6-34). The project will demonstrate an approach to stream and wetland restoration that may be applicable on a broader scale in appropriate settings across Chaffee County (See pages 25-30, EcoMetrics Report) to create greater drought, fire, and flood resilience (pages 31-32, EcoMetrics Report). The Fourmile Creek project was identified through a rigorous county-wide survey of sedimentation and raised to the highest priority in County-led efforts to mitigate sedimentation problems. Chaffee County is now collaborating with EcoMetrics and the National Forest Foundation to systematically survey the whole County, using ecological and watershed metrics to identify and prioritize opportunities where similar approaches could yield the most benefit. This approach was derived directly from advice provided by the

Colorado Water Plan (on Page 6-34): “Stream and watershed restoration efforts should be concentrated on areas that will create the greatest environmental benefit. Specific ecosystems such as headwaters, floodplains, and wetlands can be evaluated and prioritized using watershed-specific metrics. Stronger projects and strategies emerge when local decision makers prioritize projects by balancing science, funding, risks, and values.”

The project came about through a model of shared stewardship that brought multiple partners together on a “foundation for shared decision making” to find common goals that advance river health priorities through integration, similar to the model described for the National Association of State Foresters on Page 6-32. The partnership between the State the US Forest Service, facilitated by local partners, fits comfortably with the purpose of Shared Stewardship Agreement that established a formal collaboration between these agencies and other partners (Page 6-32 and Page 2 of the Shared Stewardship Agreement MOU between the State of Colorado and the USDA US Forest Service Rocky Mountain Region).

The Chaffee County Fourmile Creek Multi-Benefit Restoration project supports the goals of the Colorado Water Plan watershed health and recreation project grants program by promoting watershed and environmental health and recreation (Page 3-39). The primary tool employed to meet these goals is Stream/Watershed Restoration and Enhancement, outlined on Page 5-26. In defining the restoration plan, EcoMetrics carefully diagnosed ecological stressors of past and present land use that are currently inhibiting natural processes (Page 9, EcoMetrics Report). The prescribed treatments are specifically selected to mimic, promote, and sustain those processes to restore the dynamic watershed and stream characteristics that reflect those in minimally impacted systems (Page 10-13, EcoMetrics Report) which is the definition of process-based restoration provided by the Colorado Water Plan on Page 5-26.

A State leader in the development, promotion, and implementation of the process-based approach to stream restoration and stewardship, EcoMetrics scoped this project with Chaffee County, the US Forest Service, and other partners as a demonstration of this natural and fundamentally simple ecological approach as a potentially efficient and cost-effective way to engage natural ecosystems for specific human and environmental needs. As a demonstration, or test case if you prefer, this project will be meticulously monitored, employing the Colorado Water Plan tool of Data Collection and Sharing, outlined on Page 5-20. Data collected while monitoring the hydrological and ecological response to restoration treatments may be used by the State to forward its goal of sharing data “to advance our knowledge and understanding of drivers that impact our water resources and potential future water supplies.”

This project meets several of the key criteria for State Support for Projects Aligned with Colorado's Water Values listed on Page 3-41. For each relevant criterion, we list of the supported points from Table 1 of the Advancements on Efficient Permitting and State Support for Funds supplement to the Colorado Water Plan:

- The project proponents demonstrate a commitment to collaboration, with support from multiple state, federal and local government agencies and NGOs.
 - o It has multiple proponents, under the leadership of Envision Chaffee County
 - o It addresses more than one type of need (sedimentation, habitat, flash flood attenuation, wildfire resilience and preparedness, fisheries, and other needs).
 - o It involves multiple participants (County, USFS, CPW, CSFS, NFF, TU, and local small businesses).
 - o It consults with a broad set of local stakeholders including water users and regulators, conservation groups, community groups, and local planning initiatives)
 - o It provides meaningful opportunities for input and participation.
- The project proponents demonstrate sustainability as it pertains to environmental and recreational interests, water conservation, water quality, economic and social impacts, maximizing beneficial use, partnerships with local government, and conforms with water law.
 - o It is part of an integrated plan to pursue riverscape restoration and floodplain reconnection on viable valley reaches across the county.
 - o The purpose and goal is to improve stream and watershed health which will confer a suite of multiple benefits, and the restoration methods follow best management practices that minimize adverse effects.
 - o Water quality may be enhanced by mitigating sedimentation, the most important non-point source pollutant in

the watershed.

- o It is a direct partnership with local government for work on federal public lands.
- o It involves no diversion of water out of the stream corridor, so should not increase risk of non-compliance with any interstate compact or curtailment of existing water rights. Streamflow monitoring data may be used to evaluate these claims.
- The project proponents established the fiscal and technical feasibility of the project including the total cost and local investment or contribution.
- o The implementation of restoration treatments can be done for a very low cost/mile and cost/acre rate compared to most restoration approaches. A modest investment in detailed hydrological and ecological response monitoring meets a high demand for scientific data related to process-based restoration and floodplain reconnection activities.
- o Most of the funding for this project comes from local sources.
- o Federal permitting processes are underway, and the project will be ready to proceed in 2023 if funded.
- o All financial commitments have been secured.

The Chaffee County Fourmile Creek Multi-Benefit Restoration project directly addresses the three primary watershed challenges identified for the Arkansas Basin on Page 4-10, which are:

- Concerns over water quality (primarily sedimentation) and species protection in the upper basin.
- A balance of environmental and recreation needs in the face of rapidly increasing population pressure.
- Managing the impacts of increasing risk of future forest fire and flash floods.

The project supports Arkansas Basin Roundtable watershed health and environment and recreation goals listed on Page 4-11:

- The project's purpose is to maintain, improve, and restore the primary waterway of the critical Fourmile Creek watershed to positively affect Arkansas Basin water uses and environmental and recreational values.
- It will improve water quality as it relates to the environment and/or recreation by mitigating the effects of accelerated sedimentation.
- It will Maintain or improve native fish populations, restore habitat for fish species, and maintain or improve recreational fishing opportunities by restoring aquatic habitat quality and quantity on a reach of Fourmile Creek.
- Maintain or improve aquatic, riparian, and avian habitat (including wetlands) that support environmental features and recreational opportunities, including habitat for some threatened and endangered species as well as many common but declining native species.

Related Studies

The project is a direct results of work completed with the CWCB Envision Recreation in Balance Sediment Control Project which resulted in the study "Low-tech Process-based Restoration of Riverscapes in Chaffee County, CO Managing riverscape health to mitigate sediment, support declining wildlife, attenuate flash floods, and protect ecosystem services, Ecometrics Revised November 1, 2022" which is attached as part of this application. The project is also a direct result of and integrated with the 2020 Chaffee County Community Wildfire Protection Plan, the Rocky Mountain Restoration Initiative Upper Ark Thrives project and the 2021 Chaffee County Outdoor Recreation Management Plan.

Taxpayer Bill of Rights

No issues