COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Colorado Water Conservation Board

Water Plan

Water Project Summary

Name of Applicant	The Freshwater Trust
Name of Water Project	Innovations to Scale Colorado EQIP Impact
Grant Request Amount	**$91,725.00**
Primary Category	$91,725.00
Engagement & Innovation Activities	
Total Applicant Match	**$25,300.00**
Applicant Cash Match	$19,700.00
Applicant In-Kind Match	$5,600.00
Total Other Sources of Funding	**$33,800.00**
Colorado River District	$33,800.00
Total Project Cost	**$150,825.00**

Applicant & Grantee Information

Name of Grantee: The Freshwater Trust
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Organization Contact: Scott Campbell
Position/Title: Sr. Strategic Consultant, Upper Colorado Basin Lead
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Grant Management Contact: Scott Campbell
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Description of Grantee/Applicant

No description provided

Type of Eligible Entity

- ☐ Public (Government)
- ☐ Public (District)

- [ ] Public (Municipality)
- [ ] Ditch Company
- [ ] Private Incorporated
- [ ] Private Individual, Partnership, or Sole Proprietor
- [x] 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.
- [x] 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	36.566400
Longitude	-107.972830
Lat Long Flag	Ditch diversion structure location: Coordinates based on ditch’s diversion structure
Water Source	Gunnison River and Uncompahgre River
Basins	Gunnison
Counties	Delta; Montrose
Districts	40-North Fork/Tribs.; 41-Lower Uncompahgre River

Water Project Overview

Major Water Use Type	Agricultural
Type of Water Project	Capacity Building
Scheduled Start Date - Design	11/6/2025
Scheduled Start Date - Construction	

Description

Producers often want precision irrigation upgrades, but many need financial assistance to overcome the high cost of conversion and most need a faster, more efficient cost-share process to engage.

While the Natural Resources Conservation Service (NRCS) is the nation’s largest private lands conservation funder, many Colorado producers don’t pursue NRCS assistance to fund irrigation upgrades due to procedural hurdles and long timelines. NRCS offices face staff capacity challenges that exacerbate these challenges. Given the structural deficit in the Colorado River, the state’s projected water supply gap, and producers’ need for

operational flexibility in the face of drought, it is critical to deploy NRCS funds with greater efficiency, and at greater scale.

The goal of this project is to accelerate implementation of on-farm irrigation upgrades by adapting a “scaling” model The Freshwater Trust (TFT) developed with NRCS in other states and readying it for deployment in Colorado. The key is providing wrap-around technical assistance (TA) and contractor capacity to streamline and manage the ~200 discrete steps needed to prepare projects for funding via NRCS programs, including recruitment, design, eligibility, archaeological surveys and environmental compliance. Once developed, TFT will test this approach on 2-4 West Slope pilot projects with local partners.

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)
	Length of Stream Restored or Protected (linear feet)
	Length of Pipe, Canal Built or Improved (linear feet)
	Efficiency Savings (dollars/year)
90	Efficiency Savings (acre-feet/year)
	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
	Number of Coloradans Impacted by Engagement Activity
Other	

1. The efficiency savings (90 acre-feet/year) are based on estimates for pilot projects executed on approximately 50 acres, where on-farm irrigation upgrades can achieve the most significant irrigation-demand reductions.
2. The pilot project itself will engage 2-4 producers, as well as NRCS staff, TSPs, ISCs, cultural resource professionals, etc. In the LGPA, scaling projects could benefit thousands of farmers who irrigate approximately 130,000 acres with upgrade potential. Expansion of efforts statewide could benefit all Coloradoans through reduced water demand, increased food production/security, and enhanced economic development activity.

Water Project Justification

This is an Innovation project designed to apply novel technologies and processes to achieve the Colorado Water Plan (CWP) vision for Robust Agriculture. The near-term goal is to work with NRCS and other partners to increase producer engagement in federal programs to aid adoption of on-farm irrigation upgrades. Increased participation will enable more of the kinds of projects called out in the CWP Partner Actions supplement—projects that support long-term WPG goals, such as: on-farm efficiency improvements that save labor and better meet crop needs; projects that apply industry innovations to lower water use while maintaining economic outputs, soil heath improvement projects that improve water retention; projects that make natural working lands a sink for (rather than a source of) greenhouse gases; and projects that reduce erosion and improve water quality (CWPPA, 5).

This project will support the CWP vision for Robust Agriculture by delivering technical, procedural, and project delivery innovations to help the state: (1) increase adoption of on-farm irrigation efficiency improvements; (2) secure more funding for those improvements; (3) eliminate barriers that prevent farmers from adopting improvements; and (4) maximize co-benefits from those improvements (e.g., increased agricultural-economic outputs, improved water quality, reduced irrigation demand, potential to increase storage, etc.). Specifically, the

technical and procedural innovations this grant supports are designed to increase the funding for, enrollment in, and impact of Colorado Natural Resources Conservation Service (NRCS) Environmental Quality Incentives Program (EQIP) and Regional Conservation Partnership Program (RCPP) projects focused on NRCS practices 441 and 442 (drip/sprinkler irrigation systems). The Freshwater Trust's (TFT) success doing this in other states has received praise from NRCS Chief Audrey Bettencourt who, pursuant to recent executive orders, is working to improve delivery of NRCS services through new technologies and procedural efficiencies while addressing mandated staff reductions.

Through this grant, TFT will develop and pilot the technical and procedural innovations Colorado requires to deliver impactful 441 and 442 projects with greater speed and at greater scale. Working with NRCS, irrigators, irrigation supply companies, technical service providers (TSPs), and cultural resource specialists in the Lower Gunnison Project Area (LGPA), this effort can support subsequent statewide application of the technologies and procedural innovations developed through this grant.

The principal CWP Partner Action supported by this grant application is:

On-farm efficiency improvements: "Improvements in irrigation efficiencies can reduce labor costs and result in more water delivered to the crop at the right time, which would result in higher yields. Like conveyance improvements, these benefits [must consider the reliance on return flows by water users and riparian areas]," (CWP, pg. 194).

Additional CWP Partner Actions supported by this project include:

1. Reducing erosion and improving water quality: "Management practices…can reduce on-farm erosion and improve water quality," (CWP, pg. 195). TFT has quantified the erosion and water quality benefits precision irrigation enables for 9,481 upgrade-eligible fields in the LGPA: upgrades could prevent 255,000 tons of sediment, 31,000 tons of salt, 2 million pounds of nitrogen, and 307,000 pounds of phosphorus from entering river systems each year.
2. Natural working lands and greenhouse gas (GHG) emissions: "Improved management of [farmlands] has the potential to make working lands a sink rather than a source of [GHG] emissions," (CWP, pg. 195). Extensive studies have shown that irrigation upgrades can reduce key GHGs, notably methane and N20 (TFT, 2023). TFT has quantified the GHG reduction potential that precision irrigation enables through changes in soil management practices in the LGPA. If no-till practices enabled by precision irrigation were implemented on all 9,481 upgrade-eligible fields, those practices would sequester 1,063,558 tons of carbon (a CO_2 equivalent of 3,903,258 tons). The total $CO_2 + N_2O$ climate impact would be -3,751,785.
3. Soil heath and effective use of water: "Healthy soils can increase the resiliency of agricultural systems including water use efficiency, which can benefit crop growth and may increase profitability," (CWP, pg. 194). The adoption of precision irrigation practices both enables and complements adoption of a new range of tillage, soil health, and cropping/cover-cropping practices.
4. Conveyance efficiency improvements: "Improvements to agricultural diversion and conveyance infrastructure can increase water delivery to farms and increase predictability of deliveries," (CWP, pg. 194). The innovations developed through this grant to reduce participation barriers and increase enrollment in EQIP programs focused on practices 441 and 442 can be applied to conveyance projects in future efforts.

Additional Gunnison Basin Implementation Plan (BIP) goals, objectives, and IPPs supported by this project include:

1. Reservoir supported on-farm efficiency: "Multiple projects on the Gunnison Basin projects list are categorized as agricultural irrigation efficiency projects. Efficiency projects are not all created equal, however. A significant

number of irrigated lands within the Gunnison Basin are supported by supplemental water made available through storage projects. Efficiency increases on acreage that is supported by supplemental reservoir water have the potential to have a greater impact on the agricultural gap. In specific circumstances the potential also exists for water conserved through efficiency projects to be re-timed and/or leased to [Environmental and Recreational] uses," (Gunnison BIP, v2, 17). A large percentage of farms in the LGPA are served by storage. Scaling on-farm efficiency improvements in this geography can enable water savings to be stored to meet BIP objectives, increase drought resiliency (see CWP Partner Action "Storage to build drought resiliency," 217), and/or improve timing and releases (see CWP Partner Action "Streamflow enhancement—retiming and releases," 205).
2. Goal 1: "Discourage the conversion of productive agricultural land to all other uses within the context of private property rights," (Gunnison BIP v1, 14). Improving irrigation infrastructure reduces annual operating costs and increases the profitability of agriculture—discouraging the conversion of agricultural lands to other uses and creating flexibility for producers to manage through water short years.
3. Goal 2: "Improve agricultural water supplies to reduce shortages," (Gunnison BIP, v1, 15). The conversion of agricultural fields from flood systems to pressurized irrigation systems will reduce irrigation demand which can be aggregated back to the headgate or stored. Increases in efficiency, at scale, will improve systems during water-short years.
4. Goal 6: "Maintain or, where necessary, improve water quality throughout the Gunnison Basin," (Gunnison BIP v1, 16). Improved irrigation efficiency reduces contaminant runoff by minimizing excess water that would otherwise flow off the field as tailwater or through deep percolation.
5. IPPs. TFT's ongoing work in Colorado—including work supported by previous CWCB grants—comports with various IPPs. Although this project is not supporting an IPP, TFT is working with Uncompahgre Valley Water Users Association (UVWUA) on concurrent efforts that could link on-farm irrigation upgrades with canal lining and piping projects identified as Tier 1 projects in the Gunnison BIP. Furthermore, TFT's development of a routing and flow model that maps UVWUA's delivery and drainage network enables UVWUA to see where demand reductions are likely to impact return flows—enabling mitigation or avoidance of impacts before projects are implemented. UVWUA IPPs include but are not limited to: M&D Canal Stabilization (GUN-2020-0044), East Lateral (GUN-2020-0192), and West Lateral Piping (GUN-2020-0195).

For the State of Colorado to reduce supply gaps and achieve the "Cooperative Growth" or "Adaptive Innovation" planning scenarios identified in the CWP by 2050, processes to accelerate adoption of on-farm irrigation upgrades need to be developed. The Gunnison basin experiences supply shortages on an annual or near-annual basis; and, in every future scenario modeled in the BIP, average annual gaps range from 87,700 AFY to 222,300 AFY. Additionally, more than 50% of the projects identified in the Gunnison BIP project database address aging infrastructure and do not directly contribute to reducing future water shortages. On-farm irrigation upgrades, delivered at scale, can lead to increases in system efficiency and reductions in irrigation water requirements, which will reduce diversion demand and supply gaps (Gunnison BIP, v1, 25-26). TFT has quantified the total irrigation-demand reductions precision irrigation on 9,481 upgrade-eligible fields in the LGPA could enable: if all upgrades were implemented, it could reduce headgate demand by as much as 142,000 AFY.

Related Studies

A 2021 Congressional Research report found that only 30% of EQIP applications were funded in FY21: Stubbs, M., 2022. Agricultural Conservation: A Guide to Programs (R40763). Washington D.C

The 2018 USDA NRCS Irrigation and Water Management Survey found that 53% of Colorado farms cite costs outweighing benefits or the inability to finance as barriers to participating in EQIP projects and adopting precision irrigation practices. United States Department of Agriculture, National Agricultural Statistics Service. (2019). 2018 Irrigation and Water Management Survey (Volume 3 - Special Studies - Part 1, AC-17-SS-1). Washington, D.C.

Taxpayer Bill of Rights
N/A