COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Colorado Water Conservation Board

Water Plan

Water Project Summary

Name of Applicant	Pacific Institute for Studies in Development, Environment & Security
Name of Water Project	Stormwater Capture & Reuse in Colorado: Understanding the Volumetric Implications at the Neighborhood and Community Scales
Grant Request Amount	**$47,701.00**
Primary Category	$47,701.00
Conservation & Land Use Planning	
Total Applicant Match	**$2,950.00**
Applicant Cash Match	$2,950.00
Applicant In-Kind Match	$0.00
Total Other Sources of Funding	**$16,030.00**
Parker Water and Sanitation District	$730.00
WateReuse Colorado	$5,000.00
University of Colorado at Boulder	$5,000.00
Water Environment Federation	$2,500.00
One Water Econ	$2,800.00
Total Project Cost	**$66,681.00**

Applicant & Grantee Information

Name of Grantee: Pacific Institute for Studies in Development, Environment & Security
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Description of Grantee/Applicant

The Pacific Institute creates and advances solutions to the world's most pressing challenges.

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	39.518600
Longitude	-104.761400
Lat Long Flag	Municipal centroid: Coordinates based on centroid of municipal boundary
Water Source	Our team is exploring the impact of an alternative water supply, stormwater, when collected and reused through a centralized system, at the neighborhood and community scale.
Basins	Metro; South Platte
Counties	Douglas
Districts	

Water Project Overview

Major Water Use Type	Municipal
Type of Water Project	Study
Scheduled Start Date - Design	12/1/2025
Scheduled Start Date - Construction	
Description	

This proposal is the direct outcome from a previously funded Colorado Water Plan grant project, Diversifying Colorado's Water Portfolio: The Potential for Stormwater Capture and Use to Contribute to a Water Resilient Future (Diversifying Colorado's Water Portfolio). This report contained 16 recommendations, including:

-Expand legislation to allow new developments to consolidate 110-gallon residential rainwater harvesting allowances to more centralized locations for irrigation of community spaces. For example, if a new development had a community center adjacent to an irrigated community park, allow stormwater to be captured and used for non-potable irrigation equivalent to the sum of total volume that would be available to all homes served by the community center (with an accompanying restriction on those homes from having their own residential rain barrels).

This current project, Stormwater Capture & Reuse in Colorado, explores the implications of scaling up opportunities to centralize the capture and reuse of stormwater at the neighborhood scale. It will provide a technical assessment of the volumetric potential of stormwater capture and use at the neighborhood and community scale in new developments and answer the following questions:
What volumetric capture meaningfully expands the local water portfolio?
Are there any effects for downstream water users?

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)
	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)
5,900,000	Number of Coloradans Impacted by Incorporating Water-Saving Actions into Land Use Planning
	Number of Coloradans Impacted by Engagement Activity
	Other

The applicable projected outcome associated with this project is an understanding of the volumetric impacts of centralized stormwater capture and use at neighborhood or community scale at new developments. This study seeks to determine if centralized capture at new developments can meaningfully contribute to the municipal and industrial supply demand gap in Colorado. This has the ability to impact all Coloradans, thus the estimate above for the number of Coloradans who will benefit.

Water Project Justification

Stormwater Capture & Reuse in Colorado: Understanding the Volumetric Implications at the Neighborhood and Community Scales strongly aligns with the goals of the Colorado Water Plan and through this study, seeks to understand if centralized stormwater capture and reuse at the neighborhood scale can meaningfully minimize the municipal and industrial supply-demand gap. Below are key examples that rise to the top for Partner Actions, Roundtable Basin Implementation Plans, and the Education Action Plan, though it can be reasonably applied to many elements under each of these categories.

Within the realm of Partner Actions, this project team will assess the volumetric opportunity for stormwater

capture and reuse to contribute to the water resources required to support new developments at the neighborhood or community scale. This potential “new water” supply, may have the potential to stretch our existing water supplies and offset nonpotable needs such as outdoor irrigation. Additionally, this study will reasonably estimate any effects on downstream water users and those implications.

These learnings will be shared with stakeholders including key municipalities (Fort Collins, Parker, and Aurora, for example), water supply planning professionals (including at Denver Water and Parker Water and Sanitation District), and various Basin Roundtables (such as South Platte, Metro, and Arkansas). Specifically, this project, Stormwater Capture & Reuse in Colorado: Understanding the Volumetric Implications at the Neighborhood and Community Scales supports the goals of Colorado's Water Plan in the following ways:

Partner Actions
Conservation and Land Use Projects:
Healthy Lands: Creating landscapes that will be healthy and productive in a warmer and drier future

Engagement and Innovation Activities:
Effective Engagement: Fostering information sharing, education, and innovation at the state and local level

Vibrant Communities, Partner Actions:
Meeting Future Water Need: Communities need to conserve and provide for future demands in the face of growing water scarcity

Wise Water Use: Water efficiency, conservation, and reuse should be prioritized and will help communities stretch their water supplies and be more resilient in the future

Engaged Partners: Partner engagement at different scales is critical to the implementation of a One Water approach

Integration with Other Water Sectors: Supply and One Water strategies should seek to support the agricultural economy and a healthy environment and prepare for extremes

Resilient Planning, Partner Actions:
Thoughtful Storage, Storage to Build Drought Resilience: Storage, whether on the surface or in groundwater aquifers, provides a way to capture supplies during wet periods for use during dry times.

Meeting Future Water Needs, Integrated planning: Planning studies of water supply, demand, and needed infrastructure that consider a range of uncertain future conditions will help water providers develop supplies and facilities that are resilient and adaptable.

Meeting Future Water Needs, Green infrastructure: Green infrastructure for managing stormwater, such as rain gardens, green roofs, and vegetated swales can slow runoff and improve its quality while creating green spaces in urban areas.

Meeting Future Water Needs, Multi-purpose projects for building resiliency: Multi-purpose projects that benefit more than one sector promote flexibility in operations and responsiveness.

Within the goals of the Basin Implementation Plans, Stormwater Capture & Reuse in Colorado: Understanding the Volumetric Implications at the Neighborhood and Community Scales strongly aligns with the following goals:

Arkansas:
MUNICIPAL AND INDUSTRIAL GOALS
-Meet the projected municipal supply gap in each Arkansas Basin subregion
Support regional efforts for cost-effective solutions to local water supply gaps
-Reduce municipal users' groundwater dependence on unsustainable aquifers
-Develop collaborative solutions among municipal, agricultural, and environmental and recreational users of water, particularly in drought conditions

COLORADO BASIN ROUNDTABLE THEMES (Connected to goals)
Develop local water-conscious land use strategies
Encourage a high level of basinwide conservation

METRO & SOUTH PLATTE:
Maintain and promote municipal and industrial conservation and efficiency
Maintain and promote reuse
Broaden South Platte communications, outreach, and education programs

COMMONALITIES AMONG BIP GOALS AND STRATEGIC VISIONS:
Meet future municipal and industrial water needs (i.e., meet the gap)
Implement projects that reduce the risk of future shortages and seek, where possible, multi-purpose opportunities

Implement water conservation and efficiency strategies
Maintain and improve water quality
Enhance resiliency by considering climate change, planning for uncertainty, and addressing vulnerabilities
Broaden education, outreach, and participation Collaborate and build partnerships

Finally, this proposed study generally aligns with the Statewide Water Education Action Plan (SWEAP), however, the key stakeholders for this study are more targeted. Initial outreach will include select staff from municipalities and utilities. Key insights and constructive feedback will actively be sought from our five-member Expert Review Panel which includes representation from industry, water utilities, legal perspectives, and an economics perspective.

Related Studies

The following studies are directly related. When a listed study includes a member of the current project team and/or was funded by the Colorado Water Conservation Board, an asterisk (*) is included at the beginning of its entry.

Related Studies:
*Pacific Institute, Wright Water Engineers, Inc., One Water Econ. 2024. Diversifying Colorado's Water Portfolio: The Potential for Stormwater Capture and Use to Contribute to a Water Resilient Future. Oakland, Calif.: Pacific Institute.

*Pacific Institute, Wright Water Engineers, Inc., One Water Econ. 2024. Project 5236, Diversifying Water Portfolios Through Stormwater Capture and Use: Contributing to a Water Resilient Future. Alexandria, VA: The Water Research Foundation.

* University of Colorado Boulder, CWCB Water Plan Grant: Modeling and analysis of the effects of centralized rainwater harvesting on streamflow. This funded and ongoing (8/15/2023 to 8/14/2026) Water Plan Grant project

is being carried out by the CU Boulder project team (Bhaskar and Ramirez-Nunez) and focuses on the streamflow changes between three scenarios: undeveloped, developed traditional, and developed with centralized rainwater harvesting using modeling and data analysis. This project directly supports the proposed project.

Taxpayer Bill of Rights

There are not any relevant TABOR issues that may affect this project proposal.