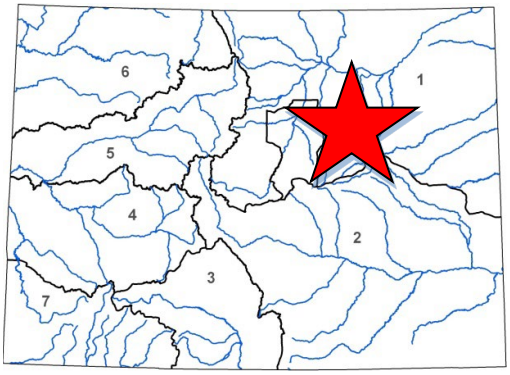
COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Bernhardt Reservoir Water Storage Project Phase 1
Central Colorado Water Conservancy District

September 2023 Board Meeting

Water Plan Grant Application

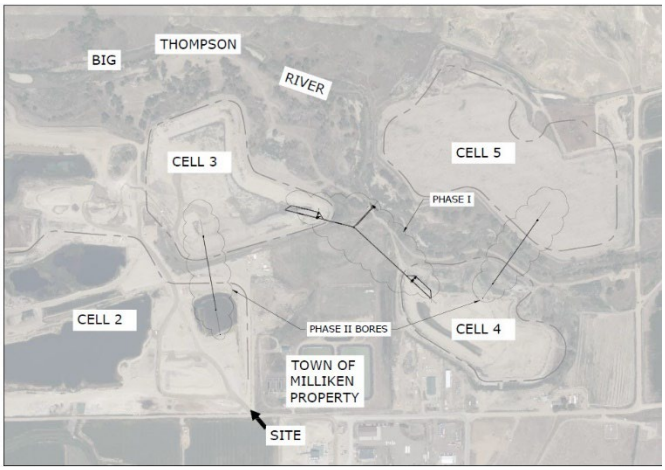


LOCATION	
Counties:	*Weld; Morgan; Adams*
Drainage Basin:	*South Platte*

DETAILS	
Total Project Cost:	$3,111,155.00
Water Plan Grant Request:	$1,000,000.00
Recommended amount:	$1,000,000.00
Other CWCB Funding:	$0
Other Funding Amount:	$0
Applicant Match:	$2,111,115.00
Project Type:	*Construction/Implementation*
Project Category:	*Water Storage & Supply*
Measurable Results: 1,000AF new storage created	

The Bernhardt Reservoir Water Storage Project will create 1,000 acre-feet of new storage. The Project will divert water from the Big Thompson River using a gravity feed to pump stations and a pipeline distribution network to deliver water into four mined gravel pits reclaimed for water storage purposes. This project will directly support Central's existing augmentation plans while supporting the goals of the 2023 Water Plan by providing a new sustainable water supply for Weld County agricultural producers, creating new recreational and environmental opportunities, and supporting collaboration between water users.

Development of the Project is being completed in three phases. Phase A has been substantially completed and has consisted of obtaining necessary easements and permits, installation of bentonite slurry walls around the perimeters of the mined cells and obtaining a storage water right. Phase A also included the mining of sand and gravel within each of the slurry wall lined cells. A majority of the costs associated with Phase A of the Project were financed through a loan from the Colorado Water Conservation Board. This loan has been paid off in its entirety.



Central Colorado Water Conservancy District (CCCWD) is requesting funding to complete Phase 1 of the project, which will include construction of a gravity diversion structure, pump station and pipelines to two of the four project cells. Specific tasks will include site preparation and mobilization, construction of a gravity diversion structure on the Big Thompson River, construction of a pipeline, pump station and inlet/outlet for two storage cells and construction of subsequent release pipelines for both storage cells. Figure 1 provides an overview of this Phase 1 effort.

Finally, Phase 2, not included in this proposal, will involve construction of interconnecting pipelines between the storage cells. Once completed, diversions will occur under a junior priority water right during high flow conditions and will be used as a source of replacement in plans for augmentation operated by CCCWD. This is generally the case for high flow conditions, but diversions can also occur with existing fully consumable water rights when available.

Funding Recommendation: This project is recommended for full funding of the $1,000,000.00 requested.

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Water Plan

Water Project Summary

Name of Applicant	Central Colorado Water Conservancy District
Name of Water Project	Bernhardt Reservoir Water Storage Project - Phase 1
Grant Request Amount	**$1,000,000.00**
Primary Category	$1,000,000.00
Water Storage & Supply	
Total Applicant Match	**$2,111,155.00**
Applicant Cash Match	$2,111,155.00
Applicant In-Kind Match	$0.00
Total Other Sources of Funding	**$0.00**
Total Project Cost	**$3,111,155.00**

Applicant & Grantee Information

Name of Grantee: Central Colorado Water Conservancy District
Mailing Address: 3209 W 28th St Greeley Colorado 80634
FEIN: 846,049,901

Organization Contact: Randy Ray
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Organization Contact - Alternate: William Mihelich
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Grant Management Contact: Randy Ray
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Grant Management Contact - Alternate: Tammy Rusch
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Engineering Contact: Brad Hagan
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Description of Grantee/Applicant

The Central Colorado Water Conservancy District was formed in 1965 pursuant to the 1937 Water Conservancy Act of the State of Colorado (CRS 150-5). The District includes over 750 square miles in Adams, Weld, and Morgan Counties. Two subdistricts of the Central District, the Groundwater Management Subdistrict (GMS) and the Well Augmentation Subdistrict (WAS), were formed in 1973 and 2004, respectively. The subdistricts operate

decreed plans for augmentation to replace depletions to the South Platte River from pumping of approximately 1,400 alluvial groundwater wells. Well depletions are replaced through allotment contracts with constituent well owners totaling over 80,000 acre-feet.

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	40.337614
Longitude	-104.836559
Lat Long Flag	Reservoir location: Coordinates based on location of reservoir
Water Source	Big Thompson River
Basins	South Platte
Counties	Weld; Morgan; Adams
Districts	4-Big Thompson River; 1-South Platte: Greeley to Balzac; 5-St. Vrain Creek; 6-Boulder Creek; 3-Cache La Poudre River; 2-South Platte: Denver Gage to Greeley

Water Project Overview

Major Water Use Type	Agricultural
Type of Water Project	Construction / Implementation
Scheduled Start Date - Design	

Scheduled Start Date - Construction 11/1/2023

Description

Bernhardt Reservoir Water Storage Project is in Weld County near the Town of Milliken and adjacent to the Big Thompson River. The Project will create 1,000 af of new storage and will divert water from the Big Thompson River using a gravity feed to pump stations and a pipeline distribution network to deliver water into four mined gravel pits reclaimed for water storage purposes. Diversions will occur under a junior priority water right during high flow conditions. Water from the Project will be used as a source of replacement in plans for augmentation operated by Central.

Development of the Project is being completed in three phases. Phase A has been substantially completed and has consisted of obtaining necessary easements and permits, installation of bentonite slurry walls around the perimeters of the mined cells and obtaining a storage water right. Phase A also included the mining of sand and gravel within each of the slurry wall lined cells. Central is requesting funding assistance to complete Phase 1 of the Project which will include construction of a gravity diversion structure, pump station and pipelines. Phase 2 will involve construction of interconnecting pipelines between the storage cells.

Measurable Results

1,000	New Storage Created (acre-feet)
1,000	New Annual Water Supplies Developed or Conserved (acre-feet), Consumptive or Nonconsumptive
	Existing Storage Preserved or Enhanced (acre-feet)
1,000	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)
120	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
50,000	Number of Coloradans Impacted by Engagement Activity

Other

The Central Colorado Water Conservancy District includes over 750 square miles in Adams, Weld, and Morgan Counties. The geographic boundary of the District generally includes lands overlying the South Platte River alluvium between Denver and Fort Morgan, the Beebe Draw alluvium, and the lower portions of the Box Elder Creek and Lost Creek drainages. District boundaries include portions of several cities and towns (e.g., Thornton, Brighton, Fort Lupton, Platteville, Greeley and Fort Morgan), numerous smaller rural communities (e.g., Gilcrest, LaSalle, Kersey, and Hudson) and approximately 210,000 acres of irrigated agricultural lands supplied by surface water ditches and groundwater wells.

Bernhardt Reservoir will be a component of Central's integrated water supply system of reservoirs and recharge projects that are operated under numerous direct flow, storage and recharge water rights. The development of 3,000 af of new storage associated with the Reservoir is critical to Central meeting the water needs of its agricultural members. Central estimates that approximately 50,000 Coloradoans will experience direct and indirect benefits of the Project. Direct benefits include providing additional water supplies for roughly 1,200 irrigation wells. Indirect benefits include much broader economic impacts to rural communities in northeast Colorado.

Water Project Justification

The importance of the Bernhardt Reservoir Water Storage Project to Central, Central's members and Northeast Colorado cannot be overstated. Colorado's population continues to grow at a rapid rate, placing an increasing demand on our natural systems, including water. Beginning in the late 1970's, Central's members invested heavily in their augmentation plans by purchasing and upgrading infrastructure and other works, participating in extensive legal proceedings, conducting substantial engineering design and analyses, and acquiring sources of augmentation supply. These investments were made because of the importance of groundwater use in increasing water use efficiency at the farm-level and protecting against drought. Though Central's augmentation plans are well-established, they can be improved by adding additional supplies. In recent years, the augmentation plans have operated anywhere between 35 percent and 60 percent pumping allocations. Bernhardt Reservoir will allow Central to continue to build their augmentation plans with the goal of achieving 100 percent allocations for their members.

Bernhardt Reservoir will clearly provide a direct benefit to Central's members, but it will also provide broader regional benefits. Weld County, a substantial amount of which lies within Central's boundaries, is the top agricultural producing county in the State of Colorado and one of the top three agricultural producing counties in the United States. Morgan County, also in Central's district, is similarly an agricultural powerhouse for Colorado. Producers in this region are confronted with climate uncertainties, increased competition for water resources, and an agricultural industry facing commodity price decreases on a scale we haven't seen since the 1980s. Establishing a resilient water supply will help sustain individual producers and regional economies and ensure that our food and fiber continues to be grown locally.

Central is one of the largest providers of water in the South Platte Basin and understands the importance of proactive planning and collaborative project development. Bernhardt Reservoir is consistent with, supports and implements several key portions of the Colorado Water Plan, as discussed below.

Development of New Agricultural Water Supplies:
Bernhardt Reservoir will make additional water supplies available for agricultural uses in the South Platte Basin north and east of Denver by diverting water during times it is legally and physically available (wet periods), storing that water temporarily, and releasing the water during times of shortage which typically occur during dry periods.

Improved Efficiency in Use of Existing Supplies:
Central operates numerous storage and recharge projects along the South Platte River. Those projects have been instrumental in retiming water supplies to allow some level of well pumping. Because of the physical location of Central's existing facilities and the locations of their member wells, there are constraints that limit the amount of well pumping that can be authorized. In addition, because of natural variations in streamflow conditions and changes in downstream administrative calls, Central routinely has excess fully consumable water supplies in the River at any given time. The strategic location of Bernhardt Reservoir provides the ability for Central to a) better match the location of their replacement obligations with the locations of their supplies, and b) recapture and retime other supplies through the Reservoir. This has a significant positive impact on the amount pumping that Central can authorize through their augmentation plan projections. Bernhardt Reservoir will increase the efficiency to which the water can be placed to beneficial use.

Easing Pressure to Dry Up Irrigated Lands:
An Executive Order by Colorado's Governor calling for development of the Colorado Water Plan states "The South Platte Basin is our largest agriculture producing basin" and "Coloradoans find the current rate of buy and dry is unacceptable". To the degree transfers of irrigation rights to municipal uses continues in the future, alternative supplies to meet agricultural demands must be developed. Bernhardt Reservoir will ease pressure towards agricultural dry-up by developing additional agricultural water supplies, keep farms in production, and

reduce dry-up of productive farm ground.

Environmental and Socioeconomic Benefits:
Bernhardt Reservoir provides environmental and societal benefits as well. Absent a dependable water supply, many agricultural producers in the region would opt to cease irrigating their farms. Wide scale “buy and dry” has led to significant environmental issues around the State, e.g., dust storms, soil erosion, and weed problems, and loss of wildlife habitat and corridors. This transfer of water out of the agricultural sector has led to decreased tax revenues and declining social infrastructure in several rural areas. Central and its constituents are committed to preserving working farms and the accompanying benefits of a thriving agricultural region.

Bernhardt Reservoir will provide wildlife and environmental benefits. Central currently operates several reservoir storage projects along the South Platte River and its tributaries and has observed benefits ranging from providing additional habitat for waterfowl, especially during times of the year when other similar habitat may be limited, to large game such as deer using the ponds for watering and feeding. Environmental benefits of the Project include providing important wildlife habitat and migratory corridors, open space, view sheds, and carbon sequestration.

The completion of the Bernhardt Inlet project will help to reduce the adverse effects of flooding and high river conditions downstream of the Reservoir. At times when the reservoir is empty, and high water or flooding conditions exist downstream of the installed Inlet, Central will be able to divert up to 3,000 ac-ft and reduce the available flow in the river by up to 40 cfs and potentially be able to minimize the overall effects of flood damage.

Drought Mitigation:
The Colorado Drought Mitigation and Response Plan (“Drought Plan”) has three primary components: mitigation, response, and vulnerability assessment. The mitigation component describes eight statewide goals for mitigating the risks of drought. The third goal is most relevant to Bernhardt Reservoir: Enhance Mechanisms to Provide Water Supplies to Areas of Shortage During Droughts. One of the identified action items for this goal is to “Explore technologies for water supply banking, floodwater diversion, storage, aquifer recharge, snow banking.” (page 119 of the Drought Plan). The Drought Plan assigns this action item a “medium” priority, indicating that the development of such projects is ongoing and at projects should be implemented within 3-6 years. Bernhardt Reservoir Water Storage Project supports and implements an identified component of Colorado’s Drought Plan.

Support of the Colorado Water Plan:
Central participated extensively in the South Platte Roundtable and development of the South Platte Basin Implementation Plan and Colorado Water Plan. Central believes development of the Bernhardt Reservoir Water Storage Project is consistent with the following Vision Goals identified in SWSI 2010 and the Colorado Water Plan.
• Sustain Agricultural Demands. Bernhardt Reservoir will develop additional water supplies for agricultural producers in Colorado. In addition, the Project will ease pressures to dry-up productive farms that result from agricultural to municipal water right transfers.
• Meet Colorado’s Environment and Recreation Demands. Bernhardt Reservoir will produce environmental (wildlife habitat enhancement) and recreational benefits.
• Promote Cooperation Between all Colorado Water Users. Bernhardt Reservoir will develop new water supplies within the South Platte Basin for agricultural uses without importing supplies from other basins.
• Optimize Existing and Future Water Supplies. Bernhardt Reservoir optimizes use of Central’s water supplies in the South Platte River Basin; as noted above, there is a leveraging effect of new storage at Bernhardt Reservoir because of its location. It also serves to increase efficiency of use of other water rights by capturing and re-timing water derived from those rights for later application to beneficial use.
• Promote Cost Effectiveness. Water supplies developed by constructing and operating reclaimed gravel mine storage projects are cost effective.

• Minimize Net Energy Used to Supply Water. Because Bernhardt Reservoir can be filled by gravity (by a combination of the Bernhardt Pump Station and two local irrigation ditches), energy costs are minimized.
• Provide Operational Flexibility and Coordinated Infrastructure. Bernhardt Reservoir will be operated in coordination with several other storage, recharge and direct flow water rights operated by Central so as to maximize the beneficial use of groundwater by its member wells.
• Status Quo Will Not Lead to a Desirable Future for Colorado. The Status Quo Will Likely Lead to Large Transfers of Water from Agricultural to Municipal Uses. Bernhardt Reservoir is NOT status quo. Bernhardt Reservoir develops new agricultural water supplies and efficiently uses surface water resources.
Measurable Objectives and other Performance Measures

The Colorado Water Plan sets forth measurable objectives to address future water needs based on shared values and measured progress. Shared values identified in the Plan include continued agricultural production, recreation and a strong environment.

Direct benefits to Central's constituents in Adams, Weld and Morgan counties resulting from development of Bernhardt Reservoir will be increased reliability of agricultural water supplies. The benefit is measurable with Central's annual allocation of augmentation supplies. Bernhardt Reservoir can be expected to increase those supplies by an average of approximately 2,700 af per year, but will increase annual allocated pumping volumes by Central members by significantly more..
The Project will allow Central to retime excess augmentation supplies in the river to times of deficit. Fully consumable water may be recaptured and retimed to better match depletions that result from alluvial well pumping. Central may have significant amounts of water in the River at times when it is not needed; capturing and retiming this water represents an efficiency savings.

The ability for agricultural producers to use alluvial groundwater is vital to their operations. If sufficient groundwater supplies are not available, many producers may choose not to plant crops because of the risk that drought conditions result in inadequate surface supplies. Providing a more cost effective and reliable water supply will help to ease the pressure on "buy and dry" transactions. It will also facilitate an alternative water supply to keep farms with wells in production even if senior water rights have been sold to municipal interests.

Related Studies

The Bernhardt Reservoir Water Storage Project is complimentary to CWCB programs that evaluate and support storage development, drought protection, water use efficiency, and water supply planning (e.g., the HB16-1276 South Platte Storage Study).

Taxpayer Bill of Rights

CCWCD, GMS and WAS have been "de-Bruced" from TABOR by voters.