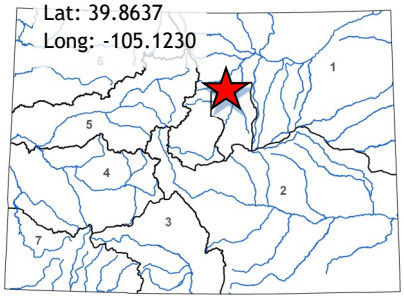
COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Standley Lake Spillway Raise Evaluation
Farmers Reservoir and Irrigation Company

September 2022 Board Meeting

Water Plan Grant Application



LOCATION	
County/Counties:	Jefferson
Drainage Basin:	South Platte

DETAILS	
Total Project Cost:	$314,471
Water Plan Grant Request:	$204,406
Other CWCB Funding:	$0
Other Funding Amount:	$0
Applicant Match:	$110,065
Project Type(s):	Study
Project Category:	Water Storage and Supply
Measurable Result:	4,000 AF created

The Farmers Reservoir and Irrigation Company (FRICO) is a mutual ditch company formed in 1902. Currently, it supplies water for irrigation, municipal and industrial purposes between the northern Front Range and Greeley. It accomplishes this through approximately 400 miles of canals and several reservoirs, including Marshall, Standley, and Barr Lakes. Municipal water provided by FRICO supplies approximately 300,000 people in the communities of Westminster, Thornton, Northglenn, and East Cherry Creek Valley Water and Sanitation District.

The project is a feasibility analysis for enlarging Standley Lake's storage capacity by raising the spillway. The reservoir, located in the City of Westminster, can store approximately 43,000 AF and is contained by an earthfill dam that is classified as high hazard. Utilizing Colorado Dam Safety's new Regional Extreme Precipitation Study (REPS) tool, the Probable Maximum Precipitation (PMP) for the reservoir's watershed was decreased as compared to the previous design amount. This PMP was then used to update the hydrologic model, which showed that the operating water surface elevation could be safely raised without negatively impacting the safety of the dam. This grant will help to fund additional studies that will evaluate how to raise or reconstruct the existing labyrinth spillway, and whether any Standley Lake state park infrastructure would need to be raised to accommodate the resulting higher water level.

Funding Recommendation: Staff recommends approval of the full request in the amount of $204,406 from the Water Storage and Supply Category. This is approximately 65% of the total project cost. This project aligns with the Water Plan's measureable goal of creating 400,000 AF of water storage by 2050 by providing new storage in the Metro basin.

COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Colorado Water Conservation Board

Water Plan

Water Project Summary

Name of Applicant	Farmers Reservoir & Irrigation Company	
Name of Water Project	Standley Lake Spillway Raise Evaluation	
Grant Request Amount		**$204,406.00**
Primary Category		$204,406.00
Water Storage & Supply		
Total Applicant Match		**$110,065.00**
Applicant Cash Match		$110,065.00
Applicant In-Kind Match		$0.00
Total Other Sources of Funding		**$0.00**
Total Project Cost		**$314,471.00**

Applicant & Grantee Information

Name of Grantee: Farmers Reservoir & Irrigation Company
Mailing Address: 80 S 27th Ave Brighton CO 80601
FEIN: 840,200,860

Organization Contact: Scott Edgar
Position/Title:
Phone: 303-659-7373
Email: scott@farmersres.com

Grant Management Contact: Scott Edgar
Position/Title:
Phone: 303-659-7373
Email: scott@farmersres.com

Description of Grantee/Applicant

Company - Water company, public or private

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	39.863701
Longitude	-105.122972
Lat Long Flag	
Water Source	Croke Canal, Farmers Highline Canal, and Church Ditch
Basins	South Platte
Counties	Jefferson
Districts	7-Clear Creek

Water Project Overview

Major Water Use Type	Municipal
Type of Water Project	Design
Scheduled Start Date - Design	4/1/2020
Scheduled Start Date - Construction	

Description

The project involves completing pre-feasibility studies and engineering to evaluate raising the Standley Lake spillway to increase the safe storage capacity of the reservoir. This involves performing analyses to determine the acceptable vertical raise while conforming to Colorado’s Dam Safety requirements.

The Standley reservoir is contained by an earthfill dam classified by the Colorado DWR Dam Safety as a high hazard structure. Dams with this classification are required to convey an inflow design flood based on the probable maximum precipitation (PMP). Dam Safety, in January 2019, revised the guidance for estimating PMPs based on a Regional Extreme Precipitation Study (REPS). Using the REPS tool results in a decrease PMP value than that used in previous design work. A revised hydrologic assessment was completed and has been issued in draft format to Dam Safety. The report and model will be revised based on Dam Safety comments. Part of the grant funds will be used for updating the model and report. Initial findings indicate that the operational water level in the dam could be raised. Grant funds will be used for additional studies and design work needed to bring the evaluation to a pre-feasibility design level.

Measurable Results

4,000	New Storage Created (acre-feet)
	New Annual Water Supplies Developed or Conserved (acre-feet), Consumptive or Nonconsumptive
	Existing Storage Preserved or Enhanced (acre-feet)
4,000	New Storage Created (acre-feet)
	Length of Stream Restored or Protected (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)
	Number of Coloradans Impacted by Incorporating Water-Saving Actions into Land Use Planning
300,000	Number of Coloradans Impacted by Engagement Activity

Other

No additional measurable results provided

Water Project Justification

The Standley Lake enlargement project supports Colorado's Water Plan in many ways. A key goal of the Water Plan is to reduce the projected 2050 municipal and industrial gap to zero acre-feet by 2030. Increasing the storage of Standley Lake will help reduce these gaps because it is a key storage component of the water supply systems for the City of Thornton, City of Westminster, and Town of Northglenn. These cities are major shareholders in the Standley Lake Division and currently own approximately 95% of the total number of outstanding shares. These cities currently withdraw water directly from Standley Lake to supply their municipal water systems. Additional storage in Standley Lake will increase the reliability of these water supply systems, increase the demand that can be met by the current and future populations of these municipalities, and reduce the risk of shortages during droughts. Therefore, this project will mitigate future water supply gaps.

Additional storage at Standley Lake will also increase the water supply that is available to serve lands irrigated by Standley Lake shareholders. A number of shares in the Standley Lake system remain in agriculture use. Additional water could increase the acres that can be irrigated and crop yields and reduce shortages of water needed for irrigated crops thereby maintaining agricultural productivity.

Standley Lake is a key feature of the Standley Lake Regional Park and is a popular destination for numerous recreational opportunities including hiking, fishing, paddling, camping, and birdwatching. For several years, it has also been the home to a pair of nesting bald eagles.

Increasing the operating level in Standley Lake would address more than one type of need including (agricultural, municipal, recreation, and environmental needs) (CWP, Pg. 9-43). This project addresses an identified water gap and will meet a need identified in the SWSI. There are significant future gaps estimated for the South Platte/Metro basin. Under the hot growth scenario, future gaps in agricultural and M&I sectors were estimated to be 22% and 31% on average, respectively (pg. 149 and 150, CWP Analysis and Technical Update). Between the years 2015 and 2050, the South Platte Basin as a whole is projected to grow from approximately 3.8 million to between 5.4 million and 6.5 million people in the low and high growth scenarios, respectively (pg. 139, CWP Analysis and Technical Update). This project will help address and reduce those gaps by meeting additional municipal and agricultural demands.

Finally, this project demonstrates sustainability. Additional capacity at Standley Lake will help firm the yield of existing water rights stored at Standley Lake and increase the ability of Thornton, Westminster, and Northglenn to withstand droughts. It will benefit environmental and recreational interests as described above and mitigate

impacts on agricultural communities by increasing the water supply available to the irrigated lands served by Standley Lake.

Related Studies

Revised probable maximum precipitation (PMP) depth calculations were completed per Colorado Dam Safety's revised 2019 guidance for estimating PMPs based on a Regional Extreme Precipitation Study (REPS). Previous studies resulted in a 24-hour PMP of 35.3 inches, while the REPS tool generated a PMP depth of 21.9 inches. Based on this outcome, a revised hydrologic/hydraulic assessment was completed and has been issued in draft format to Dam Safety. The models and report are currently being revised to address Dam Safety's comments.

Taxpayer Bill of Rights

No Tax Bill of Rights provided