COLORADO
Colorado Water Conservation Board
Department of Natural Resources

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John Hickenlooper, Governor

Robert Randall, DNR Executive Director

Rebecca Mitchell, CWCB Director

TO: Colorado Water Conservation Board Members

FROM: Brent Newman, Interstate, Federal, and Water Information Section

DATE: March 21-22, 2018 Board Meeting

AGENDA ITEM: 27 a-d. Water Plan Grants – Agricultural Viability
Initial Consideration

This item is for consideration only. No action is required at this time

Introduction

The agricultural viability category has $373,000 in available funds. In the February 1 round of applications, the CWCB received five applications totaling $256,958. Staff is supporting all four applications for full funding. This will leave $116,042 remaining in the fund for upcoming rounds of applications.

Applicant	Project Name	Request	% of Project	Staff Support
a. Fire Mountain Canal & Reservoir Co.	Automation, Remote Monitoring and SCADA to Improve System Efficiency	$26,055	44%	$26,055
b. Florida Consolidated Ditch Company	Florida Canal Structure Rehabilitation Project	$120,000	7%	$120,000
c. San Luis Valley WCD	Rio Grande Basin Soil Moisture Pilot Project	$20,000	46%	$20,000
d. Arkansas River Watershed Collaborative	Arkansas Basin Project Implementation Guide to Watershed Health	$90,903	72%	$75,000
		$256,958		**$256,958**

Staff Review and Comments

a. Fire Mountain Canal and Reservoir Company – Automation, Remote Monitoring, and SCADA to Improve System Efficiency

The Fire Mountain Canal and Reservoir Company (FMCRC), through an agreement with North Fork Water Conservancy District (NFWCD), operates and maintains the Bureau of Reclamation Paonia Project, which includes the Fire Mountain Canal (FMC) system and Paonia Reservoir. The FMC system is a water-delivery facility, which provides approximately 47,565 AF/yr of irrigation water to 488 shareholders, and 15,300 irrigated acres near Paonia and Hotchkiss, Co.

The purpose of this project is:

1) Preservation of agricultural water supply storage in Paonia Reservoir (estimated at 2,800 to 3,900 ac-ft/year) via installation of real-time telemetry data between the Anthracite Creek Gauge and the Paonia Dam Valve Control, such that reservoir releases can be automated and reduced when storm events in the Anthracite basin are providing supplemental flows to the North Fork of the Gunnison River; and
2) Implementation of Supervisory Control and Data Acquisition (SCADA) telemetry at the FMC headquarters, Bear Creek Gauge (primary control point), Muddy Creek and N. Fork at Somerset to improve the management of irrigation water supplies (47,565 AF/year) by an estimated 5% (2,378 AF/year).

This efficiency improvement is anticipated to extend irrigation water supplies by two weeks or better, to the benefit of agricultural users. This project is a Tier 1 project in the Gunnison Basin Implementation Plan, meeting BIP goals of infrastructure modernization efficiency and addressing late season water supply gaps in the North Fork of the Gunnison Basin. FMC is working collaboratively with DWR, USGS, and the Bureau of Reclamation on this project.

This project also meets goals identified in Colorado's Water Plan relating to "updating agricultural infrastructure, especially where improvements provide multiple benefits." (Chapter 10, Measurable Objective D, Action 3)

See attached Data Sheet for a location and summary.

b. Florida Consolidated Ditch Company – Florida Canal Diversion Structure Rehabilitation Project: Phase 2

Phase 2 of The Florida Canal Diversion Structure Rehabilitation Project is a multi-purpose project to enhance aquatic habitat, recreation and agriculture, and to provide construction services for the Florida Canal Diversion Structure (Diversion Structure) Rehabilitation Project (Project). The Diversion Structure delivers pre-Compact irrigation water rights to the Florida Canal headgate for irrigation of 6,900 acres on the Florida Mesa.

The Project will replace the existing low head dam with a structure that is safer for river users. The Florida River is an important fishery in the Southwest Basin as the CWCB holds two ISF water rights that extend from below Lemon Dam downstream to the Confluence with the Animas River. The Project will provide connectivity for a reach of The Florida River that is approximately 11.5 miles by providing a fish passage as part of the project design and implementation.

This project meets goals identified in Colorado's Water Plan relating to "updating agricultural infrastructure, especially where improvements provide multiple benefits." The reach where the Project is located is identified as special value waters in SWSI because of the CWCB ISF water rights. This project meets several goals identified in the Southwest Roundtable Basin Implementation Plan.

See attached Data Sheet for a location and summary.

c. San Luis Valley Water Conservancy District – Rio Grande Basin Soil Moisture Pilot Project

The proposed project is a pilot program where farmers in Division 3 will have an opportunity to cost-share in the purchase or lease of soil moisture monitoring equipment in an effort to improve irrigation management and reduce water use. The project will use field-level soil mapping and deploy soil moisture probes in different soil types within at least 10 participating fields. Soil moisture data will be paired with real-time weather data, including evaporation; transpiration, humidity, and precipitation to better inform producers of crop irrigation needs. The data will be available on a web-based platform and smartphone application. The goal of the program is to complete a real-world test to determine the effectiveness of the technology in informing irrigation practices to improve timing and reduce surface and groundwater use. If shown to be effective, the use of this technology could be expanded across the San Luis Valley and assist in efforts to improve surface water management and groundwater sustainability in both the unconfined and confined aquifers in Division 3.

This pilot program is being organized by the San Luis Valley Water Conservancy District, Conejos Water Conservancy District, Rio Grande Water Conservation District, and Groundwater Management Subdistrict #1. The partners will work together to share outreach materials and enroll farmers in the program. The program will begin with soil mapping in summer 2018, probe deployment in 2018-2019, and final reporting in mid 2020.

This project meets goals identified in Colorado's Water Plan relating to "updating agricultural infrastructure, especially where improvements provide multiple benefits." (Chapter 10, Measurable Objective D, Action 3) The project aligns with Colorado's Water Plan Goal to "support Colorado's agricultural industry to make it more efficient, resilient, and able to reduce water consumption without impacting agricultural productivity" (CWP, Section 10.3, pp. 10-10). The project aligns with the Rio Grande Basin Implementaton Plan goals to "sustain the confined and unconfined aquifers in accordance with Senate Bill 04-222 and operate within the State Engineer's new Rules and Regulations for the San Luis Valley," and to "manage water use to sustain optimal agricultural economy throughout the Basin's communities."

See attached Data Sheet for a location and summary.

d. Arkansas River Watershed Collaborative – Arkansas Basin Project Implementation Guide to Watershed Health

Over the years, different entities have taken on the task of trying to quantify the health of the Arkansas River as it traverses 160 miles and across 400,000 acres of farmland. The various entities have put this information into multiple formats that appear to be unusable by the impacted communities (especially agriculture) for applying Best Management Practices for improved water quality and watershed health restoration. The purpose of this project is to develop and publish a detailed plan outlining what work has been completed in the valley, what work needs to be completed, and how science (monitoring & research) can be used to inform future work. The target of this guide will be to help identify areas of need for watershed health and BMP's that can be implemented to help alleviate high concentration of selenium, nutrients and uranium in the waterways.

The objective of this project will be to synthesize published work, institutional knowledge, and current research into a guide that can be used to direct research and monitoring, and implementation of for Best Management Practices (BMPs) or other future projects in the Arkansas Basin. The guide will help identify areas of need for watershed health that can be used for implementation of future projects that will have a side effect of watershed health.

The project will be composed of three tasks to help achieve this one objective which will include (1) public work synthesis, where all current, past, and proposed work will be combined to grasp a hold of the basic understand of the current issues within the watershed, (2) creation of a guide to better understand project implementation in the basin, and (3) education and outreach for both understanding of work that has been completed and how to fully utilize the project.

This project meets goals identified in Colorado's Water Plan relating to "updating agricultural infrastructure, especially where improvements provide multiple benefits." (Chapter 10, Measurable Objective D, Action 3) The Arkansas Basin Implementation Plan (BIP) states support for efforts to improve watershed health in the basin, and this project will directly create a guide that will outline BMP's that can impact watershed health. The BIP also encourages agricultural efficiency within the basin and this guide will identify BMP's to be implemented that help agricultural efforts while making a positive impact of watershed health.

See attached Data Sheet for a location and summary.

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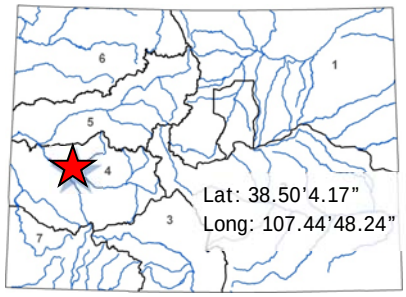
Automation, Remote Monitoring, and SCADA to Improve System Efficiency
Fire Mountain Canal & Reservoir Co.

March 2018 Board Meeting
Initial Consideration

Water Plan Grant Application



LOCATION	
County/Counties:	Gunnison
Drainage Basin:	Gunnison

DETAILS	
Total Project Cost:	$58,690
Water Plan Grant Request:	$26,055
Other CWCB Funding:	$0
Other Funding Amount:	$1,580
Applicant Match:	$31,055
Project Type(s): Construction	
Project Category(Categories): Agricultural Viability	
Measurable Result: 2,378 AF/year	

The Fire Mountain Canal and Reservoir Company (FMCRC), through an agreement with North Fork Water Conservancy District (NFWCD), operates and maintains the Bureau of Reclamation Paonia Project, which includes the Fire Mountain Canal (FMC) system and Paonia Reservoir. The FMC system is a water-delivery facility which provides approximately 47,565 AF/yr of irrigation water to 488 shareholders and 15,300 irrigated acres near Paonia and Hotchkiss, Co.

The purpose of this project is:

1) Preservation of agricultural water supply storage in Paonia Reservoir (estimated at 2,800 to 3,900 ac-ft/year) via installation of real-time telemetry data between the Anthracite Creek Gauge and the Paonia Dam Valve Control, such that reservoir releases can be automated and reduced when storm events in the Anthracite basin are providing supplemental flows to the North Fork of the Gunnison River; and
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This efficiency improvement is anticipated to extend irrigation water supplies by two weeks or better, to the benefit of agricultural users.

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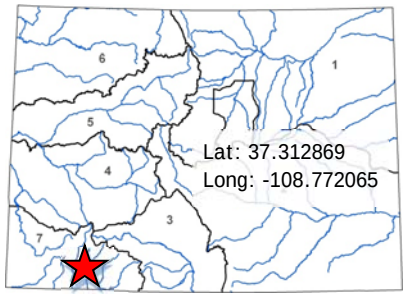
Florida Canal Structure Rehabilitation Project
Florida Consolidated Ditch Company

March 2018 Board Meeting
Initial Consideration

Water Plan Grant Application



LOCATION	
County/Counties:	La Plata
Drainage Basin:	Southwest

DETAILS	
Total Project Cost:	$1,580,000
Water Plan Grant Request:	$120,000
Other CWCB Funding:	$658,500 – CWCB loan $54,000 - WSRF Statewide $45,000 – SW BRT
Other Funding Amount:	$702,500
Applicant Match:	$59,000
Project Type(s): Engineering & Construction	
Project Category(Categories): Agricultural Viability / Env & Rec	
Measurable Result: 60,720 ft of stream protected 210 af of storage preserved, 12,264 af irrigation water preserved	

Phase 2 of The Florida Canal Diversion Structure Rehabilitation Project is a multi-purpose project to enhance aquatic habitat, recreation and agriculture, and to provide construction services for the Florida Canal Diversion Structure (Diversion Structure) Rehabilitation Project (Project). The Diversion Structure delivers pre-Compact irrigation water rights to the Florida Canal headgate for irrigation of 6,900 acres on the Florida Mesa. The current Diversion Structure is a low head dam that impedes upstream fish and aquatic organism passage.

The CWP Agricultural Project Grant funding will be used for Phase 2 of the Project, for construction of the Project. A loan feasibility study will be conducted in Phase 1. The water supply source is the Florida River. The Florida Canal provides water to Pastorius Reservoir, as well as irrigation water to land on which alfalfa, spring wheat, orchard, small grains, and grass pasture are grown.

The Project will replace the existing low head dam with a structure that is safer for river users. The Florida River is an important fishery in the Southwest Basin as the CWCB holds two ISF water rights that extend from below Lemon Dam downstream to the Confluence with the Animas River. The reach where the Project is located is identified as special value waters in SWSI because of the CWCB ISF water rights. The Project will provide connectivity for a reach of The Florida River that is approximately 11.5 miles by providing a fish passage as part of the project design and implementation. Pastorius Reservoir is a State Wildlife Area that relies on water delivered from the Florida River, and is an important state recreation area.

The area of habitat improvement is approximately 48.8 acres of the Florida River, from Lemon Dam downstream to the Florida Farmers Ditch Diversion Structure. The CWCB holds two instream flow (ISF) water rights on the Florida River that extend from below Lemon Dam downstream to the Confluence with the Animas River. Project also includes ISF flow augmentation considerations.

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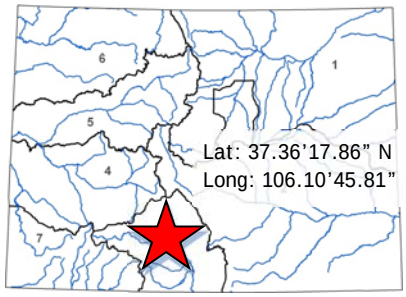
Rio Grande Basin Soil Moisture Pilot Project
San Luis Valley Water Conservancy District

March 2018 Board Meeting
Initial Consideration

Water Plan Grant Application



LOCATION
County/Counties: Rio Grande, Saguache, Alamosa, and Conejos
Drainage Basin: Rio Grande

DETAILS	
Total Project Cost:	$43,000
Water Plan Grant Request:	$20,000
Other CWCB Funding:	$0
Other Funding Amount:	$23,000
Applicant Match:	$2,000
Project Type(s): Pilot Project / Study	
Project Category(Categories): Agricultural Viability	
Measurable Result: potential ag efficiency savings	

The proposed project is a pilot program where farmers in Division 3 will have an opportunity to cost-share in the purchase or lease of soil moisture monitoring equipment in an effort to improve irrigation management and reduce water use. The project will use field-level soil mapping and deploy soil moisture probes in different soil types within at least 10 participating fields. Soil moisture data will be paired with real-time weather data, including evaporation; transpiration, humidity, and precipitation to better inform producers of crop irrigation needs. The data will be available on a web-based platform and smartphone application. The goal of the program is to complete a real-world test to determine the effectiveness of the technology in informing irrigation practices to improve timing and reduce surface and groundwater use. If shown to be effective, the use of this technology could be expanded across the San Luis Valley and assist in efforts to improve surface water management and groundwater sustainability in both the unconfined and confined aquifers in Division 3.

The San Luis Valley Water Conservancy District, Conejos Water Conservancy District, Rio Grande Water Conservation District, and Groundwater Management Subdistrict #1 are organizing this pilot program. The partners will work together to share outreach materials and enroll farmers in the program. The program will begin with soil mapping in summer 2018, probe deployment in 2018-2019, and final reporting in mid-2020.

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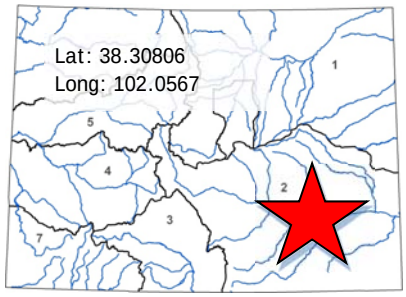
Arkansas Basin Project Implementation Guide to Watershed Health
Arkansas River Watershed Collaborative

March 2018 Board Meeting
Initial Consideration

Water Plan Grant Application



LOCATION	
County/Counties: Pueblo, Crowley, Otero, Bent, and Prowers	
Drainage Basin:	Arkansas

DETAILS	
Total Project Cost:	$125,903
Water Plan Grant Request:	$90,903
Other CWCB Funding:	$0
Other Funding Amount:	$35,000
Applicant Match:	$35,000
Project Type(s): Study / Plan	
Project Category(Categories): Agricultural Viability	
Measurable Result: potential ag efficiency savings, water quality benefits	

Over the years, different entities have taken on the task of trying to quantify the health of the Arkansas River as it traverses 160 miles and across 400,000 acres of farmland. The various entities have put this information into multiple formats that appear to be unusable by the impacted communities (especially agriculture) for applying Best Management Practices for improved water quality and watershed health restoration. The purpose of this project is to develop and publish a detailed plan outlining what work has been completed in the valley, what work needs to be completed, and how science (monitoring & research) can be used to inform future work. The target of this guide will be to help identify areas of need for watershed health and BMP's that can be implemented to help alleviate high concentration of selenium, nutrients and uranium in the waterways.

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