

Last Updated: July 2017

Colorado Water Conservation Board

Water Plan Grant Application

Instructions

To receive funding for a Water Plan Grant, applicant must demonstrate how the project, activity, or process (collectively referred to as “project”) funded by the CWCB will help meet the measurable objectives and critical actions in the Water Plan. Grant guidelines are available on the CWCB website.

If you have questions, please contact CWCB at (303) 866-3441 or email the following staff to assist you with applications in the following areas:

Supply and Demand Gap Projects
Water Storage Projects
Conservation, Land Use Planning
Engagement & Innovation Activities
Agricultural Projects
Environmental & Recreation Projects

Gregory.Johnson@state.co.us
Anna.Mauss@state.co.us
Kevin.Reidy@state.co.us
Mara.MacKillop@state.co.us
Brent.Newman@state.co.us
Linda.Bassi@state.co.us

Applicants interested in submitting an ‘Intent to Apply’ in the future are encouraged to check here ☐ and fill in all sections with the best information available at the time. Exhibits may be excluded.

This “Intent to Apply” will help CWCB prioritize Projects that are not ready for fully completed Water Plan Grant Application due to the initial timeframe and required deadlines.

FINAL SUBMISSION: Submit all application materials to waterplan.grants@state.co.us in the original file formats [Application (word); Statement of Work (word); Budget/Schedule (excel)]. Please do not combine documents.

Water Project Summary

Name of Applicant	Fire Mountain Canal & Reservoir Company
Name of Water Project	Fire Mountain Canal & Reservoir Company: Automation, Remote Monitoring & SCADA to Improve System Efficiency
CWP Grant Request Amount	\$26,055
Other Funding Sources: DWR In-kind	\$1,580
Other Funding Sources:	\$
Other Funding Sources	\$
Applicant Funding Contribution	\$31,055
Total Project Cost	\$58,690

Last Updated: July 2017

Applicant & Grantee Information	
Name of Grantee(s)	Fire Mountain Canal & Reservoir Company
Mailing Address	P.O. Box 543, Hotchkiss, Colorado 81419
FEIN	84-0202551
Organization Contact	Dixie Luke
Position/Title	Board President
Email	DLuke6265@skybeam.net
Phone	970-379-6265
Grant Management Contact	Steve Fletcher
Position/Title	Manager/Dam Operator
Email	sfletcher@montrose.net
Phone	970-250-8118
Name of Applicant (if different than grantee)	
Mailing Address	
Position/Title	
Email	
Phone	

Description of Grantee/Applicant
Provide a brief description of the grantee's organization (100 words or less).
<p>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 majority of FMC water rights are junior in priority and are annually called upon by senior water right holders. After the call, FMC relies on stored water in Paonia Reservoir to provide 13,000 AF to FMC shareholder (July-September).</p>

Last Updated: July 2017

Type of Eligible Entity (check one)	
	Public (Government): Municipalities, enterprises, counties, and State of Colorado agencies. Federal agencies are encouraged to work with local entities. Federal agencies are eligible, but only if they can make a compelling case for why a local partner cannot be the grant recipient.
	Public (Districts): Authorities, Title 32/special districts (conservancy, conservation, and irrigation districts), and water activity enterprises.
X	Private Incorporated: Mutual ditch companies, homeowners associations, corporations.
	Private Individuals, Partnerships, and Sole Proprietors: Private parties may be eligible for funding.
	Non-governmental organizations (NGO): Organization that is not part of the government and is non-profit in nature.
	Covered Entity: As defined in Section 37-60-126 Colorado Revised Statutes .

Type of Water Project (check all that apply)	
	Study
X	Construction
	Identified Projects and Processes (IPP)
	Other

Category of Water Project (check all that apply and include relevant tasks)		
	Supply and Demand Gap - Multi-beneficial projects and those projects identified in basin implementation plans to address the water supply and demand gap. <i>Applicable Exhibit A Task(s):</i>	
	Water Storage - Projects that facilitate the development of additional storage, artificial aquifer recharge, and dredging existing reservoirs to restore the reservoirs' full decreed capacity. <i>Applicable Exhibit A Task(s):</i>	
	Conservation and Land Use Planning - Activities and projects that implement long-term strategies for conservation, land use, and drought planning. <i>Applicable Exhibit A Task(s):</i>	
	Engagement & Innovation - Activities and projects that support water education, outreach, and innovation efforts. Please fill out the Supplemental Application on the website. <i>Applicable Exhibit A Task(s):</i>	
X	Agricultural - Projects that provide technical assistance and improve agricultural efficiency. <i>Applicable Exhibit A Task(s):</i> Please See Attached SOW, Budget and Timeline.	
	Environmental & Recreation - Projects that promote watershed health, environmental health, and recreation. <i>Applicable Exhibit A Task(s):</i>	
	Other	Explain:

Last Updated: July 2017

Location of Water Project	
Please provide the general county and coordinates of the proposed project below in decimal degrees . The Applicant shall also provide, in Exhibit C, a site map if applicable.	
County/Countries	Gunnison County
Latitude	Paonia Reservoir: 38° 56'14.81"N
Longitude	Paonia Reservoir: 107° 21'44.75"W

Water Project Overview
<p>Please provide a summary of the proposed water project (200 words or less). Include a description of the project and what the CWP Grant funding will be used for specifically (e.g., studies, permitting process, construction). Provide a description of the water supply source to be utilized or the water body affected by the project, where applicable. Include details such as acres under irrigation, types of crops irrigated, number of residential and commercial taps, length of ditch improvements, length of pipe installed, and area of habitat improvements, where applicable. If this project addresses multiple purposes or spans multiple basins, please explain.</p> <p>The Applicant shall also provide, in Exhibit A, a detailed Statement of Work, Budget, Other Funding Sources/Amounts and Schedule.</p>

Last Updated: July 2017

Water Project Overview

The FMC is part of the federal Paonia Project (N. Fork Gunnison River sub-basin) which includes Paonia Dam and Reservoir, located on Muddy Creek, upstream of the confluence with Anthracite Creek, approximately 16 miles northeast of Paonia, Colorado (Exhibit C for Map). Together, Muddy Creek and Anthracite Creek form the North Fork of the Gunnison River. Paonia Reservoir provides 13,000 ac-ft of supplemental storage (July – September) for approximately 15,300 irrigated acres. Typical crops produced: apples, peaches, pears, and cherries.

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).

See also Exhibit A for a detailed Statement of Work, Budget and Project Schedule.

Measurable Results

To catalog measurable results achieved with the CWP Grant funds, please provide any of the following values as applicable:

	New Storage Created (acre-feet)
	New Annual Water Supplies Developed or Conserved (acre-feet), Consumptive or Nonconsumptive
2,800 – 3,900 AF/year	Existing Storage Preserved or Enhanced (acre-feet)
	Length of Stream Restored or Protected (linear feet)
2,378 AF/year	Efficiency Savings (indicate acre-feet/year OR dollars/year)
	Area of Restored or Preserved Habitat (acres)
	Quantity of Water Shared through Alternative Transfer Mechanisms
	Number of Coloradans Impacted by Incorporating Water-Saving Actions into Land Use Planning
488 shareholders +	Number of Coloradans Impacted by Engagement Activity

Last Updated: July 2017

Measurable Results		
X	Other	Explain: Anticipated to extend irrigation water supplies by 2 weeks or better which will benefit agricultural, environmental, and recreational water users.

Water Project Justification
<p>Provide a description of how this water project supports the goals of Colorado's Water Plan, the most recent Statewide Water Supply Initiative, and the applicable Roundtable Basin Implementation Plan and Education Action Plan. The Applicant is required to reference specific needs, goals, themes, or Identified Projects and Processes (IPPs), including citations (e.g. document, chapters, sections, or page numbers).</p> <p>The proposed water project shall be evaluated based upon how well the proposal conforms to Colorado's Water Plan Framework for State of Colorado Support for a Water Project (CWP, Section 9.4, pp. 9-43 to 9-44;)</p> <p><u>How does this project conform with the Colorado Water Plan Framework for State Support of Water Projects?: Answer</u></p> <ol style="list-style-type: none"> 1) Commitment to Collaboration: The FMC is working collaboratively with the Division of Water Resources (DWR) and USGS to implement this project. In addition, Reclamation is supportive of the project. This project also addresses agricultural, environmental and recreational needs of the public by extending late season flows in the North Fork of the Gunnison River; 2) Address an Identified Water Gap: Yes – it's a Tier 1 project, meets identified late season water supply gap in the North Fork of the Gunnison Basin, modernization of infrastructure to accomplish efficiency identified in Gunnison Basin BIP. 3) Sustainability: This project proposal adopts readily available modernization practices for improving irrigation efficiency and maximizing existing supplies and represents a commitment by the FMC to improve their overall system. 4) Fiscal & Technical Feasibility: This project demonstrates the benefit of state and local investment in infrastructure improvements. The FMCRC has obtained engineering bids for material, labor, equipment and on-going maintenance and is confident in budget numbers presented. In addition, FMC staff has consulted with Reclamation, DWR, NFWCD and USGS throughout their planning process and is ready to proceed upon receipt of funds. There were no technical, legal, cultural, or environmental issues identified in the consultations for this irrigation modernization project. <p><u>SWSI:</u> Data indicates significant agricultural shortages that can be addressed by modernizing off-farm irrigation delivery system infrastructure, improving on-farm irrigation efficiency, and increasing storage.</p> <p><u>Gunnison Basin Implementation Plan:</u> This project is a Tier 1 Gunnison Basin Implementation Plan proposed project (Table 1 GBIP, page 96, Reference #16) for the North Fork Basin including "... <i>restore, maintain or modernize significant agricultural water supply infrastructure...to maximize impact on meeting agricultural water shortages...</i>"</p> <p>The project is also consistent with the following Gunnison Basin Goals including:</p> <ul style="list-style-type: none"> ● Goal No. 3 (pg 32) which is to "Improve agricultural water supplies to reduce shortages via "Site specific solutions with local water users...which could include infrastructure to improve system efficiency" - This project automates the dam valve controls such that releases can be adjusted when storm events provide supplemental flows to the North Fork river which will extend the irrigation season and reduce shortages.



Last Updated: July 2017

Water Project Justification

- In addition, this project is a first step at establishing automation, remote monitoring, alarming and SCADA within the FMC system which allows the FMCRC to better manage their existing irrigation supplies.
- **Goal No. 8** (pg 37) which is to *Restore, maintain, and modernize critical water infrastructure.*
 - This project is the first step in modernizing water management communication infrastructure and automation.
- **Goal No. 7** (pg 36) *Encourage cooperative projects which sustain agriculture and provide benefit to in stream flows...which provide late season water for environmental/recreational and agricultural uses.*
 - This project extends late season flows and stabilizes river flows for the benefit of recreationists, environment and the agricultural community.
- **Goal No. 1** (page 30) Protecting Existing Water Uses which provides substantial economic productivity via processes including "...measures taken to use existing supplies more efficiently or effectively".

Related Studies

Please provide a list of any related studies, including if the water project is complementary to or assists in the implementation of other CWCB programs.

North Fork Water Conservancy District Master Plan (2016): Supported by CWCB RCPP TA funds, the NF Master Plan identifies SCADA implementation at key sites (including the Bear Creek flume) as one of their top ten priorities for implementation (No. 6) and set a goal for establishing a foundation for SCADA development in 2018.

Fire Mountain Canal Water Management Plan (2001)(Page 3-2): This project complies with the FMC:
1) Water Management Objective: Examine the potential to increase water storage and delivery efficiencies
2) Water Management Goal #2: Increase the availability of drought season water.
3) Water Management Goal #3: Improve the accuracy of water measurement devices and continue annual infrastructure improvement program.

Fire Mountain Canal Reconfiguration Project: Integrated Assessment, Comprehensive Implementation Planning and Engineering Review (ITRC 2017): Supported in part by CWCB RCPP Technical Assistance funds, this study completed a comprehensive review of the entire FMC system. One of the several key modernization and safety recommendations coming out of this report was implementation of SCADA (Telemetry) at the **Bear Creek Site** in that a SCADA system can provide early warning of problems, improve accuracy and efficiency of water control and reduce labor/travel (PDF pg. 6)

Previous CWCB Grants, Loans or Other Funding

List all previous or current CWCB grants (including WSRF) awarded to both the Applicant and Grantee. Include: 1) Applicant name; 2) Water activity name; 3) Approving RT(s); 4) CWCB board meeting date; 5) Contract number or purchase order; 6) Percentage of other CWCB funding for your overall project.

Last Updated: July 2017

Previous CWCB Grants, Loans or Other Funding

- Fire Mountain Canal & Reservoir Company / FMC Siphon Inlet Structure / Gunnison Basin Round Table (\$60k) & WSRF (\$60k) / CWCB Board Mtg Date: 2016 (Edwards, CO) / Contract Number# CTGG1 2018-344 / Percentage of OTHER CWCB Funding for Overall Project (1.4%)
- Fire Mountain Canal & Reservoir Company / FMC Piping Project / CWCB RCPP TA (approximately \$61k) / CWCB Board Mtg Date: 2016 / PO# TBD / Percentage of Other CWCB Funding for Overall Project (2%)
- Fire Mountain Canal & Reservoir Company / FMC Regulating Reservoir / CO Watershed Plan Grant (\$50k) / CWCB Board Mtg Date: January 22-23, 2018/ PO # TBD / Percentage of Other CWCB Funding for Overall Project (0%)

Taxpayer Bill of Rights

The Taxpayer Bill of Rights (TABOR) may limit the amount of grant money an entity can receive. Please describe any relevant TABOR issues that may affect your application.

The Fire Mountain Canal and Reservoir Company is a 501(c)(12) and therefore not subject to TABOR.

Last Updated: July 2017

Submittal Checklist	
X	I acknowledge the Grantee will be able to contract with CWCB using the Standard Contract .
Exhibit A	
X	Statement of Work ⁽¹⁾
X	Budget & Schedule ⁽¹⁾
	Letters of Matching and/or Pending 3 rd Party Commitments ⁽¹⁾
Exhibit C	
X	Map (if applicable) ⁽¹⁾
	Photos/Drawings/Reports
X	Letters of Support (Support letter from Basin Roundtable encouraged) – Letter of support will be sought at GBRT meeting scheduled for March 19 th , 2018.
	Certificate of Insurance (General, Auto, & Workers' Comp.) ⁽²⁾
	Certificate of Good Standing with Colorado Secretary of State ⁽²⁾
	W-9 ⁽²⁾
	Independent Contractor Form ⁽²⁾ (If applicant is individual, not company/organization)
Engagement & Innovation Grant Applicants ONLY	
	Engagement & Innovation Supplemental Application ⁽¹⁾

(1) Required with application.

(2) Required for contracting. While optional at the time of this application, submission can expedite contracting upon CWCB Board approval.

Exhibit A

SCOPE / BUDGET / TIMELINE

Fire Mountain Canal & Reservoir Company: Automation, Remote Monitoring & SCADA to Improve System Efficiency

Project Summary: The Fire Mountain Canal and Reservoir Company (FMCRC), also known as the Paonia Project, is a Bureau of Reclamation project which provides irrigation water on the North side of the North Fork Valley in western Colorado. The FMCRC delivers an average of 47,565 acre feet annually to 488 shareholders. The bulk of the water rights held by the FMCRC are considered junior in priority and therefore rely on 13,000 acre feet of water stored in Paonia Reservoir which typically starts releasing supplemental water in July continuing into September.

The FMCRC wishes to implement Supervisory Control and Data Acquisition (SCADA) Telemetry within the Fire Mountain Canal (FMC) irrigation delivery system for the purposes of preserving existing water supplies and storage, and improving agricultural irrigation water delivery and safety. The project includes establishing a master computer and network at the FMCRC Headquarters Office (Hotchkiss, Co) to store data from remote sites and handle logic set-points, controls, and alarms. This includes software to monitor and control remote PLCs at:

- 1) Paonia Reservoir Dam Valve Control (Controls reservoir releases)
- 2) Bear Creek (Primary control site for water entering FMC system)
- 3) Anthracite Creek (Relay data on storm flows entering the North Fork of the Gunnison River so that the Paonia Dam valve control can close in order to preserve existing storage)
- 4) Muddy Creek (Reservoir flow release data)
- 5) North Fork of the Gunnison River (Flow maintenance check point)

The system will utilize satellite terminals and/or high speed internet to communicate with the master PLC and the remote PLC's. There will also be a communication link between the Anthracite Creek gauge and the controls for the valves at the reservoir. This will allow for the releases from the reservoir into Muddy Creek to relate with the flows in Anthracite Creek to maintain a steady flow in the North Fork of the Gunnison River. Paonia Dam was built on Muddy Creek just upstream of the confluence with Anthracite Creek (The two creeks form the North Fork of the Gunnison River), so when a storm event up the Anthracite basin increases the flows in Anthracite Creek the flows in Muddy Creek from the reservoir can be shut down to conserve stored water in the reservoir and maintain a steady flow in the North Fork of the Gunnison River.

Project Benefits: There will be benefits to both FMC shareholders, as well as water users off the North Fork of the Gunnison River. Shareholders would have the benefit of extending stored water from the reservoir longer into the summer and the water users off the North Fork would benefit from a more steady flow in the river. With the backbone of the SCADA system in place, the FMC will have the opportunity/ability to incorporate additional key sites within the system.

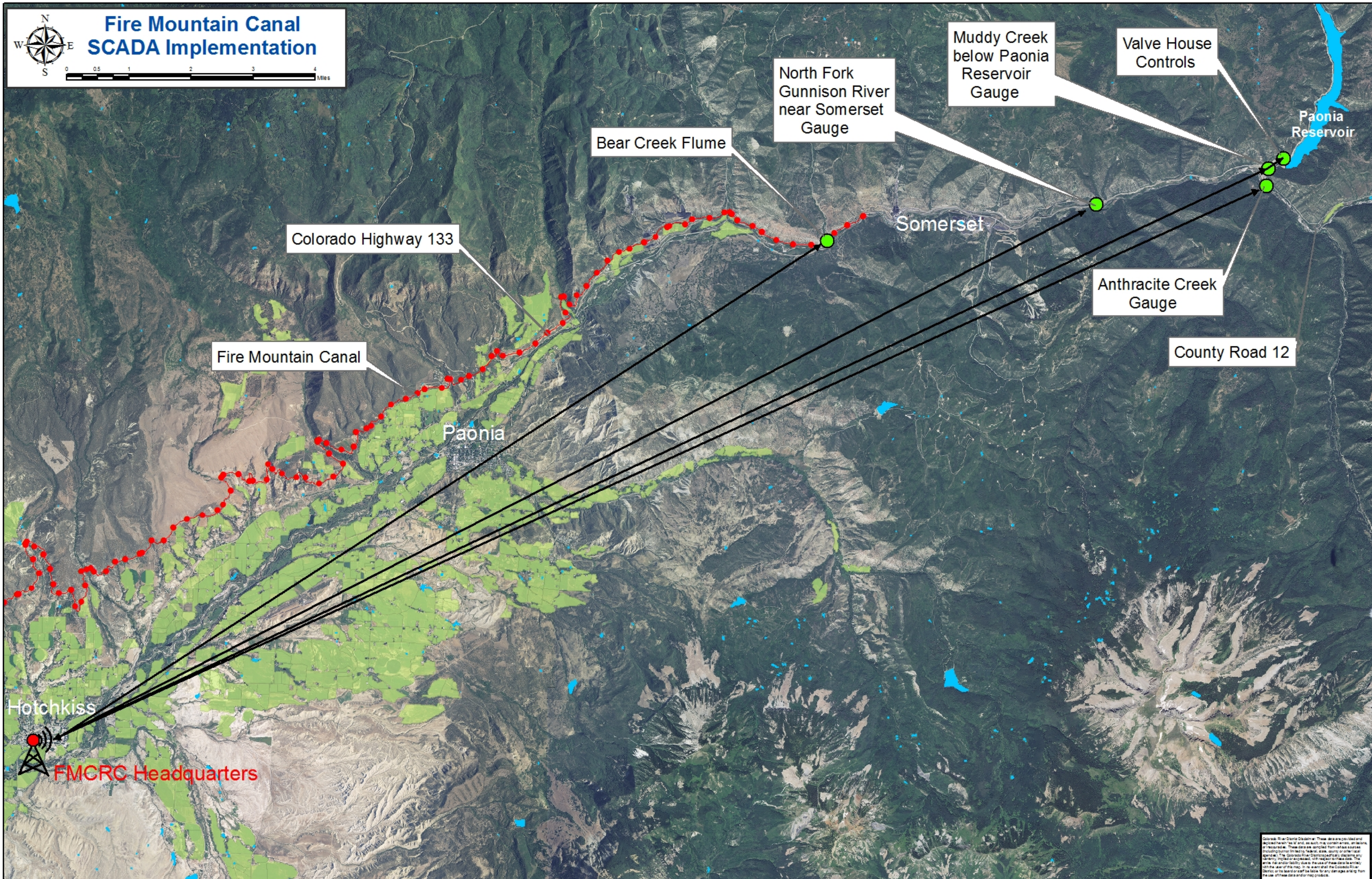
Current Project Tasks:

- Task 1. Purchase equipment
- Task 2. Install master PLC and SCADA computer at the FMCRC office headquarters
- Task 3. Install remote monitoring and telemetry at Bear Creek Flume, Anthracite Creek, Muddy Creek and North Fork of the Gunnison River at Somerset gauges.
- Task 4. Establish communication link between Anthracite Creek stream gauge and Paonia Reservoir valve control in order to automate reservoir releases.
- Task 5. Conduct staff training
- Task 6. Perform start-up activities (e.g. testing, calibration, verification) at all sites.
- Task 7. Reporting

CWCB Grant Request: \$26,055

Project Budget & Timeline

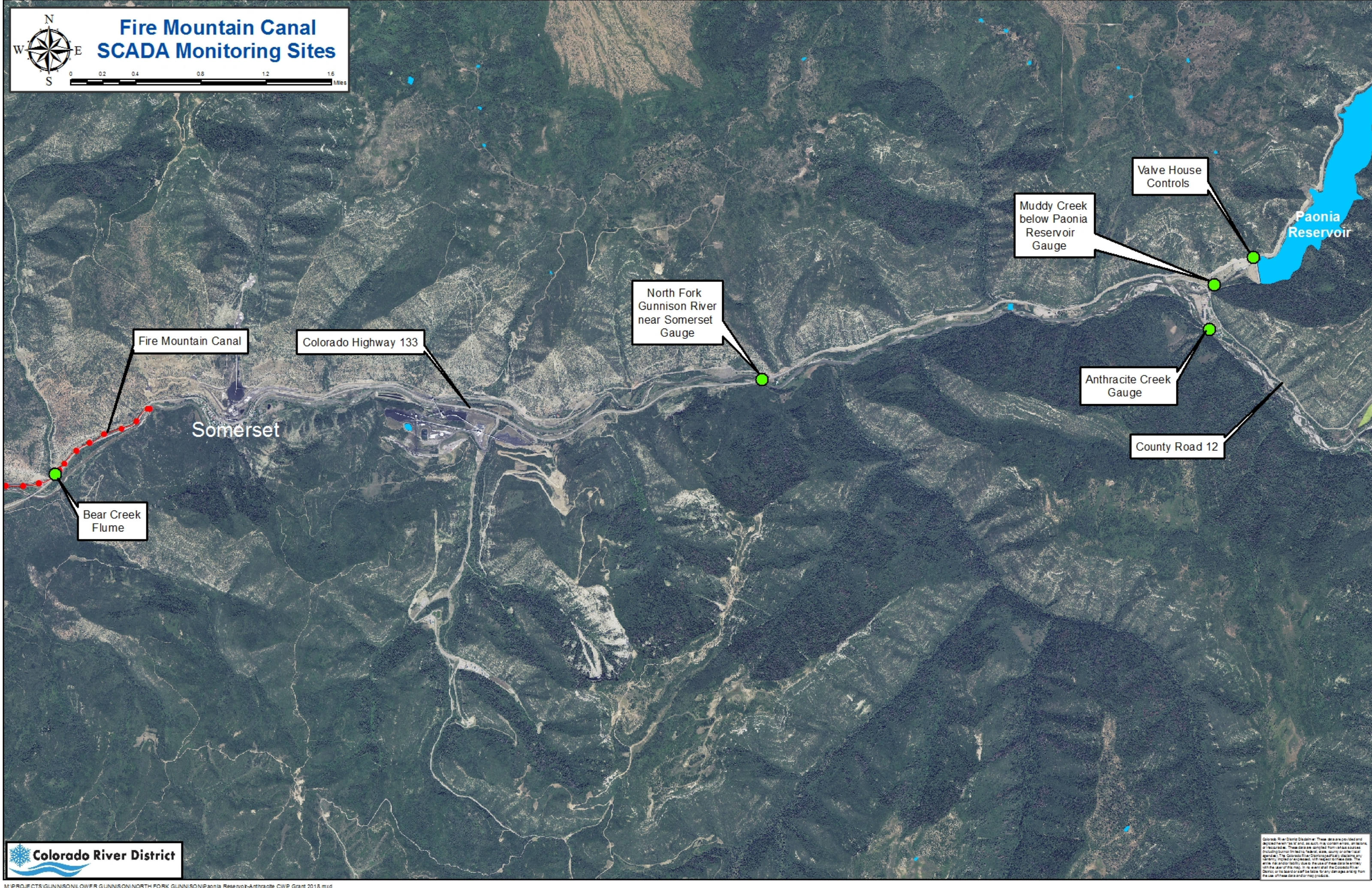
		Funding Sources			
Task Description	Budget	CWCB	FMC	DWR	Timeline
1. Purchase equipment	\$29,768	\$26,055	\$3,713		July 2018
2. Install master PLC	\$13,016		\$13,016		August 2018
3. Install telemetry at gauge sites (*in-kind)	\$9,279		\$7,699	\$1,580	August 2018
4. Establish communication link Anthracite - Paonia Reservoir	\$1,500		\$1,500		August 2018
5. Training	\$1,500		\$1,500		August-September 2018
6. Start-up & Testing	\$3,000		\$3,000		August-September 2018
7. Reporting	\$627		\$627		October 2018
TOTALS:	\$58,690	\$26,055	\$31,055	\$1,580	



Colorado River District Disclaimer: These data are provided and displayed herein "as is" and, as such, may contain errors, omissions, or inaccuracies. These data are compiled from various sources, including but not limited to federal, state, county or other local agencies. The Colorado River District specifically disclaims any liability, in whole or in part, for any damages or losses arising from the use of these data. The user of these data is solely responsible for the use of the data and for any damages or losses arising from the use of these data and/or map products.

Fire Mountain Canal

SCADA Monitoring Sites



FIRE MOUNTAIN CANAL & RESERVOIR CO.

P.O. BOX 543
HOTCHKISS, CO 81419
PHONE (970) 872-3664
FAX (970) 872-3667
firemountaincanal.com

February 1, 2018

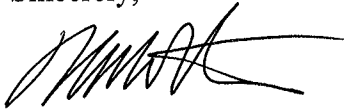
Colorado Water Conservation Board
1313 Sherman Street Room 718
Denver, CO 80203

Re: Letter of Matching Commitment for Automation, Remote Monitoring, and SCADA to Improve System Efficiency

The Fire Mountain Canal is willing and able to contribute necessary matching funds for the above referenced system efficiency project in the amount of \$31,035 dollars. The FMC Board continues to be proactive in procuring funds and providing matching funds to improve the efficiency of irrigation water delivery to our shareholders.

Please accept this letter as our commitment to provide necessary matching funds for the Automation, Remote Monitoring, and SCADA to Improve System Efficiency project.

Sincerely,

A handwritten signature in black ink, appearing to read 'RW Fisher', with a long horizontal flourish extending to the right.

Randall W Fisher
Secretary Treasurer



COLORADO
Division of Water Resources
Department of Natural Resources

Water Division 4 - Main Office

Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, CO 80203

RE: Colorado Water Plan Grant - Fire Mountain Canal and Paonia Reservoir SCADA Project

To Whom it May Concern,

The Division 4 Office of the Colorado Division of Water Resources is pleased to provide a letter of support for the Fire Mountain Canal and Paonia Reservoir SCADA Project. As the administrative agent overseeing the diversion of water in the Gunnison River, our support is based on our understanding that the project will assist in maximizing the beneficial use of water by stabilizing flows in the North Fork Gunnison River during rain events on the Anthracite Creek by reducing releases from Paonia Reservoir, which would also preserve storage in an overappropriated system.

The proposed project appears to be consistent with the Colorado Water Plan, which includes goals of protecting irrigated agriculture and actions to advance integrated water quantity and quality actions and to develop and implement funding mechanisms for the protection, restoration, or enhancement of water quality values in river or stream reaches. Our understanding is that this project fulfills the State's objectives for Water Plan Grants in either the Water Storage Project or Agricultural Project category while acknowledging the need to divert and use the State's water only in harmony with Colorado's system of water rights.

Our support is further bolstered by our understanding that the project is consistent with Section 37-75-102, Colorado Revised Statutes (CRS) and will not attempt to repeal or, in any manner, amend the existing water rights adjudication system. Nor will the project conflict with the operation of, or cause injury to, any decreed water right or permitted well. Additionally, it is our understanding that this project would not impair our ability to comply with the Colorado River Compact, the Upper Colorado River Basin Compact, or Section 37-80-104, CRS regarding my duties to ensure compliance with interstate compacts

Please contact me if you have any questions.

Sincerely,

Bob Hurford, P.E.
Division Engineer





COLORADO
Division of Water Resources
Department of Natural Resources

Water Division 4 - Main Office

Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, CO 80203

RE: Colorado Water Plan Grant - Fire Mountain Canal and Paonia Reservoir SCADA Project

To Whom it May Concern,

The Division 4 Office of the Colorado Division of Water Resources is pleased to provide a letter of support for the Fire Mountain Canal and Paonia Reservoir SCADA Project. As the administrative agent overseeing the diversion of water in the Gunnison River, our support is based on our understanding that the project will assist in maximizing the beneficial use of water by stabilizing flows in the North Fork Gunnison River during rain events on the Anthracite Creek by reducing releases from Paonia Reservoir, which would also preserve storage in an overappropriated system.

The proposed project appears to be consistent with the Colorado Water Plan, which includes goals of protecting irrigated agriculture and actions to advance integrated water quantity and quality actions and to develop and implement funding mechanisms for the protection, restoration, or enhancement of water quality values in river or stream reaches. Our understanding is that this project fulfills the State's objectives for Water Plan Grants in either the Water Storage Project or Agricultural Project category while acknowledging the need to divert and use the State's water only in harmony with Colorado's system of water rights.

Our support is further bolstered by our understanding that the project is consistent with Section 37-75-102, Colorado Revised Statutes (CRS) and will not attempt to repeal or, in any manner, amend the existing water rights adjudication system. Nor will the project conflict with the operation of, or cause injury to, any decreed water right or permitted well. Additionally, it is our understanding that this project would not impair our ability to comply with the Colorado River Compact, the Upper Colorado River Basin Compact, or Section 37-80-104, CRS regarding my duties to ensure compliance with interstate compacts

Please contact me if you have any questions.

Sincerely,

Bob Hurford, P.E.
Division Engineer

