



Colorado Water Conservation Board

Water Supply Reserve Fund

Water Project Summary

Name of Applicant	Dolores Water Conservancy District	
Name of Water Project	Increased Application Efficiency for Center Pivot Irrigation	
Basin Account Request Subtotal		\$90,000.00
Applicant Cash Match		\$18,000.00
Applicant In-Kind Match		\$12,000.00
Basin Requests		
<i>Southwest</i>		\$90,000.00
Sources of Funding		

Grant Details

Water Project Justification

This project supports agricultural drought resiliency as envisioned in the current draft Colorado Water Plan under Robust Agriculture, meeting "on-farm efficiency improvements" with some ancillary "soil health effective use of water", see page 6-22. Within the SWBRT BIP, this project meets the strategies B2: Support implementation of efficiency measures to maximize beneficial use and production, B3: Support implementation of projects that work toward meeting agricultural water supply shortages and address delivery concerns created by aging infrastructure and B4: Support appropriate measures and efforts to increase carryover storage in Southwest Colorado reservoirs all under Goal B, page 22.

Applicant & Grantee Information

Name of Grantee: Dolores Water Conservancy District

Mailing Address: 60 S. Cactus St

PO Box 1150 Cortez CO 81321

FEIN: 18,782,961

Organization Contact: Kenneth Curtis

Position/Title:

Phone: 970-564-7562

Email: kcurtis@frontier.net

Organization Contact - Alternate: Lisa Jordan

Position/Title: Office Manager

Phone: 9705657562

Email: dwcd@frontier.net

Grant Management Contact: Kenneth Curtis

Position/Title:

Phone: 970-564-7562

Email: kcurtis@frontier.net

Grant Management Contact - Alternate: Lisa Jordan

Position/Title: Office Manager

Phone: 9705657562

Email: dwcd@frontier.net

Agency Information

Agency Type	District
Current Assessment	
Number of Shareholders or Customers	500
Number of Shares	
Number of Taps	
Average Monthly Water Bill	
Annual Water Delivery (acre-feet)	250,000

Description of Grantee/Applicant

DWCD operates the Reclamation Dolores Project in SW Colorado, Montezuma and Dolores Counties.

Location of Water Project

Latitude	37.510831
Longitude	-108.586872
Lat Long Flag	Reservoir location: Coordinates based on location of reservoir
Water Source	The Dolores River via storage in McPhee Reservoir, diverted at Great Cut Dike.
Basins	Southwest
Counties	
Districts	

Water Project Overview

Major Water Use Type	Agricultural
Type of Water Project	Construction / Implementation
Scheduled Start Date - Design	
Scheduled Start Date - Construction	7/8/2023
Description	Center pivot nozzle and pressure regulator replacement on Dolores Project DWCD full-service irrigators.

Measurable Results

0	New Storage Created (acre-feet)
0	New Annual Water Supplies Developed or Conserved (acre-feet), Consumptive or Nonconsumptive
	Existing Storage Preserved or Enhanced (acre-feet)
0	New Storage Created (acre-feet)
0	Length of Stream Restored or Protected (linear feet)
	Efficiency Savings (dollars/year)
367	Efficiency Savings (acre-feet/year)
0	Area of Restored or Preserved Habitat (acres)
	Quantity of Water Shared through Alternative Transfer Mechanisms or water sharing agreement (acre-feet)
20	Number of Coloradans Impacted by Incorporating Water-Saving Actions into Land Use Planning
0	Number of Coloradans Impacted by Engagement Activity

Other

We expect to document less runoff and improved soil health practices tied to modernized irrigation application, though results will be more qualitative than quantitative. Yield results will be tracked, but may be highly variable year to year.



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Colorado Water Conservation Board	
Water Supply Reserve Fund	
Exhibit A - Statement of Work	
Date:	12/6/22
Water Activity Name:	Increased Application Efficiency for Center Pivot Irrigation
Grant Recipient:	Dolores Water Conservancy District
Funding Source:	Southwest Basin Roundtable and WSRF
Water Activity Overview: (Please provide brief description of the proposed water activity (no more than 200 words). Include a description of the overall water activity and specifically what the WSRF funding will be used for. (PLEASE DEFINE ALL ACRONYMS).)	
<p>The Dolores/McPhee project was completed over 30 years ago, delivering irrigation water to the traditionally dryland-farmers in Montezuma and Dolores counties, located in southwestern Colorado. These Full-Service Area farmers (FSA) were required to achieve a high application efficiency from irrigation systems to qualify for water access. Sprinkler irrigation is significantly more efficient than flood irrigation and FSA producers quickly installed side-roll and center pivot irrigation systems in anticipation for developing an irrigated farming economy, primarily growing high quality alfalfa in lieu of the traditional wheat and beans. These systems are older and inefficient after years of irrigating with water from the project filled with organic solids and soil, thus degrading nozzles and system equipment.</p> <p>WSRF funds are being requested to purchase/install new nozzles and pressure regulators for irrigators with old, inefficient center pivot systems. These improvements will result in water conservation through re-engineered water use that is specific to crop Evapotranspiration (Et) and crop growth stage. Additionally, soil health/conservation practices will occur through decreased surface soil erosion, crusting from drop impact, and increased infiltration.</p>	
Objectives: (List the objectives of the project. (PLEASE DEFINE ACRONYMS).)	



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Climate change has severely impacted water supplies in the southwest basin, resulting in significant reductions in water availability for area producers. This shortage makes water conservation imperative to maintaining the agricultural economy, and this project will help area growers withstand these shortages. Increased irrigated acreage, longer seasons and soil health improvements are all quantifiable outcomes expected through these proposed improvements. Retro-fitting existing center pivots with new, precise nozzles, combined with pressure regulation will ensure high application efficiencies, regardless of slope and nozzle location on the center pivot.

1. Increase irrigation water efficiency through the use of new flow control nozzles and pressure regulators to provide precise, equal flow at each sprinkler.
2. Maximize yield potential for area center pivot irrigators.
3. Lengthen irrigated growing season in water-short years via increased application efficiency.
4. Provide soil health benefits and conservation via reduced surface run-off and erosion. Appropriate nozzle sizing will also reduce soil crusting, thus increasing infiltration rate.
5. Report on quantification of water savings as a result of the increased application efficiency.
6. Some qualitative yield information will be collected.

Tasks
Provide a detailed description of each task using the following format: (PLEASE DEFINE ACRONYMS)
<u>Task 1 – Project Management</u>
Description of Task:



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Tasks
<p>Coordinate completion of Tasks 1-5, including documentation of water use, crop production, and final project report, as required. Tasks will be performed by the Project Manager-Greg Vlaming, with project administration/oversight performed by Dolores Water Conservancy District (DWCD) General Manager-Ken Curtis.</p>
<p>Method/Procedure:</p> <ol style="list-style-type: none"> 1. The Project Manager will arrange grower meetings and project coordination. 2. The Project Manager will coordinate acquisition of project equipment. 3. The Project Manager will track and document project progress. 4. The Project Manager will perform outreach, presentations and education for the project. 5. The Project Manager and the DWCD General Manager will meet regularly for project status updates and coordination as needed.
<p>Grantee Deliverable: (Describe the deliverable the grantee expects from this task)</p>
<p>Successful coordination of Tasks 1-5.</p>
<p>CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)</p>
<p>Successful coordination of Tasks 1-5.</p>

Tasks
<p>Provide a detailed description of each task using the following format: (PLEASE DEFINE ACRONYMS)</p>
<p><u>Task 2 – Project Implementation</u></p>
<p>Description of Task:</p>



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Tasks
<p>Coordination with project cooperators, including specification and acquisition of equipment needed for each center pivot</p>
<p>Method/Procedure:</p> <ol style="list-style-type: none"> 1. Project Manager will acquire and deliver equipment to cooperators. 2. Project Manager will document (via photo of McCrometer Flow Meter) the “before” flow with the old nozzles. Comparison to prior years’ meter records will be attempted, but may vary by crop type, drought or other annual irrigation year differences. 3. Project Manager will coordinate installation of new equipment with cooperator. 4. Project Manager will document (via photo of McCrometer Flow Meter) the “after” flow with the new equipment in use.
<p>Grantee Deliverable: (Describe the deliverable the grantee expects from this task)</p> <ul style="list-style-type: none"> • Photo documentation of water use, before and after installation of equipment. • Quantification of water use changes. • Photo documentation of erosion/run-off changes. • Reporting, as required.
<p>CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)</p> <ul style="list-style-type: none"> • Quantification of water use differences with the new equipment, cooperator feedback

Task 3-Project Reporting

Description of Task:



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Total quantification of water use differences (with documentation), photo documentation of surface soil erosion changes, summary of cooperator feedback/evaluation.

Method/Procedure:

Project Manager will keep current reports on project progress.

Grantee Deliverable:

Written report with photos summarizing project outcomes.

CWCB Deliverable:

Written report with photos summarizing project outcomes.

Task 4-Project Administration

Description of Task:

Provide fiscal administration of the grant.

Method/Procedure:

- DWCD staff will administer the grant.
- DWCD staff will track match and invoices and prepare reimbursement requests.
- DWCD General Manager will maintain oversight on project progress.

Grantee Deliverable:

- Administration of the grant, and support the coordination of Tasks 1-5, including review of progress reports every 6 months and the final report documenting project outcomes.

CWCB Deliverable:

- Administration of the grant, and support the coordination of Tasks 1-5, including review of progress reports every 6 months and the final report documenting project outcomes.



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Budget and Schedule

Exhibit B - Budget and Schedule: This Statement of Work shall be accompanied by a combined [Budget and Schedule](#) that reflects the Tasks identified in the Statement of Work and shall be submitted to CWCB in excel format. A separate excel formatted Budget is required for engineering costs to include rate and unit costs.

Reporting Requirements

Progress Reports: The grantee shall provide the CWCB a progress report every 6 months, beginning from the date of issuance of a purchase order, or the execution of a contract. The progress report shall describe the status of the tasks identified in the statement of work, including a description of any major issues that have occurred and any corrective action taken to address these issues. The CWCB may withhold reimbursement until satisfactory progress reports have been submitted.

Final Report: At completion of the project, the grantee shall provide the CWCB a Final Report on the grantee's letterhead that:

- Summarizes the project and how the project was completed.
- Describes any obstacles encountered, and how these obstacles were overcome.
- Confirms that all matching commitments have been fulfilled.
- Includes photographs, summaries of meetings and engineering reports/designs.

Payments

Payment will be made based on actual expenditures, must include invoices for all work completed and must be on grantee's letterhead. The request for payment must include a description of the work accomplished by task, an estimate of the percent completion for individual tasks and the entire Project in relation to the percentage of budget spent, identification of any major issues, and proposed or implemented corrective actions.

The CWCB will pay the last 10% of the entire water activity budget when the Final Report is completed to the satisfaction of CWCB staff. Once the Final Report has been accepted, and final payment has been issued, the water activity and purchase order or contract will be closed without any further payment. Any entity that fails to complete a satisfactory Final Report and submit to CWCB within 90 days of the expiration of a purchase order or contract may be denied consideration for future funding of any type from CWCB.

Performance Requirements

Performance measures for this contract shall include the following:

(a) Performance standards and evaluation: Grantee will produce detailed deliverables for each task as specified. Grantee shall maintain receipts for all project expenses and documentation of the minimum in-kind contributions (if applicable) per the budget in Exhibit B. Per Grant Guidelines, the CWCB will pay out the last 10% of the budget when the final deliverable is completed to the satisfaction of CWCB staff. Once the final deliverable has been accepted, and final payment has been issued, the purchase order or grant will be closed without any further payment.

(b) Accountability: Per the Grant Guidelines full documentation of project progress must be submitted with each invoice for reimbursement. Grantee must confirm that all grant conditions have been complied with on each invoice. In addition, per the Grant Guidelines, Progress Reports must be submitted at least once every 6 months. A Final Report must be submitted and approved before final project payment.

(c) Monitoring Requirements: Grantee is responsible for ongoing monitoring of project progress per Exhibit A. Progress shall be detailed in each invoice and in each Progress Report, as detailed above. Additional inspections or field consultations will be arranged as may be necessary.

(d) Noncompliance Resolution: Payment will be withheld if grantee is not current on all grant conditions. Flagrant disregard for grant conditions will result in a stop work order and cancellation of the Grant Agreement.

NOTE TO APPLICANTS: Below are two "detailed budget" examples. Detailed budgets will vary between all projects, so these examples can be used as a helpful guide



COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Colorado Water Conservation Board
Detailed Budget Estimate

Date:
Water Activity Name:
Grantee Name:

EXAMPLE A - Construction

Task 1 - (TASK NAME)

Sub-task Focus Groups	Item	Hourly Rate	# Hours	Subtotal	Item Cost	Item Quantity	Subtotal	Total	Other Matching Funds
Exhibit	Participant Stipend			\$ -	\$ 50.00	20.00	\$ 1,000.00	\$ 1,000.00	
	Coloring			\$ -	\$ 15.00	20.00	\$ 300.00	\$ 300.00	
	Feedback Survey Staff Time	\$ 40.00	10	\$ 400.00	\$ 0.50	20.00	\$ 10.00	\$ 400.00	
TOTAL	Exhibit Designer Staff Time	\$ 50.00	100	\$ 5,000.00	\$ -	-	\$ -	\$ 5,000.00	
	Film Production	\$ 40.00	30	\$ 1,200.00	\$ -	-	\$ -	\$ 1,200.00	
				\$ -	\$ 5,000.00	1.00	\$ 5,000.00	\$ 12,940.00	

EXAMPLE B - Construction/Engineering

Task 1 - Engineering

Sub-task	Senior Water Resources Engineer/Consultant	Water Resources Engineer	Geologist/Water Resources Analyst	Subtotal	Subcontracts				Total
					Environmental and Cultural Resources Lump Sum	Water Rights and other Legal	Technical editing and proofing Lump Sum	Report Word Processing and Graphic Design Lump Sum	
Project Initiation / Stakeholder Item	12	32	16	\$ 9,000					\$ 9,000
Water Rights Evaluation	24	24	30	\$ 21,600		\$ 12,000		\$ 12,000	\$ 33,600
Engineering Evaluation	24		30	\$ 9,600					\$ 9,600
Environmental Analysis	8	8	12	\$ 4,000					\$ 4,000
Flood Mitigation	4	32	40	\$ 9,200	\$ 12,000				\$ 21,200
Funding Opportunities	4	24	8	\$ 5,400					\$ 5,400
Cooperative Partnership	16	60	24	\$ 12,640					\$ 12,640
Project Management	20	30	24	\$ 11,000					\$ 11,000
Report, Conclusions and Recommender	40	54	16	\$ 22,320		\$ 3,000	\$ 1,500	\$ 4,000	\$ 30,820
TOTAL					\$ 27,000	\$ 12,000	\$ 15,000	\$ 4,000	\$ 59,500

Task 2 - 7

Subtotal Hours	148	264	96	206	714
Subtotal Labor/ Subcontractor cost	\$28,120	\$42,240	\$12,480	\$20,600	\$103,440
Subcontractor Administration Fee @5%					
TOTAL					\$167,940
Other Direct Costs (see below)					\$2,975
TOTAL					\$170,915

Other Direct Costs

Item:	Copies & Printing (Black & White)	Copies & Printing (Color)	Materials and Final Report Production	Loggins and Meals	Travel Expenses (Airfare and Car Rental)	Mileage	Total
Units:	No.	No.	Lump Sum	Per Diem	Lump Sum	Miles	
Unit Cost:	\$0.10	\$0.50	\$100.00	\$	\$0.535		
Project Initiation	400	100		4	400		
Water Rights Evaluation	40	30		2	550		
Engineering Evaluation	60	40		2	550		
Environmental Analysis							
Flood Mitigation							
Funding Opportunities							
Cooperative Partnership							
Project Management	60	60		4	800		
Report, Conclusions and Recommendations	150	60	1,900	4	600		
Total Units:	710	260	1,900	20	4,150	4,150	
Total Cost:	\$71	\$145	\$1,900	\$0	\$2,220	\$0	\$4,356

NOTE TO APPLICANTS: Below are two "detailed budget" examples. Detailed budgets will vary between all projects, so these examples can be used as a helpful guide



COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Colorado Water Conservation Board

Detailed Budget Estimate

Date: 19-Dec-22
Water Activity Name: Increased Application Efficiency for Center Pivot Irrigation
Grantee Name: DWCD

Project Coordination

Task 1 - Project Management

Sub-task	Item	Hourly Rate	# Hours	Subtotal	Item Cost	Item Quantity	Subtotal	Total	CWCB Funds	Other Matching Funds
Water User Outreach (Meetings)	Contractor Time	\$ 50.00	50	\$ 2,500.00				\$ 2,500.00	\$ 2,500.00	
Interviews, material selection, order										

Task 2 - Project Implementation / Field Installation

Sub-task	Item	Hourly Rate	# Hours	Subtotal	Item Cost	Item Quantity	Subtotal	Total	CWCB Funds	Other Matching Funds
Measurements, Producer Field Visits	Contractor Time	\$ 50.00	100	\$ 5,000.00				\$ 5,000.00	\$ 5,000.00	
Purchase Nozzle / Regulator Package	Materials				\$ 5,000.00	20.00	\$ 100,000.00	\$ 100,000.00	\$ 90,000.00	\$ 10,000.00
Install Materials	Producer Labor In-Kind	\$ 50.00	240	\$ 12,000.00				\$ 12,000.00		\$ 12,000.00
Producer Cash Match	Cash Match							\$ -		\$ 20,000.00

Task 3 - Project Reporting

Sub-task	Item	Hourly Rate	# Hours	Subtotal	Item Cost	Item Quantity	Subtotal	Total	CWCB Funds	Other Matching Funds
Project Reporting	Contractor Time		50	\$ 2,500.00				\$ 2,500.00	\$ 2,500.00	

Task 4 - Project Administration

Sub-task	Item	Hourly Rate	# Hours	Subtotal	Item Cost	Item Quantity	Subtotal	Total	CWCB Funds	Other Matching Funds
Project Administration	DWCD Labor		0.05	\$ 5,000.00	100000		\$ 5,000.00	\$ 5,000.00		
TOTAL				\$ 22,000.00			\$ 105,000.00	\$ 127,000.00	\$ 100,000.00	\$ 32,000.00

SOUTHWEST BASIN ROUNDTABLE'S EVALUATION QUESTIONNAIRE

Dolores Water Conservancy District

Increased Application Efficiency for Center Pivot Irrigation

To assist the Roundtable in determining whether and to what extent a proposed project and/or process meets the values set forth in the Roundtable Bylaws and goals of the Basin Implementation Plan, the following questions should be addressed separately as can reasonably be answered by the applicant. *Note: this is not an exhaustive list and additional questions may be asked of the applicant.*

1. Identify the benefit(s) the project would provide. Are there multiple purposes (Agricultural, Environmental, Municipal, Industrial, Recreational) that the project would meet as defined in the Basin Implementation Plan? *Note: Projects that meet multiple purposes are strongly encouraged; however, this does not mean that a single purpose project would be rejected.*

This project will increase the agricultural water application efficiency for center pivot irrigators, resulting in water conservation. These water savings will help extend the irrigation season, expand acreage of production and/or increase carry-over agricultural water supply for area growers. As stated in the Southwest BIP, "Hydrologic scenarios impacted by climate change severely affect agricultural water supplies, but with implementation of efficiencies and innovative technologies, these impacts can be reduced". This project meets this BIP goal.

2. Outline the steps needed for completion of the project. Are there permit issues that must be overcome? How will funds acquired in this process be used to accomplish the final goal?

These funds will be used to purchase new irrigation equipment (nozzles and pressure regulators) to retrofit existing center pivots with older inefficient equipment. These funds will also pay for project management and administration. There are no permit or NEPA issues.

2. For prioritization of different proposals and assessment of the merits of the plan, can this project be physically built with this funding? Are further studies needed before actual construction is commenced (if the project anticipates construction)? Will these studies or additional steps delay the completion of the project substantially?

This project funding will facilitate the overhaul of 20 existing center pivot system, including project management and administration. There are no further studies needed for this project. Reporting, as required will summarize total water conservation achieved, crop performance and soil surface erosion reduction.

3. What is the ability of the sponsor to pay for the project? What actions have been taken to secure local funding? Are there supporting factors that affect the sponsor's ability to pay? Please provide a summary of the sponsor's financial condition such as customer fee structure, mill levy rate, or other applicable information that demonstrates the sponsor's ability to support the project. For example, has the sponsor increased assessments or rates to meet the project requirements in the past five years.

Also, address how a loan could address the needs of the applicant instead of a grant?

All matching funds for this project will be provided by project participants, including cash and labor necessary to retrofit the equipment.

4. Which alternative sources of water or alternative management ideas have you considered? Are there water rights conflicts involving the source of water for the project? If yes, please explain.

There are no water right conflicts for this project as the water affected is purchased by the irrigators participating in the project, and delivered by DWCD.

5. Has there been public input solicited and is there local support for the project? Please provide a brief summary of public input if applicable.

This project was presented at a DWCD Full-Service Area Farmer Advisory Committee meeting in Oct 2022. Robust discussion resulted in 10 irrigators (some with many center pivots) signing up for participation in the project if funding is secured. Based on this initial response more solicitation will be made if grant funds are awarded.

6. Is there opposition to the project? If there is opposition, how have those concerns been addressed? Identify any conflicts that may exist and how they will be addressed.

There is no opposition expressed or expected to this project, quite the opposite.

7. Does this project affect the protection and conservation of the natural environment, including the protection of open space? If yes, please explain.

This project will take place on private farmland. N/A

8. Are there impacts of the proposed action on other non-decreed values of the stream or river? Non-decreed values may include things such as non-decreed water rights or uses, recreational uses and soil/land conservation practices.

N/A

9. Does this project relate to a Stream Management Plan (SMP) or Needs Assessment for one of southwest Colorado river reaches? If yes, please explain and provide detailed evidence of how project will meet SMP goals or needs.

N/A

10. Does this project relate to local land use plans? If yes, please explain.

N/A

11. Does the project depend on a conversion of an agricultural water right? If yes, please explain.

This project does NOT depend on the conversion of ANY agricultural water rights.

12. Does the project support agricultural development or protect the existing agricultural economy? If yes, please explain.

This project clearly protects and supports the local agricultural economy through water and soil conservation on over 2000 acres of local farmland.

13. Does the project optimize existing water rights and/or existing infrastructure? If yes, please explain.

Yes, the project increases the agricultural water application efficiency for existing water rights and the existing infrastructure (center pivots and conveyance structures).

14. Does the applicant anticipate future funding requests to complete the additional components of this project? Does the applicant have a long-term operation, maintenance, and replacement plan? When was the last update of the plan?

This is the first funding request for private infrastructure improvements for center pivot irrigators on the Dolores-McPhee Project since construction was completed over 30 years ago. This funding would support improvements for 20 center pivots. Depending on water conservation calculations in the project summary, there may be future similar funding requests as there are over 150 existing center pivot systems in the SW Basin.

15. Does this project have an education component? If yes, please explain how it is consistent with the Roundtable's [Education Action Plan](#).

Education of the results and feedback of this project will be done at local grower meetings, and other conservation gatherings to local Dolores Project water users.