Environmental Quality Incentives Program WaterSMART Initiative (EQIP-WSI) Priority Area Proposal

EQIP-WSI Priority Area Name:
Baca-Picketwire Diversion Dam Complex

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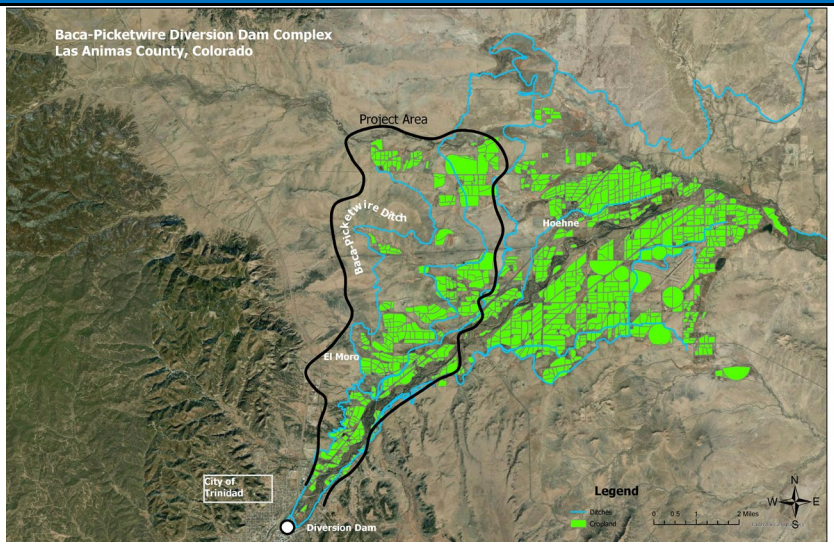
Proposal Summary

Summarize the new priority area proposal in one paragraph (create one proposal for each separate priority area). Identify the county and state location of the proposed EQIP-WSI priority area and the name of the irrigation district, water supply, or other entity carrying out the Reclamation WaterSMART project being complemented by the EQIP-WSI assistance. Briefly summarize the general need for action, primary resource concerns to be addressed, and the broad overall benefits expected from delivering multiple years of EQIP-WSI assistance. See active Priority Area Funding Project Descriptions for example summaries.

The Purgatoire Watershed Partnership (PWP) - together with the Purgatoire River Water Conservancy District (PRWCD; irrigation district), Baca and Picketwire Ditch Companies, NRCS, and other local partners in Las Animas County, CO - is using Reclamation WaterSMART funds to improve water efficiency and delivery and reduce sediment loading for water users on the Baca-Picketwire ditch. Specifically, an erosion/flood protection wall, diversion dam cap, and headgate trash/woody debris rack are being installed into the Baca-Picketwire diversion dam and directly associated infrastructure. Additional project ecological improvements include incorporating fish passage into the dam, installing new in-stream fish habitat structures, and removing woody invasive species along the ditch and river. Irrigation infrastructure improvements are expected to deliver an additional 1,000 acre-feet of water annually to irrigators. With additional NRCS assistance, both off and on farm improvements are planned. The first section of the main open earthen Baca-Picketwire ditch will be lined with reinforced concrete to eliminate water loss due to seepage during water delivery, eliminate bank erosion from the water conveyance channel, improve the accuracy of water use tracking and monitoring data for improved water use planning particularly during drought, and improve overall water delivery efficiency. The ditch lining is expected to deliver at least 15% water savings. An automated headgate (separate funding) will be installed in conjunction with the ditch lining, with this new water flow automation expected to deliver significant additional water savings. Additional on-farm irrigation water management improvements include shifting producers from flood irrigation to sprinklers and gated pipe. In addition to improved water savings and drought resilience benefits on and off farm, EQIP funding will help producers improve available soil moisture and overall soil health, control herbaceous weeds, improve plant productivity and health, reduce farm labor and other production costs, and improve wildlife habitat.

Map and Description of the EQIP-WSI Priority Area



The Baca-Picketwire Diversion Dam Complex is in Las Animas County, a heavily agricultural county in southeast Colorado. This diversion dam and the associated ditches served directly through the Baca-Picketwire headgate are critical infrastructure for the livelihoods of the multigenerational farmers and ranchers in this area. The producers who depend on this infrastructure conduct a wide range of crop and livestock activities on these lands. The original diversion dam was installed in the early 1900's, with the more recent irrigation structures installed approximately 50 years ago. Through BOR WaterSMART grant funds, critical irrigation infrastructure associated with this dam is being improved to address water efficiency delivery issues, accomplish water savings, and reduce sediment loads to the river/ditch. Specifically, an erosion protection wall, headgate trash/woody debris rack, and diversion dam cap are being installed. Separate funding is being utilized to install an automated headgate in conjunction with the EQIP-WSI funded ditch lining (see below).

Water resource problems addressed with EQIP-WSI funds include more efficient and consistent water delivery and reduction in water losses through (1) irrigation ditch lining, and (2) on-farm water efficiency and water savings improvements. The first section of the Baca-Picketwire ditch will be lined with reinforced concrete (from the main headgate to the Colorado Division of Water Resources [DWR] diversion structure measurement flume) to reduce seepage and evaporative losses during water delivery, and eliminate bank erosion/sediment contributions from the currently earthen ditch. Ditch lining will also create a more constant and level water flow at the official CO DWR diversion structure monitoring station (PIKDITCO) by reducing earthen friction and eliminating herbaceous vegetation impediments. Improving the accuracy of water use tracking and monitoring data at this station is critical for legal tracking of water use and to better inform day-to-day and seasonal water use planning (including drought planning). Ditch lining will also address critical logistical maintenance challenges tied to significantly reduced ditch accessibility resulting from recent and dramatic urban encroachment in this ditch section. Weed management has become difficult and expensive, and the earthen ditch banks are increasingly eroding from directly adjacent urban runoff, further contributing to inefficient flows and evaporative loss. Ditch lining will eliminate the labor/costs associated with managing weeds and ditch bank erosion/collapse.

On-farm improvements include installing sprinklers, surface and subsurface irrigation pipelines, a pumping plant, an irrigation reservoir, Irrigation Water Management, Herbaceous Weed Control, Cover Crops, Forage Harvest Management, and Grazing Mechanical Treatment.

Priority Water Quantity and Related Resource Concerns

Resource Concerns \Land Uses	Crop	Pasture	Associated Ag Land	Farmstead	Water
Extent	2,184	20,384	100 Acres	50 Acres	24 Miles (126,770 Feet) of Irrigation Ditch
Naturally Available Soil Moisture	X	X			
Irrigation Water Use Inefficiency	X				X
Surface Water Depletion					
Ground Water Depletion					
Secondary RC # 1	Plant productivity and health	Plant productivity and health			
Secondary RC # 2					Bank Erosion From Water Conveyance Channel
Secondary RC # 3		Herbaceous Weed Management In Pasture			Herbaceous Weed Management in Main Ditch on Earthen Ditch Banks and Floor
Secondary RC # 4	Terrestrial Habitat for Wildlife and Invertebrates	Terrestrial Habitat for Wildlife and Invertebrates			

Benefits of EQIP-WSI Activities Complementing the Reclamation WaterSMART Project

Use the Data Visualization Tool to search for the Reclamation WaterSMART-funded project proposed for being enhanced by EQIP-WSI activities. Identify the project sponsor, program, funding opportunity, year selected, and federal funding provided to the project and copy that information into the table below. You may identify any Reclamation WaterSMART project funded since 2013.

Identification of Reclamation WaterSMART Projects

Project Sponsor	Program	Funding Opportunity	Year Selected	Federal Funding
1. Purgatoire Watershed Partnership	*WaterSMART Grants*	*Cooperative Watershed Management Program Phase II*	*2021*	*$161,585.60*

From the Data Visualization Tool, copy and paste the brief description for each identified project. To propose complementing a project identified in a planning or study report, please also add the page number in the study where the implementation project is described and attach a copy of the final plan or report to this proposal.

Reclamation WaterSMART Project Descriptions:

1. **Description for the Purgatoire River Baca-Picketwire Diversion Dam Complex Restoration Project:** The Purgatoire Watershed Partnership, in Trinidad, Colorado, will upgrade the agricultural water diversion dam, incorporate fish passage, install in-stream fish habitat structures, and replace invasive riparian plant species with native vegetation.

Summarize how the proposed EQIP-WSI activities will enhances water conservation and drought resiliency efforts in the community expected from complementing the Reclamation WaterSMART projects.

How will EQIP-WSI activities enhance the Reclamation WaterSMART projects?

The proposed EQIP-WSI work will enhance water conservation and drought resiliency both off farm and on farm. Off farm, the first section of the main open earthen irrigation ditch will be lined with reinforced concrete (from the headgate to the State DWR measurement flume) to reduce seepage and evaporative losses during water delivery and eliminate bank erosion from the water conveyance channel. It will also improve the accuracy of water use tracking and monitoring data by providing more consistent and level flows (by reducing earthen friction and removing herbaceous vegetation impediments with ditch lining), which is critical to ensure that water users are consistently capturing their full water right and to better inform day to day and seasonal water use planning (including drought planning). The ditch lining is estimated to deliver at least 15% water savings. In conjunction with ditch lining, an automated headgate (separate funding) will also be installed at the upstream end of the ditch lining, with water delivery automation expected to deliver significant additional water savings and efficiency. Additional on farm improvements on cropland with EQIP-WSI funds include the installation of sprinklers (Sprinkler System), gated pipe (Irrigation System, Surface and Subsurface), a Pumping Plant, an Irrigation Reservoir, a Structure for Water Control, Irrigation Pipeline, and Irrigation Water Management on irrigated cropland. On farm improvements on pastureland include Herbaceous Weed Control, Cover Crops, Forage Harvest Management, and Grazing Mechanical Treatment.

This EQIP-WSI work will directly complement the activities of the Reclamation WaterSMART project (particularly the diversion dam cap and headgate trash/debris rack installation) by providing much more significant water savings and drought resiliency to our agricultural producers. The WaterSMART project is expected to deliver an additional 1,000 acre-feet of water annually to irrigators. With additional EQIP-WSI funds, we will be achieving an additional estimated 15% water savings with ditch lining and an estimated improvement of on-farm water efficiencies of 10 to 15%. We feel these combined benefits

will also really showcase the advantages of implementing EQIP-funded on-farm improvements, and with more reliable water delivery in place, will further encourage local producers to explore additional on-farm improvements through NRCS-EQIP programs.

Increased efficiencies in water delivery and reduction in transit losses is expected to extend irrigation water availability to farmers during drought and allow more farm acreage to stay in production through drought cycles. In addition to water savings, drought resilience benefits, improved health and resiliency of crop and pastureland, and estimated increased crop yields, EQIP funding is expected to improve the overall productivity and sustainability of these farm and ranch operations.

EQIP-WSI Activities

Using the table below, identify the conservation practices or activities recommended to address the priority resource concerns for each land use and record the estimated number of instances and measurable map feature units (number, feet, or acres) to be applied. Precise practice cost scenarios do not need to be identified at this time.

Recommended Conservation Practices

Practice Name	Practice Code	Estimated Instances	Map Unit Type	Estimated Map Units
Crop				
Irrigation Water Management	449	8	Acre	350
Sprinkler System	442	2	Number	2
Irrigation System, Surface, Subsurface	443	6	Acre	350
Structure for Water Control	587	8	Number	8
Irrigation Pipeline	430	8	Feet	9000
Pumping Plant	533	2	Number	2
Irrigation Reservoir	436	2	Acre-feet	10
Pasture				
Herbaceous Weed Control	315	5	Acre	150
Cover Crop	340	4	Acre	75
Forage Harvest Management	511	6	Acre	200
Grazing Mechanical Treatment	548	6	Acre	300
Water				
Irrigation Ditch Lining	428	1	Feet	700
Structure for Water Control	587	1	Number	1
Fence Safety	382	1	Feet	1161
Critical Area Treatment	342	1	ksqft	1000
Obstruction Removal	500	1	acres	1
Access Road	569	1	feet	550
Heavy use protection area	561	1	Sq.ft	704

Associated Ag Land				
Farmstead				

Special Environmental Concerns, Barriers, Risks, and Other Factors to Consider in Delivering EQIP Assistance to the Priority Area:

Briefly describe any significant barriers that may impact the delivery of EQIP-WSI assistance in the area, including special environmental concerns.

We do not have any environmental concerns, barriers or risks in the priority area, other than perhaps an unforeseen natural flood event. However, it is important to consider that our county (Las Animas County) is ranked as the 10th highest percent of persons in poverty in the state of Colorado, with 19.2% of our community members in poverty. We are not a wealthy county, and the farmers and ranchers involved in this project do not have significant matching funds for projects such as these (e.g. $500 is a lot of money). As such, it is important to consider the incredibly significant impact that NRCS investing in this project would have on the livelihoods and economics of these agricultural producers. We have requested a formal waiver for exceeding the contract payment limitation of $450,000 for our EQIP contract in the first year.

Diversity, Equity, and Inclusion

Describe how the funding project will support community partnerships and inclusive approaches to benefit disadvantaged communities.

The BOR WaterSMART project and associated EQIP-WSI activity were developed collaboratively by, and will be implemented and supported through, strong community partnerships. The BOR WaterSMART grant project includes a diverse set of partners from across the community – non-profits, local business, local municipality, agricultural producers and agencies, and NRCS – all working together to support each other and improve the health, resilience, and productivity of our communities and our watershed. Similarly, the EQIP-WSI ditch lining activity involves many of these same partners working together to ensure that this project is a success. All of these partners are also contributing cash and/or inkind match to these projects.

This project strongly benefits disadvantaged communities. The ditch lining portion of the project serves all farmers and ranchers on the Baca-Picketwire ditch, which includes a diverse mix of 55 producers comprised of white and Hispanic farmers and Historically Underserved Producers including Limited Resource Farmers and Ranchers (LRFR). All agricultural producers on the ditch are considered to be Persons Who Live in Rural Areas. Specifically, of the 55 producers served by the Baca-Picketwire ditch, 9 producers are Hispanic, and 30% of the producers qualify as LRFR.

As mentioned above, our county (Las Animas County) is ranked as the 10th highest percent of persons in poverty in the state of Colorado, with 19.2% of our community members in poverty, and it is important to consider the incredibly significant impact that NRCS investing in this project would have on the livelihoods and economics of these agricultural producers. The farmers and ranchers on this

ditch are small farm/ranch producers who typically must work long hours on the farm, but also long hours off-farm to bring in enough supplemental income to make ends meet. Because of our remote rural location, farming and ranching in our area relies heavily on supplies, processing, repairs, and equipment rentals being secured out of town many miles away.

In addition, because of recent prolonged drought, every drop of water has become all the more important to maximize crop yields and incomes for our local producers. Both the water and labor saved through this ditch lining are particularly important for these hard-working underserved agricultural producers.

Multi-Year Annual EQIP-WSI Financial Assistance Budget Estimate

Record in the table below an estimate of how many new contracts, contract acres, and EQIP-WSI financial assistance funds will need to be delivered annually in the priority area for up to 5 future years:

Future Year	New Contracts	New Contract Acres	EQIP-WSI Financial Assistance Funds
One	1	2	$1,167,255
Two	3	500	$350,000
Three	3	300	$175,000
Four	2	200	$100,000
Five			

Progress Tracking, Final Evaluation, and Promotion

Define potential EQIP-WSI benefits for the priority area and related communities of water users such as:

- estimated water savings in acre-feet per year for use by the agriculture community in periods of extended drought or by other community users of the conserved water
- increases in infiltration or recharge rates, needs required by water regulations
- net economic benefits of implementing planned conservation practices
- other anticipated benefits

Describe how delivery of EQIP-WSI assistance in the priority area will be tracked for progress reporting. Select one or two key measurable benefits and target thresholds as indicators of success for final evaluation. Describe before and after data collection needs and methods and what communication products will be used to share final outcomes and lessons learned.

There are multiple potential benefits including: (1) an additional 1,000 acre-feet of water annually to irrigators through WaterSMART activities, (2) a 15% water savings with EQIP-WSI funded ditch lining, (3) a 10-15% improvement in on-farm water efficiencies with EQIP-WSI funded activities, (4) increased efficiencies in water delivery and reduction in transit losses expected to extend irrigation water availability during drought and allow more farm acreage to stay in production through drought cycles, (5) increased accuracy of water tracking and monitoring data confirming full capture of

water right and enhancing daily and annual drought planning, (6) increase in crop yield with increased water availability and reliability, (7) estimated 9 EQIP contracts including ditch lining and on-farm irrigation system improvements, (8) significantly reduced ditch maintenance and logistics with ditch lining saving time/resources and improving safety, (9) significant reduction in noxious weeds, (10) improved available soil moisture and overall soil health, (11) improved wildlife habitat, and (12) important productivity, resiliency, and economic benefits to producers from EQIP-WSI activities expected to expand producer interest in NRCS-EQIP programs.

Multiple net economic benefits include those tied to (1) increased crop yield, (2) increased pasture health and productivity, (3) long term improvement of property productivity and resiliency, (4) reduced pesticide and labor expenditures as noxious weeds are reduced/eliminated, (5) significantly reduced ditch maintenance costs, and (6) on and off farm water efficiencies increasing available time for producers to pursue additional on or off farm income.

PWP, PRWCD, NRCS, and producers will work together to ensure successful progress tracking and reporting including physical site visits and inspections, and digital reporting and tracking. Water monitoring data from local gages/monitoring stations will also be utilized.

Key measurable benefits include: (1) increased water savings with ditch lining (measured with transit loss study), (2) ability to capture full water right (measured with tracking flow data), and (3) on-farm water savings with conservation practice implementation (measured by comparing water savings on farm bills using NRCS FIRI [Farm Irrigation Rating Index]). Target thresholds include (1) at least 10% water savings with ditch lining, (2) capturing full water right, and (3) 10-15% water savings with on-farm improvements. Other measurable benefits include reduction in noxious weeds (vegetation transects on treated properties) and reduction in soil compaction (soils testing on cover crop fields).

Communication products will include press releases, newspaper articles, public presentations at local meetings and regional conferences, field workshops, and sharing a post-project summary online.