



— BUREAU OF —
RECLAMATION



Bear River Canal Company

Metering Project

WaterSMART Grants: Small-Scale
Water Efficiency Projects
BOR-DO-20-F006

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Technical Proposal and Evaluation Criteria

Executive Summary

Applicant Information

Date: March 3, 2020

Applicant Name: Bear River Canal Company (BRCC)

City, County, State: Tremonton, Box Elder County, Utah

Project Manager:

Trevor Nielson, General Manager

Bear River Canal Company

435-257-5975

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Requested Reclamation Funding: \$75,000; **Total Project Costs:** \$216,900

Project Summary

Specify the work proposed, including how funds will be used to accomplish specific project activities.

Briefly identify how the proposed project contributes to accomplishing the goals of this FOA.

Nearly 1,000 cubic feet per second (cfs) of water flows through the Bear River Canal Company (BRCC) system during the irrigation season. The water is diverted from the Bear River at Cutler Reservoir into two separate Canals; the West Main Canal and the Hammond Main Canal. Water is diverted to reach users throughout the service area, from these canals into other secondary canals and laterals. The secondary canals and laterals include the West Canal, Central Canal, East Canal, Hammond West Canal, and Hammond East Canal. Currently, BRCC employees visually monitor water levels throughout the system and manually adjust diversions to increase efficiency. With over 124 miles of canals that distribute and deliver irrigation water across over 65,000 acres of land, visually monitoring water levels is inefficient and time consuming.

The proposed project includes three main elements:

1. Build a ramp flume in an existing trapezoidal liner at the head of the West Main Canal. *(Telemetry equipment is already in place).*
2. Construct a ramp flume in a new rectangular concrete channel at the head of the Hammond Main Canal *(Telemetry equipment is already in place).*
3. Install two automated slip meters with the associated concrete structure on the Central Canal and a ramp flume with telemetry equipment on the West Main Canal, where these two canals split.

The two new flumes at the start of the West Main Canal and the Hammond Main Canal will ensure that each canal receives the right amount of flow based on their water right. Each of these measurement locations already has telemetry equipment that will allow BRCC to check the flows regularly and adjust the amount of water being delivered from PacifiCorp. The two automated slip meters will measure flows and automate one of BRCC's largest diversions; this is where the Central Canal spits off from the West Main Canal. BRCC plans to install flow measurement devices on each leg of the diversion and to install automated gates and telemetry equipment that

will allow BRCC to make diversion adjustments, as needed, to improve downstream water deliveries. This proposed project will provide real-time data and allow for swift reaction to variations in water demands.

The implementation of remote sensing technologies is an important opportunity for BRCC to leverage science and technology to improve water supply reliability and increase levels of efficiency throughout the canal system. This will provide a far more productive method of monitoring and adjusting flows, including the ability for BRCC staff to focus efforts on other improvements and canal maintenance.

BRCC prepared a Water Conservation and Management Plan (Plan) in 2019 that outlines priority projects and objectives. Within the Plan, BRCC has identified installing 27 separate measurement and telemetry stations at key locations throughout the system. Also, within the Plan, the proposed project meter locations are listed as high priority projects and are based on evaluation criteria set forth in the Plan.

The proposed project accomplishes the goals of the FOA by:

- Implementing science and technology to improve water supply reliability.
- Modernizing the BRCC infrastructure to allow for real-time data and swift reaction for water efficiency.
- BRCC rated each metering location in this project as high priorities. By using and implementing the Water Conservation and Management Plan that was developed, they will be able to reduce overallocation, increase water conservation, and improve the ease of operations through automation and technology.

Length of Time

State the length of time and estimated completion date for the proposed project including the construction start date (month/year).

The project start date is based on award notice being made in September 2020.

Task	Sept – Dec 2020	Jan – April 2021	May 2021 – Sept 2022
Grant Award			
CE Prepared by Reclamation			
Meter installation/Hammond Main and Central in 2021 and West Main in 2022			
Telemetry setup			
Final Report/Project closeout			

Federal Facility

Is the proposed project located on a Federal facility?

No, although all of the water that is delivered to BRCC comes through PacifiCorp, which has senior rights to the flows that are stored in Hyrum Reservoir, which is a Reclamation Project. Hyrum Reservoir provides water to run the PacifiCorp hydroelectric facility on the Bear River. PacifiCorp has an obligation to deliver all of BRCC’s irrigation water through Cutler Reservoir.

Background Data

The Bear River Canal Company has served many farmers and residents in Box Elder County for over 100 years, beginning around 1890. Shortly after development, the U&I Sugar Company purchased the canal company from the original farmers. The Sugar company used the canals to supply irrigation water to sugar beet farmers in the area during the summer months and for processing sugar in the fall and winter months. The primary purpose of BRCC today is to provide irrigation water for a variety of crops that are produced within the service area of the canals. The annual value of crops harvested from the irrigated area is estimated to be approximately \$65 Million. Two main canals come out of Cutler Reservoir with the West Main Canal on the north side of the Bear River and the Hammond Main Canal on the south side of the Bear River. PacifiCorp maintains the first 0.7 miles of these two main canals just downstream of Cutler Dam. These canals split into multiple canals and are mostly made up of open ditches with culverts crossing under the roadways.

For many years, BRCC has worked to implement automation and telemetry projects, but it has been slow-going. The Board of Directors for BRCC has made fully automating the system a priority. The ability for BRCC to monitor real-time canal flows will greatly improve the ease of operating the canal system, help maintain flows, and free up staff to work on maintenance and other improvement projects. The current manual headgate system necessitates a water manager to travel back and forth to each site to manually adjust each headgate and attempt to balance the available flow at each turnout. The delay and inaccuracies inherent in this system introduce massive inefficiencies. The ability to program headgates to automatically pass a certain amount of water depending on the water available, and to provide instantaneous communication between headgates that are remotely controlled, will drastically reduce inefficiencies and conserve water.

The BRCC service area includes multiple cities – Fielding, Garland, Tremonton, Deweyville, Elwood, Honeyville, Bear River, Corrinne, Brigham, Riverside, Bothwell, Thatcher, Penrose, and Collinston – an unincorporated area in Box Elder County.

Source of water supply and water rights involved

Water flows from Bear Lake through the Bear River, which flows into Cutler Reservoir, where it is delivered through two diversion structures and canals that are owned by PacifiCorp. The two canals are the West Main Canal and the Hammond Main Canal. The West Main Canal carries 730 cfs flow, and the Hammond Main Canal carries 175 cfs flow.

Bear River Water Rights:

Water Right (29)	Source	Quantity	Priority Date
2633	Bear River	14,496.44 ac-ft	1904
2856	Bear River	333.0 cfs or 100,031.544 ac-ft	1889
2857	Bear River	133.0 cfs	1901
2858	Bear River	43.0 cfs	1914
3321	Bear River	300.0 cfs or 72,124.56 ac-ft	1987

Current water uses (i.e., agricultural, municipal, domestic, or industrial) and Number of water users served

The majority of the water used is for agricultural purposes, with 2,000 water users who irrigate 65,490 acres. Currently, there is a very limited number of secondary water users who use the water to irrigate lawns and gardens through a pressurized system.

Current and projected water demand and potential shortfalls in water supply

Current demands are approximately 275,000 acre-feet, based on water shares. Seepage losses and over-delivery have an impact on current water demands. A list of potential water demands includes the following:

- **New Secondary Water Demands** – Many of the towns and cities in the BRCC service area hold shares in BRCC. As communities have grown, the residents have asked for pressurized secondary water to avoid having to flood irrigate their lawns and gardens.
- **Water Shortage** – Tremonton City, the second largest community in the BRCC service area, is encountering culinary water shortages during the summer season due to the impact of residential and commercial properties using culinary water to water their lawns and gardens. The City has prepared a secondary water plan that has 12 service areas for the entire City. They have constructed the secondary water distribution system in 3 of the 12 service areas. These areas are using BRCC water for secondary water supply.
- **Growth** – Growth and land use changes are a real concern for the BRCC service area. Strategies for new growth and their water needs have been the main driving force for BRCC as they have prepared their Water Conservation and Management Plan. BRCC understands that they need to prepare for pressurized secondary water needs beyond their existing agricultural users. As part of their planning process, they have identified focus areas where growth is happening, and water uses are changing. See Attachment A – Management Plan Pages for info on the project priority list.

Potential Shortfalls in Water Supply: BRCC faces potential shortfalls in four main areas:

1. **Water Loss and Over-delivery** – The number one potential shortfall for BRCC is water losses through seepage and over-delivery to compensate for seepage losses. These losses have impacted water delivery, caused damage to fields and basements, and reduced crop yields for shareholders.
2. **Past Droughts and the Economy** – BRCC potential shortfalls from drought can and have had an impact on the current water supply. The BRCC service area is home to some of Utah’s highest producing farms, which still rely solely on farming as their only source of income. In the past, extreme drought conditions have had economic impacts on the BRCC service area. Within the 2003 Economic Report to the Governor of Utah, it indicates that “the hardest hit sector (related to the drought) was agriculture, where 2,600 jobs and almost \$40 million in income was lost.”
3. **Drought Conditions Today** – According to the “Drought Impact Reporter,” in 2018, “Utah’s reservoirs were averaging 47 percent of capacity statewide, due to several months of hot and dry weather. However, over the past two winters, the State has had good water years, but drought is an inevitable cycle in Utah. Meaning that within the

next two years, BRCC could be in a drought again, and with high water demands during the summer, their water supply will once again be in jeopardy.

Drought impacts not only BRCC but also areas where their water rights are stored. In 1911, a canal was constructed that now diverts almost all the water in the Bear River at Stewart Dam southward to Mud Lake. From there, when spring runoff water is being stored, the water flows through Mud Lake to enter Bear Lake. For the remainder of the year, the spring runoff water flows through Mud Lake and out the Outlet Canal to rejoin the original Bear River channel. The upper 6.5 meters of Bear Lake functions as a reservoir. The Lifton Pumping Station releases water from Bear Lake to the Bear River for irrigation during the summer. The water levels in the lake fluctuate annually with these releases.

BRCC stores many of its water rights within Bear Lake. Due to an extended drought, from 2002-2004, Bear Lake reached its lowest level in 70 years. The over-allocation and seepage losses along the West Main Canal will only complicate any new drought situation.

4. **Growth** – With Utah being the fastest growing state in the nation, the Box Elder County area has also seen high growth. Within the past 10 years, the BRCC service area has seen a 25 to 30 percent population increase with many new residential housing developments, businesses, schools, and churches. The impact of growth is revealed by the need to convert water from agricultural uses to residential uses – lawns and gardens. According to the Utah Governor’s Water Task Force Committee, agricultural water usage was 80 percent of the total water used in 1995. Today, however, the use is approximately 55 percent for agriculture. The 25 percent difference is water that has been converted from agricultural crop production to residential outdoor use for lawns, gardens, parks, schools and churches, and municipal and commercial needs.

As the population increases in the service area, the need for more culinary and secondary water will also increase. This demand could have significant effects on BRCC’s ability to provide water the way it has always been accustomed to, and could also have an impact on available water based upon drought conditions, over-allocation, and transmission water losses from seepage or unlined/unenclosed distribution systems.

If water is primarily used for irrigation, describe major crops and total acres served

Major crops include wheat, hay, onions, mint, melons, and corn. Total acres served is 65,490.

Water Delivery system

Describe the applicant’s water delivery or distribution system, as appropriate. For agricultural systems, please include the types and approximate total lengths of canals and laterals (e.g., unlined or lined open channel, pipe, including types of pipe and lining materials), the number of irrigation turnouts and other significant existing irrigation improvements (e.g., automated control structures, remote monitoring devices and SCADA systems).

BRCC owns and operates roughly 124 miles of canals that distribute and deliver irrigation water across 65,490 acres of land. Two main canals come out of Cutler Reservoir, with the West Main Canal on the north side of the Bear River, and the Hammond Canal on the south side of the Bear

River. PacifiCorp maintains the first 0.7 miles of these two main canals just downstream of Cutler Dam.

These canals split into multiple canals, as shown below:

Table 1 Length and Flows of the BRCC Canals

BEAR RIVER CANAL COMPANY CANALS			
Name	Length (miles)	*Max Flow (cfs)	Notes
West Main	31	730	
East Main	24	350	
Central	15	150	
Highline	Operated and maintained by others		
Hammond Main	9	175	
Hammond West	18	120	
Hammond East	15	55	
Iowa String	4	55	
Lateral A	2	35	
Lateral B	3	100	
Lateral D	2	55	
Lateral F	1	25	
TOTAL	124		

*Estimated maximum irrigation flow at diversion point under normal operating conditions.

BRCC delivers water to over 100 ditch companies and has many elements to maintain, inspect, and supervise.

Service Area: BRCC delivers irrigation water to farmers and residents in an area of approximately 65,490 acres in Box Elder County. As stated previously, BRCC’s service area includes multiple cities and unincorporated areas in the County

Identify any past working relationships with Reclamation, including date(s), description of the relationship(s) with Reclamation, and a description of the project(s).

The Bear River Canal Company has received two grants from Reclamation, which include:

- 2017 WaterSMART: Water and Energy Efficiency Grant to line the East Hammond Canal. The project was completed in September 2019.
- 2017 Water Conservation Field Services Grant to prepare a Conservation Water Management Plan. This planning project was completed in August 2019.
- BRCC just received notification of award for a 2020 WaterSMART: Water and Energy Efficiency Grant to line 3,200 feet of the West Main Canal at the same location as planned west Main Canal ramp flume.

Project Location

Provide specific information on the proposed project location or project area including a map showing the geographic location.

Geographic Location: The Bear River Canal Company service area is located in Box Elder County, Utah, and covers almost the entire lower half of the County. For latitude and longitude, please see the project location map and detailed project map, see Attachment B – Project Location Map and Attachment C – Project Detail Map.

Technical Project Description and Milestones

Describe the work in detail, including specific activities that will be accomplished. The description shall have sufficient detail to permit a comprehensive evaluation of the proposal. Include milestones for the completion of the project, including, but not limited to, environmental compliance, permitting, final design, and construction. If non-Federal cost share is not yet secured, the milestones should identify when the applicant anticipates that the funds will be available.

The proposed project includes building a ramp flume in a trapezoidal liner at the head of the West Main Canal, and a ramp flume in a new rectangular concrete channel at the head of the Hammond Main Canal; both of which have telemetry equipment already in place. In addition, two automated slip meters and associated concrete structures will be installed on the Central Canal and a ramp flume on the West Main Canal. BRCC anticipates that a categorical exclusion will be prepared by Reclamation and that no other permits will be required. Design will be completed previous to the award and paid by BRCC and is not included in the funding request. The required cost share is available.

Project Milestones:

Grant Award:	September 2020
CE Prepared by Reclamation:	September – October 2020
Meter/Flume installation Hammond Main and Central:	January 2021 – April 2021
Meter/Flume installation West Main:	January 2022 – April 2022
Telemetry setup:	January 2021 – April 2022
Final Report/Project closeout:	May – August 2022

Problems and needs

900 cubic feet per second (cfs) of water flows through the Bear River Canal Company (BRCC) system during the irrigation season. BRCC employees visually monitor water levels throughout the system and manually adjust diversions to increase efficiency. With over 150 miles of canals that distribute and deliver irrigation water across over 65,000 acres of land, visually monitoring water levels is inefficient, time consuming, and a continual burden on the Company. Water is lost due to over-allocation and is not always caught before the staff notices. This means that hundreds of acre-feet of water are over-allocated to many of the users and then lost at the end of the system. BRCC needs a better way to manage their system. The implementation of remote sensing technologies is a vital need. This is a significant opportunity for BRCC to leverage science and technology to improve water supply reliability and to increase levels of efficiency throughout their canal system.

How the project is intended to address the problems and needs

In 2019, BRCC prepared a Water Conservation and Management Plan (Plan) that addressed the needs of the system, one of which was the over-allocation of water and the time it took to find and react to this over-allocation. This project will allow BRCC to respond immediately by using remote sensing technology to shut headgates if they are diverting too much water to areas within the canal system. Within the Plan, BRCC has identified installing 27 separate measurement and telemetry stations at key locations throughout the system.

Expected outcomes

The proposed project outcomes will be real-time data that will allow for a swift reaction to variations in water demands. It will provide a far more productive method of monitoring and adjusting flows and will allow BRCC staff to focus efforts on other improvements and canal maintenance. In addition, it will improve water supply reliability and conservation, enhance ease of operations, advance the automation and technology of the system, and have a substantial impact on many of the main canals that deliver water to smaller canal laterals within the system.

Evaluation Criteria

Evaluation Criterion A – Project Benefits

Describe the expected benefits and outcomes of implementing the proposed project.

- *What are the benefits to the applicant's water supply delivery system?*
 - The benefit of real-time data will allow for a swift reaction to water demands.
 - Provide a more productive method of monitoring and adjusting flows.
 - Allow BRCC staff to focus efforts on other improvements and canal maintenance.
 - Improve water supply reliability.
 - Allow for ease of operations and advanced automation and technology in the system.
 - Result in substantial water conservation within the Main Canals.
- *If other benefits are expected explain those as well. Consider the following:*
 - *Extent to which the proposed project improves overall water supply reliability*

The flow measurement and telemetry equipment installed for this project will allow BRCC to provide reliable water supply to its users within the system in a few ways:

 - The flumes that will be installed at the head of the West Main Canal and the Hammond Main Canal and the connection to the telemetry will allow BRCC to monitor the flows that are delivered from PacifiCorp to the canal company and verify that they are receiving their water allotment. This will make the entire system's water supply more reliable.
 - The measurement and telemetry equipment that will be installed at the split of the West Main Canal and the Central Canal will improve water delivery to the users at the ends of these canals. Often times, one of these canals will be dry at the end, and the other will have excess water at the end. This new equipment at the diversion will allow BRCC to adjust the flow split at the diversion to keep water at the ends of both

of the canals, making the supply at the end of these two major canals much more consistent.

- Benefits to BRCC and their staff will be realized as the telemetry and automation system is implemented as it will allow BRCC to reduce the stress and strain on their staff as they will no longer have to be manually monitoring all the 120 miles of canals constantly. They will have real-time access to the amount of water being diverted into the main delivery canals. The work is hard and requires long hours, especially for the canal riders, so with the introduction of technology and automation, their jobs will be a little easier and possibly more attractive, as the Company looks to hire additional staff. If BRCC continues as is, it will be challenging to replace their current ditch riders or hire new employees of the same quality.

- *The expected geographic scope benefits from the proposed project (e.g., local, sub-basin, basin)*

The proposed project will provide benefits to the entire BRCC service area of 65,000 acres. This area covers a substantial portion of the lower Bear River basin.

- *Extent to which the proposed project will increase collaboration and information sharing among water managers in the region*

The data collected by the two head flumes will be accessible by both BRCC and PacifiCorp. PacifiCorp manages the amount of water that is delivered from Cutler Reservoir to BRCC. The real-time data will allow both parties to collaborate and work together to manage the water being delivered to BRCC users.

BRCC has assigned a Canal Rider that monitors the safety, condition, and water delivery along each canal. The new automation and telemetry equipment at the Central Canal diversion will permit the Canal Riders on the downstream canals to coordinate with each other and to adjust diversions as needed based on the amount of water at the ends of each of their assigned ditches. Once this equipment is installed, the Canal Riders will have the ability to remotely contact the BRCC General Manager to have him adjust the flows.

BRCC also collaborates with the Bear River Water Refuge to coordinate flows that reach the Refuge at the ends of the canals. Having this telemetry will improve flows to the Refuge and allow for enhanced coordination.

- *Any anticipated positive impacts/benefits to local sectors and economies (e.g., agriculture, environment, recreation, tourism)*

Primarily, this project will provide more stable supplies of water to the agricultural water users in the BRCC service area, allowing them to have a reliable water source to produce more crops and improve their revenues. The project will also allow BRCC to improve the balance of water that reaches the ends of the canals that help supply water to the Bear River Bird Refuge and to multiple recreational duck clubs that are located near the ends of these canals. This will improve recreation opportunities, bird and other wildlife habitats, as well as improve tourism prospects.

- *Extent to which the project will complement work done in coordination with NRCS in the area (e.g., with a direct connection to the district’s water supply). Describe any on-farm efficiency work that is currently being completed or is anticipated to be completed in the future using NRCS assistance through EQIP or other programs.*
 There is a local NRCS office located in the BRCC service area. This office works with multiple agricultural water users to help them improve their systems off of these main BRCC canals. This project will provide a more reliable water supply to the lateral ditches that are owned and operated by smaller irrigation companies and will complement the on-farm improvements that are being made in coordination with the NRCS.

Evaluation Criterion B – Planning Efforts Supporting the Project

Describe how your project is supported by an existing planning effort.

- *Does the proposed project implement a goal or address a need or problem identified in the existing planning effort?*
 BRCC completed a companywide Water Conveyance Facility Safety Management Plan in January 2015, and in 2018-19, BRCC developed a system-wide Water Conservation and Management Plan. As part of that Water Conservation and Management Plan, goals, needs, and priorities were developed. This project addresses and is working to implement a few of the highest rated projects.
- *Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures.*
 BRCC prepared a Water Conservation and Management Plan (Plan) in 2019 that outlines priority projects and objectives. Within the Plan, BRCC has identified installing 27 separate measurement and telemetry stations at key locations throughout the system. The proposed meter locations are listed as high priority projects in the Plan and are based on evaluation criteria set forth in the Plan. Using and implementing the following criteria helped to determine these projects as a “High Priority.” Based on how the project would help to reduce over-allocations, water conservation, improve ease of operations, include automation and technology, and the percent of service area that will be impacted from the project, the project was rated as either a 0, 1, 2, or 3, with 0 and 1 being the highest prioritized projects. The criteria used for rating and ranking all the projects within the Plan are included in Figure 1.

Figure 1 Rating and Ranking Criteria

Objective Type	Objective	Metric (method of measurement)
Water Supply	Secure Existing Water Supply	Added Supply (Acre Feet)
	Improve Mobility of Water Supplies	Approximate Percent of Service Area that
		Improved Flow Adjustment Time
	Improve Water Conservation	# Of Automated Diversions
Volume Conserved (Acre Feet)		
Financial	Minimize Costs	Canal Bank Soil Permeability
		*Debt Service and Operation and Maintenance Costs for 50 Year Life Cycle (\$/Acre Feet/Year)
		Grant Availability (Likelihood)
O&M/Safety	Obtain Funding Assistance	Increase In Annual Revenue
	Increase Future Revenue	Reduction in Required Maintenance
	Maintain Existing System	Improved Ease of Operation
	Improve Operations	Water Removed from Hillside
	Improve Hillside Stability	Resistance to Failure
Environment	Improve Channel Reliability	Risk Class from Safety Management Plan
	Make Improvements in Risk Areas	Maintain Flow To Bird Refuge
	Maintain Flows To Bird Refuge	Magnitude Of Improvement

Evaluation Criterion C – Project Implementation

Describe the implementation plan for the proposed project. Include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.

Task	Sept 2020 – April 2021	Jan – April 2022	May – Sept 2022
Grant Award			
CE Prepared by Reclamation			
Meter installation			
Telemetry setup			
Final Report/Project closeout			

Describe any permits that will be required, along with the process for obtaining such permits.

No permits will be required.

Identify and describe any engineering or design work performed specifically in support of the proposed project.

The project requires limited design work and will be performed prior to the award.

Describe any new policies or administrative actions required to implement the project.

No new policies or administrative actions will be required.

Describe how the environmental compliance estimate was developed. Have the compliance costs been discussed with the local Reclamation office?

Based on four or more previous and similar metering projects, the cost for Reclamation to prepare the CE was within the cost associated in the budget, ranging from \$2,000 to \$4,000, with the average being \$3,000.

Evaluation Criterion D – Nexus to Reclamation

Is the proposed project connected to a Reclamation project or activity? If so, how? Please consider the following:

- *Does the applicant receive Reclamation project water?*
BRCC receives water through Cutler Reservoir. Cutler Reservoir belongs to PacifiCorp, which has senior rights to the flows that are stored in Hyrum Reservoir, which is a Reclamation Project. Hyrum Reservoir provides water to run the PacifiCorp hydroelectric facility on the Bear River. PacifiCorp has an obligation to deliver all of BRCC’s water through Cutler Reservoir.
- *Is the project on Reclamation project lands or involving Reclamation facilities?*
No.
- *Is the project in the same basin as a Reclamation project or activity?*
Yes, the project is in the Bear River Basin, where several Reclamation projects are located.
- *Will the proposed work contribute water to a basin where a Reclamation project is located?*
Yes, the project will conserve water and reduce losses and will help contribute to the storage and potential flows in the Bear River and eventually to the Great Salt Lake. The Bear River is the main tributary to the Bear River Migratory Bird Refuge and the Great Salt Lake. By

reducing the over-allocation of water throughout the system, water will be conserved and allowed to remain in the Bear River and will enhance habitats and recreational opportunities.

Will the project benefit any tribe(s)?

No, the project will not have a direct benefit to Indian tribes.

Evaluation Criterion E – Department of the Interior Priorities

Modernizing our infrastructure

The proposed project will contribute to modernizing local infrastructure. The new meters and telemetry will allow for water supply reliability and modernize the way BRCC delivers its water to its users. This will allow for confidence in the allocations and a better understanding of the losses within their system. BRCC is confident that the new technology will add dependability, reliability, trust, safety within the system, and reduce conflicts over water between users. It will also permit faster reaction times and reduce the time spent by staff who drive along the canal throughout the irrigation season to monitor and adjust flows. The project will also give time to the staff to focus their efforts on canal improvements and other maintenance projects during the irrigation season.

Project Budget

Funding Plan and Letters of Commitment

Describe how the non-Federal share of project costs will be obtained.

BRCC will use funds from assessments for their contribution.

Identify the sources of the non-Federal cost share contribution for the project, including:

- *Any monetary contribution by the applicant towards the cost-share requirement and source of funds (e.g., reserve account, tax revenue, and/or assessments)*

BRCC has committed \$141,900 from its cash reserve account.

- *Any costs that will be contributed by the applicant*
Engineering will be paid for by BRCC and is not part of the funding request.
- *Any third-party in-kind costs (i.e., goods and services provided by a third party)*
N/A
- *Any cash requested or received from other non-Federal entities*
N/A
- *Any pending funding requests (i.e. grants or loans) that have not yet been approved, and explain how the project will be affected if such funding is denied*
N/A

In addition, identify whether the budget proposal includes any project costs that have been or may be incurred prior to award. For each cost, describe:

- *The project expenditure and amount*
N/A
- *The date of cost incurrence*
N/A
- *How the expenditure benefits the project*
N/A.

Budget Proposal

Table 2 – Total Project Cost Table

Source	Amount
Costs to be reimbursed with the requested Federal funding	\$75,000
Costs to be paid by the applicant	\$141,900
Value of third-party contributions	\$0.00
Total Project Cost	\$216,900

Table 3 – Budget Proposal

Budget Item Description	Computation		Quantity Type	Total Cost
	\$/Unit	Quantity		
Salaries and Wages				\$0.00
Fringe Benefits				\$0.00
Equipment				\$0.00
Supplies and Materials				\$0.00
Contractual /Construction				\$212,900
Mobilization	\$16,500/EA	1	EA	\$16,500
West Main Flume	\$28,000/EA	1	EA	\$28,400
Hammond Main Flume	\$45,500/EA	1	EA	\$45,500
Central and West Main Canal Meters	\$37,500/EA	2	EA	\$75,000
Central and West Main Canal Telemetry/Electrical	\$7,500/EA	1	EA	\$7,500
Construction of Concrete Structure for West Main Ramp Flume	\$22,700/EA	1	EA	\$22,700
Concrete Structure Excavation and Subgrade Prep/Imported Backfill	\$13,300/EA	1	EA	\$17,300
Third-Party In-Kind Contributions				\$0.00
Other Environmental (by Reclamation)				\$4,000
Total Direct Costs				\$216,900
Indirect Costs				\$0.00
Type of rate	Percentage	\$base		\$0.00
Total Estimated Project Costs				\$216,900

Budget Narrative

Salaries and Wages

No BRCC Salaries or Wages will be included. All services will be contracted. BRCC’s staff time will be over and above the cost of the project and will not be counted toward the project cost.

Fringe Benefits

No fringe benefits will be required.

Travel

No travel will be necessary.

Equipment

N/A

Materials and Supplies

N/A

Contractual

In order to determine unit costs, which were included in the cost estimate for this project, BRCC relied upon contract unit prices from similar projects recently completed. BRCC will be following the State of Utah procurement process for procuring a contractor for this project. The

contractual costs shown are estimates for each of the components to furnish and install the meters, flumes, and telemetry. Generally, the low bidder will be selected based on a determination of acceptable qualifications.

Third-Party In-Kind Contributions

No third-party in-kind contributions.

Environmental and Regulatory Compliance Costs

This is listed under Other Expenses. A Categorical Exclusion will be developed by Reclamation, estimated at \$4,000 based on past projects of this type.

Other Expenses

A Categorical Exclusion will be developed by Reclamation, estimated at \$4,000 based on past projects of this type.

Indirect Costs

No indirect costs will be part of the project.

Total Costs

Total Project Costs: \$216,900; Federal Cost Share: \$75,000; Non-Federal Cost Share: \$141,900

Environmental and Cultural Resources Compliance

- *Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.*
Impacts will be those associated with installing meters within the canal. The project improvements will take place entirely within the existing rights-of-way. In the past, similar projects have had minimal impacts.
- *Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?*
BRCC is not aware of any impacts concerning threatened or endangered species in this area.
- *Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as “Waters of the United States?” If so, please describe and estimate any impacts the proposed project may have.*
BRCC is not aware of any impacts to wetlands in this area.
- *When was the water delivery system constructed?*
The system was constructed between 1870 and 1887. Many improvements have been made over the years.
- *Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.*
No.
- *Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.*
BRCC is not aware of any buildings, structures, or features that would qualify.
- *Are there any known archeological sites in the proposed project area?*
BRCC is not aware of any locations of archeological sites.
- *Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?*
No, the project will not require a right-of-way or relocations from adjacent properties and will have no impact on residential uses within the study area.
- *Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?*
No.
- *Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?*
No.

Required Permits or Approvals

Applicants must state in the application whether any permits or approvals are required and explain the plan for obtaining such permits or approvals.

No permits are expected to be required. All the work is within the canal right-of-way and not within any streets or rivers.

Letters of Project Support

Include letters from interested stakeholders supporting the proposed project.

Letters of Support can be found in Attachment D – Letters of Support.

Letters from a previous WaterSMART: Water and Energy Efficiency Grant application that was submitted in 2019 is being used in this application due to the group’s continued support of BRCC’s efforts to conserve water and to have a more reliable water supply. They include:

- *Chesapeake Duck Club – J.T. Bowen, President*
- *U.S. Fish and Wildlife Services Bear River Migratory Bird Refuge – Erin Holmes, Project Leader*
- *J.Y. Ferry & Son, Inc. – Joel M. Ferry, Treasurer*
- *PacifiCorp – Devin Pharis, Director, Hydro East*

Official Resolution

Include an official resolution adopted by the applicant’s board of directors or governing body. The official resolution may be submitted up to 30 days after the application deadline.

The Official Resolution for the Bear River Canal Company (BRCC) Metering Project will be submitted within 30 days after the application deadline.

only is the cost of lost revenue from damaged crops high, but the expense to clean up and rebuild the canal extends beyond the normal operations budget provided by the Canal Company.

“In the case of a major canal failure . . . the loss of crop revenue could be as much as \$60 million.”

Although the monetary cost of a canal failure is high, the potential loss of life is of more significance.

In addition to the risk management benefit associated with projects along the main canal area, there is a large potential to save water currently lost to seepage. The NRCS outlined permeability classes throughout the canal system as part of a soil permeability evaluation. The complete report can be seen in Appendix A. The classes were established on a scale from one to six with one being the lowest permeability and six the highest. The main canal area is all classified with Class Six soils. In short, the soil permeability in the main canal area is some of the highest in the canal system. This could mean that the water loss from the canals in this area are higher than other areas.

Along with the benefits outlined above, the complexity and scale of the potential actions within the main canal area pose significant challenges. In general, actions in this area are more expensive than other projects. Constructability is also a challenge due to the terrain that magnify the problems with the canals in the first place. It should also be noted that if the slope failures experienced in the main canal area are associated with water sourced from outside of the canals (for example: from a spring above the canals), the risk of failure would not be eliminated solely by making improvements to the canals. Additional work may be needed to capture and re-direct ground water past the canals from sources that exist above the canals. Any action should be thoroughly investigated prior to implementation to minimize the effects of these challenges.

3.4.2 Automation/Telemetry

The use of technology is becoming the norm in the agriculture industry for many reasons. Higher crop productivity, more efficient use of water, reduced impact on natural ecosystems, and greater system efficiency are all potential results of implementing automation into the BRCC system.

Automation and Telemetry projects would be beneficial to the entire canal system and provide an improvement in the mobility of water supplies. Automation would allow for remote control of diversions and head gates. Telemetry would allow BRCC to monitor flows in the canal in real time so BRCC could know which canals have excess water and which ones need more water at any given time during the irrigation season. These factors could greatly improve the ease of operation of the canal system, help to maintain flows, and are relatively inexpensive.

3.4.3 Early Water Options

The ability to discharge water into the canals for use through the month of April has been considered by BRCC for some time. Allowing early water could increase crop production by lengthening the growing season. However, depending on the spring weather, early water may not be desired every year and it may be expensive to obtain or deliver.

3.4.4 Other Canal Improvements

Other actions were considered in locations throughout the canal system. These actions generally are meant to mitigate risks or minimize water loss through a particularly porous area. These projects are generally highly localized and provide limited benefits due to a specific issue. In discussion with the General Manager, it was determined that some of these projects are necessitated due to canal failures, excessive seepage, or other emergency reasons.

3.4.5 Coordination with Outside Agencies

Many cities and other agencies are located within the BRCC service area. These stakeholders include the Bear River Migratory Bird Refuge, hunting clubs, Pacifcorp, Box Elder County, and others. BRCC will need to continue to communicate and coordinate with these entities in the future. The biggest benefit of the coordination actions may be the increased opportunity to have a project funded. For example, combining a secondary system installation with the lining of the main canal areas could increase the likelihood of obtaining funding in the form of grants or loans.

The ability to coordinate with local communities could improve potential revenue sources and prepare BRCC to continue to protect its water rights through putting them to beneficial use for future development.

3.5 Explanation of the Future Actions Evaluation Table

Within each project category multiple specific projects were evaluated using the Project Evaluation Table. The table contains each individual project considered, how it scored based on individual metrics, the weighting factor associated with each metric, and the overall score of each project. The table is included as Table 3-3 below.



Table 3-3. Project Evaluation Table

POTENTIAL ACTIONS	OBJECTIVES																			Scoring	Mitigation Measure Rank
	SUPPLY						FINANCIAL					O&M / SAFETY					ENVIRONMENT				
	Secure Existing Water Supply		Improve Mobility of Water Supplies		Improve Water Conservation		Minimize Costs			Obtain Funding Assistance	Energy Efficiency	Increase Future Revenue	Maintain Existing System	Improve Operations	Improve Hillside Stability	Improve Channel Reliability	Make Improvements in Risk Areas	Maintain Flows To Bird Refuge	Improve Water Quality		
	Added Supply (Acre Feet)	Approximate Percent of Service Area that Benefits	Improved Flow Adjustment Time	# Of Automated Diversions	Volume Conserved (Acre Feet)	Canal Bank Soil Permeability	*Debit Service and Operation and Maintenance Costs for 50 Year Life Cycle (\$/Acre Feet/Year)	Overall Capital Cost over 50 year period	Grant Availability (Likelihood)	Increase in Energy Consumption	Increase in Annual Revenue	Reduction in Required Maintenance	Improved Ease of Operation	Water Removed from Hillside	Resistance to Failure	Risk Class from Safety Management Plan	Added Flow To Bird Refuge	Magnitude Of Improvement			
	Less than 1,000	Less than 25%	None	0	None	1-2	More than \$500	More than \$50M	Very Low	High	None	Low	None	None	Low	Low	Low	None			
	1,000 to 9,999	25% to 50%	Low	1-3	Low	2-3	\$301 to \$500	\$10M to \$50M	Low	Medium	Low	Medium	Low	Medium	Medium	Medium	Medium	Low			
	10,000 to 30,000	51% to 75%	Medium	4-5	Medium	4-5	\$100 to \$300	\$1M to \$10M	Medium	Low	Medium	High	Medium	Medium	High	High	High	Medium			
	More than 30,000	More than 75%	High	>7	High	6	less than \$100	less than \$1M	High	None	High	Very High	High	High	Very High	Very High	Very High	High			
WEIGHTING FACTOR	2	3	2.5	2.5	2.5	2.5	3	3	3	3	2.6	3	3	2.8	3	2.6	2.1	1.3			
MAIN CANAL AREA PROJECTS																					
1	Combine West Main and Hammond Main canal - 3x10' steel pipes from Dam to East Main diversion, 2x9' steel pipes from East Main diversion to siphon, and 1x7' steel pipe for siphon to Hammond Main at HWY 30	0	100%	High	3	High	6	\$ 684.87	\$ 230,000,000.00	Very Low	None	Medium	Medium	High	High	High	Very High	Medium	Low	1.70	3
2	Combine West Main and Hammond Main canal - 3x10' concrete pipes from Dam to East Main diversion, 2x9' concrete pipes from East Main diversion to siphon, and 1x7' steel pipe for siphon to Hammond Main at HWY 30	0	100%	Medium	3	High	6	\$ 493.42	\$ 165,000,000.00	Very Low	None	Medium	High	Medium	High	High	Very High	Medium	Low	1.72	2
3	Line Main Canals with Concrete - Line West Main canal from Dam to East Main diversion and Hammond Main canal from Dam to Hwy 30 with reinforced concrete liner.	0	100%	None	3	High	6	\$ 150.82	\$ 43,000,000.00	High	None	Low	High	Low	High	High	Very High	Medium	None	1.76	1
4	Line Main Canals with EPDM - Line West Main canal from Dam to East Main diversion and Hammond Main canal from Dam to Hwy 30 with EPDM liner.	0	100%	None	3	High	6	\$ 125.96	\$ 27,000,000.00	High	None	Low	Low	Low	High	High	Very High	Medium	None	1.64	4
5	Line Hammond Main Canal Near Landis Pit - Line Hammond Main Canal from approximately STA 383+00 to 435+00	0	15%	None	0	Medium	6	\$ -4.32	\$ -1,200,000.00	High	None	Low	Medium	Low	Medium	High	High	Low	Low	1.44	6
6	Camp File Concrete Canal Liner - Line canal with concrete from STA 40+00 to 80+00.	0	84%	None	0	Medium	6	\$ 182.44	\$ 3,780,000.00	Very Low	None	None	Medium	None	Medium	Medium	Very High	Low	None	1.17	11
7	Camp File EPDM Canal Liner - Line canal with EPDM from STA 40+00 to 80+00.	0	84%	None	0	Medium	6	\$ 142.66	\$ 2,160,000.00	Very Low	None	None	Medium	None	Medium	Medium	Very High	Low	None	1.17	11
AUTOMATION/TELEMETRY																					
8	Install Automated Headgates At Major Diversions	0	100%	High	>7	Medium	NA	less than \$100	\$ 395,000.00	Medium	Low	N/A	Low	High	None	Low	Low	High	None	1.60	5
9	Inventory/Evaluate Existing Drop Structures	0	100%	None	0	None	NA	less than \$100	less than \$1M	Very Low	None	N/A	High	Medium	None	High	Low	Low	None	1.18	10
10	Add Telemetry At Drop Structures	0	100%	High	0	Low	NA	less than \$100	less than \$1M	Medium	Low	N/A	Low	High	None	Low	Low	High	None	1.43	7
EARLY WATER OPTIONS																					
11	Pump Early Water Out of Bear River - Pump 300 cfs from Bear River into West Main Canal for time period of 3 weeks per year, during April (Spring). Consider multiple pipes, either 60" or 48".	17,851	84%	None	0	None	NA	\$ 13.20	\$ 12,000,000.00	Very Low	High	Low	Low	None	None	Low	Low	Low	None	0.63	20
12	Rent pumps each year for early water	17,851	84%	None	0	None	NA	\$ 472.00	\$ 65,000,000.00	Very Low	High	Low	Low	None	None	Low	Low	Low	None	0.45	21
13	Obtain a groundwater right and develop a well near Camp File (assume 3 cfs well at \$2 Million dollars replace pumps every 25 years)	125	84%	None	0	None	NA	\$ 859.16	\$ 4,000,000.00	Very Low	High	Low	Low	None	None	Low	Low	Low	None	0.45	22
14	Purchase Early Water from PacifiCorp	17,851	100%	None	0	None	NA	\$ 6.30	\$ 6,000,000.00	Very Low	None	Low	Low	None	None	Low	Low	Low	None	0.87	15
OTHER CANAL IMPROVEMENTS																					
15	Line West Main Canal Down Stream of East Main Diversion - Line West Main Canal from East Main Diversion to the Malad River with Concrete Liner	0	55%	None	0	High	6	\$ 155.79	\$ 15,147,000.00	High	None	Medium	Low	Low	None	Low	Low	Medium	Low	1.22	9
16	Line East Hammond Canal from Station 545+00 to 650+00 - Connects previous liner projects with EPDM liner	0	3%	None	0	Low	6	\$ 90.00	\$ 2,000,000.00	High	None	Low	Medium	Low	None	Low	Very High	Low	None	1.15	13
17	Pipe high risk areas along the West Main Canal through Thatcher - Station 1335+00 to 1405+00	0	3%	None	0	Low	5	\$ 518.24	\$ 9,450,000.00	Medium	None	None	Medium	Low	Low	Low	High	Low	None	0.83	16
18	Safety Plan Priority 3 - Hammond East from STA 325+00 to 350+00, just north of Crystal Hot Springs, next to farm. Monitor for signs of slope instability utilizing the Slope Stability and Land Use Inspection Sheet in Appendix D. If signs increase, install EPDM trapezoidal liner in canal.	0	5%	None	0	Low	6	\$ 249.66	\$ 540,000.00	Medium	None	None	Medium	Low	Medium	High	Very High	Low	None	1.27	8
COORDINATION WITH OUTSIDE AGENCIES																					
19	Deliver Water to Doorstep - Garland used as a case study	0	0%	None	0	None	NA	More than \$500	\$ 8,581,364.90	High	Medium	High	Low	None	None	Low	Low	Low	None	0.64	19
20	Build Pond And Pump - Garland used as a case study	0	0%	None	0	None	NA	More than \$500	\$ 1,349,500.00	High	None	High	Low	None	None	Low	Low	Low	None	0.76	17
21	City Council Meetings - Discuss ordinances	0	100%	None	0	None	NA	less than \$100	less than \$1M	Very Low	None	None	Low	Low	None	Low	Medium	Low	None	0.93	14
22	Watershed Development Process - Continue involvement	0	100%	None	0	None	NA	less than \$1M	less than \$1M	Very Low	None	None	Low	Low	None	Low	Low	Low	None	0.70	18

The actions that were evaluated are listed down the left side of the table and are sorted by the type of project. The goals or objectives are listed across the top of the table. The metrics for each objective are listed across the top of the table just below the objectives. In the future, as more specifics are gathered for a given action, more solid data can be added to the analysis.

3.5.1 Color Key

A color key is shown just below the metrics and gives four ranges of values for each metric. The actions were evaluated at a conceptual level. Therefore, there is a level of uncertainty in the values calculated for the evaluation. The four color levels indicate how well the objectives or goals are attained by a given action, with the darker colors indicating a higher level of attainment than the lighter colors.

3.5.2 Weighting Factor

The objectives in the evaluation are weighted based on input that was received in the stakeholder interviews. The value used to weigh each objective is listed near the top of the table just above the evaluated actions.

3.5.3 Evaluation

In the columns to the right of each listed action, numbers are given in cells to indicate the estimated value based on the listed metric that corresponds with each action. For metrics that could not be exactly quantified without further evaluation, an assignment of *None*, *Low*, *Medium* or *High* was given. Any cell that is labeled with *N/A* indicates that the metric in that column does not apply to the action listed on that row. A score for each evaluated action is given along the right hand side of the evaluation table.

3.5.4 Conceptual Opinions of Cost

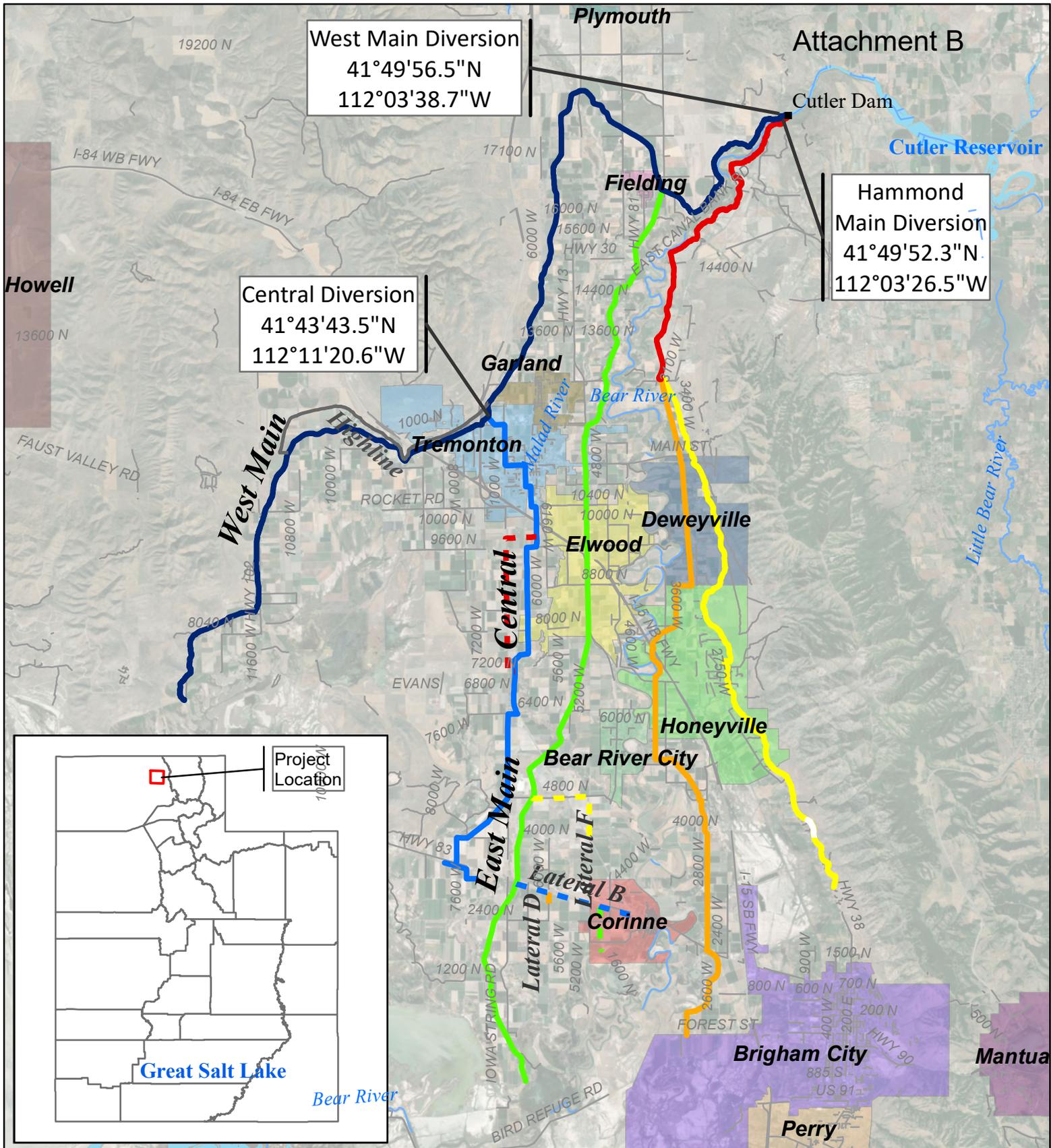
Opinions of cost were created as part of the evaluation of most of the projects. All costs are conceptual and were created solely as a tool to help evaluate and compare different types of projects. Two columns in the evaluation matrix include costs. One column gives the estimated capital cost to complete a project. A separate column gives an estimated annual payment to finance a project over a 50-year life cycle per acre feet of water saved due to implementation of the project. All of the cost estimates include a 35% contingency based on the uncertainty of the estimates.



3.6 Evaluation of Actions Uncertainty

There is a level of uncertainty in the analysis done for the evaluation of the conceptual projects including but not limited to the following:

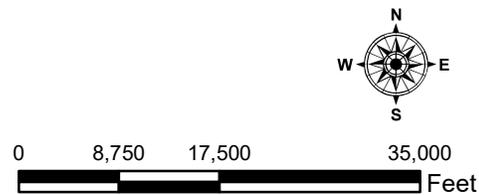
- Cost estimate variability due to complexity and scale of projects
- Grant availability
- Unknown exact cause of failure in canal bank through main canal area



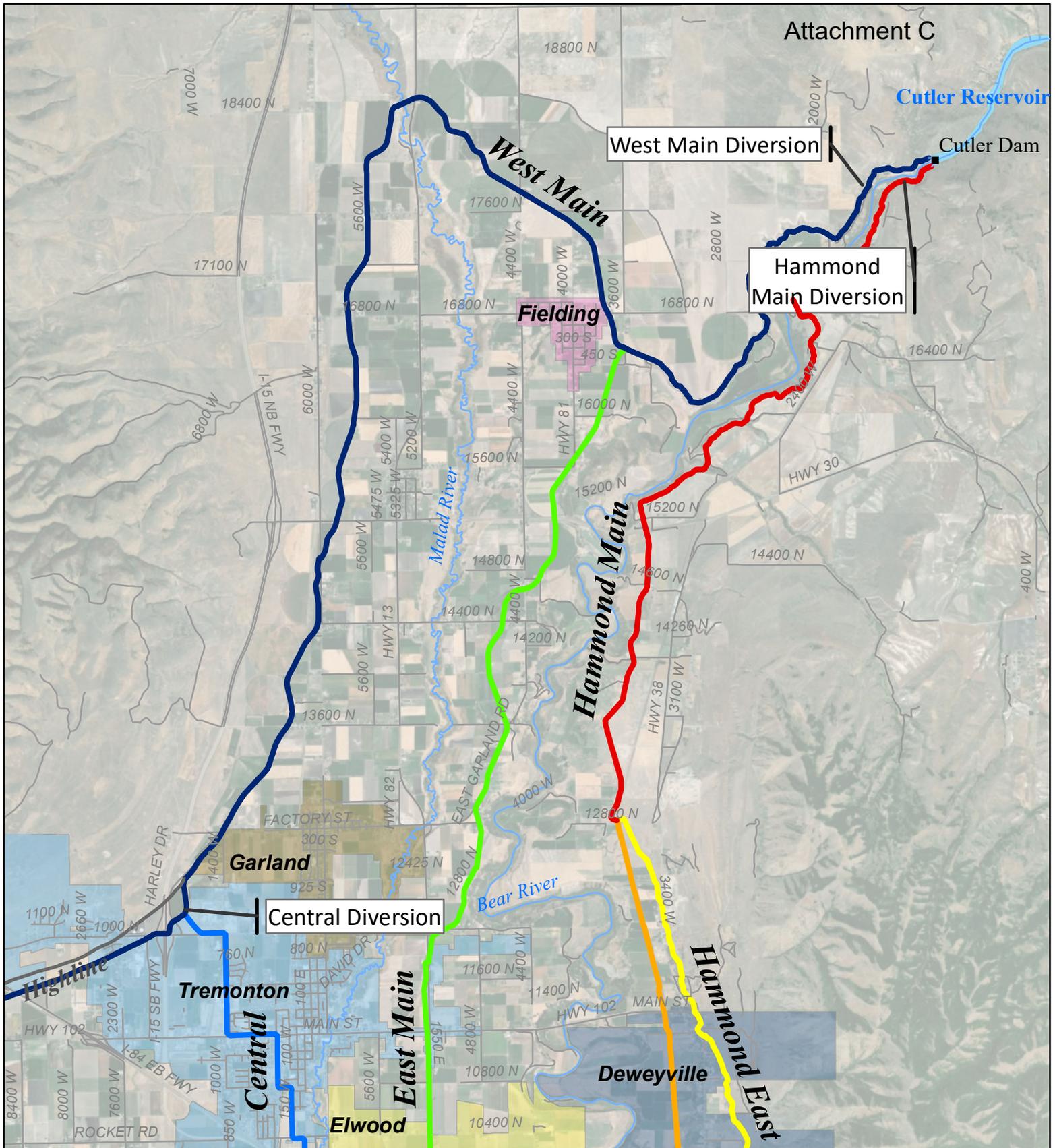
BRCC Alignment	
	IowaStringCanal
	West Main
	Central
	East Main
	Hammond Main
	Hammond West
	Hammond East
	Lateral A
	Lateral B
	Lateral D
	Lateral F

Bear River Canal Company

Project Location Map



GATEWAY MAPPING INC.
a J-U-B Company



Attachment C

Cutler Reservoir

Cutler Dam

West Main Diversion

Hammond Main Diversion

Fielding

Garland

Central Diversion

Tremonton

Elwood

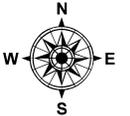
Deweyville

Hammond East

- | BRCC Alignment | |
|----------------|-----------------|
| | IowaStringCanal |
| | West Main |
| | Central |
| | East Main |
| | Hammond Main |
| | Hammond West |
| | Hammond East |
| | Lateral A |
| | Lateral B |
| | Lateral D |
| | Lateral F |

Bear River Canal Company

Project Detail Map



GATEWAY MAPPING INC.
a J-U-B Company



1407 West North Temple, Suite 110, Salt Lake City, Utah 84116

September 24, 2019

To: U.S. Bureau of Reclamation
Re: WaterSMART Water and Energy Efficiency Grant Application

Dear Reclamation,

PacifiCorp is a public utility based in Salt Lake City and serves nearly 1.1 million customers in Utah, Idaho and Wyoming. PacifiCorp owns storage water rights in Bear Lake and has contractual obligations to deliver water from Bear Lake to irrigators in Idaho and Utah, specifically the Bear River Canal Company who receives their water from Cutler Reservoir.

The Bear River Canal Company is seeking funds to enhance sections of their delivery system in effort to conserve and use water more efficiently. PacifiCorp recognizes the importance of protecting this valuable resource and is writing in support of the proposed application submitted by the Bear River Canal Company to the U.S. Bureau of Reclamation Water and Energy Efficiency Grants Program.

This is an important project and PacifiCorp encourages Reclamation to provide funding under the grant program.

Sincerely,

A handwritten signature in black ink, appearing to read "Devin Pharis".

Devin Pharis
PacifiCorp - Director, Hydro East

CHESAPEAKE DUCK CLUB

1015 SOUTH 6800 WEST
CORINNE, UTAH 84307

September 20, 2019

Trevor Neilson,
General Manager
Bear River Canal Company
275 North 1600 East
Tremonton, UT 84337

Dear Trevor,

As the end user of the East canal, the Chesapeake Duck Club is vitally interested in anything that will increase the efficiency of the canals. As you know, we are often shorted on our allotted distribution, especially in the early part of the irrigation season, due to lack of available water and/or an inefficient delivery system.

I understand that you are pursuing funds from the Bureau of Reclamation Water and Energy Efficiency Grants Program. The Club supports you in these efforts and hopes that through these funds the efficiency of the canal flows will be increased, such that all canal users, and particularly those, like us, at the end of a canal, will have a reliable flow of water throughout the entire irrigating season.

I appreciate your efforts to search for ways to preserve the limited water that we have in this area and anticipate that the contemplated projects will be beneficial to all of us.

If there is anything that we can do to assist you in this quest, please let me know.

Sincerely,


President, Chesapeake Duck Club

J.Y. Ferry & Son, Inc.

September 20, 2019

Trevor Neilson, General Manager
Bear River Canal Company
275 North 1600 East
Tremonton, Utah 84337

Dear Mr. Neilson,

J. Y. Ferry & Son, Inc. is pleased to write in support of your grant application being submitted to the Bureau of Reclamation Water and Energy Efficiency Grants Program. We appreciate your efforts to increase the efficiency of your system to safeguard valuable water and energy. We have been implementing water efficiency projects over the past 15 years on our farm and ranch including the piping of earthen ditches, laser leveling fields and installing efficient irrigation systems.

J. Y. Ferry & Son, Inc. recognizes the importance of water preservation in our often water-short basin. The water saved through these improvement projects will provide benefit to water users and the regional environment. We have used Bear River Canal water for the past 117 years to manage farm and grazing lands in the Bear River Valley. We also use the Canal water to manage and maintain five duck clubs on several thousand acres of wetlands. We recognize the importance the canal water plays in maintaining these wetlands. We encourage the conservation and efficient use of water in the Bear River Canal system to help protect this valuable resource.

We strongly support your grant application and appreciate the advancements it will make in improving efficiency for Bear River Canal Company.

Sincerely,



Joel M. Ferry
Treasurer
J.Y. Ferry & Son, Inc.



United States Department of the Interior
FISH & WILDLIFE SERVICE



Bear River Migratory Bird Refuge Complex

2155 West Forest Street
Brigham City, Utah 84302
(435) 723-5887

September 30, 2019

Trevor Nielson, General Manager
Bear River Canal Company
275 N 1600 E
Tremonton, UT 84337

Dear Mr. Nielson,

The Bear River Migratory Bird Refuge, U.S. Fish and Wildlife Service, is pleased to write in support of your grant application being submitted to the Bureau of Reclamation Water and Energy Efficiency Grants Program. We applaud your efforts to increase the efficiency of your system to safeguard valuable water and energy. These water resources are critical for supporting wildlife resources.

The U.S. Fish and Wildlife Service recognizes the importance of water preservation in our often water-short basin. The water saved through these improvement projects will provide benefit to water users and the regional environment. We have worked with the Bear River Canal Company closely to identify opportunities to work as partners for water conservation that untimely returns water to the refuge and the Great Salt Lake ecosystem.

We strongly support your grant application and appreciate the advancements it will make in improving efficiency for Bear River Canal Company.

Sincerely,

Erin Holmes
Project Leader
Bear River Migratory Bird Refuge