WaterSMART Grants

Water and Energy Efficiency Grants for Fiscal Year (FY) 2024 and FY 2025

Notice of Funding Opportunity No. R24AS00052

Funding Group II
Category A

Wellsville-Mendon Upper Canal Pipeline Phase II

Wellsville, Utah

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February 22, 2024

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Technical Proposal and Evaluation Criteria

Executive Summary

The executive summary should include:

- *The date, applicant name, city, county, and state*
- *Please indicate whether you are a Category A applicant or a Category B applicant. If you are a Category B applicant, please briefly explain how you are acting in partnership with a Category A partner. Note: If you are a Category B applicant, you must include a letter from the Category A partner confirming that they are partnering with you and agree to the submittal and content of the application (see Section C.1 Eligible Applicants). See Section D.2.2.12 Letter of Partnership for additional information.*
- *A one paragraph project summary that provides the location of the project, a brief description of the work that will be carried out, any partners involved, expected benefits and how those benefits relate to the water management issues you plan to address. Please note: this information will be used to create a summary of your project for our website if the project is selected for funding. For example, see the description below of a project selected for funding in FY 2023:*
- *State the length of time and estimated completion date for the proposed project (month/year).*
- *Whether or not the project is located on a Federal facility*

Date: Application due date is Thursday, February 22, 2024, at 4:00 p.m. MDT for FY 24 funding

Applicant: Wellsville-Mendon Conservation District
Wellsville, Cache County, Utah

Category: Category A

Project Title: Wellsville-Mendon Upper Canal Pipeline Phase II

Project Summary:

Wellsville-Mendon Conservation District (WMCD) proposes to construct a pipeline system to replace the open canal portions of the Upper Canal. The Upper Canal has a total length of 5.1 miles, with 3.3 miles of open canal remaining. Wellsville-Mendon Upper Canal Pipeline Phase I is underway and will be completed before Phase II begins. This proposal requests funding for Phase II only. Phase I includes the final design for converting the remaining 3.3 miles of the open canal into a pressurized system, the final design for the booster pump station, and partial construction of the pipeline (1.2 miles of the total 3.3 miles of open canal).

Wellsville-Mendon Upper Canal Pipeline Phase II will include enclosing the remaining 2.1 miles of open canal with pipe sizes that will range from 24 to 36 inches in diameter, installing flow meters at each shareholder turnout (30 flow meters in all), and constructing the booster pump station with 4 centrifugal pumps and flow meters. The Phase II project is expected to cost $3,429,000. Piping the canal will eliminate water loss from seepage and evaporation losses, end of canal spillage, and there are expected water savings from metering each turnout. The total water

savings expected from project implementation is 915 acre-feet. The single and centralized pump station will reduce the carbon footprint of individual, inefficient pumps at turnouts. Project benefits also include simplification of operations and automation of system operation. These improvements encourage individual water users to think ahead to more efficient irrigation; one shareholder (about 40 acres) is now considering converting from flood irrigation to pivots. The water source for the Upper Canal is the U.S. Bureau of Reclamation-owned Hyrum Reservoir under water right 25-1945.

Approximate Length: 25 MONTHS

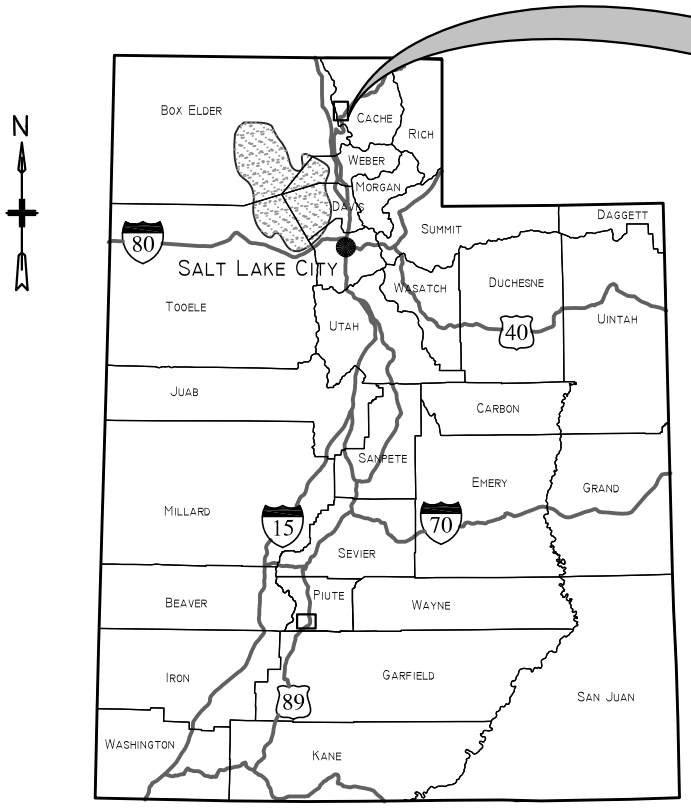
Completion Date: JUNE 2026

Federal Facility: Part of the project will occur on Reclamation property within the WMCD easement. The booster pump station will be constructed on Reclamation property and 400 feet of open canal will be enclosed with 36-inch pipe. The remaining project is not located on a Federal Facility. The Wellsville-Mendon Upper Canal was owned by the Bureau of Reclamation until January 2021 when ownership was transferred to WMCD, with the exception of the first 1,300 feet of the Upper Canal where WMCD has an easement. It should be noted that WMCD receives Upper Canal water from Hyrum Dam, which is currently owned by the Bureau of Reclamation. The project does not interfere with Hyrum Dam conditions or operations.

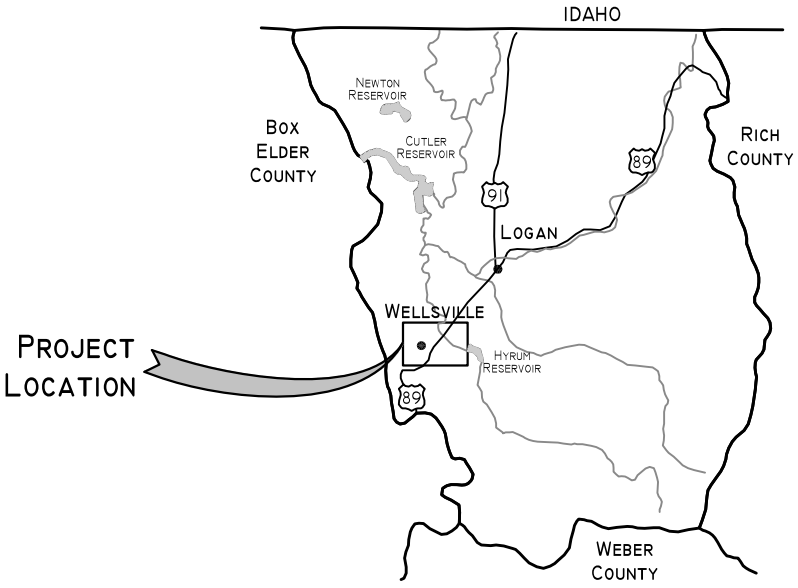
Project Location

Provide specific information on the geographic location of the proposed planning area (e.g., watershed, basin, county) or location of the project being designed, including a map showing the specific geographic location. For example, {project name} is located in {county and state} approximately {distance} miles {direction, e.g., northeast} of {nearest town}. The project latitude is {##°##'N} and longitude is {###°##'W}.

Wellsville-Mendon Upper Canal Pipeline Project Phase II runs through Mount Sterling and Wellsville in Cache County, Utah, approximately 9 miles south of the City of Logan. Figure 1 shows the existing system location. The project latitude is 41°37'33.27" N and the longitude is 111°52'46.47" W.



UTAH



CACHE COUNTY

FRANSON CIVIL ENGINEERS	DATE: JULY 26, 2022 SCALE: Location Map.dwg O:\22036 WELLSVILLE-MENDON Upper Canal Pipeline Funding Applications	WELLSVILLE-MENDON CONSERVATION DISTRICT WELLSVILLE-MENDON UPPER CANAL PIPELINE	FIGURE 1 LOCATION MAP

Project Description

Provide a more comprehensive description of the technical aspects of your project, including the work to be accomplished and the approach to complete the work. This description should provide detailed information about the project including materials and equipment and the work to be conducted to complete the project. This section provides an opportunity for the applicant to provide a clear description of the technical nature of the project and to address any aspect of the project that reviewers may need additional information to understand.

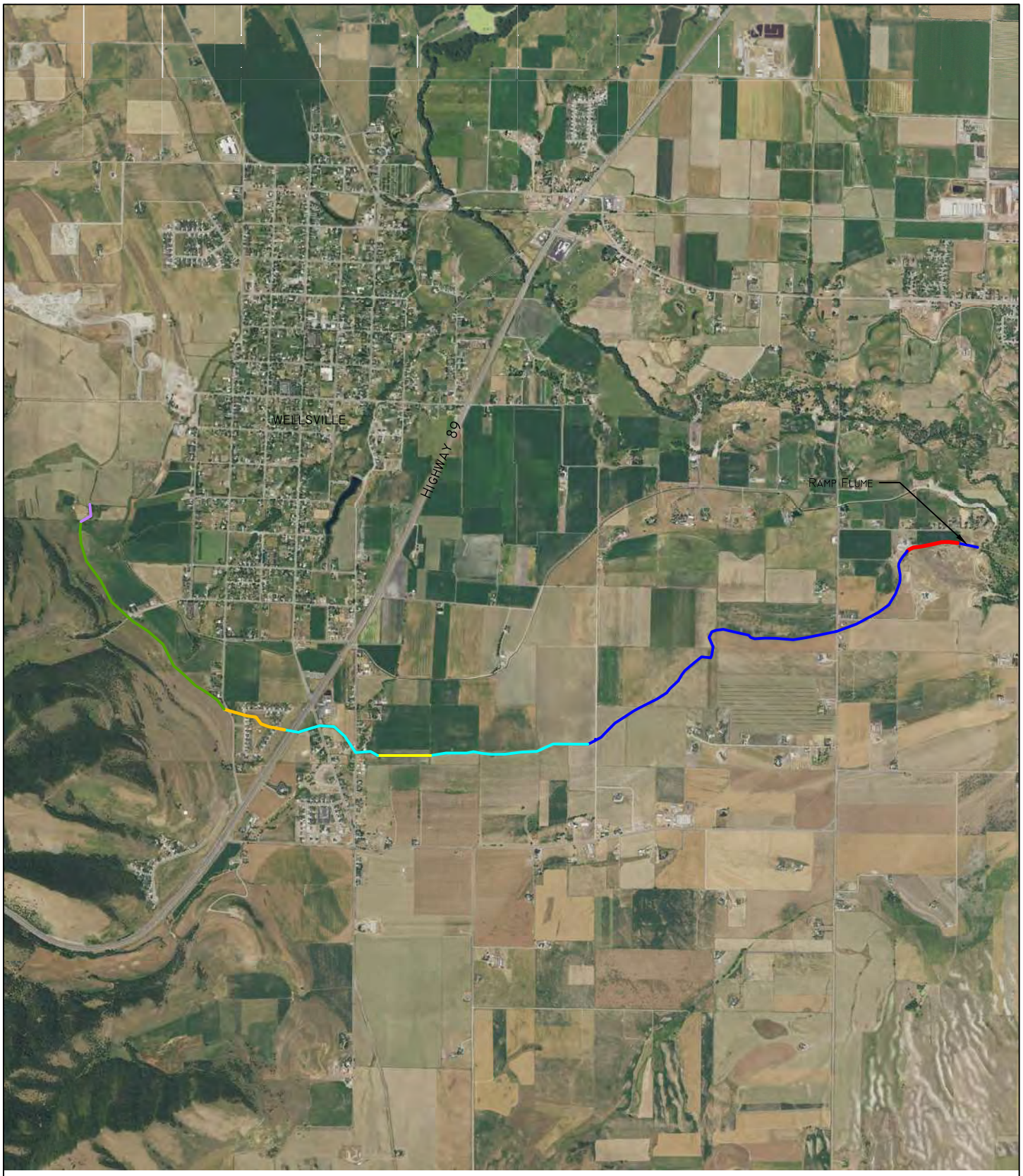
Please do not include your project schedule and milestones here; that information is requested in response to the Readiness to Proceed criterion described in Section E.1.6. In addition, please avoid discussion of the benefits of the project, which are also requested in response to evaluation criteria described in Section E.1. This section is solely intended to provide an understanding of the technical aspects of the project.

Note: If the work you are requesting funding for is a phase of a larger project, please only describe the work that is reflected in the budget and exclude description of other activities or components of the overall project.

Wellsville-Mendon Conservation District (WMCD) operates two canals on a water right filed under the USBR, 25-1945. The Upper Canal is 5.1 miles long, and the Lower Canal is 14 miles long. Typical canal conveyance during irrigation season fluctuates between 5-15 cubic feet per second (cfs), with the mean daily discharge from 2015-2020 being 7.8 cfs. The mean annual depletion from 2015-2020 was 1,607 acre-feet. The proposed project is expected to save 915 acre-feet of water. The area serviced by the Upper Canal includes 884 acres of irrigated land. The existing Upper Canal can be seen in Figure 2 and the WMCD service area is shown in Figure 4.

In the past ten years, WMCD has enclosed segments of the canals that experience significant seepage losses, including 1 mile of the Lower Canal and 3.1 miles of the Upper Canal. They propose a continuation of these efforts through this project, which would involve enclosing the remaining 2.1 miles of earthen Upper Canal, as well as pressurizing the pipeline for improved operations and reduced environmental impacts. The proposed pipeline varies in diameter from 24 to 36 inches, tying into existing canal enclosures. Previous enclosure efforts have utilized pressure-grade PIP pipe, and the proposed project includes a continuation of these materials for system pressurization.

There are currently 30 diversions along the canal alignment. The majority of these diversions are small, unmetered, individual pump stations. Included in the proposed project is installing a meter at each turnout for improved water accounting. The proposed pipeline, shown in Figure 3, follows the existing canal alignment, eliminating the need to acquire easements.



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0 750' 1,500' 3,000'

12" PIPE (PHASE 1)
18" PIPE (PHASE 1)
UNLINED CANAL
EXISTING 15" PIPE
EXISTING 18" PIPE
EXISTING 24" PIPE
EXISTING 36" PIPE

WELLSVILLE-MENDON
Upper Canal

Figure 2
Existing Upper Canal

CANAL MAP.DWG O:\22036 WELLSVILLE-MENDON Upper Canal Pipeline Funding Applications LAYOUT: Canal

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CIVIL ENGINEERS

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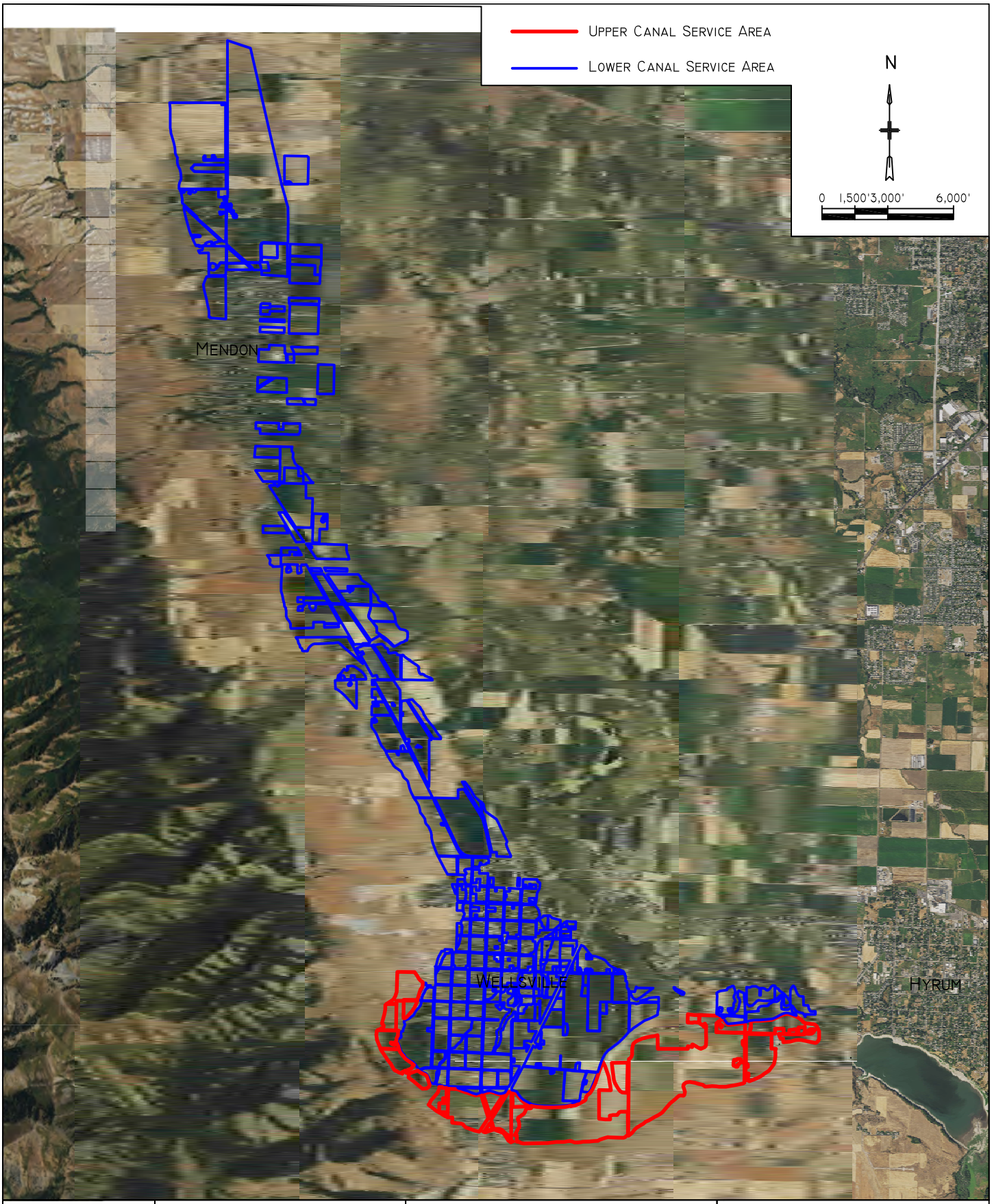
0 750' 1,500' 3,000'

EXISTING PIPELINE
24" PIPE
36" PIPE

WELLSVILLE-MENDON
Upper Canal

Figure 3
Proposed Upper Canal Pipeline

CANAL MAP PROPOSED.DWG O:\22036 WELLSVILLE-MENDON Upper Canal Pipeline Funding Applications LAYOUT: Canal



FRANSON CIVIL ENGINEERS	DATE: July 19, 2022 SCALE: Service Area Map.dwg O:\22036 WELLSVILLE-MENDON Upper Canal Pipeline Funding Applications	WELLSVILLE-MENDON UPPER CANAL PIPELINE PROJECT

Figure 4
Service Area

Evaluation Criteria

Note: Since the NOFO is open to a variety of project types, certain Evaluation Criteria may not be applicable to your project. For example, a water savings project (Criterion A) may not include implementation of a renewable component (Criterion B). Please provide as much detail and support as you can for those criteria that are applicable to your project.

Evaluation Criteria: Scoring Summary	*Points:*
A. Quantifiable Water Savings	*25*
B. Renewable Energy	*20*
C. Other Project Benefits	*15*
D. Disadvantaged Communities and Tribal Benefits	*15*
E. Complementing On-Farm Irrigation Improvements	*8*
F. Readiness to Proceed	*8*
G. Collaboration	*5*
H. Nexus to Reclamation	*4*
Total	*100*

E.1.1 Evaluation Criterion A: Quantifiable Water Savings (25 points)

Up to 25 points may be awarded for this criterion. This criterion prioritizes projects that will conserve water and improve water use efficiency supporting the goals of E.O. 14008. Points will be allocated based on the quantifiable water savings expected as a result of the project. Points will be allocated to give greater consideration to projects that are expected to result in more significant water savings. All applicants should be sure to:

Water Savings

Describe the amount of estimated water savings. *For projects that conserve water, please state the estimated amount of water expected to be conserved (in acre-feet per year) as a direct result of this project.*

The proposed project is anticipated to conserve a total of approximately 915 acre-feet of water per year. This project will have water-saving benefits from three sources:

- Canal Seepage losses (578 acre-feet)
- End of canal spillage (107 acre-feet)
- Metering savings (230 acre-feet))

Current Water Losses

Describe current losses: *Please explain where the water that will be conserved is currently going and how it is being used. Consider the following:*

A. *Explain where current losses are going (e.g. back to the stream, spilled at the end of the ditch, seeping into the ground)?*
B. *If known, please explain how current losses are being used. For example, are current losses returning to the system for use by others? Are current losses entering an impaired groundwater table becoming unsuitable for future use?*
C. *Are there any known benefits associated with where the current losses are going? For example, is seepage water providing additional habitat for fish or animal species?*

Evaporation, seepage, and spillage are all types of current water losses experienced by the system. Unused water at the end of the Upper Canal flows to the Lower Canal and is used by downstream irrigators, which results in a loss to the shareholders in the Upper Canal. After reviewing available information, it was concluded that no known benefit occurs due to seepage losses in the Upper Canal. Additionally, evaporative losses do not contribute any benefits to the local ecosystem.

Metering will allow the irrigation company to operate more efficiently. When water is unmetered it can lead to careless irrigation practices and overwatering of fields where the water is lost to deep percolation.

Support/Documentation of Water Savings

Describe the support/documentation of estimated water savings: *Please provide sufficient detail supporting how the estimate was determined, including all supporting calculations.*

End of Canal Spill

The watermaster estimated that the canal is continuously spilling during the irrigation season at a flow rate between 0.5 – 1 cfs. During a field survey, 0.6 cfs was observed draining from the end of the canal through a 12-inch PVC drain pipe, shown in Figure 5. The images show the ponding at the end of the canal where it drains into the PVC pipe (left) as well as the water as it exits the drain pipe (right).

Figure 5: End of Canal Spillage

The calculation for how much water is lost per 90-day irrigation season is shown below. The water loss at the end of the canal from spilling was estimated to be 107 acre-feet.

$$Canal\ Spill = \frac{0.6\ ft^3}{s}\ x \frac{acre}{43{,}560\ ft\text{^}2}\ x \frac{24x60x60\ s}{day} x\ \frac{90\ days}{season} = \frac{107\ ACFT}{season}$$

Metering Savings

Metering secondary water has been shown to save between 25% and 40% in an irrigation system (https://utahwatermetering.com/faqs). Using the conservative end of 25% and subtracting out the water losses from the end of canal spillage and canal seepage, the calculation for how much water would be saved from metering is shown below. The water savings was estimated to be 230 acre-feet.

$$Metering\ Savings = 0.25\ x\ (1{,}607\ ACFT - 107\ ACFT - 578\ ACFT) =\ \ 230\ ACFT$$

Canal Seepage

To quantify water savings from seepage, field measurements at four locations along the canal were taken on two occasions during the irrigation season. A flow probe was used to measure the average velocity and a flow was calculated using the Six-Tenths-Depth Method. The flow was measured at the start of the canal using the Parshall flume at the beginning of the canal. In addition to physical measurements, shareholder diversions were observed and recorded. These measurements and diversions were used to estimate seepage and evaporation losses in the canal.

Table 1: Flow Data from June 28, 2022

	Start	Start #1	#1	#1 #2	#2	#2 #3	#3	#3 #4	#4
Calculated Flow (cfs)	4.9	-	4.3	-	3.6	-	2.1	-	1.7
Diversions (cfs)	-	0.5	-	0	-	1.25	-	0	-
Length (cfs)	-	-	-	6,693	-	-	-	1,069	-

Table 2: Flow Data from July 22, 2022

July 22, 2022	Start	Start #1	#1	#1 #2	#2	#2 #3	#3	#3 #4	#4
Calculated Flow (cfs)	7.8	-	7.8	-	6.5	-	4.4	-	3.5
Diversions (cfs)	-	0	-	0	-	1.25	-	0.4	-

The diversion data gathered on June 28, 2022, were estimates given by the watermaster. These estimates were not accurate enough to use for the water loss calculations. The sections of canal that could be estimated for water loss were the sections where there were no irrigation diversions on that day. According to the web soil survey (https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx), the soil types between locations #1 and #2 are representative of most of the unlined portions of the canal. The water loss between locations #1 and #2 was 0.7 cfs. It was assumed that the loss per foot in this 6,693-foot section of canal was the same for 14,998 feet of the unlined canal. As shown below, the estimated water loss on June 28th is 2.0 cfs, which is a 22% loss. On July 22, 2022, the estimated water loss was 3.4 cfs, which is a 38% loss.

Calculations from June 28, 2022 flow data:

$$Water\ Loss\ June\ 28 = \frac{0.7\ CFS}{6{,}693\ ft}\ x\ 14{,}998\ ft + Water\ Loss\ from\ \#3\ to\ \#4$$

$$Water\ Loss\ June\ 28 = 1.6\ CFS\ +\ 0.4\ CFS = 2.0\ CFS$$

$$Water\ Loss\ June\ 28 = \frac{2.0\ ft^3}{s}\ x\ \frac{acre}{43{,}560\ ft\text{^}2}\ x\ \frac{24x60x60\ s}{day}\ x\ \frac{90\ days}{season} = \frac{357 ACFT}{season}$$

$$Percent\ Loss\ June\ 28th = \frac{Water\ Loss}{Total} = \frac{351\ ACF}{1{,}607\ ACFT} = 22\%$$

Calculations from July 22, 2022 flow data:

$$Water\ Loss\ July\ 22 = \frac{1.3\ CFS}{6{,}693\ ft}\ x\ 14{,}998\ ft + Water\ Loss\ from\ \#3\ to\ \#4$$

$$Water\ Loss\ July\ 22 = 2.9\ CFS\ +\ 0.5\ CFS = 3.4\ CFS$$

$$Water\ Loss\ July\ 22 = \frac{3.4\ ft^3}{s}\ x \frac{acre}{43{,}560\ ft\text{^}2}\ x \frac{24x60x60\ s}{day} x\ \frac{90\ days}{season} = \frac{607ACFT}{season}$$

$$Percent\ Loss\ July\ 22 = \frac{Water\ Loss}{Total} = \frac{609\ ACF}{1{,}607\ ACFT} = 38\%$$

Field measurements occurred at two delivery rates: 5 cfs and 7.8 cfs and provided an estimated percent flow loss for each scenario. The mean daily discharge based on historical flow data (publicly available online on the Utah Division of Water Rights website) between 2015 and 2020 is 7.8 cfs.

Seepage and evaporation losses increase with larger delivery rates due to increased wetted perimeter, increased soil porosity at higher bank elevation, and increased surface area. With this understanding, the appropriate percent flow loss was applied to mean monthly flow volumes reported by WMCD from 2015 to 2020. The details of this calculation can be found in Table 1.

The proposed project is anticipated to conserve approximately 578 acre-feet of water per year by reducing seepage and evaporation losses in the canal. The resulting calculations constitute a conservative estimate of the proposed water conservation that would occur due to project construction, shown below.

Table 1: Water Loss from Seepage

Month	Average Monthly Flow in WMCD Upper Canal (AF)	Percent Loss	Total Losses (AF)
May	49	22%	11
June	346	38%	131
July	521	38%	198
August	538	38%	204
September	153	22%	34
Total	**1,607**		**578**

Project Types

Please address the following questions according to the type of infrastructure improvement you are proposing for funding. See Appendix A: Benefit Quantification and Performance Measure Guidance for additional guidance on quantifying water savings.

(1) ***Canal Lining/Piping:*** *Canal lining/piping projects can provide water savings when irrigation delivery systems experience significant losses due to canal seepage. Applicants proposing lining/piping projects should address:*

a. *How has the estimated average annual water savings that will result from the project been determined? Please provide all relevant calculations, assumptions, and supporting data.*

By piping and pressurizing the Upper Canal, it is assumed that 100% of the annual water loss due to seepage (578 acre-feet) and end spillage (107 acre-feet) will be saved. The water losses in the proposed closed system are negligible. More detail is described in this application in the Support/Documentation of Water Savings section

b. *How have average annual canal seepage losses been determined? Have ponding and/or inflow/outflow tests been conducted to determine seepage rates under varying conditions? If so, please provide detailed descriptions of testing methods and all results. If not, please provide an explanation of the method(s) used to calculate seepage losses. All estimates should be supported with multiple sets of data/measurements from representative sections of canals.*

Average annual seepage losses were determined using inflow/outflow measurements under varying conditions. Multiple sections of the canal were used and soil types were verified using a web soil survey (https://websoilsurvey.sc.egov.usda.gov/ App/WebSoilSurvey.aspx). The soil types between locations #1 and #2 (see Figure 2) are representative of most of the unlined portions of the canal.

End-of-canal water losses were estimated based on operator observations and verified during an engineering field study.

More detail is described in this application in the Support/Documentation of Water Savings section.

c. *What are the expected post-project seepage/leakage losses and how were these estimates determined (e.g., can data specific to the type of material being used in the project be provided)?*

The expected post-project seepage losses are estimated to be negligible, as the system will be entirely enclosed in impermeable pipe.

d. What are the anticipated annual transit loss reductions in terms of acre-feet per mile for the overall project and for each section of canal included in the project?

Annual transit loss reductions are expected to be 193 acre-feet/mile of unlined canal.

e. How will actual canal loss seepage reductions be verified?

The reduction in canal seepage losses will be verified by metered measurements of flow at each turnout and comparing those measurements to flow rates recorded by the metering at the booster pump station. Matching amounts indicate successful seepage loss reductions.

f. Include a detailed description of the materials being used.

Materials used to enclose the system include 24-inch to 36-inch PIP pipe and fittings for the transmission line, 2-inch to 10-inch galvanized steel pipe and mag meters for system turnouts, structural fill for pipe support, native material meeting specified requirements for backfill, 1-inch to 3-inch air-vac valves, a 24-inch isolation valve, and a pressure relief valve for the end of the system. The booster pump station will be configured with four centrifugal pumps and mag meters to measure flow.

(2) ***Irrigation Flow Measurement:*** *Irrigation flow measurement improvements can provide water savings when improved measurement accuracy results in reduced spills and over-deliveries to irrigators. Applicants proposing municipal metering projects should address:*

a. How have average annual water savings estimates been determined? Please provide all relevant calculations, assumptions, and supporting data.

Metering secondary water has been shown to save between 25% and 40% in an irrigation system. (https://utahwatermetering.com/faqs) Using the conservative amount of water savings of 25% and subtracting out the water losses from the end of canal spillage and canal seepage the calculation for how much water would be saved from metering is shown below. The water savings was estimated to be 230 acre-feet.

$$Metering\ Savings = 0.25\ x\ (1{,}607\ ACFT - 107\ ACFT - 578\ ACFT) = \ \ 230\ ACFT$$

b. Have current operational losses been determined? If water savings are based on a reduction of spills, please provide support for the amount of water currently being lost to spills.

The watermaster estimated that the canal is continuously spilling during the irrigation season at a flow rate between 0.5 – 1 cfs. During a field survey, 0.6 cfs was observed draining from the end of the canal through a 12-inch drain pipe, shown in Figure 5 above.

The calculation for how much water is lost per 90-day irrigation season is shown below. The water loss at the end of the canal from spilling was estimated to be 107 acre-feet.

$$Canal\ Spill = \frac{0.6\ ft^3}{s}\ \ x\frac{acre}{43{,}560\ ft\text{^}2}\ x\frac{24x60x60\ s}{day}x\ \frac{90\ days}{season} = \frac{107\ ACFT}{season}$$

c. *Are flows currently measured at proposed sites and if so, what is the accuracy of existing devices? How has the existing measurement accuracy been established?*

The existing Parshall Flume is installed at the beginning of the canal alignment. Parshall Flumes have an accuracy of ±2%. The State of Utah Division of Water Rights manages the calibration and accuracy of the flume. In the past they have calibrated the flume every few years and will calibrate when WMCD requests.

d. *Provide detailed descriptions of all proposed flow measurement devices, including accuracy and the basis for the accuracy.*

Magnetic meters will be used to measure flow throughout the pressurized irrigation system. There will be one flow meter in line with each pump, resulting in four total to measure the flow entering the system. There will also be 30 magnetic meters installed at every diversion to measure the flow leaving the system. Magnetic meters have an accuracy of ±0.5% (https://extension.usu.edu/irrigation/research/accurate-irrigation-water-flow-pipes).

e. *Will annual farm delivery volumes be reduced by more efficient and timely deliveries? If so, how has this reduction been estimated?*

The pressurized system will make water available on demand, which will likely reduce delivery volumes by making them more efficient and timely. However, no reduction in water use was calculated as part of this application.

f. *How will actual water savings be verified upon completion of the project?*

Actual water savings will be verified by comparing metered flow measurements at each turnout to flow rates recorded by the metering at the booster pump station. Amounts will be monitored over several years and compared to the Upper Canal usage amounts before project implementation.

E.1.2 Evaluation Criterion B: Renewable Energy (20 Points)

Up to 20 points may be awarded based on the extent to which the project increases the use of renewable energy or otherwise results in increased energy efficiency and reduced greenhouse gas emissions.

For projects that include constructing or installing renewable energy components, please respond to Subcriterion B.1: Implementing Renewable Energy Projects Related to Water Management and Delivery. If the project does not implement a renewable energy project but will increase energy efficiency, please respond to Subcriterion B.2. Increasing Energy Efficiency in Water Management. If the project has separate components that will result in both implementing a renewable energy project and increasing energy efficiency, an applicant may respond to both.

Note: An applicant may receive points under both Subcriterion B.1 and B.2 if the project consists of an energy efficiency component separate from the renewable energy component of the project.

However, an applicant may receive no more than 20 points total under both Subcriterion B.1 and B.2.

E.1.2.1 Subcriterion B.1: Implementing Renewable Energy Projects Related to Water Management and Delivery

Up to 20 points may be awarded for projects that are installing new renewable energy capacity.

Not applicable. This project does not install any new renewable energy capacity.

AND/OR

E.1.2.2 Subcriterion B.2: Increasing Energy Efficiency in Water Management

Up to 6 points may be awarded for projects that address energy demands and reduce greenhouse gas emissions by retrofitting equipment to increase energy efficiency and/or through water conservation improvements that result in reduced pumping or diversions.

Describe any energy efficiencies that are expected to result from implementation of the water conservation or water efficiency project.

- *If quantifiable energy savings are expected to result from the project, please provide sufficient details and supporting calculations. If quantifying energy savings, please state the estimated amount in kilowatt hours per year.*

It is estimated that 55,380 kWh/year will be saved from project implementation. Of the 30 diversions located along the Upper Canal, 14 have individual pumps that provide water to wheel, hand, and pivot sprinkler lines. These pumps irrigate approximately 710 acres. These small pumps are not routinely maintained and are estimated to have efficiencies of less than 70%. The proposed pump station has an operating efficiency of 85%, which will reduce electricity consumption. The duty value for this area of Utah is 3 acre-feet annually per acre. Water needs to be lifted 100 ft or 43 psi for sprinkler irrigation. It takes 146 kWh to lift one acre-foot 100 ft with a 70% efficient pump (cetulare.ucanr.edu/files/82040.pdf). It takes 120 kWh to lift one acre-foot 100 ft with an 85% efficient pump. Calculations are shown below.

$$Existing\ Energy\ Usage = 710\ acres\ x\ \frac{3\ acre-feet}{acre/year}\ x\ \frac{146\ kWh}{acre-feet} = 310{,}980\ \frac{kWh}{year}$$

$$Projected\ Energy\ Usage = 710\ acres\ x\ \frac{3\ acre-feet}{acre/year}\ x\ \frac{120\ kWh}{acre-feet} = 255{,}600\ \frac{kWh}{year}$$

$$Energy\ Savings = 310{,}980 - \ 255{,}600 = 55{,}380\ \frac{kWh}{year}$$

- *How will the energy efficiency improvement combat/offset the impacts of climate change, including an expected reduction in greenhouse gas emissions.*

The total CO_2 equivalent emissions that will be saved from project implementation are estimated to be 16,016 kg/year. These emission savings come from driving fewer miles to monitor the canal and energy savings from improved pump efficiencies.

By enclosing the open canal, the frequency of physical monitoring and site visits can be reduced. This decreases vehicle travel by an estimated 5 trips per week at 10 miles per trip for 17 weeks during the year. A diesel off-road truck with an efficiency of 10 miles per gallon is assumed.

$$Diesel\ Saved = 10\ \frac{miles}{trip}\ x\ 5\ \frac{trips}{week}\ x\ 17\ \frac{weeks}{year}\ x\ \frac{gallons}{10\ miles} = 85\ \frac{gallons}{year}$$

Using the EPA simplified GHG Emissions Calculator, the total CO_2 equivalent emissions that will be saved from saving 85 gallons of diesel is 16 kg/year. Using the same EPA calculator, the total CO_2 equivalent emissions that will be saved by improving pump efficiencies, which save 55,380 kWh/year, is 16,000 kg/year.

- *If the project will result in reduced pumping, please describe the current pumping requirements and the types of pumps (e.g., size) currently being used. How would the proposed project impact the current pumping requirements and energy usage?*

Of the 30 diversions located along the Upper Canal, 14 have individual pumps that provide water to wheel, hand, and pivot sprinkler lines. These pumps irrigate approximately 710 acres. These small pumps are not routinely maintained and are estimated to have efficiencies of less than 70%. The proposed pump station has an operating efficiency of 85%, which will reduce electricity consumption. Calculations are shown above.

- *Please indicate whether your energy savings estimate originates from the point of diversion, or whether the estimate is based upon an alternate site of origin.*

Energy savings originate from consolidating 14 small individual pumps at various locations along the canal alignment to one booster pump station at the beginning of the canal.

- *Does the calculation include any energy required to treat the water, if applicable?*

Not applicable.

- *Will the project result in reduced vehicle miles driven, in turn reducing greenhouse gas emissions? Please provide supporting details and calculations.*

By enclosing the open canal, the frequency of physical monitoring and site visits can be reduced. This decreases vehicle travel by an estimated 5 trips per week at 10 miles per trip for 17 weeks during the year. Calculations for emissions savings are above.

- *Describe any renewable energy components that will result in minimal energy savings/production (e.g., installing small-scale solar as part of a SCADA system).*

There are sensors, meters, and valves that will need to be operated using solar as part of the SCADA system that will be implemented for the pressurized system.

E.1.3 Evaluation Criterion C: Sustainability Benefits (15 points)

Up to 15 points may be awarded under this criterion. This criterion prioritizes projects that address a specific water and/or energy concern(s), including enhancing drought resilience and sustainability, addressing the current and future impacts of climate change, and providing ecological benefits.

Resilience and Sustainability Benefits. *Will the project address a specific water and/or energy sustainability concern? Please address the following:*

- *Explain and provide detail of the specific issue(s) in the area that is impacting water resilience and sustainability. Consider the following:*
    - *Describe recent, existing, or potential drought or water scarcity conditions in the project area.*
    - *Is the project in an area that is experiencing, or recently experienced, drought or water scarcity?*

This project is in the watershed of the Great Salt Lake, which has critically low water levels. Project water comes from the Hyrum Reservoir, which does not have a large storage capacity; therefore, WMCD can experience water scarcity conditions during drought years.

    - *Describe any projected increases to the severity or duration of drought or water scarcity in the project area. Provide support for your response (e.g., reference a recent climate informed analysis, if available).*

Current drought/water scarcity conditions have adversely impacted the local economy and environment. It is expected that these events will only continue to increase in frequency and severity as a result of anthropogenic climate change. This climate-informed analysis is based on the EPA's Climate Adaptation Plan (October 2021), which goes over multiple issues that climate change influences in the water sector, including drought/water scarcity.

- *Explain and provide detail of the specific issue(s) in the area that is impacting energy sustainability, such as reliance on fossil fuels, pollution, or interruptions in service.*

As shareholders within Wellsville City limits run out of surface irrigation provided by the Upper Canal, they turn to using culinary water for irrigation. The Wellsville City culinary system relies on groundwater pumping in the summer months. Energy sustainability is adversely impacted by heavy reliance on groundwater pumping in the area, particularly when surface irrigation water is low. The more groundwater pumping occurs, the more fossil fuels are released into the atmosphere.

- *Please describe how the project will directly address the concern(s) stated above.*

By reducing the seepage and evaporation losses in the canal, the project will increase the irrigation water supply later into the growing season and will reduce the local demand for groundwater pumping. This will result in a direct reduction in fossil fuel pollution and improve energy sustainability in the region.

- *Will the project directly result in more efficient management of the water supply? For example, will the project provide greater flexibility to water managers, resulting in a more efficient use of water supplies?*

This project will directly result in more efficient water supply management. Pressurizing and metering the water supply allows for flexibility for the water managers and shareholders. Water can be used efficiently and fairly with the additional usage data that will be provided at each turnout.

- *Please address where any conserved water as a result of the project will go and how it will be used, including whether the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortages that impact diversions or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use.*
    - *Indicate the quantity of conserved water that will be used for the intended purpose(s).*
    - *Provide a description of the mechanism that will be used, if necessary, to put the conserved water to the intended use.*

Where the conserved water will go will vary from year to year. It will depend on rainfall during the irrigation season and available storage in the Hyrum Reservoir. The conserved water will first be used to address shortages that occur in the late season. It is also expected that conserved water will remain in the Hyrum Reservoir some seasons, which adds greater flexibility in the water use. Stored water could be used for multiple purposes, including improved stream flows in the Bear River that contribute to the Bear River Migratory Bird Refuge and the Great Salt Lake.

Currently, the state of Utah is incorporating a new water leasing program, with a primary goal being to improve the water levels in the Great Salt Lake, which have been decreasing in the past several years due to lower inflows to the lake.

Water conserved due to the construction of the proposed project would remain in Hyrum Dam and, with the proper agreements, released to the Little Bear River and shepherded down to the Great Salt Lake in accordance with the policies and procedures provided by the governing entity developed in the coming seasons. Records of increased releases and shepherding actions would be the mechanism by which the benefit of this water would be accounted for. It is anticipated that the amount of water dedicated to this purpose would vary based on the year according to climatic conditions, user needs, and WMCD decisions.

- *Will the project assist States and water users in complying with interstate compacts?*

Not applicable.

- *Will the project help to prevent a water-related crisis or conflict? Is there frequently tension or litigation over water in the basin?*

The project will help to prevent water-related conflicts within the canal company. Conflicts arise within the district regarding water consumption; the uncertainty due to unmeasured diversions does

not allow for data-driven decisions and discussions. The implementation of metered diversions will allow for data-driven operations and decrease conflicts that arise from inaccurate assumptions.

This project will also set an example to other canal companies and water districts in the region that implementing conservation measures is a worthwhile course of action.

Ecological Benefits. *In addition to the separate WaterSMART Environmental Water Resources Projects NOFO, this NOFO places a priority on projects that result in ecological benefits, through this section and other sections above, consistent with the SECURE Water Act. Please provide information regarding how the project will provide ecosystem benefits, including the following:*

- *Will the project benefit species (e.g., federally threatened or endangered, a federally recognized candidate species, a state listed species, or a species of particular recreational, or economic importance)? Please describe the relationship of the species to the water supply, and whether the species is adversely affected by a Reclamation project or is subject to a recovery plan or conservation plan under the Endangered Species Act (ESA).*

There is the potential for suitable habitat to occur for the following species identified using the USFWS ECOS IPaC system: Ute Ladies'-Tresses (Spiranthes diluvialis), Yellow-billed Cuckoo (Coccyzus americanus), and Monarch Butterfly (Danaus plexippus). A full evaluation of impacts to these Federally listed species will be completed during the environmental compliance process. While the project does not have any component tied to the protection of a specific species, the increased volume of water in the Little Bear River will benefit the native aquatic ecosystem including any protected species that may be present. This also benefits the Bear River Migratory Bird Refuge and the Great Salt Lake.

- *Will water remain in the system for longer periods of time? If so, provide details on current/future durations and any expected resulting benefits (e.g., maintaining water temperatures or water levels, recreational benefits, etc.).*

Once this project is implemented, water will remain in the Hyrum Reservoir for longer periods. Maintaining consistent water levels in Hyrum Reservoir benefits recreation and can lead to releases that head downstream to the Bear River Migratory Bird Refuge and the Great Salt Lake.

- *Will the proposed project reduce the likelihood of a species listing or otherwise improve the species status?*

While the project does not have any component tied to the protection of a specific species, the increased volume of water in the Little Bear River will benefit the native aquatic ecosystem, including any protected species that may be present.

- *Please describe any other ecosystem benefits as a direct result of the project.*

Enclosing/piping the Upper Canal will have a direct benefit to the local ecosystem in multiple ways. First, disturbances associated with open channel canals such as erosion and sedimentation will be eliminated. Second, nutrient loading into the water as a result of erosion will also be reduced, resulting in the overall improvement of local water quality at discharge points. Reducing

open channel disturbances will also provide greater protection for existing riparian corridors along the length of the canal and allow additional native botanical species to take root.

Note: Projects that are intended to improve streamflows or aquatic habit, and that are requesting $500,000 or more in Federal funding, must include information about plans to monitor the benefits of the project. Please describe the plan to monitor improved streamflows or aquatic habit benefits over a five-year period once the project has been completed. Provide detail on the steps to be taken to carry out the plan.

Climate Change: *E.O. 14008 emphasizes the need to prioritize and take robust actions to reduce climate pollution; increase resilience to the impacts of climate change; protect public health; and conserve our lands, waters, oceans, and biodiversity.*

- *Describe how the project addresses climate change and increases resiliency. For example, does the project help communities adapt to bolster drought resilience?*

This project addresses climate change and increases drought resiliency by efficiently using water in a closed system that will no longer lose water from seepage or end-of-system spillage. This helps the shareholders adapt to volatile weather patterns and maintain their livelihoods. In addition to this, the conserved water will reduce the demand for groundwater pumping in the area and, in turn, reduce the GHG emissions released in the area. Also, the proposed project will reduce erosion and sedimentation concerns associated with open channel canals and allow more native riparian vegetation to thrive, increasing the area's ability to sequester carbon dioxide, which is a greenhouse gas.

- *Does the project seek to improve ecological resiliency to climate change?*

This project is one of many in the state of Utah that is involved in the Agricultural Water Optimization Program, which aims to conserve water to improve the ecosystem of the Great Salt Lake. By efficiently using water, irrigators can maintain production while diverting less water. More efficient water use in the project area will keep more water in the ecosystem, which will serve as a critical buffer against the impacts of climate change in the future.

- *Does the proposed project seek to reduce or mitigate climate pollutions such as air or water pollution?*

With the implementation of this project, at least one shareholder plans to change their irrigation method from flood irrigation to sprinkler irrigation. This will reduce water pollution that can be created from run-off from flood irrigation. Piping the canal will also reduce water pollution by preventing sedimentation and nutrient loading into the canal water. This will result in improved water quality in the local waterbodies the Upper Canal discharges into, which will, in turn, improve habitat viability for aquatic invertebrates, fish, and vegetation. The proposed project will serve as an important example of how a single action can initiate a "chain reaction" in an ecosystem, improving multiple aspects of the environment despite only one component being directly impacted.

- *Does the proposed project include green or sustainable infrastructure to improve community climate resilience?*

Not applicable.

- *Does the proposed project contribute to climate change resiliency in other ways not described above?*

As project stakeholders witness the benefits of the proposed project, it can be used as an example for future projects in the area, making resilience to climate change and sustainability an essential component considered for similar projects.

E.1.4 Evaluation Criterion D: Disadvantaged Communities, Insular Areas, and Tribal Benefits (15 points)

Up to 15 points may be awarded based on the extent that the project demonstrates support for the Biden-Harris Administration's priorities, including E.O. 14008: Tackling the Climate Crisis at Home and Abroad and the President's memorandum, Tribal Consultation and Strengthening Nation-to-Nation Relationships.
Please address only those priorities that are applicable to your project. It is not necessary to address priorities that are not applicable to your project. A project will not necessarily receive more points simply because multiple priorities are addressed. Points will be allocated based on the degree to which the project supports one or more of the priorities listed, and whether the connection to the priority(ies) is well supported in the application.

E.1.4.1 Subcriterion D.1: Disadvantaged Communities

E.O. 14008 affirms the advancement of environmental justice for all through the development and funding of programs to invest in disadvantaged communities. This criterion, which is used to identify projects that advance the Justice 40 Initiative, includes all Federally recognized Tribes and Tribal entities, and any disadvantaged communities in insular areas (American Samoa, Guam, the Northern Mariana Islands, or the Virgin Islands) identified pursuant to the following criteria.

- *Please use the White House Council on Environmental Quality's interactive Climate and Economic Justice Screening Tool (CEJST), available online at Explore the map Climate & Economic Justice Screening Tool (screeningtool.geoplatform.gov/en/#17.59/36.63278/-105.181329) to identify any disadvantaged communities that will benefit from your project. The CEJST developed by the White House Council on Environmental Quality is a geospatial mapping tool that utilizes publicly available, nationally consistent data sets related to climate change, the environment, health, and economic opportunity to identify disadvantaged communities. In addition to identifying specific census tracts that are disadvantaged, the CEJST includes the lands of Federally recognized Tribes as disadvantaged communities. In addition, regardless of whether a Federally recognized Tribe has land, all Federally recognized Tribal entities are considered disadvantaged communities for the purposes of the Justice40 Initiative.2*
- *If applicable, describe how the proposed project will serve or benefit a disadvantaged community, identified using the tool. For example, will the project improve public health and*

safety by addressing water quality, add new water supplies, provide economic growth opportunities, or provide other benefits in a disadvantaged community?

The project area is not located in an area with disadvantaged communities according to the criteria of the CEJST. However, the project does have the potential to increase instream flow to the Great Salt Lake, which would benefit the whole region, including disadvantaged communities. Also, it should be noted that the CEJST lists the project area above the 70th percentile in Expected Agricultural Rate Loss (73rd) and Projected Wildfire Risk (79th) and above the 80th percentile for Expected population rate loss (87th) and in Transportation barriers (83rd). Disadvantaged communities are in the 90th percentile or higher.

E.1.4.1 Subcriterion D.1: Tribal Benefits

The Department is committed to strengthening tribal sovereignty and the fulfillment of Federal Tribal trust responsibilities. The President's memorandum "Tribal Consultation and Strengthening Nation-to-Nation Relationships" asserts the importance of honoring the Federal government's commitments to Tribal Nations. Address the following, if applicable:

- *Does the proposed project directly serve and/or benefit a Tribe? Will the project increase water supply sustainability for an Indian Tribe? Will the project provide renewable energy for an Indian Tribe?*
- *Does the proposed project support Tribal led conservation and restoration priorities, and/or incorporate or benefit indigenous traditional knowledge and practices?*
- *Does the proposed project directly support tribal resilience to climate change and drought impacts or provide other tribal benefits such as improved public health and safety through water quality improvements, new water supplies, increased renewable energy, or economic growth opportunities? Does the proposed project support Reclamation's Tribal trust responsibilities or a Reclamation activity with a Tribe?*

While the project does not directly impact or benefit a Tribe. The project does have the potential to increase in-stream flow to the Bear River and benefit other Bear River water users, including the Northwestern Band of the Shoshone.

E.1.5 Evaluation Criterion D: Complementing On-Farm Irrigation Improvements (8 points)

Up to 8 points may be awarded for projects that describe in detail how they will ***complement on-farm irrigation improvements*** *eligible for NRCS financial or technical assistance.*

Note: Scoring under this criterion is based on an overall assessment of the extent to which the WaterSMART Grant project will complement ongoing or future on-farm improvements. Applicants should describe any proposal made to NRCS, or any plans to seek assistance from NRCS in the future, and how an NRCS-assisted activity would complement the WaterSMART Grant project. Financial assistance through the Environmental Quality Incentives Program (EQIP) is the most commonly used program by which NRCS helps producers implement improvements to irrigation systems, but NRCS does have additional technical or financial assistance programs that may be available. Applicants may receive maximum points under this criterion by providing the information

described in the bullet points below. ***Applicants are not required to have assurances of NRCS assistance by the application deadline to be awarded the maximum number of points under this sub-criterion.*** *Reclamation may contact applicants during the review process to gather additional information about pending applications for NRCS assistance if necessary.*

Note: On-farm improvements themselves are not eligible activities for funding under this NOFO. This criterion is intended to focus on how the WaterSMART Grant project will complement ongoing or future on-farm improvements. NRCS will have a separate application process for the on-farm components of selected projects that may be undertaken in the future, separate of the WaterSMART Grant project.

If the proposed project will complement an on-farm improvement eligible for NRCS assistance, please address the following:

- *Describe any planned or ongoing projects by farmers/ranchers that receive water from the applicant to improve on-farm efficiencies.*
    - *Provide a detailed description of the on-farm efficiency improvements.*
    - *Have the farmers requested technical or financial assistance from NRCS for the on-farm efficiency projects, or do they plan to in the future?*
    - *If available, provide documentation that the on-farm projects are eligible for NRCS assistance, that such assistance has or will be requested, and the number or percentage of farms that plan to participate in available NRCS programs.*
    - *Applicants should provide letters of intent from farmers/ranchers in the affected project areas.*

The majority of shareholders serviced by the Upper Canal have improved irrigation methods from surface to sprinkle. One individual with an irrigated area of 40 acres intends to switch from flood to sprinkle irrigation through NRCS funding. See the attached letter of intent in Appendix A.

- *Describe how the proposed WaterSMART project would complement any ongoing or planned on-farm improvement.*
    - *Will the proposed WaterSMART project directly facilitate the on-farm improvement? If so, how? For example, installing a pressurized pipe through WaterSMART can help support efficient on-farm irrigation practices, such as drip-irrigation.*

      OR
    - *Will the proposed WaterSMART project complement the on-farm project by maximizing efficiency in the area? If so, how?*

The proposed project will develop a pressurized irrigation system. This supports efficient on-farm irrigation practices by providing pressurized water for sprinkle irrigation methods and eliminating 14 individual pumps with the installation of a more efficient, central pump station.

- *Describe the on-farm water conservation or water use efficiency benefits that are expected to result from any on-farm work.*
    - *Estimate the potential on-farm water savings that could result in acre-feet per year. Include support or backup documentation for any calculations or assumptions.*

If the project takes place, an increase in agricultural efficiency from 40% to 75% can be expected (https://extension.usu.edu/crops/research/irrigation-water-loss-and-recovery). The water conserved due to improved efficiency would likely be used later in the year to increase agricultural yield in the irrigated area. Assuming the shareholder implementing on-farm projects is currently using 40 shares of the 884 total shares of the available 1,607 acre-feet that is available annually, 72 acre-feet is currently being used at an efficiency of 40%, or 29 acre-feet, is making it to the crop. At 75% efficiency, 54 acre-feet of water would make it to the crop. Therefore, 25 acre-feet would be saved and available for irrigation later in the season.

- *Please provide a map of your water service area boundaries. If your project is selected for funding under this NOFO, this information will help NRCS identify the irrigated lands that may be approved for NRCS funding and technical assistance to complement funded WaterSMART projects.*

See Figure 4 for a map of WMCD's service area.

Note: On-farm water conservation improvements that complement the water delivery improvement projects selected through this NOFO may be considered for NRCS funding and technical assistance to the extent that such assistance is available. For more information, including application deadlines and a description of available funding, please contact your local NRCS office. See the NRCS website for office contact information, .www.nrcs.usda.gov/conservation-basics/conservation-by-state/state-office.

E.1.6 Evaluation Criterion F: Readiness to Proceed (8 points)

Up to 8 points may be awarded for this criteria.

Points may be awarded based upon the extent to which the proposed project is capable of commencing upon entering into a financial assistance agreement.

Note: If your project is selected, responses provided in this section will be used to develop the scope of work that will be included in the financial assistance agreement.

Applications that include a detailed project implementation plan (e.g., estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates) will receive the most points under this criterion.

- *Identify and provide a summary description of the major tasks necessary to complete the project. Note: Do not repeat the more detailed technical project description provided in Section D.2.2.2 Application Content. This section should focus on a summary of the major tasks to be accomplished as part of the project.*

Secure Funding

Currently, the WMCD is acquiring funding through the Utah Board of Water Resources in the form of a low-interest loan that will have a limit of $4,000,000. This is expected to be completed by the end of May 2024. WMCD has also applied for a $1,000,000 grant through the Utah Department of Agriculture and Food's Agriculture Water Optimization Program.

Categorical Exclusion/Environmental Assessment

The local reclamation office has been notified about the project, and the expected time for NEPA compliance is no more than a year for an Environmental Assessment. It would be less if it was determined that a Categorical Exclusion will be performed.

Engineering/Design

Engineering design has been completed to 60%. This includes the drawing set and specification documentation.

Project Bidding

The WMCD will follow its contractor procurement process by bidding out the project. Bids will be received and evaluated for completeness, and the most qualified contractor will be selected to perform the construction. Once the contractor is selected, the contract price will be negotiated by starting with the contractor's price submitted with their bid.

Project Construction

The project will be constructed between September and April. This will ensure that the project will not disrupt the irrigation season for shareholders.

Final Reporting

Final reporting will be completed as required by the Bureau of Reclamation if funding is approved. As part of the funding that has been acquired already through the Utah Department of Agriculture and Food, the WMCD will be required to report water measurement data for 3 years post-construction.

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

It is anticipated that work-in-the-right-of-way permits would be required for crossing city and county roads. The WMCD has good working relationships with Cache County and Wellsville City, and this process should go smoothly. The work will be done within the existing canal alignment, which is owned by WMCD. Easements will not be needed, which will streamline the construction process.

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

The pipeline has been sized, pressure class determined, and alignment determined. The booster pump station has been sized with 4 centrifugal pumps. A design package with plans, profiles, details, and specifications has been drafted and is 60% complete. The latest design drawings can be shared upon request.

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

WMCD board and administration have already approved the project and begun work on Phase I of the project. Phase I includes a full design of the project (Phase I and Phase II) and construction of Phase I of the project.

- *Describe the current design status of the project. If additional design work is required prior to construction, describe the planned process and timeline for completing the design work.*

A design package with plans, profiles, details, and specifications has been drafted and is 60% complete. The full design will be completed by March 2024.

- *Please also include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates. Milestones may include, but are not limited to, the following: complete environmental and cultural compliance; mobilization; begin construction/installation; construction/installation (50% complete); and construction/installation (100% complete). Was the expected timeline for environmental and cultural compliance discussed with the local Reclamation Regional or Area Office?*

A meeting was held with the local Reclamation office on January 2, and the expected timeline for environmental and cultural compliance is expected to be 12 months.

Milestone	Date
Project Design	March 2024
Notice of Funding	May 2024
NEPA compliance	May 2024 to April 2025
Project Bidding	May 2025
Project Construction	September 2025 to April 2026
Final Reporting	June 2026

E.1.7 Evaluation Criterion G: Collaboration (5 points)

Up to 5 points may be awarded for projects that promote and encourage collaboration among parties in a way that helps increase the sustainability of the water supply.

Please describe how the project promotes and encourages collaboration. Consider the following:

- *Is there widespread support for the project? Please provide specific details regarding any support and/or partners involved in the project. What is the extent of their involvement in the process?*

Support for this project is widespread in the area and includes Upper Canal water users, Wellsville City, Cache Water District, South Cache Water Users, the Utah Division of Water Resources, and the Utah Division of Agriculture and Food. The Utah Division of Agriculture and Food is funding 50% of Phase I of the project through the Agriculture Water Optimization Program.

- *What is the significance of the collaboration/support?*

The Utah Division of Agriculture and Food is funding 50% of Phase I of the project through the Agriculture Water Optimization Program ($500,000). This project was also considered as part of the Wellsville Canyon Watershed Plan-EA that is being sponsored by the Cache Water District. The WMCD ultimately pulled the Upper Canal Piping project out of consideration in order to complete the project sooner.

- *Will this project increase the possibility/likelihood of future water conservation improvements by other water users?*

This project will increase the possibility for Wellsville City to install a metered secondary irrigation system, which would reduce the demand on the city culinary system.

- *Will the project benefit multiple sectors and/or users (e.g., agriculture, municipal and industrial, environmental, recreation, or others)?*

This project benefits mainly agriculture. It also benefits municipalities as answered in the question above. This project also has the potential to create additional instream flow and create environmental benefits. Because the water is supplied from the Hyrum Reservoir. The conserved water, even if used later in the irrigation season, has the potential to keep the reservoir elevations higher for longer periods which will benefit recreation on the Hyrum Reservoir.

- *Please attach any relevant supporting documents (e.g., letters of support or memorandum of understanding).*

Letters of support have been included in Appendix A.

E.1.8 Evaluation Criterion H: Nexus to Reclamation (4 points)

Up to 4 points may be awarded if the proposed project is connected to a Reclamation project or Reclamation activity. No points will be awarded for proposals without connection to a Reclamation project or Reclamation activity.

Describe the nexus between the proposed project and a Reclamation project or Reclamation activity. Please consider:

- *Does the applicant have a water service, repayment, or operations and maintenance (O&M) contract with Reclamation?*

Hyrum Dam is owned by the Bureau of Reclamation, and, up until recently, the WMCD Upper Canal was also owned by Reclamation. Ownership was transferred to the District in January 2021. The water rights for this project are owned by the Bureau of Reclamation.

- *If the applicant is not a Reclamation contractor, does the applicant receive Reclamation water through a Reclamation contractor or by any other contractual means?*

The South Cache Water Users, of which WMCD is a part, is a Reclamation contractor.

- *Will the proposed work benefit a Reclamation project area or activity?*

Water conservation due to the proposed project would increase storage in Hyrum Dam. Additionally, this project will further link Reclamation to the protection of water resources in Cache Valley, where it is already involved in multiple other projects such as the Trapper Park Logan River Restoration project. This project is also connected to projects in which Reclamation serves as a cooperating agency such as the NRCS Wellsville Canyon Watershed Plan.

- *Is the applicant a Tribe?*

No, the applicant is not a Tribe

Performance Measures

Provide a brief summary describing the performance measure that will be used to quantify actual benefits upon completion of the project (e.g., water saved or better managed, energy generated or saved). For more information calculating performance measure, see Appendix A: Benefit Quantification and Performance Measure Guidance.

All Water and Energy Efficiency Grants applicants are required to propose a "performance measure" (a method of quantifying the actual benefits of their project once it is completed). A provision will be included in all assistance agreements with Water and Energy Efficiency Grants recipients describing the performance measure and requiring the recipient to quantify the actual project benefits in their final report to Reclamation upon completion of the project. If information regarding project benefits is not available immediately upon completion of the project, the financial assistance agreement may be modified to remain open until such information is available and until a Final Report is submitted. Quantifying project benefits is an important means to determine the

relative effectiveness of various water management efforts, as well as the overall effectiveness of Water and Energy Efficiency Grants.

Note: Program funding may be used to install necessary equipment to monitor progress. However, program funding may not be used to measure performance after project construction is complete (these costs are considered normal operation and maintenance costs and are the responsibility of the applicant).

The performance metric for project conservation improvements will be a record of delivered flow and measured diversions. The difference between these two amounts will quantify the total amount of conveyance losses. With the installation of meters at all irrigation turnouts, recording irrigation deliveries will be much easier and more efficient.

Budget Narrative

In the budget detail and narrative section, applicants should describe and justify requested budget items and costs. Applicants should provide details to support the SF-424A, "Object Class" categories or the SF-424C, "Cost Classification" categories. The budget narrative must clearly identify all items of cost (total estimated project cost), including those contributed as non-Federal cost share by the applicant (required and voluntary), third-party in-kind contributions, and those covered using the funding requested from Reclamation, and any requested pre-award costs.

The total project cost is the sum of all allowable items of costs, including all required cost sharing and voluntary committed cost sharing, including third-party contributions necessary to complete the project. Applicants must include detailed descriptions of all cost justifications (see Reclamation's suggested format in Attachment B for more detail). Costs, including the valuation of third-party in-kind contributions, must comply with the applicable cost principles contained in 2 CFR, §200.

Note: The Budget Narrative Attachment Form in Grants.gov is to be used to upload the budget proposal.

Pre-Award Costs

Pre-award costs are those incurred prior to the effective date of a Federal award where such costs are necessary for efficient and timely performance of the scope of work. Such costs are allowable only to the extent that they would have been allowable if incurred after the date of the Federal award.

Eligible pre-award costs associated with the proposed project must be incurred after the posting date of this funding opportunity and are limited to costs related to the planning and design of the project including, but not limited to, engineering and design, modeling, environmental and cultural studies, and permitting. If the proposed project is selected, the pre-award costs will be reviewed to determine if they are consistent with program objectives and are allowable in accordance with the authorizing legislation. Proposed pre-award costs must also be compliant with all applicable administrative and cost principles criteria established in 2 CFR Part §200 and all other requirements of this funding opportunity.

Note: Any incurrence of costs in the performance of the project prior to the issuance of a financial assistance award is at the applicant's own risk. No legal liability on the part of Reclamation for any payment may arise until funds are made available, in writing, by a Reclamation Grants Officer.

Project Cost Restrictions

Proposal costs. The costs for preparing and submitting an application in response to this funding opportunity, including developing data necessary to support the proposal, are not eligible project costs and must not be included in the project budget.

Monitoring costs. Long-term (i.e., more than six months) post-construction monitoring is considered normal operation and maintenance, and the costs are the responsibility of the applicant.
Other project costs. The costs for the purchase of water or land, or to secure an easement other than a construction easement, are not eligible project costs under this funding opportunity.

Environmental and Regulatory Compliance Costs

Depending on the potential impacts of the project, Reclamation may be able to complete its compliance activities without additional cost to the successful applicant. Where environmental or cultural resources compliance requires significant participation by Reclamation, Reclamation will add a line item for costs incurred by Reclamation to the budget during development of the financial assistance agreement and cost shared accordingly (i.e., withheld from the Federal award amount). Any costs to the successful applicant associated with compliance will be identified during the process of developing a final project budget for inclusion in the financial assistance agreement.

Indirect Costs

You may include indirect costs that will be incurred during the development or construction of a Project, which will not otherwise be recovered, as part of your Project budget. Show the proposed rate, cost base, and proposed amount for allowable indirect costs based on the applicable cost principles for your organization. It is not acceptable to simply incorporate indirect rates within other direct cost line items.

If you do not have a current Federal negotiated indirect cost rate, your budget may include a de minimis rate of up to 10 percent of modified total direct costs. For further information on modified total direct costs, refer to 2 CFR§200.1.

If you do not have a federally approved indirect cost rate agreement and are proposing a rate greater than the de minimis 10 percent rate, include the computational basis for the indirect expense pool and corresponding allocation base for each rate. Information on "Preparing and Submitting

Indirect Cost Proposals" is available from the Department's IBC, Office of Indirect Cost Services, at ibc.doi.gov/ICS.

If the proposed project is selected for award, the successful applicant will be required to submit an indirect cost rate proposal with their cognizant agency within 3 months of award. The Federal awarding agency that provides the largest amount of direct funding to your organization is your cognizant agency for indirect costs, unless otherwise assigned by the White House Office of Management and Budget (OMB). If the Department is your organization's cognizant agency, the IBC will negotiate your indirect cost rate. Contact the IBC by phone 916-930-3803 or email at ICS@ibc.doi.gov. Visit their website ibc.doi.gov/ICS, for information regarding email submission forms.

Organizations must have an active Federal award before they can submit an indirect cost rate proposal to their cognizant agency. Failure to establish an approved rate during the award period renders all costs otherwise allocable as indirect costs unallowable under the award. Recipients may not shift unallowable indirect costs to another Federal award unless specifically authorized to do so by legislation.

Environmental and Cultural Resource Considerations

To allow Reclamation to assess the probable environmental and cultural resources impacts and costs associated with each application, all applicants should consider the following list of questions focusing on the NEPA, ESA, and NHPA requirements. Please answer the following questions to the best of your knowledge. If any question is not applicable to the project, please explain why. The application should include the answers to:

Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.

Construction of the proposed project would minimally impact the surrounding environment. It is anticipated that construction will take place outside the irrigation season, so no impacts to irrigation delivery or other water would occur. Soil disturbance would be limited to the current canal alignment and required only to excavate and bury the irrigation pipeline as well as excavate the area for the pump station. Air quality could be temporarily reduced due to construction machinery emissions and dust as a result of soil disturbance. Best practices will be implemented to reduce the impact on air quality.

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?

There are three endangered species listed in Cache County that could be affected by the project: Ute Ladies'-Tresses (Spiranthes diluvialis), Yellow-billed Cuckoo (Coccyzus americanus), and

Monarch Butterfly (Danaus plexippus). Before the project begins, a registered environmental consultant will perform all required environmental surveys to ensure no species are within the project 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.

Currently, it is not expected that there are any wetlands or surface water that fall under the CWA inside the project boundaries. Before construction begins, a registered environmental consultant will perform all required environmental surveys to ensure no protected wetlands are affected.

When was the water delivery system constructed?

The water delivery system was constructed in 1933.

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.

Yes. The existing canal and turnouts will be removed and replaced with a pressurized system. The canal was constructed in 1933, and individual turnouts have been modified and updated throughout the years. No records are available that detail when structures have been modified.

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.

The Utah State Historic Preservation Office has submitted a concurrence letter to a survey conducted by UDAF as part of the agricultural water optimization grant, which determined that the Upper Canal is eligible for listing on the NRHP. Discussions surrounding mitigation have been conducted with a local Reclamation official, and measures have been included as part of the project budget.

Are there any known archeological sites in the proposed project area?

No known archaeological sites are located in the proposed project area.

Will the proposed project have a disproportionate and adverse effect on any communities with environmental justice concerns?

No adverse effects are anticipated due to project construction.

Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?

No known Native American sites are located in the project area, and no tribes are currently affiliated with the project area.

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, the project will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native species known to occur in the area.

Required Permits or Approvals

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

Note: Improvements to Federal facilities that are implemented through any project awarded funding through this NOFO must comply with additional requirements. Reclamation may also require additional reviews and approvals prior to award to ensure that any necessary easements, land use authorizations, or special permits can be approved consistent with the requirements of 43 CFR §429 and that the development will not impact or impair project operations or efficiency.

It is anticipated that work-in-the-right-of-way permits would be required for crossing city and county roads. The WMCD has good working relationships with Cache County and Wellsville City, and this process should go smoothly. As the work will be done on land owned by WMCD, this process should be straightforward.

Overlap or Duplication of Effort Statement

Applicants should provide a statement that addresses if there is any overlap between the proposed project and any other active or anticipated proposals or projects in terms of activities, costs, or commitment of key personnel. If any overlap exists, applicants must provide a description of the overlap in their application for review.

Applicants should also state if the proposal submitted for consideration under this program does or does not in any way duplicate any proposal or project that has been or will be submitted for funding consideration to any other potential funding source—whether it be Federal or non-Federal. If such a circumstance exists, applicants must detail when the other duplicative proposal(s) were submitted, to whom (Agency name and Financial Assistance Program), and when funding decisions are expected to be announced. If at any time a proposal is awarded funds that would be duplicative of the funding requested from Reclamation, applicants must notify the NOFO point of contact or the Program Coordinator immediately.

No overlap between the proposed project and other efforts exists. Funding from the Utah Department of Agriculture and Food's Agricultural Water Optimization Program has been secured, and another round of funding has been applied for. Even if all requested funds are secured, no duplication of funds will occur. WMCD would still be responsible for 10% of total project costs.

Conflict of Interest Disclosure Statement

Per 2 CFR §1402.112, "Financial Assistance Interior Regulation" applicants should state in the application if any actual or potential conflict of interest exists at the time of submission. Submission of a conflict-of-interest disclosure or certification statement is mandatory prior to issue of an award.

Applicability

This section intends to ensure that non-Federal entities and their employees take appropriate steps to avoid conflicts of interest in their responsibilities under or with respect to Federal financial assistance agreements.

In the procurement of supplies, equipment, construction, and services by recipients and by sub recipients, the conflict of interest provisions in 2 CFR §200.318 apply.

No conflict of interest has been identified.

Notification

Non-Federal entities, including applicants for financial assistance awards, must disclose in writing any conflict of interest to the DOI awarding agency or pass- through entity in accordance with 2 CFR §200.112.

Recipients must establish internal controls that include, at a minimum, procedures to identify, disclose, and mitigate or eliminate identified conflicts of interest. The successful applicant is responsible for notifying the Financial Assistance Officer in writing of any conflicts of interest that may arise during the life of the award, including those that have been reported by sub recipients.

No conflict of interest has been identified. Any that arise will be communicated to the appropriate parties.

Restrictions on Lobbying

Non-Federal entities are strictly prohibited from using funds under a grant or cooperative agreement for lobbying activities and must provide the required certifications and disclosures pursuant to 43 CFR §18 and 31 USC §1352.

No lobbying will take place.

Review Procedures

The Financial Assistance Officer will examine each conflict of interest disclosure on the basis of its particular facts and the nature of the proposed grant or cooperative agreement, and will determine whether a significant potential conflict exists and, if it does, develop an appropriate means for resolving it. Enforcement. Failure to resolve conflicts of interest in a manner that satisfies the government may be cause for termination of the award. Failure to make required disclosures may result in any of the remedies described in 2 CFR §200.339, Remedies for noncompliance, including suspension or debarment (see also 2 CFR §180).

There are no conflicts of interest for this project.

Uniform Audit Reporting Statement

All U.S. states, local governments, federally recognized Indian Tribal governments, and nonprofit organizations expending $750,000 USD or more in Federal award funds in the applicant's fiscal year must submit a Single Audit report for that year through the Federal Audit Clearinghouse's Internet Data Entry System. U.S. state, local government, federally recognized Indian Tribal governments, and non-profit applicants must state if your organization was or was not required to submit a Single Audit report for the most recently closed fiscal year. If your organization was required to submit a Single Audit report for the most recently closed fiscal year, provide the Employer Identification Number (EIN) associated with that report and state if it is available through the Federal Audit Clearinghouse website.

WMCD was not required to submit a Single Audit report.

Certification Regarding Auditing

Applicants requesting more than $100,000 in Federal funding must certify to the statements in 43 CFR §18, Appendix A. If this application requests more than $100,000 in Federal funds, the authorized official's signature on the appropriate SF-424 form also represents the applicant's certification of the statements in 43 CFR § 18, Appendix A.

Disclosure of Lobbying Activities (if applicable)

If applicable, a fully completed and signed SF-LLL: Disclosure of Lobbying Activities form is required if the applicant has made or agreed to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered

Federal action. ***This form cannot be submitted by a contractor or other entity on behalf of an applicant.***

Letters of Support

You should include any letters from interested stakeholders supporting the proposed project. To ensure your proposal is accurately reviewed, please attach all letters of support as an appendix. Letters of support received after the application deadline for this NOFO will not be considered in evaluating your proposed project. These letters do not count within the 125-page maximum.

Letters of support are included in Appendix A.

Letter of Partnership

Category B applicants should submit a letter from the Category A partner, stating that they are acting in partnership with the applicant and agree to the submittal and content of the application (see Section C.1. Eligible Applicants). However, if the project is selected, a Letter of Partnership must be received prior to the award.

Letter of partnership is included in Appendix A.

Official Resolution

If selected, the applicant must provide prior to award an official resolution adopted by your organization's board of directors or governing body, or, for state government entities, an official authorized to commit the applicant to the financial and legal obligations associated with receipt of a financial assistance award under this NOFO, verifying:

- *The identity of the official with legal authority to enter into an agreement*
- *The board of directors, governing body, or appropriate official who has reviewed and supports the application submitted*
- *That your organization will work with Reclamation to meet established deadlines for entering into a grant or cooperative agreement*

An official resolution meeting the requirements set forth above is mandatory before an award of funding will be made.

The signed Official Resolution is in Appendix B.

Letters of Funding Commitment

If a project is selected for award under this funding opportunity and cost share funding is anticipated to be provided by a source other than the applicant, the third-party cost share must be supported with letters of commitment prior to award. Letters of commitment should identify the following elements:

- *The amount of funding commitment*
- *The date the funds will be available to the applicant*
- *Any time constraints on the availability of funds*
- *Any other* contingencies associated with the funding commitment

Cost-share funding from sources outside the applicant's organization (e.g., loans or State grants) should be secured and available to the applicant prior to award.

Reclamation will not execute a financial assistance agreement until non-Federal funding has been secured or Reclamation determines that there is enough evidence and likelihood that non-Federal funds will be available to the applicant after executing the agreement.

This project has no third-party cost-sharing funds.

Appendix A

Letters of Support and Partnership

State of Utah

SPENCER J. COX
Governor

DEIDRE M. HENDERSON
Lieutenant Governor

Department of Natural Resources

JOEL FERRY
Executive Director

Division of Water Resources

CANDICE A. HASENYAGER
Division Director

July 18, 2022

Quinn Murray
President
Wellsville-Mendon Conservation District
P.O. Box 70
Wellsville, UT 84339

Re: WaterSMART: Water & Energy Efficiency Grants – Wellsville-Mendon Upper Canal Project

Dear Mr. Murray:

The Utah Division of Water Resources understands that the Wellsville-Mendon Conservation District is seeking federal funds through the Bureau of Reclamation's WaterSMART grant program to line portions of the district's Upper Canal. I am writing this letter to express the division's support for this project.

As an agency, our mission is to plan, conserve, develop and protect Utah's water resources. This project fits within this mission nicely. Over the years, the Division has assisted numerous irrigation companies complete similar projects. Therefore, I am happy to recommend that the Bureau of Reclamation fund this project.

Respectfully,

Todd Stonely

Todd Stonely, P.E.
Assistant Director

1594 West North Temple, Suite 310, PO Box 146201, Salt Lake City, UT 84114-6201
telephone (801) 538-7230 • facsimile (801) 538-7279 • TTY (801) 538-7458 • *www.water.utah.gov*

Quinn Murray
President
Wellsville-Mendon Conservation District
P.O. Box 70
Wellsville, UT 84339

Re: Wellsville-Mendon Upper Canal Project

Dear Mr. Murray:

As Mayor of Wellsville City, I want to offer support to piping the unlined portions of the Upper Canal which is being considered by the Wellsville-Mendon Conservation District. Although Wellsville-Mendon Conservation District and Wellsville City are separate entities, we can and will support each other in providing the best possible service to the residents of Wellsville City.

As a city, we are encouraged by Wellsville-Mendon Conservation District's desire to improve upon the existing Upper Canal which runs through Wellsville City. These improvements will enhance water conservation and improve water delivery efficiencies.

Our Council is excited about this opportunity and how it would benefit the community today and for future generations.

Sincerely,

Thomas Bailey
Mayor of Wellsville City

7/26/22
Date

CACHE WATER DISTRICT

Quinn Murray
President
Wellsville-Mendon Conservation District
P.O. Box 70
Wellsville, UT 84339

Re: Wellsville-Mendon Upper Canal Project

Dear Mr. Murray:

As Manager of Cache Water District, I want to offer support to piping the unlined portions of the Upper Canal which is being considered by the Wellsville-Mendon Conservation District. Cache Water District is supportive of water conservation efforts throughout all of Cache County. This project will add considerable water conservation measures to the south end of Cache Valley, Utah.

Our board is excited about this project and how it will benefit the Wellsville-Mendon Conservation District, its shareholders, and the surrounding community today and future generations.

Sincerely,

Nathan Daugs
Manager, Cache Water District

1-18-22
Date

Quinn Murray
President
Wellsville-Mendon Conservation District
P.O. Box 70
Wellsville, UT 84339

Re: Wellsville-Mendon Upper Canal Project

Dear Mr. Murray:

As President of South Cache Water Users, I want to offer support to piping the unlined portions of the Upper Canal which is being considered by the Wellsville-Mendon Conservation District. The improvements would add considerable water conservation measures to the South Cache Water Users Association.

Our board is excited about this opportunity and how it would benefit the South Cache Water Users and the community today and in the future.

Sincerely,

Thomas Bailey
President, South Cache Water Users Association

7/26/22
Date

Mr. Quinn Murray
President
Wellsville-Mendon Conservation District
P.O. Box 70
Wellsville, Utah 84339

Re: Wellsville-Mendon Upper Canal Project

Dear Mr. Murray:

I am writing this letter to show my support for the Conservation District in pursuing the enclosure of the Upper Canal and funding from the Bureau of Reclamation. The project will be beneficial to me personally and to our community.

If this project were to proceed and be completed, I will seek to make on-farm irrigation improvements through personal and/or NRCS funding for 40 acres.

Sincerely,

Kirt Lindley KIRT LINDLEY
Sign and Write Name

July 26-22
Date

Appendix B

Signed Official Resolution

OFFICIAL RESOLUTION
OF THE
Wellsville-Mendon Conservation District

RESOLUTION NO. 2022 - 1

WHEREAS, the United States Department of the Interior, Bureau of Reclamation has announced the *WaterSMART Water and Energy Efficiency Grants* in order to prevent water supply crises and ease conflict in the western United States, and has requested proposals from eligible entities to be included in the WaterSMART Program, and

WHEREAS, the Wellsville-Mendon Conservation District has need for funding to complete Wellsville-Mendon Upper Canal Pipeline Project.

NOW, THEREFORE, BE IT RESOLVED that the Wellsville-Mendon Conservation District Board of Directors agrees and authorizes that

1. The Wellsville-Mendon Conservation District Board of Directors has reviewed and supports the application submitted;

2. The applicant is capable of providing the amount of funding and/or in-kind contributions, specified in the funding plan; and

3. If selected for a WaterSMART Grant, the applicant will work with Reclamation to meet established deadlines for entering into a grant or cooperative agreement.

DATED: August 8, 2022

Quinn Murray, President
Wellsville-Mendon Conservation District

ATTEST: