Bureau of Reclamation WaterSMART Drought Response Program:
Water and Energy Efficiency Projects Fiscal Year 2024

North Creek Irrigation Company Canal Piping and Hydro Project

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ATTACHMENTS:
Attachment A – Project Location Map
Attachment B – Project Detail Map
Attachment C – Water Loss Study
Attachment D – Disadvantage Population Map
Attachment E – On-Farm Signature Page
Attachment F – Service Area Map
Attachment G – Letters of Support
Attachment H – Budget Detail and Narrative

Technical Proposal and Evaluation Criteria

Executive Summary

Applicant Info

Project Name: North Creek Irrigation Company – Canal Piping and Hydro Project

Date: February 22, 2024

Applicant Name: North Creek Irrigation Company (NCIC)

City, County, State: Mt Pleasant, Sanpete County, Utah

Project Manager:

Name: Taylor Stauffer, P.E.
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Applicant Category: A

Project Funding Request: $3,088,260 *Total Project Cost:* $6,176,520

Funding Group: Group III

Project Summary

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.

North Creek Irrigation Company's (NCIC) Canal Piping and Hydro Project in Mt Pleasant, Utah, aims to improve efficiency, reduce water loss, and pressurize the entire 7.2 miles of canal system. The proposal involves the installation of 2,780 feet of 28-inch, 13,450 feet of 24-inch, 8,710 feet of 14-inch, 4,265 feet of 12-inch, and 9,450 feet of 10-inch high-density polyethylene (HDPE) pipe, and one large meter at the diversion and 39 turnout meters. It will also install a regulating basin, two pressure-reducing valves, and two 200 kW hydro units producing 198,000 kWh of power annually. Currently, the system's efficiency is only 55 percent, with a 45 percent water loss. This project will decrease water loss by 1,611 acre-feet annually, allowing more water to remain in North Creek and the San Pitch River.

Length of Time and Estimated Completion Date

State the length of time and estimated completion date for the proposed project. ***Note: proposed projects should not have an estimated construction start date that is prior to December 31, 2024.***

NCIC anticipates the project will take three years, December 2024 – December 2027 and will include a pre-award cost to have 60 percent of the design completed and 90 percent of the Environmental Assessment finished by December 2024. Construction is proposed to start in February 2025, with a completion date in July 2027. Construction will occur over three phases outside of the irrigation season and will be completed within the three-year timeframe, with final reports expected in July 2027.

Federal Facility

The project is not located on a Federal facility.

Project Location

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

The project is located in Mt. Pleasant, Utah and Sanpete County. It is 57 miles south of Provo, Utah and 7 miles east of Moroni, Utah. The project latitude is {41°9'45" N} and longitude is {112°6'11" W}. See Attachment A – Project Location Map and Attachment B – Project Detail 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.

Background:

Founded in 1878, NCIC is a historic irrigation company in Sanpete County, Utah that has continuously irrigated 803 acres of prime farmland since 1891—132 years. Its 43 shareholders rely on a central delivery canal and five ditches, a network of open-lined and earthen canals, and pipelines to deliver water to their fields.

Water is diverted from North Creek and flows through the system, primarily in open earthen ditches, to reach users. Each of the five ditches diverges off the central canal, delivering water to fields around 5,800 feet above sea level. Although some sections of the canal have been modernized with low-pressure pipes allowing users to sprinkle their farms using localized pumps, over 27,500 feet of old, open concrete-lined ditches and 3,200 feet of open, earthen ditches still need to be addressed to increase canal efficiency.

Photo 1 Earthen and old unlined ditches

NCIC faces significant hurdles:

- ***Aging infrastructure:*** Leaky ditches and failing concrete structures cause severe water losses and hamper accurate measurement. The users at the end of the ditch typically do not receive water after July each year because of the condition of the ditches and decreased flow in the Creek.
- ***Drought:*** Reliance on snowmelt leaves the system vulnerable to reduced runoff, further impacting water availability. With no short- or long-term storage capacity, NCIC relies heavily on seasonal snowpack to provide adequate flows in North Creek, where all NCIC's water is diverted. Flow rates in North Creek fluctuate so much throughout the year NCIC does not know how much water is being used, which has a compounding

effect with drought conditions. During the 2022 Megadrought, delivering water to the end of the open and aged ditches was virtually impossible. Water turns for irrigators is every 18 days. Irrigators at the bottom end of open ditches only get two or three water turns in June. By July, they have to go with double ditch turns every 18 days; however, the water loss in these ditches is so severe that virtually no water reaches the end users during the double ditch turns.

- ***Limited resources:*** Maintaining and upgrading the system requires substantial financial investment each year as they try to keep water moving through the system.
- ***Population shift:*** Increased demand for water due to migration could further strain the system's capacity.

NCIC stands at a crossroads, facing the need for modernization and adaptation to ensure its future. NCIC's future depends on innovative solutions to address these challenges, ensuring that this legacy of irrigation can continue to sustain agriculture producers in Sanpete County for generations to come.

Project:

NCIC proposes a multi-year construction project to pipe and pressurize their aging canal system. This project aims to address significant water losses and improve overall system efficiency.

Key points of the project:

The NCIC canal system currently loses an average of 45 percent of its water annually, totaling over 1,611 acre-feet. NCIC prepared a System Optimization Plan funded by the WaterSMART Water Conservation Field Services Program in 2023; from this SOR Plan, the best alternative was to replace all the open ditches in the system with HDPE pipe, develop a regulating basin, and install a new meter at the diversion and all turnouts. It was also found that by adding pressure-reducing valves and hydro units, the energy produced could be sold to the local electric company, Mt Pleasant Power Department, adding additional funds to their maintenance fund to keep the system in good condition. This will reduce water loss and improve all users' flow capacity for many years.

- ***Segment 1:*** Includes installing 2,780 feet of 28-inch HDPE pipe. This will eliminate water loss and increase flow to accommodate NCIC's full water rights. Improvements to the headworks structure and a meter station are also included.
- ***Segment 2:*** Includes installing 4,265 feet of 12-inch HDPE pipe and two turnout meters.
- ***Segment 3:*** Includes installing 5,455 feet of 24-inch HDPE pipe, one pressure-reducing valve, one Hydro unit, and the regulating basin.
- ***Segment 4:*** Includes installing 7,995 feet of 24-inch HDPE pipe, six turnout meters, one pressure-reducing valve, and one Hydro unit.
- ***Segment 5:*** Includes installing 8,040 feet of 10-inch and 3,850 feet of 14-inch HDPE pipe and 12 turnout meters.
- ***Segment 6:*** Includes installing 1,410 feet of 10-inch and 4,860 feet of 14-inch HDPE pipe and 19 turnout meters.

Expected benefits:

By piping and pressurizing the entire system and implementing turnout meters, hydro units, and regulation basins, the project is expected to reduce water loss by over 1,611 acre-feet annually, produce 198,000 kWh annually, and improve operational efficiency. By addressing water loss and improving efficiency, NCIC can ensure a more sustainable and reliable water supply for its users.

Evaluation Criteria

Evaluation Criterion A – Quantifiable Water Savings (25 Points)

- *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 total water savings as a direct result of the piping project is 1,611 acre-feet annually.

- *Describe current losses: Please explain where the water that will be conserved is currently going and how it is being used. Consider the following:*
  - *Explain where current losses are going (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground)?*
    Most water loss, a massive 88 percent, disappears underground through seepage. This happens through cracks and breaks in concrete linings or directly into the soil in unlined sections. Evaporation accounts for a smaller portion, around 9 percent, while unwanted plant growth along the canal banks drinks up about 3 percent.
  - *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?*
    These losses seep into the ground and likely enter the underground shallow aquifer and eventually back into the river system.
  - *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?*
    Unfortunately, water loss through seepage does not provide any known advantages. This lost water seeps into the ground and does not create new ponds, springs, or other helpful habitats for fish or wildlife. It is actually causing problems for farmers who rely on this water.

– *Describe the support/documentation of estimated water savings. Please provide sufficient detail supporting how the estimate was determined, including all supporting calculations.*
Two water loss studies were completed with the development of the Water Loss Study: one on July 20, 2022, and the other on May 4, 2023. Flows were measured with a velocity probe and by measuring the dimensions of the channel. Losses vary across the system, with the highest occurring in segments with poor infrastructure.

July 20, 2022:

- Measured significant losses throughout the system, ranging from 16 percent to 38 percent.
- Highest loss (38 percent) occurred in a section with poor infrastructure (vegetation, unlined canal).
- Total loss was estimated at 45 percent.

May 4, 2023:

- Measured 11 percent loss between headworks and first diversion.
- Estimated 18 percent loss in one branch downstream of the main diversion.
- Maximum flow in the system was 8 cfs, less than 45 percent of the water right.

Based on these studies and discussions with shareholders, the average annual flow delivered to shareholders is estimated at 4.625 cfs, close to previous estimations. This translates to a yearly loss of 1,611 acre-feet.

(1) Canal Lining/Piping

- *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. 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.*

As stated previously, two water loss studies were completed with the development of the Water Loss Study: one on July 20, 2022, and the other on May 4, 2023. Flows were measured with a velocity probe and by measuring the dimensions of the channel. Losses vary across the system, with the highest occurring in segments with poor infrastructure. See Attachment C – Water Loss Study

On July 20, 2022, the first measurements were taken upstream of the Cove Creek diversion. There were 2.85 cfs in the main channel, and 0.61 cfs (or 22 percent) was diverted down Cove Creek. 2.24 cfs was remaining in the lower four ditches.

The flow was then measured on the main branch in two more locations. Across from a Millers Junction, the flow was measured at 1.73 cfs. This correlates to a loss of 0.51 cfs or 23 percent of the flow. Flow was also measured upstream of the lower four ditches diversion (where Mule Creek and Brass Band split from Little North Field and Oscar Anderson). The flow was 1.46 cfs, correlating to a loss of 0.27 cfs or 16 percent of the flow measured at the Miller Pond diversion. No shareholders were taking water out between the Cove Creek diversion and the lower four ditches diversion.

Photo 2 Water Loss Study in Segment 4

The flow was also measured between the diversion of the lower four ditches and at the diversion of Oscar Anderson and Little North Field. There was a shareholder diverting water at the lower four ditch diversion, and flow continuing down the ditch was measured at 0.82 cfs. The flow was then measured where Oscar Anderson and Little North Field split at 0.51 cfs for a loss of 0.31 cfs or 38 percent of the flow in this segment. It is significant to note the high amount of vegetation in this segment and the poor quality of the concrete channel. Some segments of the ditch were not lined at all.

On May 4, 2023, flow measurements were taken in North Creek Irrigation's system. Flows were measured with a velocity probe that measured the flow depth, and then a flow rate for the channel was calculated. Measurements were taken at the head works structure where water is diverted from the North Creek and into the NCIC's system. The system operator only diverts a maximum of 8 cfs because anything more than that causes flooding downstream. The flow rate of diverted water was measured at 7.2 cfs. A measurement was taken 2,400 feet downstream at the Cove

Creek ditch diversion, and the flow rate was 6.4 cfs, which correlates to an 11 percent water loss. The 6.4 cfs was all diverted to Cove Creek. Water for the four ditches was diverted from the natural Creek between Segments 3 and 4 at approximately 8 cfs. Only 8cfs was also diverted at this location because of the risk of downstream flooding. It then goes downstream to the next diversion for the four ditches, and the flow rate is split 50 percent to Brass Band/ Mule Creek ditches and 50 percent to Oscar Anderson/Little North Field ditches. The next measurement was taken at the Oscar Andersen/ Little North Field diversion, and the flow rate was 2.65 cfs. The water loss in this one arm of the system is calculated to be 18 percent and is expected to be similar in the other segment of this ditch.

Several assumptions were made regarding inflow and percent loss using flow measurement data. Percent loss is assumed to be 45 percent of all inflow. Losses were measured at 38 percent in July 2022 but did not include flow at the top segment, along Cove Creek or Little North Field after the final diversion; losses would have increased if the flow was measured from the top diversion to all the shareholder takeout's. In May 2023, the max flow in the system was determined to be 8 cfs, which is less than 45 percent of the water right.

Monthly flow rates were estimated based on the two measurements taken and a discussion about the system operation with shareholders. These assumptions are shown in Table 1 below. The average flow rate throughout the year is 8.5 cfs. If 45 percent of this is lost, the average flow delivered to shareholders is 4.625 cfs. The total annual volume is 3,579 acre-feet, with 1,611 acre-feet lost each year.

Table 1 - Water Loss Information

Month	Average Flow Rate Entering System (cfs)	Monthly Volume (acre-ft)	Average Percent Loss	Total Loss (acre-ft)
April	17	1011.56	45%	455.20
May	21	1291.23	45%	581.05
June	14	833.05	45%	374.87
July	4	245.95	45%	110.68
August	2	122.97	45%	55.34
September	1	59.50	45%	26.78
October	0.5	14.88	45%	7.44
TOTAL	8.5	3579.15		**1611.36**

- *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 system will be completely piped and pressurized with HDPE pipe, and the diversion and all turnouts will be metered. Therefore, the anticipated losses will be zero after implementation of the project.
- *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?*
  The transit loss reduction in acre-feet per mile is 220.1 acre-foot per mile. See Table 2 below for transit loss for each section.

Table 2 Water Loss Per Mile

Segment	Length (miles)	Annual loss (acre-ft)	Annual loss (acre-ft/mile)
1	0.53	558	1053.2
2	0.81	90	111.1
3	1.03	0	0
4	1.51	372	246.4
5	2.25	347	154.0
6	1.19	244	205.4
Total/Average	7.32 (total)	1611 (total)	220.1 (overall system)

- *How will actual canal loss seepage reductions be verified?*
  The anticipated loss will be zero after the implementation of the project. Meters will be at the top of the system and at each user's turnout along the system. Losses will be verified by comparing water entering the system and water delivered to end users.
- *Include a detailed description of the materials being used.*
  All pipes will be fused high-density polyethylene (HDPE) pipe. Installed properly, HDPE pipe has a life expectancy of 100 years, requires little maintenance, and does not corrode or leak. The pipe thickness, or diameter ratio (DR), is selected according to the design pressure of the system. HDPE pipe is flexible and is excellent at handling pressure surges above the pipe's rated pressure and heat/cold tolerance.

Evaluation Criterion B – Renewable Energy (20 Points)

Subcriterion No. B.1: Implementing Renewable Energy Projects Related to Water Management and Delivery

Describe the amount of energy capacity. *For projects that implement renewable energy systems, state the estimated amount of capacity (in kilowatts) of the system. Please provide sufficient detail supporting the stated estimate, including all calculations in support of the estimate.*

The project will install two 200 kW hydro turbines producing 198,000 kWh annually.

Describe the amount of energy generated*. For projects that implement renewable energy systems, state the estimated amount of energy that the system will generate (in kilowatt hours per year). Please provide sufficient detail supporting the stated estimate, including all calculations in support of the estimate. Please explain how the power generated as a result of this project will be used, including any existing or planned agreements and infrastructure.*

The project will install two 200 kW Hydro Turbines producing 198,000 kWh annually, which will be sold to Mt Pleasant Power Department. Mt Pleasant Power Department has had an agreement in place for over 30 years for another turbine of a similar size. These two new turbines will be part of a similar agreement, and the power generated will be used to provide power for the residents of Mt. Pleasant.

Describe any other benefits of the renewable energy project: *Please describe and provide sufficient detail on any additional benefits expected to result from the renewable energy project, including:*

- *How the system will combat/offset the impacts of climate change, including an expected reduction in greenhouse gas emissions*
  This renewable power production is equivalent to a reduction of 188,834 pounds of carbon dioxide and will help combat the impacts of climate change.

- *Expected environmental benefits of the renewable energy system*
  The environmental benefits of this project is equivalent to reducing emissions by reducing 95,945 pounds of coal that would need to be burned. It would provide enough power for 16.7 homes' electricity use for one year and is equivalent to the carbon sequestered by 102 acres of U.S. Forest in one year.
- *Any expected reduction in the use of energy currently supplied through a Reclamation project*
  There will be no reduction.
- *Anticipated benefits to other sectors/entities*
  Mt. Pleasant City and all of its residents will benefit from this project. Mt. Pleasant City has to purchase power from others if they do not produce enough of their own. The project will allow them to have additional power they would otherwise have to buy at a much higher rate than the agreement they will have with NCIC.
- *Expected water needs, if any, of the system*
  There are no other water needs required to run the turbines.

Subcriterion No. B.2: Increasing Energy Efficiency in Water Management

Describe any energy efficiencies that are expected to result from implementation of the water conservation or water efficiency project (e.g., reduced pumping).

- *If quantifiable energy savings is 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.*
  N/A.
- *How will the energy efficiency improvement combat/offset the impacts of climate change, including an expected reduction in greenhouse gas emissions.*
  N/A.
- *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?*
  Currently, two irrigators have to pump water to use in their existing sprinkling system as they irrigate:
  - One uses an electric 50 hp pump with a pumping cost of $700 per month and runs it on average for 8 hours a day for eight days a month for three months out of the irrigation season. This is a financial savings of $2,100 per irrigation season{$700 x 3 = $2,100} and a power savings of 7,182 kWh per irrigation season {2,394 kWh x 3 = 7,182 kWh}.
  - The other uses a PTO pump that operates on about 5 gallons of diesel daily for roughly 15 days per month for an average of 3 months out of the irrigation season. This is a financial savings of $787.50 per irrigation season or $262.50 per month {75 gallons x $3.50 per gallon =$262.50} and an equivalent carbon dioxide savings of 4,408 pounds.
- *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.*
  N/A.
- *Does the calculation include any energy required to treat the water, if applicable?*
  N/A.

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

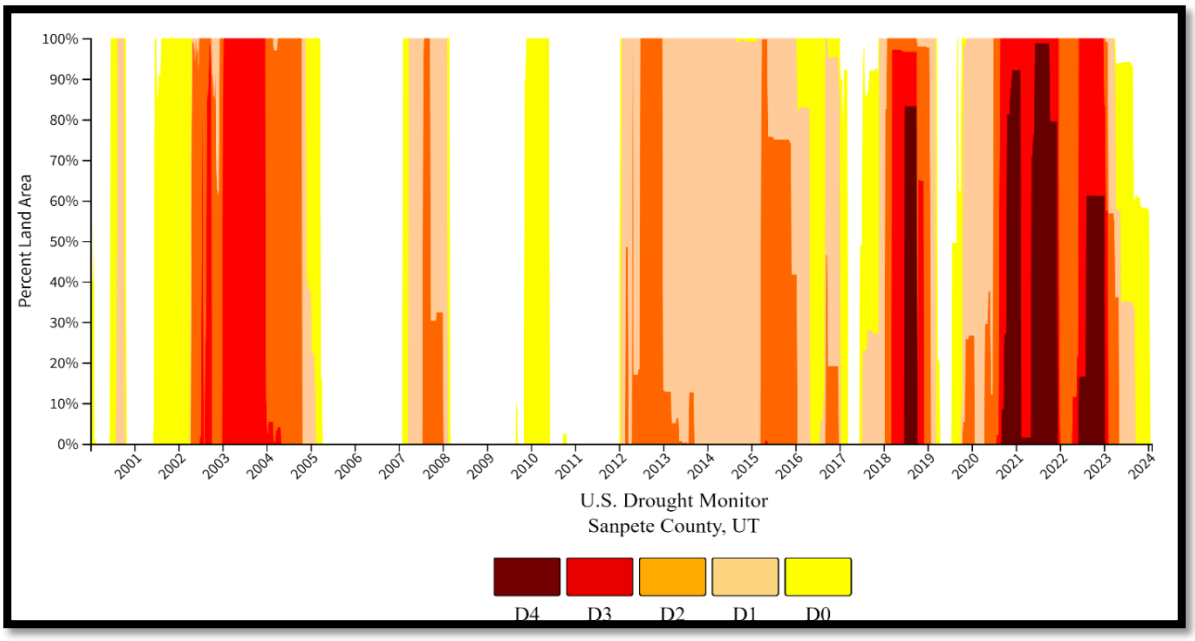
Evaluation Criterion C – Other Project Benefits (15 Points)

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.*
    In recent years, NCIC has faced significant challenges associated with aging infrastructure, drought, and operational challenges. With no long-term storage capacity, NCIC relies heavily on seasonal snowpacks to provide adequate flows in North Creek from where all of NCIC's water is diverted. Compounding low runoff resulting from drought conditions in the Western United States is the inability to deliver water to the end of open, aged ditches. Water turns for irrigators at the bottom end of open ditches may provide flows to the end of the ditches for two or three water turns in June, but by July, the water loss in these failing ditches is so severe that virtually no water reaches the end users.
  - *Is the project in an area that is experiencing, or recently experienced, drought or water scarcity?*
    Yes. The Palmer Drought Severity Index (PDSI) measures drought intensity; this index, along with the U.S. Drought Monitor, indicates that the Mt. Pleasant area in Sanpete County has fluctuated between "moderate" and "exceptional" drought categories for much of the past 24 years, indicating persistent dryness.

Figure 1 US Drought Monitor for Sandpete County



Over the past ten years, the project area has had "extreme" and "exceptional" drought that has significantly impacted NCIC irrigator's ability to receive water. Watering turns have had to be set to one water turn every 18 days or stop receiving water in July instead of September. It has been difficult for them, and the drought exacerbates the issues with the canal condition and water losses within the system.

- *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).*

  The Sanpete County area has experienced cyclic droughts historically, with an average recurrence interval of 10 years and an average extreme drought severity during the growing season, as documented in the figure above. However, recent climate change projections from Utah's Climate Future 2012 Plan (UCF Plan) indicate a significant increase in drought severity and duration for the region. The UCF Plan states that by 2050, temperatures in Sanpete County's specific watersheds are projected to be approximately 2°F higher in winter and approximately 4°F higher in summer compared to current temperatures. By 2100, average air temperatures may increase by approximately 6°F in winter and approximately 8°F in summer from today's temperatures. This is an enormous temperature jump that will have severe impacts on Utah's water resources, specifically on Sanpete County and NCIC.

  This trend is already evident, with observed decreases in snowpack depth of 8 to 10 percent over the past ten years and as much as 93 percent in snowpack decline from 1955 to 2022, according to the EPA Climate Change Indicator for Snowpack in the Western United States. NCIC, which relies solely on snowpack for its water supply and has no storage rights, is particularly vulnerable to these changes. Reduced snowpack could lead to significant water shortages, impacting crop yields and causing economic losses for local farmers. This, in turn, could have cascading effects on the regional economy and community livelihoods.

- *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.*

  Currently, 1,611 acre-feet of seepage losses are occurring annually, causing interruptions in the conveyance of full water rights. In addition, farmers consume a significant amount of energy pumping water to irrigate their crops. The proposed project will significantly improve conveyance efficiency in the system by reducing 1,611 acre-feet of seepage losses annually. In addition, it completely encloses and pressurizes the system, allowing for much more efficient use of the available water supply and reducing the need to pump to irrigate farms. The project will also install a 200 kW hydro unit capable of producing 198,000 kWh of energy that has the potential to displace fossil fuel-based electricity generation and reduce greenhouse gas emissions.

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

  Yes, the project has the potential to directly address the concerns of increasing drought severity and decreasing snowpack in several ways:

- ***Reduced water loss:*** The project's core objective is to reduce water loss by 45 percent, saving over 1,611 acre-feet annually. This conserved water directly combats the issue of scarcity caused by drought and reduces snowpack by making more water available for users.
- ***Improved efficiency:*** Replacing open ditches with pressurized pipes and installing meters enables precise water management and equitable distribution. This ensures everyone receives their allocated share efficiently, preventing overuse and maximizing available resources during droughts.
- ***Increased flow capacity:*** Upgraded infrastructure allows NCIC to utilize their full water rights, potentially delivering more water during peak demand periods when snowpack is typically lower.
- ***Climate adaptation:*** While not explicitly mentioned, the project's infrastructure improvements create a foundation for incorporating future climate adaptation measures. These could include smart irrigation systems, drought-resistant crops, or exploring alternative water sources to further bolster resilience.

- *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?*

  Yes, the project will significantly improve water management efficiency in several ways:

  - ***Reduced water loss:*** By pressurizing the system and replacing open canals with enclosed pipes, we expect to reduce water loss by 100 percent, equating to 1,611 acre-feet of water saved annually.
  - ***Increased water availability:*** Currently, lower-end users experience water shortages due to losses in the upper segments. The pressurized system will ensure fair and equitable distribution based on water rights by delivering water directly to each turnout and metering usage.
  - ***Improved control and monitoring:*** Real-time monitoring and control of water flow will enable precise allocation based on user needs and prevent unauthorized water use.

- *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).*

    All 1,611 acre-feet of water saved by the North Creek Irrigation Company – Canal Piping and Hydro Project will be directed towards agricultural purposes. This includes supplementing existing water allocations for irrigators facing shortages or not receiving their water allocation. It will enable users to expand the type of crops being cultivated on highly productive farms.

  - *Provide a description of the mechanism that will be used, if necessary, to put the conserved water to the intended use.*

    The primary mechanism for utilizing conserved water likely lies within the project's core objective of reducing water loss by 45 percent. This translates to over 1,611 acre-feet annually, essentially creating a "virtual" increase in available water. Since

the project involves replacing open ditches with pressurized pipes and installing turnout meters, water delivery will become more efficient and equitable. This means:

- ***Reduced losses:*** Less water will be lost to evaporation, seepage, and leaks, making more water available at farm gates.
- ***Fairer distribution:*** Turnout meters will enable precise measurement and delivery based on individual water rights, ensuring everyone receives their allocated share without unnecessary waste.
- ***Increased flow capacity:*** The upgraded infrastructure can accommodate NCIC's full water rights, potentially allowing them to deliver more water during peak demand periods.

Combining these factors act as a mechanism to put the conserved water to use by making it readily available and distributed efficiently among users.

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

- *Will the project help to prevent a water-related crisis or conflict? Is there frequently tension or litigation over water in the basin?*
  There is frequent tension among shareholders primarily because water use is not currently metered and disagreements have occurred regarding water theft. There is also a lot of tension because of water losses – shareholders at the top of the ditch do not suffer from the poor ditch as much as shareholders at the bottom of the ditch. The region generally struggles with water availability, which burdens all residential and agricultural users, causing conflict and tension between the two parties.

Ecological Benefits:

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).*
  No specific ecological benefits have been determined as part of this project; however, as more water is saved, it can remain in the river system for longer and later in the irrigation season, which could benefit habitats in the area.
- *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.).*
  No.
- *Will the proposed project reduce the likelihood of a species listing or otherwise improve the species status?*
  No.
- *Please describe any other ecosystem benefits as a direct result of the project.*
  N/A.

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? Does the project seek to improve ecological resiliency to climate change? Does the proposed project seek to reduce or mitigate climate pollutions such as air or water pollution? Does the proposed project include green or sustainable infrastructure to improve community climate resilience? Does the proposed project contribute to climate change resiliency in other ways not described above?*

  The project addresses climate change through multiple pathways, focusing on water conservation, improved efficiency, and exploring renewable energy generation. While not explicitly targeting air or water pollution reduction, the project's positive impacts on water resources and potential for future green initiatives contribute to the community's overall climate resilience. The project addresses climate change through the following:

  Bolstering drought resilience:
  - ***Reduced water loss:*** The project's core benefit is reducing water loss by 45 percent, saving over 1,611 acre-feet annually. This addresses drought concerns by conserving precious water resources during increasingly dry periods.
  - ***Improved efficiency:*** Pressurization and meters enable better water management, ensuring equitable distribution and preventing overuse, which is especially crucial in times of scarcity.
  - ***Increased flow capacity:*** Upgraded infrastructure allows NCIC to utilize their full water rights, maximizing available resources during droughts.

  Ecological resiliency:
  - Reduced water loss directly benefits downstream ecosystems by maintaining critical flows and reducing stress on aquatic habitats.
  - Improved efficiency can potentially free up water for environmental restoration projects in the future.

  Climate pollution reduction:
  - ***Hydro units:*** The project explores generating 198,000 kWh annually through hydropower, potentially displacing fossil fuel-based electricity generation and reducing greenhouse gas emissions.

  Green and sustainable infrastructure:
  - ***HDPE pipes:*** Replacing open ditches with pipes minimizes evaporation and seepage, promoting water conservation.
  - ***Regulating basin:*** This feature can store water during high flow periods, releasing water strategically during dry/hot spells in the weather, mimicking natural water cycles, and enhancing ecological health.

  Other contributions:
  - ***Long-term sustainability:*** By ensuring efficient water use, the project promotes the long-term viability of agriculture in the region, contributing to the community's overall climate resilience.
  - ***Potential for future adaptation:*** The upgraded infrastructure provides a foundation for incorporating additional climate adaptation measures, such as smart irrigation systems or drought-resistant crops.

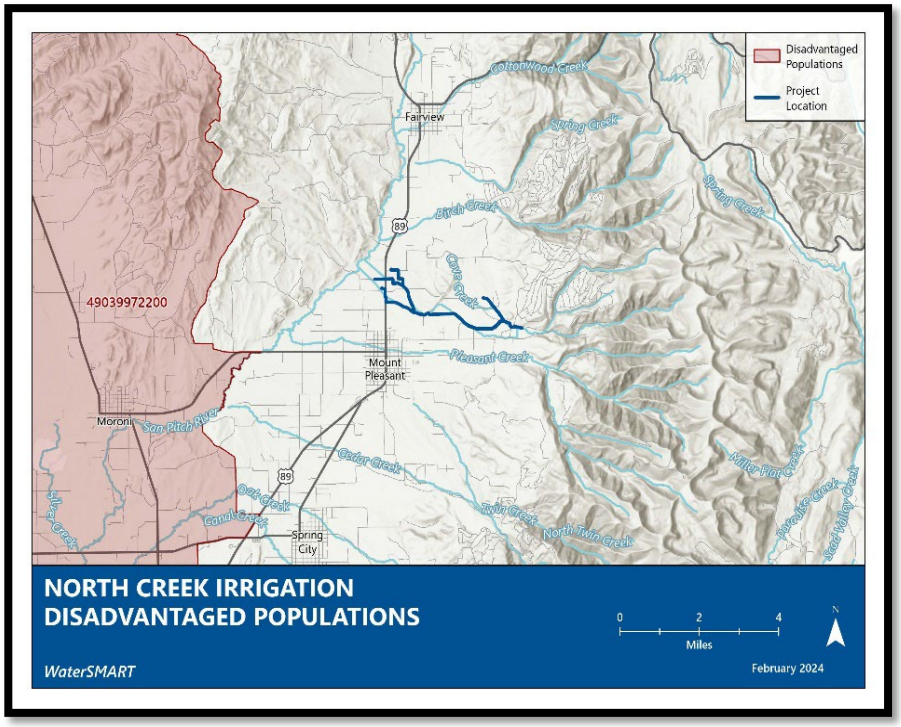
Evaluation Criterion D—Disadvantaged Communities, Insular Areas, and Tribal Benefits (15 points)

Disadvantaged Communities

- *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?*

Mt Pleasant has always been documented as a disadvantaged community and still is in other maps provided by the United States Department of Transportation (USDOT). However, within the Climate and Economic Justice Screening Tool, they do not meet the 65th percentile but are listed in the 62nd percentile. Based on other USDOT maps, the Mt Pleasant area is a disadvantaged community, and providing more water to these agricultuer users would significantly benefit this population and the economy in the area.

Figure 2 Disadvantage Population Map



Nevertheless, just 7 miles down the road is a documented disadvantaged population listed within the Climate and Economic Justice Screening Tool. It is the Town of Moroni. Providing more water to the San Pitch River through North Creek would help the disadvantaged population in Moroni, just 7 miles West of the project, and where all saved water will eventually go. The main economic driver for Moroni is farming and agriculture, which contains 43 large family farms, the largest turkey production companies in the country, and over 500 people from all over the area employed at the processing plant in Moroni. Any water saved and put back in the river system, especially during times of drought, will benefit this area. For a larger view of Figure 2, see Attachment D – Disadvantage Population Map.

The project has the potential to benefit Moroni's population in several ways:

Increased water availability:

- ***Reduced water loss:*** The project aims to decrease water loss by 1,611 acre-feet annually. This means more water will stay in North Creek and eventually reach Moroni, improving water security and availability for residents and farmers.

- ***Improved efficiency:*** By increasing the system's efficiency from 55 percent to potentially 100 percent, more water will be available for allocation to all users, including those in Moroni.

Enhanced water quality:

- ***Reduced contamination:*** Open ditches are susceptible to contamination from runoff and debris. Piping the canal could reduce this risk, leading to cleaner water reaching Moroni.
- ***Improved regulation:*** The project includes a regulating basin, which can help manage water flow and improve water quality by reducing turbidity and sedimentation.

Economic benefits:

- ***Job creation:*** The project construction phase could create jobs in Moroni and the surrounding area.
- ***Reduced irrigation costs:*** Increased water availability and efficiency could lead to lower irrigation costs for farmers, potentially boosting incomes in the area.

Environmental benefits:

- ***Improved instream flows:*** More water remaining in North Creek could benefit the aquatic ecosystem and contribute to a healthier environment downstream in Moroni.
- ***Reduced water waste:*** The project's focus on reducing water loss aligns with efforts to conserve this precious resource, benefiting the environment and future generations in Moroni and the surrounding area.

Overall, the project has the potential to bring significant positive impacts to Moroni, Utah by improving water availability, quality, and affordability, creating economic opportunities, and contributing to environmental sustainability.

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?*
  N/A.
- *Does the proposed project support Tribal led conservation and restoration priorities, and/or incorporate or benefit indigenous traditional knowledge and practices?*
  N/A.
- *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?*
  N/A.

Evaluation Criterion E—Complementing On-Farm Irrigation Improvements (8 points)

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?*

    Planned on-farm efficiency improvements include eliminating flood irrigation and implementing sprinkler or drip irrigation. This is directly supported by the proposed project, which will pipe and pressurize NCIC's entire canal system.

    NCIC is aware of four local farmers who have applied, and ten others want to apply for on-farm improvements through the NRCS EQIP Program to move from flood irrigation to sprinklers. The following is a list of those who have applied and those who are interested in on-farm efficiency projects. See Attachment E – On-Farm Signature Page.

Land Owner	Acreage	Have Applied foe EQIP
Jerod Sweat	70	X
Don Johnson	33	X
Barry Olsen	67	
Kevin Jensen	50	X
Paul Mudrow	110	X
Brody Swanson	188	
Josh High	23.4	
Cory Shaw	5.6	
Trent Laroen	5.9	
Tanje Duvall	5	
Hope Mountain Ranch	5	
Pleasant Farms LLC	12	
Jon Anng Swap	3.5	
Christensen Livestock	40	

  - *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.*

    See Attachment E – On-Farm Signature Page

  - *Applicants should provide letters of intent from farmers/ranchers in the affected project areas.*

    See Attachment E – On-Farm Signature Page

- *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, installation of a pressurized pipe through WaterSMART can help support efficient on-farm irrigation practices, such as drip-irrigation.*

      The proposed WaterSMART project can directly facilitate on-farm improvements by supporting the transition from flood irrigation to gravity-fed sprinkler systems. This shift can reduce tailwater waste by up to 50%, as demonstrated in a study by Utah State University entitled "Irrigation Water Loss and Recovery in Utah." It states that "water losses to deep percolation in surface irrigation can be as high as 50%–70%, particularly at the top of a field and/or the bottom if water is allowed to pond while trying to adequately irrigate the middle of the field. Flat or steeply sloped fields generally have higher losses."

      Additionally, improved metering and monitoring enabled by the project can help farmers adjust irrigation based on real-time data, potentially saving an average of 20% water per season. Furthermore, the project promotes adoption of drip irrigation, proven to reduce water use by up to 70% compared to sprinklers. As the Utah State University study mentioned, these improvements directly translate to higher yields, lower water costs, and increased farm profitability.

      Link to the Study: Irrigation Water Loss and Recovery in Utah by Utah State University: https://extension.usu.edu/crops/research/irrigation-water-loss-and-recovery

      This project offers several benefits that enhance water efficiency and directly translate to positive on-farm impacts:

      Reduced Tail Water Wasting: Flood irrigation often results in excess water runoff (tailwater) escaping the field, leading to water loss and potential environmental concerns. By replacing flood irrigation with gravity-fed sprinklers, water is more precisely applied, significantly reducing tailwater waste and maximizing water utilization within the field.

      Improved System Monitoring and Metering: The project provides support for better metering and monitoring systems. This enhances real-time water use data, allowing farmers to make informed decisions about irrigation scheduling and adjustments. This data-driven approach optimizes water application based on specific crop needs and field conditions, further reducing water waste.

      Reduced Pumping Costs: For existing sprinkler systems, upgrading to gravity-fed can reduce or eliminate the need for pumps, leading to significant cost savings on energy and equipment maintenance. This frees up resources for other farm investments.

      Enabling Efficient Technologies: The project's support for efficiency empowers farmers to adopt new water-saving technologies like advanced sprinklers or even drip irrigation systems. This further enhances water use precision, leading to greater water savings and improved crop yields.

      OR

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

- *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.*

More significant water savings will be realized when irrigation practices are changed from flood irrigation to sprinkler irrigation, as farmers and ranchers take advantage of the newly piped and pressurized delivery system. Application efficiency for flood irrigation is approximately 50 percent, while sprinkler irrigation application efficiency is around 75 percent. The following table summarizes water that will be conserved after on-farm improvements are completed.

Water Conserved from On-Farm Improvements

Annual Volume Diverted	3,579 AF
Annual Volume Lost (3,579 x 45%)	1,611 AF
Annual Volume Delivered	1,968 AF
Assumed Flood Irrigation Efficiency	50%
Assumed Sprinkler Irrigation Efficiency	75%
Flood vs Sprinkler Efficiency Difference	25%
Current Total Shares Irrigated	325
Current Total Shares Flooded	575
Current % Shares Flooded	64%
Anticipated Total Shares Irrigated	576
Anticipated Total Shares Flooded	324
Anticipated % Shares Flooded	36%
Current vs Anticipated Shares Flooded Difference	28%
Water Saved Due to On-Farm Improvements (1,968 x 25% x 28%)	**138 AF**

- *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 Attachment F – Service Area Map

Evaluation Criterion F—Readiness to Proceed (8 points)

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.*
  NCIC anticipates a notice of award by July 2024 and a signed agreement to be completed by December 2024. NCIC requests pre-award costs to complete 60 percent of the design and 90 percent of the Environmental Assessment by December 2024. Advertising and bidding will take place in February 2025. Construction is proposed to start in February 2025, with a completion date in July 2027. The construction will occur over three phases

outside of the irrigation season and will be completed within three years, with final reports expected in July 2027.

The project's primary tasks include contracting, environmental assessment, design, advertising and bidding, construction, and project closeout.

- Contracting includes executing agreements between Reclamation and NCIC.
- Environmental assessment includes the necessary surveys and assessments to meet the NEPA requirements for the project area and review by Reclamation.
- Design includes a topographic survey, design review and stakeholder coordination, 50 percent design review, 90 percent design review, and final preparation of bidding documents.
- Advertising and bidding include advertising the project, distributing bid documents, pre-bid meetings, opening bids, and awarding contracts.
- Construction includes preparation of construction documents and preconstruction meetings, obtaining permits, construction of the pipeline, water-ready project walk-through, final grading, surface restoration, substantial completion walk-through, and construction.

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

  Permits required include:

  Sanpete County Excavation Permit to work in the County right-of-way – Requires a simple form submitted to the County, approved by the County Public Works staff.

  Mt Pleasant Power Department – An energy agreement with Mt. Pleasant City, Utah for the energy produced from the hydro within the system. Mt. Pleasant has done this in the past and will only require a signed agreement.

  UDOT Excavation Permit to work in the right-of-way – Requires a simple form submitted to UDOT, which is approved by the UDOT Region 2 staff.

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

  A critical piece of engineering work supporting the proposed project is a comprehensive System Optimization Review (SOR) conducted in 2023, funded by Reclamation's WaterSMART Water Conservation Field Services Program. This review aimed to guide NCIC towards the most efficient projects for delivering water to irrigation users. It involved four key tasks, each contributing valuable insights:

  1. Gathering information: The team meticulously collected existing data from NCIC, Utah Department of Natural Resources, and other sources. This included diversion records, water rights, flow records, system maps, and shareholder data. By analyzing this information, they developed a master plan for the NCIC service area and identified areas needing improvement.

  2. Situational review: This task involved a thorough assessment of NCIC's current and projected conditions. Land use, water demands (present and future), delivery requirements, and water rights were carefully evaluated. The findings were incorporated into GIS, creating detailed water system maps. Additionally, water loss measurements were conducted to clearly understand resource inefficiencies.

3. System analysis and efficiency evaluation: The team analyzed the system under peak day demand scenarios by leveraging the collected data and established hydrologic tools. They then modeled potential efficiency improvements and the impact of additional short-term regulated storage on overall supply. This analysis guided the selecting of projects with the most significant potential for positive impact.

4. Identifying and prioritizing improvement projects: A list of potential improvement projects was established based on the comprehensive analysis. These projects aimed to mitigate identified issues and achieve conservation goals. Each project was rigorously evaluated and finalized based on the completed system analysis and prioritized using a multi-criteria approach that considered environmental, regulatory, and economic factors. Finally, a strategic funding plan was developed to guide the project implementation schedule, with environmental considerations and permitting requirements factored in.

The SOR provided a robust foundation for the proposed project by addressing these critical steps. This engineering work ensured that the chosen projects were well-targeted, data-driven, and designed to maximize efficiency and water delivery to irrigation users. Understanding the specific findings and recommendations of the SOR would offer even deeper insights into its valuable contributions to the project's success.

- *Describe any new policies or administrative actions required to implement the project.*
  NCIC would have to get approval to increase share fees through a meeting with shareholders. A simple majority vote of those present is required. NCIC needs to provide a proposal justifying the fee increase and its amount.
- *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.*
  The project is currently in the modeling and preliminary design phase. It is expected that before an agreement with Reclamation is signed in December 2024, NCIC, as part of a pre-award cost, will have completed 60 percent of the design and 90 percent of the Environmental Assessment (EA). This means minimal additional work will be needed to finalize the design 100 percent and approve the EA. Completing 90 percent of the EA early is crucial to staying on the project's tight schedule and achieving the target of 100 percent design by January 2025.

  In short, the design is progressing well, and reaching key milestones before finalizing the agreement helps keep the project on track for its target completion date.
- *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?*

Major Task and Milestones	Start	End
60% Design & Environmental Assessment (EA) 90% completed	July 2024	December 2024
Contracting	November 2024	December 2024
100% Design and approved EA	January 2024	January 2025
Advertising and Bidding	February 2025	February 2025

Approved Permits	February 2025	February 2025
Mobilization and construction of Segments 1 and 4 (50% of total project completed). This includes installing one Hydro in Segment 4	February 2025	May 2025
Mobilization and construction of Segments 3 and 5 and regulating basin (80% of total project completed). This includes installing one Hydro in Segment 3	October 2025	May 2026
Mobilization and Construction of Segment 2 and 6 (100% of Total Project Complete)	October 2026	May 2027
Final Reports and Project Closeout	June 2027	July 2027

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

  NCIC worked with Mt. Pleasant City and Sanpete Water Conservancy District throughout the SOR planning and has letters of support from each for the project see Attachment G – Letters of Support

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

  Four landowners accounting for 263 irrigated acres have applied for irrigation efficiency upgrades upon completion of the proposed project, which will give them pressurized sprinkler irrigation, eliminating the need to pump. These landowners and ten others who have indicated on the on-farm signature page that they are interested in converting to more efficient irrigation methods could result in an estimated 138 acre-feet of additional water conservation.

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

  The project will directly support on-farm improvements planned by several shareholders participating in the NRCS EQIP Program. These improvements, including sprinkler systems, rely on a reliable water source that the gravity-powered system could provide, eliminating the need for individual pumping and potentially reducing costs and energy use.

  The hydro portion of the proposed project will also benefit the residents in the area that Mt Pleasant Power Department supplies, as it will produce 198,000 kWh annually.

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

  Please see Attachment G – Letters of Support.

Evaluation Criterion H – Nexus to Reclamation (4 Points)

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

- *Does the applicant have a water service, repayment, or O&M contract with Reclamation?*
  No.
- *If the applicant is not a Reclamation contractor, does the applicant receive Reclamation water through a Reclamation contractor or by any other contractual means?*
  No.
- *Will the proposed work benefit a Reclamation project area or activity?*
  No.
- *Is the applicant a Tribe?*
  No.

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.

There are two areas of this project where performance measures can be documented and quantified to show the benefits upon project completion. These include renewable energy that will be generated and water that is saved.

Water that is Saved: A 28-inch electromagnetic flow meter will be constructed at the point of diversion on North Creek and used to measure the total amount of diverted water and the instantaneous flow rates. The water master will manually record readings for the 28-inch flow meter as part of the system's routine operation. Turnout structures for each of the 39 shareholders will be constructed and installed with an individual turbine flow meter. The flow meter readings will be recorded manually on a monthly basis during the irrigation season and reviewed. At the end of the irrigation season, they will document the use, evaluate the system's efficiency, and supply this information to the NCIC board.

Energy Generated: The energy produced by the two hydro units will be recorded monthly and compared to this application's estimation of power generation. This information will be provided to the NCIC Board in an annual report.

Budget Narrative

Pre-Award Costs: The budget includes pre-award costs for the 60 percent design and the 90 percent EA that will be started in July 2024 after the notice of award, and it is understood that these costs are at NCIC's own risk. **The timing of these costs is necessary for the efficient and timely performance of the scope of work due to the need to construct this project outside of the irrigation season and keep it within the three-year timeline.** These costs are documented in Attachment H – Budget Detail and Narrative.

Environmental and Cultural Resources Compliance

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

Impacts will be those associated with constructing a pipeline. In the past, similar projects have had minimal impacts. The surface vegetation will be restored upon completion of the project.

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?

NCIC is unaware of any threatened or endangered species or critical habitat 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.

NCIC is not aware of any impacts to wetlands in the project boundaries.

When was the water delivery system constructed?

The water delivery system was constructed in 1891, but has undergone many changes over the past 133 years.

Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.

The proposed project will enclose 27,500 feet of old, open concrete-lined and 3,200 feet of earthen ditches, a total of 30,700 feet with HDPE pressurized pipe.

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.

N/A.

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

NCIC is not aware of any archeological sites in the proposed project area.

Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?

No.

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

No.

Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?

No.

Required Permits or Approvals

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

Permits required include:

Excavation Permits to work in UDOT and County right-of-way. The successful contractor will apply for these permits after a notice to proceed has been implemented.

Mt Pleasant Power Department Agreement for the energy produced from the hydro units within the system, and NCIC will work with Mt Pleasant to implement the agreement.

Overlap or Duplication of Effort Statement

Applicants must 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.

No other applications have been submitted or will be submitted for this project to request federal funding.

Conflict of Interest Disclosure Statement

Conflict of Interest Disclosure Per the Financial Assistance Interior Regulation (FAIR), 2 CFR §1402.112, you must state in your application if any actual or potential conflict of interest exists at the time of submission.

There is no actual or potential conflict of interest at the time of submission.

Uniform Audit Reporting Statement

NCIC was not required to perform a single audit for this past year.

Certification Regarding 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.

Please see the GG Lobbying Form V1.1 Certification Regarding Lobbying.

Letters of Project Support and Letters of Partnership

Include letters from interested stakeholders supporting the proposed project.

See Attachment G – Letters of Support
Sanpete Water Conservancy District – Board of Trustees
Mt Pleasant Power Department – Mayor

Attachment G -

Sanpete Water Conservancy District
544 South 500 West
Manti, Utah 84642

February 4, 2024

Jared Sweat, President
North Creek Irrigation
21010 North 9850 East
Fairview, Utah 84629

Dear Jared,

Sanpete Water Conservancy District is pleased to support the North Creek Irrigation's Water Energy and Efficiency grant application submitted to The Bureau of Reclamation's WaterSMART program. We applaud your collaborative efforts to pipe and pressurize your canal system. This will help ensure a full water allocation for users and reduce the need for outside pumps, further conserving energy. These improvements pave the way for a brighter future by safeguarding water resources and promoting sustainable practices.

We encourage all of our water users to wisely utilize our very valuable commodity of water. Your willingness to work on these types of projects are commendable.

We strongly support your grant application and appreciate the advancements it will make in water savings and improving water efficiencies in the area.

Sincerely,

Kenneth R. Bench
Chairman
Sanpete County Water Conservancy District

Mount Pleasant City Corporation

Established in 1859

115 W Main Street, Mount Pleasant, Utah 84647

February 16, 2024

Jerad Sweat, President
North Creek Irrigation
21010 North 9850 East
Fairview, UT 84629

Dear Jerad,

Mt. Pleasant City is pleased to support North Creek Irrigation's Water Energy and Efficiency grant application submitted to The Bureau of Reclamation's WaterSMART program. We applaud your collaborative efforts to pipe and pressurize your canal system. This will help ensure a full water allocation for users and reduce the need for outside pumps, further conserving energy. These improvements pave the way for a brighter future by safeguarding water resources and promoting sustainable practices.

We strongly support your grant application and appreciate the advancements it will make in water savings and improving water efficiencies in the area.

Sincerely,

Mike Olsen

Mike Olsen
Mayor
Mt. Pleasant City