

Bureau of Reclamation WaterSMART
Water and Energy Efficiency Grants
Phase 1 Grant Application
NOFO No. R24AS00052

**Whitney Irrigation District
Phase I and II White River Infrastructure
Rehabilitation and Modernization Project**



Project Applicant

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Abbreviations

The District	Whitney Irrigation District
The Project	Whitney Irrigation District Phase I and II White River Infrastructure Rehabilitation and Modernization Project
NDNR	Nebraska Department of Natural Resources
UNWNRD	Upper Niobrara White Natural Resources Department
NSIA	Nebraska State Irrigation Association

Technical Project Proposal

Executive Summary

For Whitney Irrigation District, the White River is a lifeline for agricultural and ecological stability. Established in 1922 as a small irrigation scheme, Whitney Irrigation District (the District) now provides irrigation water to over 38 farmers and ranchers on 7,139.5 acres of land in Dawes County, Nebraska. The District holds a junior water right on the White River and is solely dependent upon storing water in the non-irrigation season in Whitney and Baldwin Reservoirs for delivery to its appropriators during the irrigation season. At present, the District lacks the modern infrastructure necessary to manage, measure, divert, and distribute its water equitably and sustainably; through manual measurement, the District conservatively estimates a significant 2,562 acre-feet annual loss. To best steward the District's water right on the White River, it proposes the Whitney Irrigation District Phase I and II Rehabilitation and Modernization Project (the Project), which includes the excavation of old system structures and the installation of nine new components located throughout the District's operational area. The Project addresses several problem areas in District water management: proper canal piping and lining, accurate irrigation flow measurement, and dedicated prevention of seepage and loss via replacement of gates, pipes, and outlet works. As White River flows are continuously stressed by demands placed upon them by appropriators, Whitney Irrigation District is committed to managing, measuring, and delivering this vital resource as accurately and judiciously as possible. The proposed improvements will stabilize White River flows to the benefit of aquatic ecosystems, local recreation, and downstream appropriators outside of the District. With support from the State of Nebraska Department of Natural Resources and Dawes County and with the requested WaterSMART funding, the District Phase I and II Rehabilitation and Modernization Project will allow the District to meet local infrastructure problems and their far reaching implications for future water use. The District is confident that it can carry out all Phase I and Phase II activities from October 2023 to April 2026.

None of the proposed Project activities are located on a federal facility. Whitney Irrigation District is a Category A applicant.

Project Location

The District's diversion from the White River is located in Section 26, Township 32N, Range 52W, which is approximately 8.2 miles southwest of Whitney, Nebraska. The District's operations area is located just North of Nebraska State Highway 20 near Whitney, Nebraska.

Approximate Latitude/Longitude for the components are as follows:

Phase I Component #1: Lat 42°48'50.3"N Long -103°20'16.6"W

Phase I Component #2: Lat 42°47'47.3"N Long -103°18'41.5"W

Phase I Component #3: Lat 42°47'33.8"N Long -103°17'29.3"W

Phase II Component #1: Lat 42°46'40"N Long -103°18'51.2"W

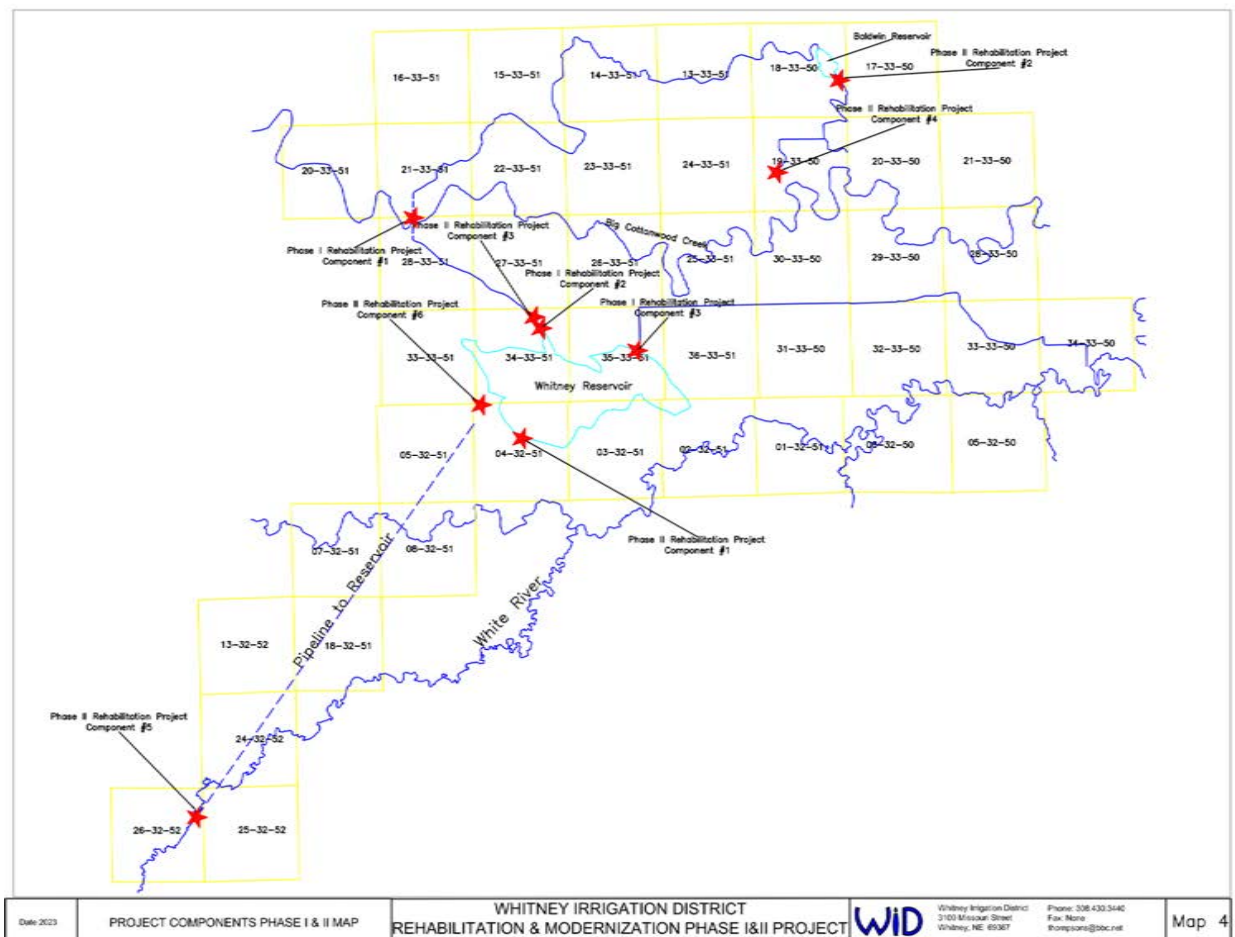
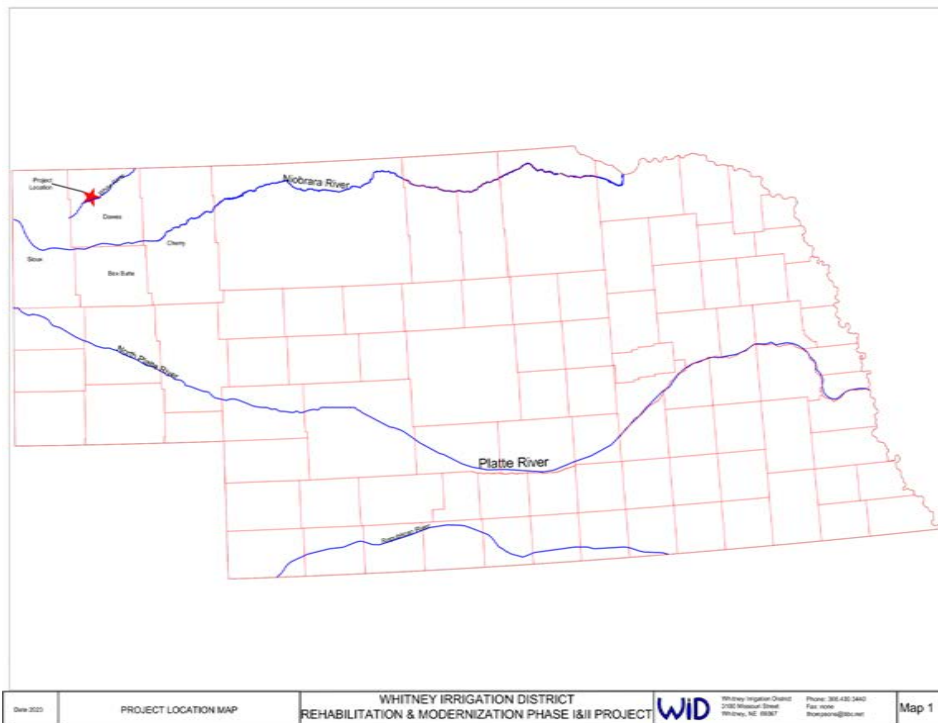
Phase II Component #2: Lat 42°49'56.2"N Long -103°14'58.7"W

Phase II Component #3: Lat 42°47'45.3"N Long -103°18'51.4"W

Phase II Component #4: Lat 42°49'5.5"N, Long -103°15'47.3"W

Phase II Component #5: Lat 42°43'12.7"N Long -103°23'16.4"W
 Phase II Component #6: Lat 42°46'59.4"N Long -103°19'34.9"W.

Three maps are provided to show Project location and Whitney Irrigation District's operational area and Component locations (see [Appendix A](#)).



Technical Project Description

Overview of Engineering Design and Project Plan

The District's Rehabilitation and Modernization Project will be carried out in two phases, each consisting of mobilization, demolition, construction, and rehabilitation tasks. The rehabilitation sites span the District, including five along the Whitney Reservoir, one on the Baldwin Reservoir, both of which are earthen dams fed by the White River and Big Cottonwood Creek, and one site on each river or stream respectively. The Project proposes the installation of nine components over one irrigation season and three non-irrigation seasons, with mobilization for Phase I Component #1 beginning in October 2023 and completion of Phase II Component #6 scheduled for April 2026.

Phase I

Component #1

Phase I Component #1, also called the Cottonwood Siphon, will replace the existing 36" Ø – 2,450 LF siphon under Big Cottonwood Creek, with new 36" Ø Fusible HDPE siphon pipe. The existing siphon is significantly corroded, leaking approximately 1,350 gpm on a daily basis. The District plans to have measurements taken this year on both the upstream and downstream sides of the siphon to determine the actual loss.

Tasks associated with Component #1 consist of installation of 2,450 lineal feet of 36" Ø, Fusible HDPE siphon pipe, removal of the existing siphon inlet structure, construction of a new siphon inlet structure, epoxy coating of the siphon outlet structure, installation of three air vent pipes, and establishment of a manual drain valve and piping. In the process of removing the existing steel siphon pipe, construction will abandon an existing wooden siphon pipe in place.

Component #2

Phase I Component #2 will replace the gate on Whitney Reservoir's west outlet structure with a Rubicon SlipMeter gate. The west outlet structure is composed of dilapidated concrete and manual slide gates that are difficult to maintain. The benefit of the Rubicon gate is twofold: it provides an accurate measurement of the water being discharged and it allows for remote operations and simpler maintenance.

Tasks associated with Component #2 are the rehabilitation of the west outlet structure and installation of the Rubicon SlipMeter gates. Rehabilitation to the outlet structure consists of pouring and reinforcing concrete, grouting, and applying protective coating. Installation includes the temporary construction of a cofferdam in order to properly dewater the construction site.

Component #3

Phase I Component #3 will replace the existing gate on Whitney Reservoir's east outlet structure with a Rubicon SlipMeter gate. As mentioned in the description of Phase I Component #2, the Rubicon gate offers measurement and remote operation capacities that the deteriorated slide gate structure does not. Tasks associated with Component #3 are the same those associated as Component #2.

The pictures shown on the next page are of the east outlet structure. The west outlet structure is in comparable condition.



Existing east outlet.

A SlipMeter gate will be installed on each of the existing slide gate locations. The spalled concrete will be grouted and epoxy coated in order to seal the existing concrete.

Phase II

Component #1

Phase II Component #1 will rehabilitate Irwin outlet works from Whitney Reservoir. The Irwin outlet works consist of a collection structure at the base of the reservoir, a discharge structure at the base of the dam, and an open lateral ditch. Currently, the outlet works leaks, causing a daily loss of 4.8 acre-feet of storage water during the non-irrigation season. The outlet works also do not have measurement capability. The discharge lateral from the outlet works parallels the toe of the dam causing a sloughing issue for the dam due to the lateral leakage. This poses a stability issue, as ground saturation can lead to wall movement, and a safety risk to surrounding infrastructure and communities, as wall movement can lead to collapse.

Phase II Component #1 will repair and replace the outlet works, depending on the recoverability of the part, to eliminate the water leakage and provide a discharge measurement. Component #1 consists of the construction of approximately 1,000 linear feet of 12" lateral piping, tiling a current open lateral ditch. In addition, this component will consist of the abandonment of the collection structure in the Lake and the rehabilitation or replacement of lake outlet structure to reduce seepage.

Tasks associated with Phase II Component #1 consist of lowering of the reservoir for collection structure construction, rebuilding the collection structure, replacement of the discharge structure with a Rubicon SlipMeter gate, replacement of piping with 12" pvc pipe, and tiling of the open lateral.

Component #2

Phase II Component #2 will rehabilitate and replace the Outlet works from Baldwin Reservoir. The 24" Ø pipe outlet from the reservoir has separated causing leakage from the reservoir into the outlet channel resulting in a daily loss of 4 acre-feet of storage water during the non-irrigation season. The Project will include the excavation and replacement of the outlet piping and gate structure from the reservoir to eliminate the water loss and improve discharge measurements.

Tasks associated with Phase II Component #2 are the reconstruction of the collection structure, the replacement of outlet piping with fusible HDPE or reinforced concrete, and the installation of an automated discharge structure, likely a SlipMeter gate.

Component #3

Phase II Component #3 will replace eight water delivery structures North West of Phase I Component #2 with new structures that provide improved flow control and measurement. At present, several appropriators are unable to reliably receive irrigation water essential to operations. The new gate structures fix this issue and prevent future delivery issues. Five structures will be 8 feet wide with one outlet gate; two structures will be 8 feet wide with two outlet gates; and one structure will be 12 feet wide with one outlet gate.

Tasks associated with Phase II Component #3 include the installation of the eight water delivery structures, and may include dewatering groundwater in order to prepare for each installation.

Component #4

Phase II Component #4 will include the installation of a short 12" pvc pipeline from the end of a lateral to a pre-existing water containment area for storage for later use. Currently the water spilled at the end of the lateral ends up in Big Cottonwood Creek and is lost to the District to meet a beneficial use. The piping will prevent overflow that results in uncontrolled losses for the District and provide a supplemental supply of water that would otherwise result in a spill.

Tasks associated with Phase II Component #4 include the installation of 12-inch piping at the end of an irrigation lateral.

Component #5

Phase II Component #5 will rehabilitate the existing diversion from the White River that supplies water to the pipeline that feeds Whitney Reservoir. This is a critical structure because all of the water supply for the Whitney Irrigation District is diverted through this structure and pipeline. Currently there is no measurement of the water diverted and daily cleaning is required. The new structure will address these issues.

Phase II Component #5 will consist of the rehabilitation of the White River Diversion to Whitney Lake. The project will consist of the reconstruction of the concrete portion of the diversion, the demolition of the existing headgate, the construction of a cofferdam and diversion of the River, the installation of two new headgates, and the rehabilitation of the area.

Component #6

Phase II Component #6 will replace the open channel from the outlet of the feeder pipeline into Whitney Reservoir with a 36" pipeline. The filling of Whitney Reservoir via the pipeline from the White River diversion occurs during the months of October through April/May so that the water can be used during irrigation season. Icing and drifting of snow during the winter months results in the overflow of the open channel, causing the loss of water for storage. The open channel also loses water through seepage and evaporation. As the District is a junior water appropriator from the White River and is solely dependent on being able to divert and store water during the non-irrigation season, these losses pose a significant management issue. Additionally, the inlet channel is overgrown and has had ice jam issues that have led to flooding over a county road and limited the District's ability to divert during certain periods of time. The piping will allow for the District to maintain diversions throughout the year and ensure the integrity of adjacent infrastructure.

Phase II Component #6 consists of the installation of approximately 2,000 lineal feet of 36-inch

pipings at the inlet to the lake and the construction of the inlet portion to support the pipe's connection to the existing channel. Depending on the level of the lake, construction may include the placement of a cofferdam to install discharge portion of the pipe.

Construction Timeline

Mobilization on Phase I Component #1 began on November 8th 2023. It is projected to be completed by April 5th, 2024.

Phase I Component #2 and Component #3 construction is estimated to be completed in approximately 90 days. Fabrication of the SlipMeters takes up to 12 weeks. Construction of Phase I Component #2 and Component #3 is projected to be finished by April 2025 at the latest.

Phase II Components #1 and #2 construction would be completed during the non-irrigation months and be estimated to be completed between October 1st, 2024 and April 5th, 2025.

Phase II Components #3 and #4 construction would be completed during the non-irrigation months and be estimated to be completed between October 1st, 2025 and April 5th, 2026.

Phase II Components #5 and #6 construction would be completed during the irrigation season and would be anticipated to be started after April 15th, 2026 and completed before October 1st, 2026.

Evaluation Criteria

E.1.1. Evaluation Criterion A – Quantifiable Water Savings

Describe The Amount of Estimated Water Savings and Describe Current Losses

Describe The Support/Documentation Of Estimated Water Savings

The proposed Project will save significant quantities of water throughout Whitney Irrigation District. The District's system, parts of which date back to its incorporation in 1922, were not designed or constructed for rigorous water measurement. As a result, there is a lack of reliable data on the District's service area, which impacts the degree of accuracy of the precise amount of water savings that will be achieved through Phase I and II of the Project. At present, Whitney takes manual measurements of flows and appropriations, the last season's of which were unfortunately lost in a 2023 break-in at the District's office. The District's Project seeks to right this lack of reliable measurement with new automated headgates that provide highly accurate measurement of flow and diversion.

Whitney's system losses are immense, creating urgency behind the Project. The existing Cottonwood Siphon is significantly corroded, leaking approximately 1,350 gpm on a daily basis. There is not a measuring device on the inlet and outlet of the siphon to provide an accurate measurement of water loss. The loss at the outlet structures and at the Cottonwood Siphon is manually measured with seven threads of slack and 250 gpm/thread. Replacing the 2,450 LF, as Phase I Component #1 proposes, would save 714 acre-feet per year ($1,350 \text{ gpm or } 3 \text{ cfs} \times 1.9835 \times 120\text{-day irrigation season} = 714 \text{ AF}$). Water losses at Phase II Components #1 and #2, outlet structures from Whitney and Baldwin Reservoirs during the non-irrigation season are the most substantial loss. Eliminating outlet works leakage alone would save approximately 1,848 acre-feet annually. The savings are based on a daily loss from the two sites of 8.8 acre-feet/day times the 210 days of the non-irrigation season; calculation ($8.8 \times 210 = 1,848 \text{ acre-feet}$). Overall, the District estimates an annual 2,562 acre-feet loss ($714 + 1,848 = 2,562 \text{ acre-feet per year}$). This is a very conservative estimate, as it only covers the loss associated with three of the nine Project sites.

Current losses from the system either seep into the ground or return to the White River or Big Cottonwood Creek. During the irrigation season the leakage can be utilized for delivery to irrigators, but in the 210 day non-irrigation season the leakage is spilled back to the White River and is lost to downstream appropriators. There are not any downstream reservoirs that divert and store water from the White River that would benefit from the water losses.

Current losses benefit the existing fish and wildlife ecosystem on the White River. by increasing flows downstream. These losses are especially beneficial for aquatic species, as higher water levels during dry seasons aid in aquatic resiliency. Whitney hopes to mitigate the potential effects of minimizing losses by managing its water right judiciously, working with surrounding water districts to ensure adequate levels for ecosystem health.

The District estimates water savings from the project at 2,305.8 acre-feet annually ($2,562 \text{ acre-feet annual loss} \times .9 = 2305.8 \text{ acre-feet per year}$). This water savings is calculated with a conservative estimate of 90% savings from the installation of automatic diversion structures, new canal lining, and a gasketed polyvinyl chloride siphon. The 2,305.8 acre-feet savings estimate is only for three

out of the nine Project components, so the District expects actual savings to far surpass even that significant figure.

Address The Following According To The Type Of Infrastructure Improvement

You Are Proposing For Funding:

1) Canal Lining and Piping

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

As Whitney Irrigation District diversion records are not held by the Nebraska Department of Natural Resources (NDNR), and Whitney utilizes offstream storage as part of its canal system for water delivery, average water savings have been determined using state and local canal efficiency figures. Pathfinder Irrigation District (Pathfinder) is a much larger district in the area that also utilizes offstream reservoirs as part of their system. Pathfinder’s 5 year average efficiency is 44.3%; other districts in the area that do not have offstream storage record closer to 60% canal efficiency rates. Systems with offstream reservoirs have both evaporation and seepage losses associated with the storage of water in the reservoirs that results in poorer overall efficiencies. Since Whitney does not have continuous measurements on diversion and delivery to calculate its system efficiency, it assumes a 60% canal efficiency, a very conservative number, for calculations.

The estimated average water savings from the installation of Phase II Component #1, 1,000 feet of 12” pipe, is 100.8 acre-feet per year. This estimate is based on a system efficiency of 60%, calculated as follows; water delivery to the two center pivots served by the pipeline is 3.33 cfs or 1499 gpm. Using a 60%/mile delivery efficiency and a distance of .19 miles yields an average loss of .42 cfs/day [(3.33/.6=5.55)-3.33=2.22 cfs or 2.22 cfs/mile x .19=.42 cfs] or .84 acre-feet/day. Over a 120 day irrigation season the savings would be .84 acre-feet x 120 days = 100.8 acre-feet. Below is a chart of average efficiencies from similar districts.

**Water Efficiency Data from Bureau of Reclamation
Compiled Records 1999-2003**

Districts that are similar to Whitney show the following water efficiency averages:

Enterprise Irrigation District	Bridgeport Irrigation District	Lingle Water Users	Chimney Rock Irrigation District
58.80%	57.80%	60.80%	58.40%

(b) How have average annual canal seepage losses been determined?

The canal efficiency of 60% is based on the average canal efficiencies of the 26 irrigation districts and canal companies located in Western Nebraska which average 50-60%.

At present, since there is no conventional way to measure these losses, estimates are based on manual measurements and observations of flow from the sites, such as flows leaking from the siphon into Cottonwood Creek, and canal efficiency rates from similar districts. Whitney has paired consistent observation from District staff with an assumed rate of 60% efficiency to calculate seepage loss.

(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 material proposed for the Project's piping is gasketed polyvinyl chloride pipe, which would have no losses, making post project seepage losses zero.

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

The annual transit loss reduction per mile is (4.44 acre-feet x 120 days=532.8) acre-feet. For the Phase II Component #1 1,000-foot project the annual transit loss reduction is 100.8 acre-feet.

(e) How will actual canal loss seepage reductions be verified?

The Project eliminates losses to a portion of the system that delivers the water to the center pivots, making the verification of actual seepage loss reductions less pertinent. Once the open lateral is replaced with a buried pipeline there will be no losses. One hundred percent of the water released into the pipeline will reach the delivery points.

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

Materials used will be 12" pvc SDR-51 pipe.

2) Irrigation Flow Measurement

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

Annual water savings has been determined using the manual measurements of losses at Whitney Irrigation District's disposal and a conservative post-Project savings percentage of 90%. Manual measurements are made with seven threads of slack at 250 gpm/thread and a stopwatch. All calculations and assumptions listed above in 1) Canal Lining and Piping.

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.

Average water savings and current operational losses have been determined via the assumptions and calculations provided above. There are no additional calculations pertaining to the measurement accuracy of Whitney's diversion and delivery systems, as they are substantially dilapidated and lack measurement devices.

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?

Flow is not currently measured at the proposed sites, as there are no existing measurement devices.

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

The Rubicon FlumeGate gate will provide flow measurement with an accuracy of plus or minus of 2.5%. Accuracy of FlumeGate M-626-620 model was verified by Manly Hydraulics Laboratory in August 2005.

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

Ensuring a stable and dependable flow in the canal will enable farmers to receive steady deliveries, promoting the shift from gravity irrigation systems to more effective center pivot irrigation systems. Whitney anticipates a decrease in delivery volumes as a result of the enhanced efficiency of on-farm systems.

(f) How will actual water savings be verified upon completion of the project?

Water savings will be verified by placing measurements from the Rubicon diversion gates against the 60% efficiency and loss estimates quoted above. The savings from the installation of the new diversion structure will be registered with the savings from the canal lining projects, as these aspects of the Project will be conducted in tandem.

E.1.2. Evaluation Criterion B – Renewable Energy

E.1.2.1. Subcriterion No. B.1: Implementing Renewable Energy Projects Related To Water Management And Delivery

Renewable energy efforts relevant to the Project are described in E.1.2.2.

E.1.2.2. 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). (a) - (e)?

Not applicable to project.

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

With the measurement capabilities, automated flow management, and streamlined maintenance associated with the diversion structure on the White River (see Phase II Component #5), less vehicle travel will be required to adjust flows and clean debris from the structure at the diversion site. Roundtrip travel distance from the District office to the diversion structure is approximately 16 miles. Currently, depending on conditions, District staff are making daily, if not multiple daily trips, to the diversion dam to make sure the District is diverting the proper amount of water under their water right. With the installation of the Rubicon gates and SCADA system, District staff will be able to monitor and control the amount being diverted from the office and only travel to the site for necessary maintenance.

The District diverts water for approximately 210 days during the non-irrigation season. It is estimated that two thirds of the trips will be eliminated with the improvements, saving 2,251 miles and an estimated 225 gallons of gasoline per year, resulting in a reduction of 2.0 metric tons in emissions. (Calculation: $16 \text{ miles} \times 210 \text{ days} \times 2/3 = 2,251 \text{ miles saved} / 10 \text{ mpg} = 225 \text{ gallons saved} \times .008887 = 2.0 \text{ metric tons}$). The installation of Rubicon SlipMeter gates in Phase I Components #2 and #3, and Phase II Component #1 will provide for automated operation, reducing the daily trips necessary to adjust flows in the canals. The roundtrip distance to all three components is 14 miles per day every day of the 120 day irrigation season. District staff will be able to monitor and control the water flows at these sites remotely from the office with the new system, reducing the number of trips necessary each year by two thirds. The result is a savings of 1,454 miles, and at 10 mpg savings of 145 gallons of gasoline per year, resulting in a reduction of 1.3 metric tons in emissions. (Calculation: $14 \text{ miles} \times 120 \text{ days} \times 2/3 = 1,126 \text{ miles saved} / 10 \text{ mpg} = 113 \text{ gallons saved} \times .008887 = 1.3 \text{ metric tons}$). In total, the implementation of the Project would reduce the District's emissions by 3.3 metric tons.

(g) 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).

The project will employ small-scale solar power for running the diversion gates and the SCADA system, eliminating the need for energy consumption from a power company which likely relies on fossil fuel generation.

E.1.3. Evaluation Criterion C – Sustainability

E.1.3.1. Enhancing Drought Resiliency

(a) Does the project seek to improve ecological resiliency to climate change? through

(d) Please describe any other ecosystem benefits as a direct result of the project.

The Project will enhance drought mitigation and bolster ecological resiliency by providing better control, measurement, and management of the White River Basin water supply. Accurate measurement will allow for better management of the District's junior water right and more system reliability for downstream appropriators. By eliminating seepage and losses, the District will increase carryover in the Whitney and Baldwin reservoirs and will need to divert less water during the non-irrigation season to fill the reservoir, thereby leaving water in the White River for downstream use. Water will not stay in the system longer, but be utilized more judiciously. With improved downstream surface water flows, less water may be drawn from groundwater sources to meet downstream demands.

Improved downstream flow will benefit fish and wildlife as stabilization of flows leads to healthier aquatic ecosystems. Consistent water flow and levels increase nutrient availability and riverbank vegetation. Thriving vegetation maintains the integrity of the riverbank, quelling erosion and creating a habitat for birds and animals. Nutrient cycling is more consistent if flows are stabilized, supporting the availability of nutrients and the diversity of species able to thrive in the river basin. Floodplain connectivity is also ameliorated by stable flows, creating increased flood resiliency in the wider area.

Since climate change can lead to increased variability in precipitation patterns, the District's project is concerned with increasing resiliency to both floods and droughts. Strengthening infrastructure throughout the system will allow the District to manage downstream flows to mitigate particularly dry seasons as well as particularly wet ones. Mitigating this variability is crucial to ecosystem integrity. Additionally, by lessening the likelihood of a structural collapse of the Whitney and Baldwin Reservoirs, the District is protecting the ecosystems that reside within and around those bodies of water. At present, Whitney reservoir is home to a lively habitat of fish, bird, and wildlife species including the antelope, bald eagle, walleye, northern pike, and largemouth bass. There are no federally threatened or endangered, nor state listed, species in the Project area.

E.1.3.2. Addressing A Specific Water And/Or Energy Sustainability Concern(s)

Will the project address a specific sustainability concern? Please address the following:

(a) Explain and provide detail of the specific issue(s) in the area that is impacting water sustainability, such as shortages due to drought and/or climate change, increased demand, or reduced deliveries.

In Whitney Irrigation District and the surrounding area, there is high demand for water and the reliability of that water is increasingly unstable. Since 2002, Western Nebraska has experienced drought and a shortage of water supply in 9 out of the 21 years (43%). Precipitation during those years varied between 50-75% of historical average. The Project will help address shortages due to drought and climate change, providing the infrastructure for increased water sustainability.

(b) 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.

Improving irrigation infrastructure lessens District-wide fossil fuel reliance. District staff are reliant on fossil fuel use in operations, as sites that need daily management are regularly anywhere from 5 to 30 miles from the District office. As stated above, the District office to the Whitney headgate is 16 miles. Importantly, when appropriators are unable to receive irrigation water due to drought and a subsequent restriction on deliveries, they are forced to either truck in water or use a groundwater pump, both of which can be fossil fuel intensive. Automation of the headgate and renovation of system components will serve to mitigate if not eliminate those dependencies on fossil fuel, improving energy sustainability in the District.

(c) Please describe how the project will directly address the concern(s) stated above. For example, if experiencing shortages due to drought or climate change, how will the project directly address and confront the shortages?

Improving irrigation infrastructure lessens District-wide fossil fuel reliance. District staff are reliant on fossil fuel use in operations, as sites that need daily management are regularly anywhere from 5 to 30 miles from the District office. As stated above, the District office to the Whitney headgate is 16 miles. Importantly, when appropriators are unable to receive irrigation water due to drought and a subsequent restriction on deliveries, they are forced to either truck in water or use a groundwater pump, both of which can be fossil fuel intensive. Automation of the headgate and renovation of system components will serve to mitigate if not eliminate those dependencies on fossil fuel, improving energy sustainability in the District.

(d) 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 system, or used to meet another intended use.

The conserved water would be left in storage in Whitney and Baldwin reservoirs for future use by the District's customers, offsetting calls for storage water and lessening the need for alternate water sourcing.

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

The Project will employ modernized canal infrastructure, automated diversion gates, and on-farm improvements to lessen seepage and evaporation losses, leaving conserved water to be left in storage as intended.

(f) Indicate the quantity of conserved water that will be used for the intended purpose.

The District approximates a minimum of 2,305.8 AF will be conserved and stored for District customers.

E.1.3.3. Other Project Benefits

(1) Combating the Climate Crisis

Please describe how the project will address climate change, including the following:

(a) Please provide specific details and examples on how the project will address the impacts of climate change and help combat the climate crisis.

By minimizing losses, curbing shortages, and protecting floodplains, the District hopes to support agriculture and recreation as the climate changes in unforeseen ways. "Understanding and Assessing Climate Change: Implications for Nebraska," a 2014 report compiled by the University of Nebraska-Lincoln School of Natural Resources, estimates that state's soil moisture will decrease 5-10%, 13-25 summer days will be over 100 degrees Fahrenheit, and floods and droughts will increase in both magnitude and severity by 2100. At present, the Upper Niobrara White Natural Resources District (UNWNRD), which encompasses the entire area of this Project, is already considered fully-appropriated by the Nebraska Department of Natural Resources. Water management is vital to present and future climate resilience as the state and the District face increasing shortage and inundation. The Project rehabilitates and modernizes District infrastructure so that the area is better equipped to steward its junior right to the White River Basin. By replacing leaking pipes, installing headgates and diversion structures that allow for precise monitoring and delivery, and stabilizing flows thereby fortifying downstream ecosystems and floodplain connectivity, the District will be able to better address the impacts of changing climate conditions in our area.

(b) Does this proposed project strengthen water supply sustainability to increase resilience to climate change?

The Project strengthens water supply sustainability and increases resilience to climate change by optimizing the District's water right and stabilizing White River flows. Improved management increases the stability of the water supply. The proposed improvements will significantly minimize the amount of water lost to the District's aging infrastructure, better ensuring delivery to appropriators and storage for future years. The District's ability to optimally store water is pivotal to farmers and ranchers who rely on irrigation of their land. The automated gates will also give the District accurate data with which to reliably and equitably appropriate water during irrigation season. The stabilization of flows has a number of benefits for water supply sustainability. Adequate flow levels dilute contaminants and pollutants to ensure cleaner and healthier water for both human consumption and ecosystem health. In agricultural areas, consistent flow prevents the accumulation of fertilizer and excrement which lead to algal blooms and degraded aquatic health. Overall, this Project supports water supply sustainability through improved management to the benefit of communities, ecosystems, and the agricultural industry alike.

(c) Will the proposed project establish and utilize a renewable energy source?

The Project will utilize small-scale solar power to operate the Rubicon gates and the SCADA system. The gates' motion and water measurement will be powered by a 12 volt battery pack, which is supported and recharged by solar panels.

(d) Will the project result in lower greenhouse gas emissions?

The Project will reduce the District's greenhouse gas emissions by an estimated 3.3 metric tons per year. According to the Environmental Protection Agency, that is roughly equivalent to the carbon sequestered by 4 acres of U.S. forest in one year. The automated gate structures for diversion and canal discharge will significantly lessen the number of trips District staff regularly take to the various components of the system, lessening the District's dependency on fossil fuels. The Project is also projected to lower greenhouse gas emissions by downstream appropriators as more water will be available, making energy intensive calls for groundwater, storage water, or water to be trucked in less likely to be necessary.

(2) Disadvantaged or Underserved Communities

Please describe how the project supports E.O. 14008 and E.O. 13985.

(a) Does the project directly service and/or benefit a disadvantaged or historically underserved community?

The service area of Whitney Irrigation District is home to a small, dispersed rural community of 69, according to the 2021 census. Those who farm in the District are impacted by economic precarity, as an unsuccessful harvest due to unstable irrigation can be devastating for those who depend on agriculture, causing a ripple effect for educational opportunities and health outcomes. The Project will benefit the service area by securing a dependable source of irrigation water. This will be especially important as climate change continues to impact rural communities.

(b) If the proposed project is providing benefits to a disadvantaged community, provide sufficient information to demonstrate that the community meets the disadvantaged community definition in Section 1015 of the Cooperative Watershed Act.

The population of Whitney's service area is threatened by rural economic insecurity. In 2022, the annual median household income in Whitney was \$58,750, compared to the statewide annual median income of \$78,360 for Nebraska. The expenses associated with being dependent on car travel, with schools and health centers substantial distances from people's homes, have an adverse effect on pre-tax income.

(c) If the proposed project is providing benefits to an underserved community, provide sufficient information to demonstrate that the community meets the underserved definition in E.O. 13985.

The denizens of Whitney Irrigation District's service area meet the definition of an underserved community in that their location denies them access to available emergency and specialty health services, full spectrum educational opportunities, and social events. Isolation acts as a foundation for several impediments to holistic wellbeing.

(3) Tribal Benefits

Please address the following, (a) - (c), if applicable.

Not applicable to project.

(4) Other Benefits

Will the project address water and/or energy sustainability in other ways not described above?

For example:

(a) Will the project assist States and water users in complying with interstate compacts?

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

(c) Will the project benefit a larger initiative to address sustainability?

(d) Will the project help to prevent a water-related crisis or conflict? Is there frequent tension or litigation over water in the basin?

The Project aims to lessen tension over a heavily stressed resource, the White River, while benefiting multiple sectors and communities that use the river.

Reducing losses and improving storage water carryover are critical to the District's farmers. As previously mentioned, the UNWNRD is considered fully-appropriated by the Nebraska Department of Natural Resources. As such, the NRD is working to manage water supplies to avoid overuse of the commingled water resources. Conflicts and calls for regulation of the White River Basin occur on a regular basis, as there are more water rights demands than it has water supply. This often causes junior water right holders' appropriation to be halted during irrigation season to meet the needs of senior water rights holders to the detriment of their crop, their financial stability, and the economic wellbeing of the region. Any improvements that conserve or enhance water control and management aid in the relief of such conflicts for the District and for appropriators downstream.

The Project will benefit the environment by improving water levels in Whitney Reservoir for the fish, wildlife and recreational uses of the Reservoir. Water recreation is an important aspect of local culture, as the Whitney Reservoir provides access to birding, fishing, swimming, and boating. The municipality holds an annual ice-fishing competition on the Reservoir, which cannot take place without adequate water levels.

An additional, and critical, benefit of this project is that of safety. Structural issues in the Irwin outlet works of the Whitney Reservoir threaten extensive water loss if they are not remediated and can affect the integrity of the embankment of the dam itself. The structural failure of the dam could involve significant property damage and potentially loss of life. The improvements proposed by the Project would eliminate that threat.

E.1.4. Evaluation Criterion D – Complementing On-Farm Irrigation Improvements

(1) Describe any planned or ongoing projects by farmers/ranchers that receive water from the applicant to improve on-farm efficiencies

(a) Provide a detailed description of the on-farm efficiency improvements.

(b) Have the farmers requested technical or financial assistance from NRCS for the on-farm efficiency projects, or do they plan to in the future?

(c) 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.

(d) Applicants should provide letters of intent from farmers/ranchers in the affected project areas.

There are currently three on-farm improvement projects planned for the next one to two years in Whitney Irrigation District. All of the on-farm projects are conversions from gravity irrigation to center pivot irrigation. This conversion will improve on-farm water use efficiency by 27-37%, reducing strain on a stressed resource. The District supports these projects as they strive for more sustainable water management and alleviate financial pressure on community members. The Project will also help facilitate the on-farm improvements planned. The locations within the District are shown on Map 5 (See [Appendix A](#)). None of the farms receive assistance from NRCS.

Each farmer has supplied a letter of intent stating their readiness to move forward with the on-farm improvements they have planned. See [Appendix B](#) for Letters of Commitment and Support for a letter of intent from the farmer.

(2) Describe how the proposed WaterSMART project would complement any ongoing or planned on-farm improvement.

(a) 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. OR

(b) Will the proposed WaterSMART project complement the on-farm project by maximizing efficiency in the area? If so, how?

The three on-farm projects will benefit greatly from the District's Project. The proposed improvements to the District's water delivery system will significantly reduce fluctuations in canal flows, making it more reliable for pumping to a center pivot system, avoiding pivot shutdowns when levels are low and spills when levels are high. As seen in Map 3 (See [Appendix A](#)), several irrigators have already installed center pivot systems to improve their water use efficiency. By stabilizing the flows in the canal and maximizing efficiency, the Project aims to encourage other irrigators to move to more efficient irrigation practices.

(3) Describe the on-farm water conservation or water use efficiency benefits that are expected to result from any on-farm work.

a) 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.

Savings associated with three planned projects are significant; the projects are estimated to save approximately 442 acre-feet per year at the diversion point. The net irrigation requirement in Dawes County, Nebraska, based on irrigated corn, is 14 inches per year. Gravity irrigation systems, at best, are 55% efficient, whereas center pivot systems are 87% efficient at meeting the irrigation requirement. Most earthen canal systems in the area are 50-60% efficient (calculations use a 55% figure). Calculations provided below.

Gravity system [(14 inches/55%)/55% = 46.3 inches or a 3.86-acre-foot diversion requirement]

Center pivot system [(14 inches/87%)/55% = 29.26 inches or a 2.44-acre-foot diversion requirement]

Savings per acre [3.86 - 2.44 = 1.42 acre-foot/acre] [1.42 x 201.7 acres = 286.41 acre-feet] per year at the point of diversion.

(4) *Please provide a map of your water service boundaries.*

See [Appendix A](#) for map of service area boundaries.

E.1.5. Evaluation Criterion E – Planning and Implementation

E.1.5.1. Subcriterion No. E.1.: Project Planning

(1) Does the applicant have a Water Conservation Plan and/or System Optimization Review (SOR) in place? Does the project address an adaptation strategy identified in a completed WaterSMART Basin Study? Please self-certify or provide copies of these plans where appropriate to verify that such a plan is in place. Including a specific excerpt or a link to the planning document may also be considered where appropriate.

Provide the following information regarding project planning:

- (a) Identify any district-wide, or system-wide, planning that provides support for the proposed project. This could include a Water Conservation Plan, SOR, Drought Contingency Plan or other planning efforts done to determine the priority of this project in relation to other potential projects.*
- (b) Describe how the project conforms to and meets the goals of any applicable planning efforts and identify any aspect of the project that implements a feature of an existing water plan(s).*
- (c) If applicable, provide a detailed description of how a project is addressing an adaptation strategy specifically identified in a completed WaterSMART Basin Study or Water Management Options Pilot (e.g., a strategy to mitigate the impacts of water shortages resulting from climate change, drought, increased demands, or other causes).*

At present, there is no WaterSMART Basin Study for the White River Basin. The District is not a federal contractor, and therefore it is not required to have a Water Conservation Plan or System Optimization Review.

Whitney Irrigation District participated in developing the UNWNRD Integrated Management Plan as a regional stakeholder. The plan does have a water conservation/drought mitigation component for both surface water and groundwater. The renovations in this proposal are in agreement with UNWNRD goals for surface water management. While the Project is not mentioned in the UNWNRD Integrated Management Plan, but the NRD supports efforts by Whitney to make improvements and accommodate on-farm conservation efforts.

E.1.5.2. Subcriterion No. E.2.: Readiness To Proceed

(a) Identify and provide a summary description of the major tasks necessary to complete the project. Note: please do not repeat the more detailed technical project description provided in Section 1.3; this section should focus on a summary of the major tasks to be accomplished as part of the project.

The Whitney Irrigation District Phase I and II White River Infrastructure Rehabilitation and Modernization Project includes the following tasks: mobilization and construction of Phase I components, bidding process and contractor selection for Phase II components, acquisition of all requisite permits, mobilization and construction of Phase II components, and restoration of all project sites. Completion of the Project is slated for October 2026.

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

Whitney's Project requires the following permits:

- A Categorical Exclusion (Cat-Ex) document following guidance from the Bureau of Reclamation will be required to comply with the National Environmental Protection Act (NEPA).
- A United States Army Corps of Engineers (USACE) Clean Water Act (CWA) 404 Permit – submission of application upon finalization of design footprint. We anticipate this project will be permitted under a Nationwide Permit (NWP), specifically NWP 3(a). The permit application will be submitted to the USACE Omaha Regulatory Office.
- A Local Floodplain – submission of application with final design. The permit application is provided to the local jurisdiction, Dawes County, with certification of meeting the local floodplain permitting requirements.

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

M.C. Schaff, a licensed engineering firm based in Scottsbluff, Nebraska, has been selected to design the Project's nine components and manage the bidding process.

At the moment of this proposal, the pipe for the Cottonwood Siphon (Phase I Component #1) has been procured by the District, a contractor was selected, and mobilization has begun. The plans and specifications for the installation of the Rubicon SlipMeter gates (Phase I Components #2 and #3) are currently being developed. The Phase II projects have been evaluated for budgetary purposes and still need to be preliminarily surveyed, designed, and have plans and specifications produced.

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

Not applicable to project.

(e) Please also include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.

Outside of the construction schedule provided in the Technical Project Description, milestones associated with the Project Schedule include:

- Conclusion of Permitting and Commencement of Bidding Process - By September 1 2024
- Project Contractor Selected - By October 1 2024
- Construction and Installation (100%) - By October 1 2026

E.1.6. Evaluation Criterion F – Collaboration

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

(a) 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?

(b) What is the significance of the collaboration/support?

(c) Will this project increase the possibility/likelihood of future water conservation improvements by other water users?

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

Whitney Irrigation District has community, county, and state support for the rehabilitation and modernization project. The Nebraska Department of Natural Resources (NDNR) and Dawes County are supporters and funding partners on the Project. The Upper Niobrara White Natural Resource District (UNWNRD) is a non-funding local supporter, and the Nebraska State Irrigation Association (NSIA) is a non-funding supporter providing in-kind assistance with grant writing and award management.

Financial assistance for this project will be provided by NDNR and Dawes County, the significance of which is present in the Project budget. The UNWNRD supports the Project as it contributes to goals identified in the district's Integrated Management Plan. NSIA is a state-wide association of irrigation districts, public power and irrigation districts, public power districts, canal companies, reclamation districts and individuals working to support surface water irrigation in Nebraska. They are providing in-kind support to assist water entities with securing funding assistance for improving water management and efficiencies in their systems.

The District's Project will serve as a demonstration project for the many other small irrigation districts in the area that would benefit from improvements to their diversion structures. The District aims to encourage better water stewardship and offer support to other small projects to the betterment of the area and the state writ large.

See attached letters of support and commitment in [Appendix B](#).

E.1.7. Evaluation Criterion G – Additional Non-Federal Funding

State the percentage of non-Federal funding provided using the following calculation: Non-Federal Funding / Total Project Cost.

\$110,000 Dawes County + \$10,000 Whitney Irrigation District + \$1,428,073 Nebraska Department of Natural Resources = \$1,548,073 Non Federal Funding

\$1,548,073.00 Non Federal Funding / \$2,850,210.76 = 54.3% Non-Federal Funding

If federal funding is approved, this Project will be supported by 54.3% non-federal funding and 45.7% federal funding.

E.1.8. Evaluation Criterion H – Nexus To Reclamation

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

- (a) Does the applicant have a water service, repayment, or O&M contract with Reclamation?*
- (b) If the applicant is not a Reclamation contractor, does the applicant receive Reclamation water through a Reclamation contractor or by any other contractual means?*
- (c) Will the proposed work benefit a Reclamation project or activity?*
- (d) Is the applicant a Tribe?*

No, none of the above is applicable to the Project.

Performance Measures



Provide a brief summary describing the performance measure(s) that will be used to quantify actual benefits upon completion of the project (e.g., water saved or better managed, energy generated or saved).

The District will measure performance via improvements in carryover storage in the reservoirs, loss improvements in laterals, and discharge measurements in outlet works. While initial system losses are estimates, the Project will have several quantifiable benefits.

The replacement of open ditches with pipeline will eliminate evaporation and seepage losses. Whitney will track this efficiency by monitoring flows at several locations with new measurement devices. Automated diversion gates and updated outlet works will improve carryover storage, which will be measured in acre-feet and reported to state and federal bodies. Additionally, District staff will be asked to estimate the number of trips taken to the Whitney Reservoir for maintenance and management so that a comparison can be made to the rate of emissions before and after automated gate installation.

Project Budget



Funding Plan and Letters of Commitment

The funding plan for \$2,892,057.26 total project budget is as follows and will be split according by percentage as follows::

- 50.1% Nebraska Department of Natural Resources match: \$1,428,073.00
 - committed as of July 18, 2023. See [Appendix B](#) for letter of commitment by NDNR Director Tom Riley.
- 4.2% Whitney Irrigation District and Dawes County commitment: \$120,000.00
- 45.7% Reclamation WaterSMART Grant: \$1,302,137.76
 - proposed as of February 21, 2024.

As of February 9th 2024, Whitney Irrigation District has spent \$56,027.25 on engineering costs and \$295,620 on materials. The last cost incurrence was on January 8th 2024.

- \$56,027.25 towards the \$128,758.00 Engineering and Inspection costs for the Cottonwood Siphon, Phase I Component #1 (see cost estimate in Appendix D). Paid to contractor on December 1st 2023.
- \$295,620 towards pipe procurement for the Cottonwood Siphon, Phase I Component #1 (see cost

estimate in [Appendix D](#)) . Paid to contractor on November 8th 2023.

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

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

Whitney Irrigation District will contribute \$10,000 toward the cost share requirement, and Dawes County will provide \$110,000, amounting to \$120,000 applicant contribution toward the match. The funds are sourced from tax revenue and assessments.

(b) Any costs that will be contributed by the applicant.

Not applicable to project.

(c) Any third party in-kind costs (i.e., goods and services provided by a third party)

The Nebraska State Irrigation Association (NSIA) are providing in-kind assistance with grant writing.

(d) Any cash requested or received from other non-Federal entities

The Nebraska Department of Natural Resources (NDNR) has committed \$1,428,073.00 toward the cost-share requirement.

(e) Any pending funding requests (i.e., grants or loans) that have not yet been approved and explain how the project will be affected if such funding is denied.

Not applicable to project.

Budget Proposal

Table 2. – Total Project Cost Table

SOURCE	AMOUNT
Costs to be reimbursed by proposed Federal funding	\$1,302,137.76
Costs to be reimbursed by applicant - Whitney Irrigation District and Dawes County	\$120,000.00
Costs to be reimbursed by third party contribution - NDNR funding	\$1,428,073.00
TOTAL PROJECT COST	\$2,850,210.76

Table 3. – Budget Proposal

BUDGET ITEM	\$/Unit	Quantity	Quantity Type	TOTAL COST
Personnel Salaries and Wages				
Included in Contractual	N/A	N/A	N/A	\$0.00
Fringe Benefits				
Not applicable	N/A	N/A	N/A	\$0.00
Travel				
Not applicable	N/A	N/A	N/A	\$0.00
Equipment				
Included in Construction	N/A	N/A	N/A	\$0.00
Supplies and Materials				
Included in Construction	N/A	N/A	N/A	\$0.00
Contractual				
Engineering, Survey, Architecture Design Services	See Appendix D Totalled engineering and inspection costs from Phase I Components and Phase II Components.			\$358,110.10
Construction				
Equipment, Materials, Supplies, and Labor for Project Tasks A-F	See Appendix D Totalled construction costs from Phase I Components and Phase II Components.			\$2,357,187.66
10% Contingency	See Appendix D Totalled construction costs from Phase I Components and Phase II Components.			\$134,913.00
TOTAL DIRECT COSTS				\$2,850,210.76
Indirect Costs				
Not applicable	N/A	N/A	N/A	\$0.00
TOTAL ESTIMATED PROJECT COSTS				\$2,850,210.76

For more information on the Project Budget, please see the Budget Narrative file included with this application and the cost estimate supplied in [Appendix D](#).

Environmental and Cultural Resources Compliance



Whitney Irrigation District was incorporated in 1922, and many of the canals, dams, headgates, and diversions that make up the water delivery system date back to incorporation. The condition of District infrastructure is the reason for the extensive modifications in the project proposal. The construction of Phase I and II Components will include earth-disturbing work as old structures are excavated, new piping and structures are installed, and each worksite is seeded and restored. Disturbed areas for construction will be replaced to equal-to or better than pre-construction condition. There should not be any need for wetland mitigation, as the project components consist of primarily rehabilitation or replacement of existing structures.

The project will proceed with a diligent awareness of the impact species on area species, with the aim of making the project low impact and relatively rehabilitative in nature. Considerations will be taken during construction activities in order to mitigate any impacts, such as a construction schedule that avoids impacting migratory birds. As each worksite is reseeded, care will be taken to avoid non-native invasive species and eliminate any noxious weeds.

The District is home to the Council Tree historic marker, where thousands of indigenous people of the Lakota Sioux nation met for treaty talks with the Allison Commission over the purchase of the Black Hills. The marker is the approximate site of a large cottonwood that was used as a landmark for the 1875 meeting. The meeting is considered one of the largest gatherings of indigenous people of the period. The proposed Project will not limit use of the historic marker or Indian sacred sites, nor result in other impacts to tribal lands.

To the District's knowledge, there are no archeological sites in the Project area.

Required Permits or Approvals

The Project includes the following permitting activities in compliance with municipal, state, and federal guidelines:

A Nationwide permit, specifically NWP 3(a) via the USACE Omaha Regulatory Office.
An Environmental Review/Cat-Ex in accordance with NEPA
A United States Army Corps of Engineers (USACE) Clean Water Act (CWA) 404 Permit
A Local Floodplain Permit via Dawes County.

Conflicts of Interest Disclosure

There are no known conflicts of interest with regard to Whitney Irrigation District and the proposal for federal assistance.

Single Audit Reporting Statement

Whitney Irrigation District has not spent more than \$750,000 in U.S. Dollars this fiscal year.

Unique Entity Identifier and System for Award Management

Whitney Irrigation District is registered with SAM under the Unique Entity Identifier CP35NGT15T3.

Appendix B

Letters of Commitment



NEBRASKA

Good Life. Great Water.

DEPT. OF NATURAL RESOURCES



Pete Ricketts, Governor

February 12, 2024

Ron Pelton, President
Whitney Irrigation District
3100 Missouri Street
Whitney, NE 69367

Dear Ron:

Please consider this letter a formal expression of support and financial commitment from the Nebraska Department of Natural Resources to provide up to \$1,428,073 of matching state funding for the Whitney Irrigation District's application. The investments that are planned to be undertaken by the irrigation district will increase the efficiency of their system and reduce waste. These investments will result in retaining increased levels of water supply in their reservoir where it can further enhance water supplies during periods of drought.

Once again, the Department fully supports the district's efforts to implement these water supply improvements and appreciates their efforts to ensure their system and associated infrastructure remain viable into the future.

Sincerely,

A handwritten signature in blue ink that reads "Thomas E. Riley".

Thomas E. Riley, P.E., Director

Thomas E. Riley, P.E., Director

Department of Natural Resources

245 Fallbrook Blvd., Suite 201 OFFICE 402-471-2363
Lincoln, Nebraska 68521-6729 FAX 402-471-2900

dnr.nebraska.gov

DAWES COUNTY COMMISSIONERS

451 MAIN STREET

CHADRON, NE 69337

May 23, 2023

To:

Nebraska Department of Natural Resources
Surface Water Irrigation Infrastructure Fund
Whitney Irrigation District
Ron Pelton 308-430-0428

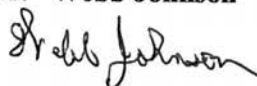
This support letter is intended for Support of Whitney Irrigation District.

On behalf of the Dawes County Board of Commissioners we recognize the efforts of our local Irrigation District in Whitney, NE. Their efforts to continue to provide irrigation for the future of agriculture is imperative. This letter signifies the importance of Dawes County agriculture aided by the movement of water from responsible irrigation practices. Dawes County Board of Commissioners are dedicated to finding ways to help support Whitney and the irrigation needs of the county, by allocating \$110,000 for this project and local funding to support the grant.

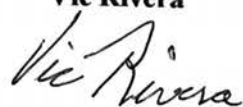
The County Board is writing this letter in support of obtaining grant monies secured through the Smart Water Grant. This funding would help to upgrade infrastructure needs and serve our area for safe water efficiency to maintain our regulated flow of water to landowners. These grant monies would help provide sound infrastructure for local landowners and secure the regulated water flow that provides the Whitney area with irrigation, vital for the crops needed to support our agricultural economy.

Best Regards,

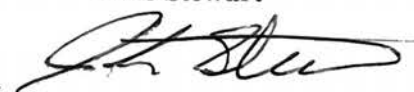
Dawes County Commissioners: Webb Johnson



Vic Rivera



Jake Stewart



NEBRASKA STATE IRRIGATION ASSOCIATION

1233 Lincoln Mall • Suite 201 • Lincoln, NE 68508 • Phone 402-476-0162 • Fax 402-476-2469

August 17, 2023

To Whom It May Concern:

RE: Whitney Irrigation District Application for Project Grant Assistance

The Nebraska State Irrigation Association here supports the Whitney Irrigation District's request for support of a grant to assist the District in its important work on the project to rehabilitate, repair, replace and modernize some facilities within the District's project. The Association appreciates your consideration of our support of the District's planned work.

The Association (NSIA) has worked closely with the Legislature in the establishment of the Surface Water Irrigation Infrastructure Fund, and has worked closely with Nebraska's surface irrigation organizations to review their facilities needs; identify the designs necessary to rehabilitate, repair, replace and modernize such facilities to improve water management and conserve water.

Whitney Irrigation District has identified this project to improve its overall system by modernizing its facilities to improve control, measurement and management of its water resources and conserve a very precious natural resource in western Nebraska.

Small irrigation organizations like Whitney wishing to fund such expensive work, find it impossible to fund without financial assistance from federal, state and other local resources.

We sincerely hope that you will consider and provide the funding assistance the District's grant request has put forth. Should you need other further information or have questions about the Association's support of Whitney's request you may contact me at (308) 672-9577 or dennis@pathfinderirrigation.com.

Respectfully submitted,



Dennis Strauch, Secretary/Treasurer



Serving Box Butte, Dawes, Sheridan and Sioux Counties

430 East Second Street * Chadron, Nebraska 69337 * Phone (308) 432-6190
Fax (308) 432-6187 * www.unwnrd.org

May 22, 2023

Ron Pelton
Whitney Irrigation District
PO Box 185
Whitney, NE 69367

RE: Whitney Irrigation District Water Smart Project

Dear Mr. Pelton;

The purpose of this letter is to offer support for the Whitney Irrigation District's (WID) application for infrastructure funding to repair piping, headgates and other structures through the US Bureau of Reclamation's WaterSmart Program.

The WID provides surface water for use in irrigating approximately 7,140 acres in northwest Dawes County. Due to the lack of a large aquifer, surface water is the only source available for the area. Several of the items are in urgent need of repair in order to avoid failure of the structures and maintain the ability to provide water to the project.

As well, improvements that incorporate modern technology would increase the efficiency of the system and save water by eliminating multiple flushing events. Water would be available for irrigation or remain in the reservoir for recreational purposes.

The UNWNRD has been working with producers in the WID through education programs to improve water use and these projects would assist in ensuring the district remains viable into the future.

Again, the UNWNRD fully supports the WID in this grant application. Please let me know if you should have any questions or need additional information.

Sincerely;

Patrick O'Brien

Dawes County Commissioners
451 Main Street
Chadron, NE 69337

May 23, 2023

To:

US Bureau of Reclamation;

RE: Support letter Whitney Irrigation District Smart Water Grant.

On behalf of the Dawes County Board of Commissioners we recognize the efforts of our local Irrigation District in Whitney, Nebraska. Their efforts to continue to provide irrigation for the future of agriculture is imperative. This letter signifies the importance of Dawes County agriculture aided by the movement of water from responsible irrigation practices. Dawes County Board of Commissioners are dedicated to finding ways to help support Whitney and the irrigation needs of the county.

Dawes County Board is writing this letter in support of obtaining grant monies secured through the Smart Water Grant. This funding would help to upgrade infrastructure needs and serve our area for safe water efficiency to maintain our regulated flow of water to landowners. These grant monies would help provide sound infrastructure for local landowners, secure regulated water flow that provide Whitney with irrigation, which is vital for the crops needed to support our agricultural economy.

Best Regards,

Dawes County Commissioners:

Webb Johnson-Chairman

Vic Rivera-Board Member

Jake Stewart-Vice Chairman

Quinn Johnson
242 Whitney Lake Road
Whitney, Nebraska 69367

May 1, 2023

Board of Directors
Whitney Irrigation District
3100 Missouri Street
Whitney, Nebraska 69367-2508

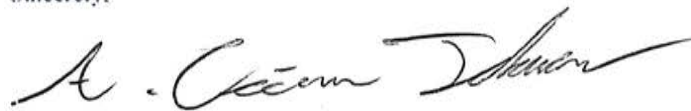
Dear Board of Directors:

I own a tract of land located in the N½ of Section 24, Township 33N, Range 51W, Dawes County, Nebraska, containing water rights served by the Whitney Irrigation District. I plan to convert 80 acres of my land from gravity irrigation to center pivot irrigation within the next year.

I understand the District is applying for a grant to assist with the rehabilitation of the District's irrigation delivery system that will improve their ability to control flows in the canal and conserve water. Since I am near the end of the lateral that delivers water to my lands, better control of the flows in the canal will ensure my delivery remains stable avoiding problems with the operation of my pivot.

Please let me know if I can assist in anyway as the District's project moves forward.

Sincerely,



Quinn Johnson

Tyler Reitz
5144 Highway 20
Chadron, Nebraska 69337

May 1, 2023

Board of Directors
Whitney Irrigation District
3100 Missouri Street
Whitney, Nebraska 69367-2508

Dear Board of Directors:

I operate a tract of land located in the NW¼ of Section 33, Township 33N, Range 50W, Dawes County, Nebraska, containing 100 acres of land served by the Whitney Irrigation District.

I understand the District is applying for a grant to assist with the rehabilitation of the District's irrigation delivery system that will improve their ability to control flows in the canal. I plan to make improvements to my on-farm irrigation system in 2023 by replacing the gravity irrigation system with a center pivot system that will greatly improve my on-farm efficiency on 107 acres of land. Better control of the flows in the canal will ensure my delivery remains stable avoiding problems with the operation of my pivot.

Please let me know if I can assist in anyway as the District's project moves forward.

Sincerely,

Tyler Reitz

A handwritten signature in black ink, appearing to read 'Tyler Reitz', is written in a cursive style.

From: Ron Pelton repelton@icloud.com
Subject: Smart Water Grant
Date: May 29, 2023 at 8:28:32 AM
To: Ron Pelton rpeltonhay@gmail.com

To whom it may concern:

We're are WID patrons and writing this letter in support of the WID application for a Smart Water Grant. We support the district's efforts for upgrades to irrigation structures, pipelines, irrigation outlets, and irrigation diversions. All improvements would conserve water and improve habitat for fish and wildlife while conserving water for recreation.

Thank you

Ron and Rhonda Pelton

Handwritten signatures of Ron and Rhonda Pelton. The signature on the left is 'R Pelton' and the signature on the right is 'Rhonda Pelton'.

Sent from my iPhone

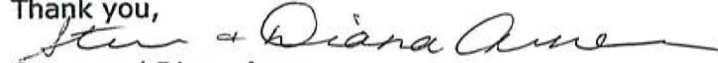
Please consider Whitney Irrigation District for your Federal Smartwater Grant.
Improvements and teapairs are needed and your support would greatly be appreciated ..
Thank You .. Tom and Dixie Thompson, Whitney, NE

Dixie Thompson
Thomas J Thompson

6-11-2023

As patrons of the Whitney Irrigation Project, we support the board in their effort to get funding for much needed improvements needed.

Thank you,

A handwritten signature in cursive script, appearing to read "Steve + Diana Arner".

Steve and Diana Arner

I am writing this letter in support of Whitney irrigation district for the smart water grant. The district was established in 1923 consisting of 7123 acers. This is a small irrigation district and in need of extensive repairs that the district cannot afford. Because of rampant inflation the price of these repairs went from one million dollars to over 3 million dollars. This district is a major agriculture and economic force in western Nebraska. The irrigation districts lake is a major recreational use for the public in this area. Visitors from across the state and other states have found their way to Whitney lake. As one fisherman put it " Whitney lake is Nebraska's best kept secret." The repairs that are need are extensive for the serviceability of this district, including dam gates that are leaking, irrigation pipe line that is leaking and needs replaced, check gates that are deteriorated and of little use. The repairs of these and other repairs would save a tremendous amount of water instead of it wasting it away. This would mean more water for irrigation and public recreation at the end of irrigation season.

Larry Rising

A handwritten signature in blue ink that reads "Larry Rising". The signature is written in a cursive style with a large initial "L" and "R".

To whom it may concern,

As a patron of the Whitney Irrigation District, we are writing this letter in support of the grant that is being pursued that would help modernize and repair our aging irrigation project. As we see it, there are three great issues at hand; natural resources, national security and economic growth.

As water is such a precious resource in this area, anything that we can do to conserve this resource is a worthy effort. The improvement being proposed would help in this area.

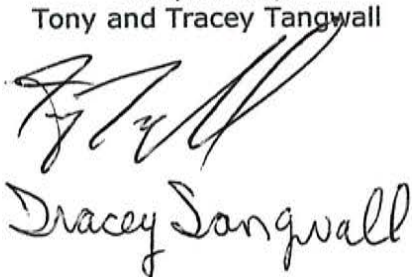
The next area of consideration would be that from our observation of over 20 years, nearly 100 percent of the production in this irrigation project ends up producing human food, whether it's wheat for flour or forage for beef or milk production. We believe that in this day and age, food production is a huge issue both nationally and globally.

Finally, economic growth is encouraged, as our project is improved, making way for family farms and ranches to remain financially stable and allow young people to return or stay in an industry they so dearly want to be a part of.

In view of these facts we ask that you carefully and thoughtfully consider approving the grants that have been applied for. Thank you so very much for your help.

Respectfully,

Tony and Tracey Tangwall

A handwritten signature in cursive script, appearing to read 'Tracey Tangwall', written in black ink. The signature is positioned below the typed name and is written in a fluid, connected style.

Appendix C

Official Resolution



RESOLUTION
OF
WHITNEY IRRIGATION DISTRICT

Date June 5th, 2023

WHEREAS, the Whitney Irrigation District (District) was organized and formed under Nebraska State Statute, with irrigation water rights from the White River dated April 18, 1889 Appropriation A-1603 and A-1787 dated April 28, 1921, A-1625 dated November 7, 1921, A-2609 and A-2608 dated August 11, 1936; and

WHEREAS, the District is charged with the operation, maintenance, repair and replacement of the irrigation facilities to the benefit of its water right holders; and

WHEREAS, the District continually takes steps, investing its own resources to improve on the performance of the facilities for water conservation, operation and maintenance;

BE IT THEREFORE RESOLVED that the Board of Directors of the Whitney Irrigation District has reviewed and authorizes the District's Board Chairman to pursue a Department of Interior WaterSMART grant for the rehabilitation and modernization of the District's diversion, storage and distribution system from the White River. Project name: "Whitney Irrigation District Rehabilitation and Modernization Phase I and II Project", on behalf of the District; and

BE IT FURTHER RESOLVED that the Board of Directors of the Whitney Irrigation District by authority granted under Nebraska State Statute, commits to the financial and legal obligations associated with receipt of a financial assistance award under this Notice of Funding Availability.

THEREFORE, BE IT RESOLVED.

ENACTED THIS 5th DAY OF June, 2023.

WHITNEY IRRIGATION DISTRICT



Ron Pelton



Aaron Tenney



Larry Rising

BOARD OF DIRECTORS

ATTEST:



Secretary