BUREAU OF RECLAMATION

Cozad Ditch and Southside Irrigation District

Canal Automation and Efficiency Project

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Applicant Information

Application Date: February 22, 2024
Applicant Name: Central Platte Natural Resources District
City, County, State: Grand Island, Hall County, Nebraska
Project Manager:

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Requested Reclamation Funding: $356,823; Total Project Cost: $713,647

Project Summary

Provide 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.

The Central Platte Natural Resources District (CPNRD), Cozad Ditch Company, and Southside Irrigation District (CDSID) are Category A funding group I applicants seeking funding to improve operational efficiency along specified canals. In 2012, CPNRD established a 30-year management agreement with the CDSID canals. The Cozad Ditch Company operates Cozad Ditch, and the Southside Irrigation Company operates the Orchard Alfalfa Canal. None of the facilities are federally owned, operated, or connected to a federal reclamation project. At present, manual operation and lack of metering of gates along the canal create operational inefficiencies, which routinely result in over-delivery and unrecoverable spillage. Additionally, outdated and faulty headgates result in leaks which account for substantial water loss. This project seeks to increase the operational efficiency of agricultural water conveyance over a section of the CDSID's total of approximately 27 miles for the Cozad Ditch and approximately 10 miles for the Orchard Alfalfa Canal. This project proposes the installation of thirteen automated precision gates at eleven sites. Cozad Ditch will have ten automated flume-style gates, and Orchard Alfalfa Canal will have one automated flume-style gate and two automated headgate sluice gates. The canal network will implement automated headgates into a SCADA system for remote monitoring and control. The system will provide the ability to accurately measure high and low flow rates and

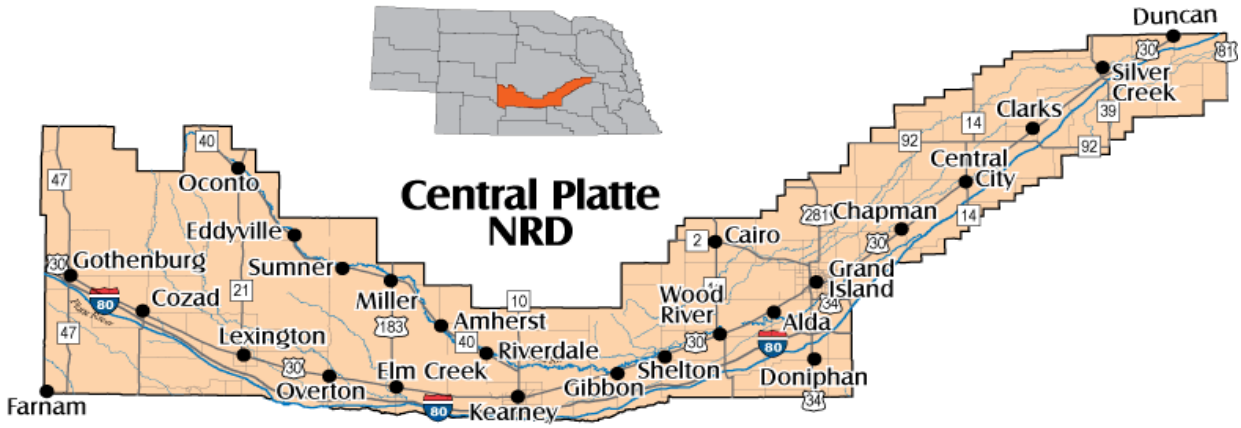
automatically adjust, which will increase water use efficiency. The installation of automated gates will ensure consistent deliveries of irrigation water to each grower, reduce the amount of water diverted from the Platte River, reduce water loss, and increase the ability of CDSID to retain water in storage over dry years and return excess flows back to the Platte River. Automation is expected to reduce the amount of irrecoverable water leaked from current faulty headgates. Automation is also expected to reduce the occurrences of over- or under-delivery to grower fields caused by changing water elevations in the main canals and on the producer fields. Further, the ability to schedule deliveries to users outside of normal working hours is expected to reduce spills and potential over-deliveries onto fields. It is expected that upon completion, the project will save 5,140 acre-feet of water each year through the elimination of leaks and accurate water operation, monitoring, and budgeting. Additionally, the system will allow CDSID to properly meter water to ensure adequate water deliveries during dry years.

Project Location

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

Cozad Ditch and Orchard Alfalfa Canal Flow Efficiency projects are located in Dawson County, Nebraska. Located near the incorporated towns of Cozad and Gothenburg, on the Great Plains of central Nebraska, along the Union Pacific Railroad and Interstate 80. Cozad Ditch is just north of the Platte River, and Orchard Alfalfa Canal is just south of the Platte River. The Cozad Ditch originates in Gothenburg, Nebraska, and flows towards the east/southeast. The Orchard Alfalfa Canal originates approximately 3.5 miles west of Cozad, Nebraska, and flows towards the south/southeast. The project coordinates are as follows: for Cozad Ditch Headgates, Latitude: 40.916183° and Longitude: -100.161088° and for Orchard Alfalfa Canal Headgates, Latitude 40.849538° and Longitude: -100.062214°.

The CPNRD is part of the Great Plains. The NRD extends from the sub-humid zone in the eastern area to the semi-arid zone in the western area. The sub-humid zone is characterized by high humidity and cloud cover. The sub-humid zone average annual precipitation is approximately 28 to 30 inches. The semi-arid zone is characterized by lower humidity. The semi-arid zone's average annual precipitation ranges from 10 to 20 inches per year. In the semi-arid region drought can be severe enough to impact vegetation for multiple years. (*National Drought Mitigation Center, 2023)*



Created By: CDF
Date: 12/6/2023
Software: ArcGIS 10.8.1

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Orchard Alfalfa Canal

CPNRD Drought Management Plan

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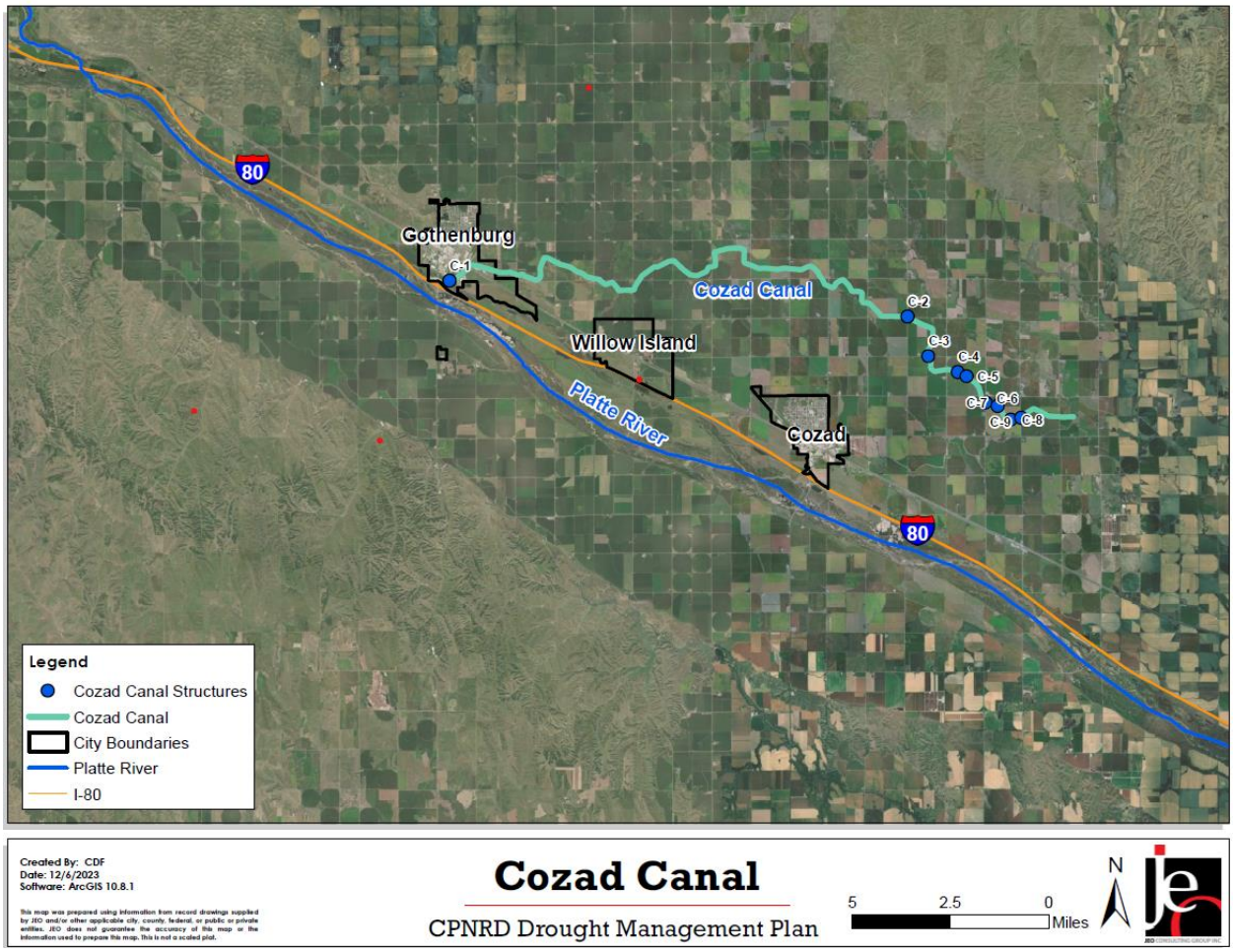


Technical Project Description

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

CPNRD and CDSID seek to improve eleven sites within the project area by installing a total of thirteen automated gates, eleven of which will be a flume style and two will be sluice style gates, along with implementing a SCADA system for automated control. The goal of this project is to improve operational efficiency, reduce the amount of water diverted from the Platte River, decrease water lost through irrecoverable leaks while increasing the ability to provide stable service levels to agricultural customers, store water during dry years and return excess flows back to the Platte River.

The description of the eleven sites are:

Cozad Ditch Headgates (C1). Two flume-style gates will be designed for a nominal install width of 72 inches and a fully closed checking height of 60 inches. The maximum submerged flow is 114 cubic feet per second (cfs), and the maximum free flow is 178 cfs. It will be a fully integrated system with a solar panel. The SCADA system will be operational for cloud-based remote operational control.

Cozad Ditch Steer Check Gate (C2). One flume-style gate will be designed for a nominal install width of 48 inches and a fully closed checking height of 68 inches. The maximum submerged flow is 79 cfs, and the maximum free flow is 127 cfs. It will be a fully integrated system with a solar panel. The SCADA system will be installed that includes a cellular modem, antenna, cabling, and software for cloud-based remote operational control.

Cozad Ditch Geiger Check Gate (C3). One flume-style gate will be designed for a nominal install width of 48 inches and a fully closed checking height of 68 inches. The maximum submerged flow is 79 cfs, and the maximum free flow is 127 cfs. It will be a fully integrated system with a solar panel. The SCADA system will be installed that includes a cellular modem, antenna, cabling, and software for cloud-based remote operational control.

Cozad Ditch Banner #2 Check Gate (C4). One flume-style gate will be designed for a nominal install width of 60 inches and a fully closed checking height of 67 inches. The maximum submerged flow is 106 cfs, and the maximum free flow of 170 cfs. It will be a fully integrated system with a solar panel. The SCADA system will be installed that includes a cellular modem, antenna, cabling, and software for cloud-based remote operational control.

Cozad Ditch Banner #3 Check Gate (C5). One flume-style gate will be designed for a nominal install width of 60 inches and a fully closed checking height of 60 inches. The maximum submerged flow is 92 cfs, and the maximum free flow is 144 cfs. It will be a fully integrated system with a solar panel. The SCADA system will be installed that includes a cellular modem, antenna, cabling, and software for cloud-based remote operational control.

Cozad Ditch Lane South Check Gate (C6). One flume-style gate will be designed for a nominal install width of 60 inches and a fully closed checking height of 67 inches. The maximum submerged flow is 106 cfs, and the maximum free flow of 170 cfs. It will be a fully integrated system with a solar panel. The SCADA system will be installed that includes a cellular modem, antenna, cabling, and software for cloud-based remote operational control.

Cozad Ditch Brownie #1 Check Gate (C7). One flume-style gate will be designed for a nominal install width of 60 inches and a fully closed checking height of 67 inches. The maximum submerged flow is 106 cfs, and the maximum free flow of 170 cfs. It will be a fully integrated system with a solar panel. The SCADA system will be installed that includes a cellular modem, antenna, cabling, and software for cloud-based remote operational control.

Cozad Ditch Brownie #3 Check Gate (C8). One flume-style gate will be designed for a nominal installation width of 60 inches and a fully closed checking height of 55 inches. The maximum submerged flow is 80 cfs, and the maximum free flow is 123 cfs. It will be a fully integrated system with a solar panel. The SCADA system will be installed that includes a cellular modem, antenna, cabling, and software for cloud-based remote operational control.

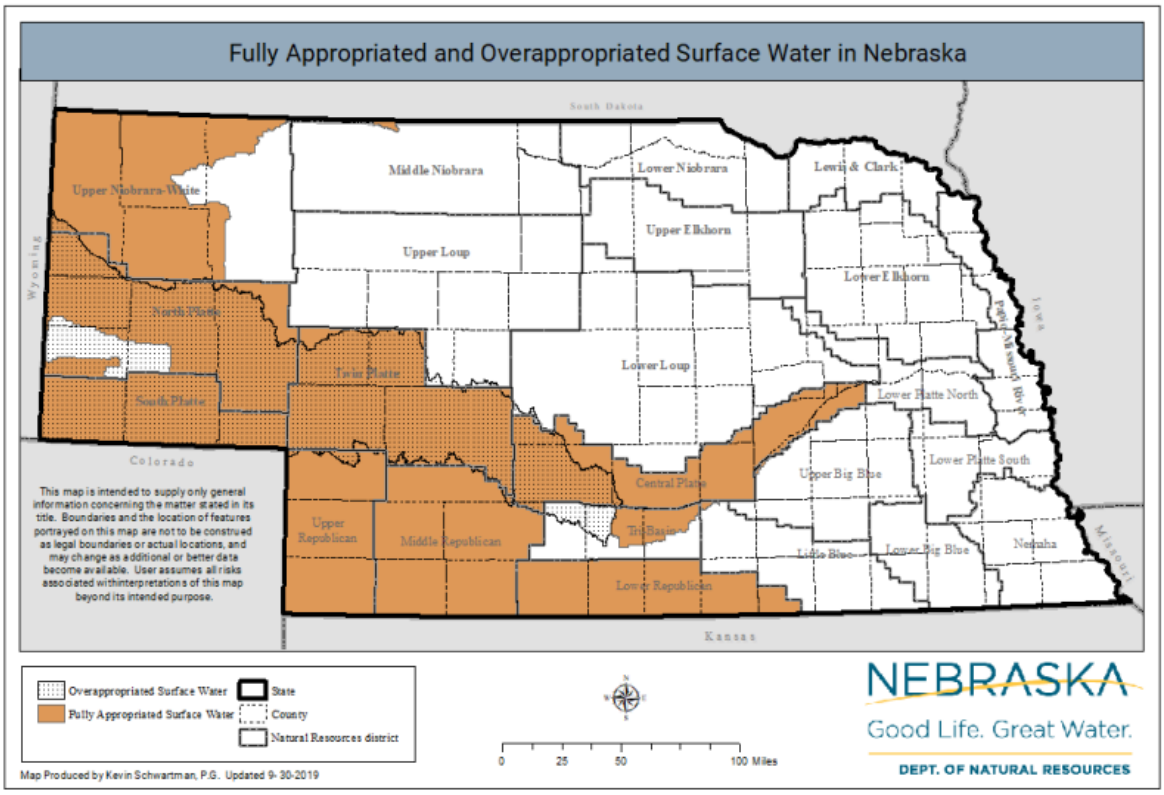
Cozad Ditch Twin Curvettes Check Gate (C9). One flume-style gate will be designed for a nominal install width of 60 inches and a fully closed checking height of 60 inches. The maximum submerged flow is 92 cfs, and the maximum free flow is 144 cfs. It will be a fully integrated system with a solar panel. The SCADA system will be installed that includes a cellular modem, antenna, cabling, and software for cloud-based remote operational control.

Orchard Alfalfa Headgates (S1). Two sluice-style gates will be equipped with 60-inch by 60-inch meter/box gates with a maximum wall mounting height of 10 feet. The system will have an 11.25" sensor pattern. Minimum flow of 6.6 cfs and maximum flow of 158 cfs. The system will be equipped with a partial-full level sensor. It will be a fully integrated system with a solar panel. The SCADA system will be installed that includes a cellular modem, antenna, cabling, and software for cloud-based remote operational control.

Orchard Alfalfa Lower Canal/Hueftle Farm site (S2). One flume-style gate will be designed for a nominal install width of 60 inches and a fully closed checking height of 60 inches. The maximum submerged flow is 92 cfs, and the maximum free flow is 144 cfs. It will be a fully integrated system with a solar panel. The SCADA system will be installed that includes a cellular modem, antenna, cabling, and software for cloud-based remote operational control.

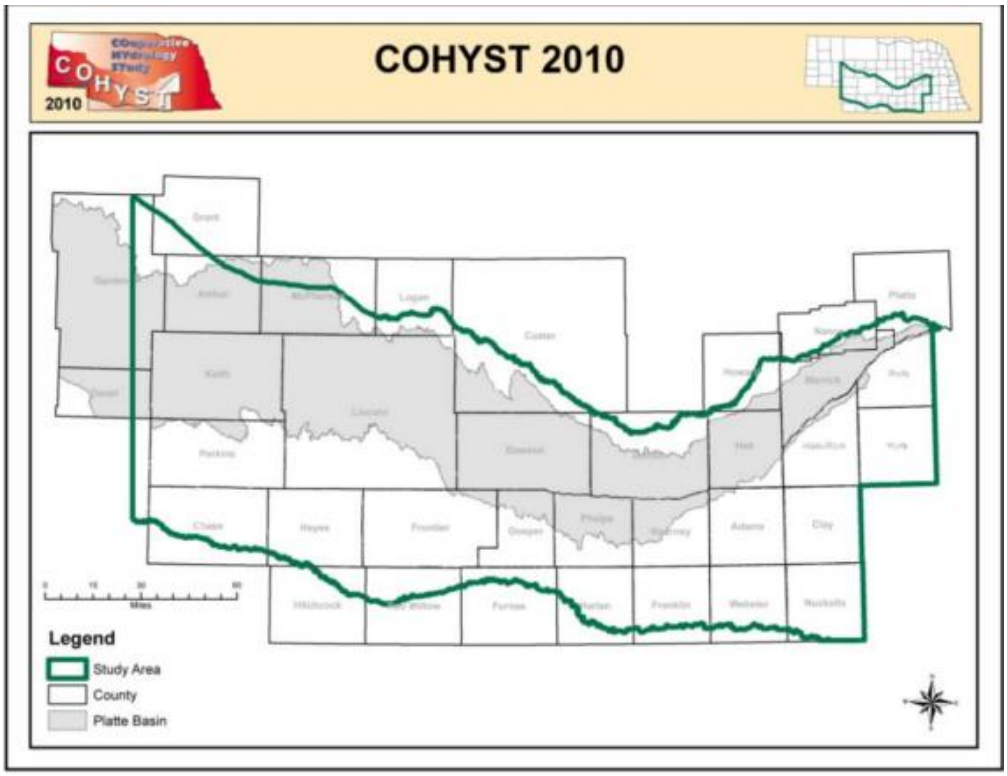
Each of the above sites will require the same general work but to varying extents for each step. The first objective at each site will be to cut the concrete of the existing board-slot check structure. This will be accomplished using a gas-powered concrete saw. The concrete will then be removed and disposed of by the crew using prybars, an excavator, and a dump truck. The site will be prepped with any fill and compaction thereof needed for the placement of the concrete structure to house the new gates. Forms will be fabricated using concrete forms out of plywood, 2x4s, and snap ties for the placement of the concrete. The frame of the new automated gates will then be affixed to the concrete using concrete anchor bolts drilled into the new structure and secured with adhesive. Any gaps between the frame and the structure will be filled with speed-plug concrete mortar. The solar panel will be set into the concrete pad, and the gate will be installed in the frame. Lastly, with the help of a technician from the gate manufacturer, the gate will be wired and calibrated.

CPNRD Integrated Management Plan (IMP). Nebraska's Natural Resources Districts (NRDs) have been protecting lives, protecting property, and protecting the future since 1972. NRDs are unique to Nebraska. CPNRD is one of 23 NRDs created by the Nebraska Legislature. The mission of the CPNRD is to wisely conserve, manage, and enhance the water, soil, range, wildlife, and forest resources within the CPNRD for the benefit of all.



Water management in Nebraska is accomplished through the combined efforts of the Nebraska Department of Natural Resources (NeDNR) and the NRDs. NRDs manage groundwater, whereas surface water is managed by the NeDNR. In areas where groundwater and surface water are hydrologically connected, NRDs have the authority through Neb. Rev. Stat. § 46-715(1)(b) to jointly develop an Integrated Management Plan (IMP) with NeDNR. The CDSID canals are in hydrologically connected areas. IMPs are plans that allow the NRDs, NeDNR, and stakeholders to jointly address areas of water shortage. The CPNRD IMP is attached to this document in Appendix A. Agriculture production is a primary economic driver in CPNRD, and irrigation plays a critical role. Due to heavy development, areas of decline in groundwater and surface water resources have occurred. To help address the declines, river basins throughout the state have been evaluated and identified as fully- or over-appropriated when applicable. When a river basin, subbasin, or reach is designated as fully appropriated, the NeDNR places an immediate stay on the issuance of any new natural flow, storage, or storage-use appropriations. The CPNRD contains both fully appropriated and over-appropriated basins.

COHYST. The Platte River Cooperative Hydrology Study (COHYST) is an innovative surface water/groundwater model designed to improve the understanding of hydrologic and geologic conditions and to understand the impact of water uses and management practices on long-term water supplies. The model extends from Chapman, Nebraska, to the upstream end of Lake McConaughy, Nebraska. The original COHYST groundwater model was developed in 1998 as part of the Nebraska, Wyoming, Colorado, and the U.S. Department of the Interior Cooperative Agreement partnership to address endangered species affecting the Platte River Basin. The COHYST model has since been modified to include surface water operations, groundwater flow, and soil-water balance models. COHYST is used by the NeDNR, NRDs, and other organizations to meet the objectives of IMPs and the Platte River Recovery Implementation Program (PRRIP).



To gain a better understanding of the complex Platte River hydrologic system, the COHYST model is a linked or integrated surface-groundwater model. This is necessary to capture the full range of water uses and impacts to the entire water budget in the Platte River Basin and to simulate and evaluate management scenarios. A third model, a watershed model, accounts for land use, climate, and soil effects on the water budget. The specific components of the integrated COHYST model are the watershed model created by using outputs from the CROPSIM, the STELLA surface water model, and a groundwater model completed by using MODFLOW. The integrated model is a representation of the entire water balance of the Central Platte River system, and it can scale down to show how the conversion of surface water-irrigated acres to groundwater-irrigated acres impacts drought conditions, streamflow, local recharge, and impacts on groundwater levels.

PRRIP. The Platte River Recovery and Implementation Plan (PRRIP) is the recovery plan that includes portions of Nebraska, Colorado, and Wyoming and covers CPNRD. The PRRIP has three main elements:

- Increasing stream flows in the central Platte River during relevant time periods with the goal of increasing target flows by 130,000 to 150,000 acre-feet per year.
- Enhancing, restoring, and protecting habitat lands for the target bird species
- Accommodating certain new water-related activities

These elements are implemented according to underlying principles that require interests in land to be acquired only from willing participants and that they avoid increasing tax burdens to local citizens by paying taxes or their equivalent on PRRIP lands. The stated goal of the PRRIP and the U.S. Fish and Wildlife Service is to increase target flows in the Platte River by 130,000 to 150,000 acre-feet per year.

The background and history of the PRRIP include efforts to re-license Kingsley Dam on the North Platte River in western Nebraska, the presence of threatened and endangered species, and the U.S. Fish and Wildlife Service's 1994 Biological Opinion on Platte River operations. The States of Nebraska, Colorado, and Wyoming and the U.S. Department of Interior joined together in July 1997 to sign the "Cooperative Agreement for Platte River Research and Other Efforts Relating to Endangered Species Habitat along the Central Platte River, Nebraska".

Evaluation Criteria

Evaluation Criteria A – Quantifiable Water Savings

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

- *Please include a specific, quantifiable water savings estimate; do not include a range of potential water savings.*
  - ❖ Quantifiable water savings will be calculated by comparing pre-and post-project natural flow diversions into the canals using flow data collected over 11 years and into the future. The diversion flow data will come from gaging stations and the canal operators. Moving forward, the water delivered to the fields will be precisely measured using flume and sluice gates and a SCADA system. A baseline of flow data will be established based on measured data. Then future measurements will be aggregated on an annual water year basis that is compared and analyzed. This will happen for both the Cozad Ditch and Orchard Alfalfa Canal. The installation of the headgates funded by this project and the integration of all the flume and sluice-style gates into the SCADA system are expected to allow for better management of annual diversions, deliveries, and returns. It is estimated that installing state-of-the-art water management equipment with automated cloud-based SCADA control in the canal system will improve water efficiency substantially. The estimated quantifiable water

savings after installation of the 13 flume and sluice gates and SCADA system is 5,140 acre-feet per water year.

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).*
  - ❖ Current losses are leaked from the canal gates due to improper flume throat widths and aging infrastructure. At some locations, water has washed away around flumes resulting in no measurement of the amount of water being bypassed. Once water has spilled onto the ground, it is rendered irrecoverable as it absorbs into the soil or evaporates. Manual gate operation is another source of canal losses. Under the current canal irrigation system, greater than needed water is diverted from the Platte River because of inefficient canal structures that deliver water to the fields. With an automated and structurally sound distribution system, only needed flows will be diverted, therefore allowing more water to stay in the Platte River. Also, when excess flows occur in the Platte River during non-irrigation season, water can be diverted into the canal system for off-channel storage. When full, the combined CDSID canal system can store approximately 785 acre-feet of water. This excess water can either be delivered to the fields, returned to the Platte River during times of low flow, or be used to recharge the groundwater.
- *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?*
  - ❖ Current losses leak from the area surrounding the existing structures. The irrigation water that is spilled either evaporates or infiltrates into the unsaturated zone and eventually into the groundwater. The recharged groundwater can be used by others but at an additional expense due to groundwater pumping. In this scenario, essentially irrigation water delivery is being doubled charged, once for the surface water delivery and second when it is pumped (pumping costs) from groundwater. There are 355 irrigation wells in the project area, and these wells supplement the surface water deliveries from the canals. The cost of surface water delivery for Cozad Ditch Company is $47 per acre, and Southside is $45 per acre, not including additional groundwater pumping costs.
- *Are there any other known benefits associated with where the current losses are going? For example, is seepage water providing additional habitat for fish or animal species?*
  - ❖ Part of the water lost due to seepage into the soil reaches the underlying groundwater. Some groundwater does flow back to the Platte River. While this is beneficial, it is an inefficient flow augmentation as the timing of the recharge does not recognize the timing demands of the overall water balance system. With automated and structurally sound water control systems in the canals, less water will

need to be diverted from the Platte River and thereby remain in the river for threatened and endangered species, recreational use, water supply, and other beneficial uses.

Describe the support/documentation of estimated water savings: *Please provide sufficient detail supporting how the estimate was determined, including all supporting calculations. Please be sure to consider the questions associated with your project type when determining the estimated water savings, along with the necessary support needed for a full review of your proposal. In addition, please note that the use of visual observations alone to calculate water savings, without additional documentation/data, is not sufficient to receive credit under this section. Further, the water savings must be the result of reducing or eliminating a current, ongoing loss, not the result of an expected future loss.*

- The CDSID canals are an aging infrastructure. The Cozad Ditch was constructed in 1894, and the Orchard/Alfalfa Canal was constructed in 1898. While operation and maintenance have occurred over the last 130 years, both systems have significant leaks, plus losses occur due to inefficient manual operation. Precise water measurements to document losses have not occurred. Therefore, the estimated water savings for the CDSID canals are based on published engineering reports. The citation for the reference report is *Barkhordari S, Shahdany S 2022. A Systematic Approach for Estimating Water Losses in Irrigation Canals. Water Science and Engineering 161-169* in Appendix E. In the report, the authors present information regarding losses in agricultural water distribution and delivery systems (AWDDS). One study cited in the report estimated that canal water losses in Oklahoma ranged from 23%-35%, while another study from Italy showed that 55% of supplied water was diverted from the network (canal) due to poor operation and maintenance of AWDDS structures. For this WaterSMART application, 29% was used to estimate water losses. The value is deemed conservative. The new equipment and SCADA system will make the system 90% efficient, meaning that AWDDS would only lose 10% of the water, this being the spill reduction factor. This is based on discussions with Rubicon, a potential vendor for the automated equipment. The estimated water savings for the installation and operation of new flume and sluice gates and SCADA system are:
  - Period of discharge records = 11 years
  - Average natural flow diverted into the Cozad Ditch = 13,565 AF per water year
  - Average natural flow diverted into Orchard-Alfalfa Canal = 6,128 AF per water year
  - Total average natural flow diverted into the CDSID system = 19,693 AF per water year
  - Percentage water loss for an aging AWDDS = 29%
  - New Equipment and SCADA efficiency factor = 90%

Water Savings = (19,693 AF-year) *(0.29)*(0.9) = 5,140 AF per water year

Please address the following questions according to the type of infrastructure improvement you are proposing for funding.

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

- *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.*
  - ❖ N/A
- *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.*
  - ❖ *N/A*
- *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)?*
  - ❖ *N/A*
- *What are the anticipated annual transit loss reductions in terms of acre-feet per mile for the overall project and for each section of the canal included in the project?*
  - ❖ *N/A*
- *How will actual canal loss seepage reductions be verified?*
  - ❖ *N/A*
- *Include a detailed description of the materials being used.*
  - ❖ *N/A*

(2) Municipal Metering: *Municipal metering projects can provide water savings when individual user meters are installed where none exist to allow for unit or tiered pricing and when existing individual user meters are replaced with advanced metering infrastructure (AMI) meters. To receive credit for water savings for a municipal metering project, an applicant must provide a detailed description of the method used to estimate Page 10 of 22 savings, including references to documented savings from similar previously implemented projects. Applicants proposing municipal metering projects should address the following:*

- *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.*
  - ❖ *N/A*
- *How have current system losses and/or the potential for reductions in water use by individual users been determined?*
  - ❖ *N/A*

- *For installing end-user water service meters, e.g., for a residential or commercial building unit., refer to studies in the region or in the applicant's service area that are relevant to water use patterns and the potential for reducing such use. In the absence of such studies, please explain in detail how expected water use reductions have been estimated and the basis for the estimations.*
  - ❖ *N/A*
- *What types (manufacturer and model) of devices will be installed and what quantity of each?*
  - ❖ *N/A*
- *How will actual water savings be verified upon completion of the project?*
  - ❖ *N/A*

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

- *How have average annual water savings estimates been determined? Please provide all relevant calculations, assumptions, and supporting data.*
  - ❖ Please reference the previous question for the description of the estimate of annual water savings. Annual average water savings have been estimated by calculating the relevant flow total for the project canals and applying the manufacturer's estimate of spillage reduction of 10%. The automated gate manufacturer's conservation is estimated based off of prior experience in Nebraska and the region with similar projects.
- *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.*
  - ❖ Current operational losses via spillage have not been measured by canal operators. Water currently being lost is not able to be quantified due to a lack of available infrastructure to quantify spillage. A baseline for operational losses will be determined once the project is implemented. However, the Cozad Ditch Company manager has estimated losses based on observation, and his rate of loss is similar to the Barkhordari *S, Shahdany report.*
- *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?*
  - ❖ Natural flow entering the canal is measured by gaging stations at the headworks of the canal. The stations are operated by the Nebraska Department of Natural Resources. The accuracy of the measurement devices is rated "excellent"; however, they are not continuously measuring flow. The proposed project would allow for continuous flow measurements and data collection. Measurements began at these stations in 2005. Deliveries to the fields are also measured, however the accuracy is

not comparable to the gaging stations. Discharge of the Platte River is also measured at a stream gaging station near Cozad.

- *Provide detailed descriptions of all proposed flow measurement devices, including accuracy and the basis for the accuracy.*
  - ❖ Precisely calibrated flume and sluice gates that measure flow and a SCADA system that controls water distribution will automatically be adjusted to maintain a consistent flow rate in response to changes in upstream and downstream flows. This reduces the amount of water deemed unrecoverable from spillage. Additionally, the automated gates can be utilized to monitor and meter the flow of water with an accuracy of approximately +/- 2.5%.
- *Will annual farm delivery volumes be reduced by more efficient and timely deliveries? If so, how has this reduction been estimated?*
  - ❖ The actual farm deliveries will be reduced with an automated and structurally sound distribution system. Only needed flows will be diverted, therefore allowing more water to stay in the Platte River and thereby remain for threatened and endangered species, recreational use, water supply, and other beneficial uses. The estimated water savings for the CDSID canals are based on published engineering reports. The citation for the reference report is: *Barkhordari S, Shahdany S.* The automated gate manufacturer's conservation is estimated based on prior experience in Nebraska and the region with similar projects. Also, when excess flows are occurring in the Platte River, water can be diverted into the canal system for off-channel storage. The combined CDSID canal system can store approximately 1,000 acre-feet of water. This excess water can either be delivered to the fields, returned to the Platte River during times of low flow, or be used to recharge the groundwater.
- *How will actual water savings be verified upon completion of the project?*
  - ❖ Following the installation of the water measurement and flow control gates and implementation of the SCADA system, diversions into the canals and deliveries to the fields will be accurately measured and compared to the baseline that will be established once the project is implemented. This is critical information that CPNRD will use to comply with the requirements of the Platte River Recovery and Implementation Program (PRRIP), the Integrated Management Plan (IMP), and improve the COHYST surface water/groundwater model. The stated goal of the PRRIP and the U.S. Fish and Wildlife Service is to increase target flows in the Platte River by 130,000 to 150,000 acre-feet per year. By delivering water efficiently to the fields, CPNRD will help meet target flow goals.

(4) Turf Removal: Applicants proposing turf removal projects should address:

- *How have average annual water savings estimates been determined? Please provide all relevant calculations, assumptions, and supporting data.*
  - ❖ *N/A*

- *What is the total surface area of turf to be removed and what is the estimated average annual turf consumptive use rate per unit area?*
  - ❖ *N/A*
- *Was historical water consumption data evaluated to estimate average annual turf consumptive use per unit area? If so, did the evaluation include a weather adjustment component?*
  - ❖ *N/A*
- *Will site audits be performed before applicants are accepted into the program?*
  - ❖ *N/A*
- *How will actual water savings be verified upon completion of the project?*
  - ❖ *N/A*

(5) Smart Irrigation Controllers, Controllers with Rain Sensor Shutoff, Drip Irrigation, and High-Efficiency Nozzles: Applicants proposing smart irrigation controllers, controllers with rain sensor shutoff, drip irrigation, or high-efficiency nozzle projects should address:

- *How have average annual water savings estimates been determined? Please provide all relevant calculations, assumptions, and supporting data.*
  - ❖ *N/A*
- *Was historical water consumption data evaluated to estimate the percent reduction in water demand per unit area of the irrigated landscape? If so, did the evaluation include a weather adjustment component?*
  - ❖ *N/A*
- *What types (manufacturer and model) of devices will be installed, and what quantity of each?*
  - ❖ *N/A*
- *Will the devices be installed through a rebate or direct-install program?*
  - ❖ *N/A*
- *Will site audits be performed before and after installation?*
  - ❖ *N/A*
- *How will actual water savings be verified upon completion of the project?*
  - ❖ *N/A*

(6) High-Efficiency Indoor Appliances and Fixtures: Installing high-efficiency indoor appliances and fixtures can provide water savings for municipal water entities where there is significant potential for replacing existing non-efficient indoor appliances and fixtures. Applicants proposing high-efficiency indoor appliance and fixtures projects should address:

- *How have average annual water savings estimates been determined? Please provide all relevant calculations, assumptions, and supporting data.*
  - ❖ *N/A*

- *What types (clothes washers, shower heads, etc.) of appliances and fixtures will be installed, and what quantity of each?*
  - ❖ *N/A*
- *Have studies been conducted to verify the existence of non-efficient appliances and fixtures? Provide published water savings rates for each of these devices and reference the source for each of the device savings rates.*
  - ❖ *N/A*
- *Will the devices be installed through rebate or direct-install programs?*
  - ❖ *N/A*
- *How will actual water savings be verified upon completion of the project?*
  - ❖ *N/A*

(7) Commercial Cooling Systems: Cooling towers are components of many refrigeration systems with many applications. They dissipate heat to the atmosphere through the evaporative process and are common in manufacturing processes where cooling is required. They are also used for cooling large commercial buildings. Cooling tower structures vary in size, design, and efficiency. Regardless, all cooling towers consume large volumes of water and energy. Open-circuit or direct contact are the most common types of cooling towers. Water is supplied to the tower after gathering heat and then released in the upper tower levels. A fan near the base of the tower creates upward airflow. Closed-circuit towers are more efficient and closed-circuit towers with adiabatic cooling are more efficient yet. Water and energy savings can be achieved by replacing or retrofitting older, low-efficiency cooling towers. Applicants proposing cooling system projects should address:

- *How have average annual water savings estimates been determined? Please provide all relevant calculations, assumptions, and supporting data.*
  - ❖ *N/A*
- *Was historical water consumption data evaluated to estimate the percent reduction in water demand?*
  - ❖ *N/A*
- *Specify the type (manufacturer and model) of the cooling tower system to be installed and/or provide a detailed description of the system retrofit plan.*
  - ❖ *N/A*

Evaluation Criteria B – Renewable Energy

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

- ❖ N/A

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.

- ❖ N/A

Describe the status of a mothballed hydropower plant. For projects that are bringing mothballed hydropower capacity back online, please describe the following:

- *Clearly describe the work that will be accomplished through the WaterSMART Grant. Note: normal OM&R activities are not eligible for funding. The work being proposed must be an investment.*
  - ❖ N/A
- *Provide information about the capacity (in kilowatts) of the existing hydro system and the expected capacity once it is brought back on-line.*
  - ❖ N/A
- *Provide information about the duration that the hydro system has been offline and the reasons why it has been mothballed. Please include any regulatory reporting or filings (e.g., FERC filings) or other documentation regarding the system*
  - ❖ N/A

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*
  - ❖ N/A
- *Expected environmental benefits of the renewable energy system*
  - ❖ N/A
- *Any expected reduction in the use of energy currently supplied through a Reclamation project.*
  - ❖ N/A
- *Anticipated benefits to other sectors/entities*
  - ❖ N/A
- *Expected water needs, if any, of the system.*
  - ❖ N/A

AND/OR

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

Describe any energy efficiencies that are expected to result from the 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.*
  - ❖ For both the Cozad Ditch Company and Southside Irrigation District, district employee travel time and mileage will be significantly reduced if this project is implemented. Over a 3-month period, the district employees travel to manually operate the canal systems. The CPNRD estimates that upon conclusion of this project, the miles driven are estimated to be reduced by 12,700 miles per year. At approximately 12 miles per gallon, fuel savings would be 1,058 gallons per year. USEPA parameters specify 1.25 therms/gallon of fuel and 29.3 kWh/therm. Using these values, there will be approximately 38,760 kWh/year that will be saved because of this project. Additionally, when spilled water seeps into the groundwater this provides available water for extraction (pumping). As previously discussed in Criterion A, pumping surface water that has seeped into the groundwater is not the most efficient use of the water. There are 355 irrigation wells in the project area. The average amount of groundwater pumping for an irrigation well near the project area is 769.42 kilowatt-hours per year. The amount of pumping required in the project area will be less because of canal water. With the efficient operation of the canal system, less augmentation of groundwater flows will be needed in the CDSID footprint, thereby reducing energy consumption and pumping costs. This will reduce energy costs and greenhouse gas emissions.
- *How will the energy efficiency improvement combat/offset the impacts of climate change, including an expected reduction in greenhouse gas emissions*.
  - ❖ Creating automation within the CDSID canals will address the impacts of climate change through the responsible usage of available water. The use of automated gates increases water conservation and mitigates the amount of water lost via leaks and spillage while maintaining a consistent flow rate for customers. Additionally, the automation of the canal negates the need for district employees to travel to the site and manage the canal. The elimination of routine vehicle travel reduces the overall carbon emissions associated with manual gate operations.
- *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?*
  - ❖ The current pumping requirement for an irrigation well near the project area is 769.42 kWh/year. As mentioned previously, these wells serve as groundwater flow augmentation wells in the CDSID footprint, and there are 355 irrigation wells. Most wells in CPNRD are vertical turbine pumps powered by 70-horsepower electric (or similar) motors. Water savings through enhanced irrigation water management are expected to reduce groundwater pumping in CPNRD, which will have a commensurate reduction in energy usage in the CDSID.

- *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.*
  - ❖ The energy savings from district employees' reduced mileage are based on travel time to and from the structures that deliver water to the fields. These locations are shown in the project location maps on p. 5 and 6. The 355 irrigation wells are distributed in and adjacent to the project area and can be located at the University of Nebraska Conservation and Survey Division's Groundwater and Geology Data Portal, https://snr.unl.edu/csd/map/.
- *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.*
  - ❖ Yes, the automation of the canal negates the need for district employees to travel to the site and manage the canal in person. The elimination of routine vehicle travel reduces the overall carbon emissions associated with manual operations of gates. Currently, over a 3-month period, district employees must travel to each gate location and manually operate the canal systems. The CPNRD estimates that upon conclusion of this project, the miles driven are estimated to be reduced by 12,700 miles per year. At approximately 12 miles per gallon, fuel savings would be 1,058 gallons per year. USEPA parameters specify 1.25 therms/gallon of fuel and 29.3 kWh/therm. Using these values, there will be approximately 38,760 kWh/year that will be saved because of this project.
- *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 automated gates are powered by a solar panel that is placed atop the control pedestal, which sits along the bank of the canal, eliminating the need to tie the gate controls into a power source and thus reducing overall energy consumption.

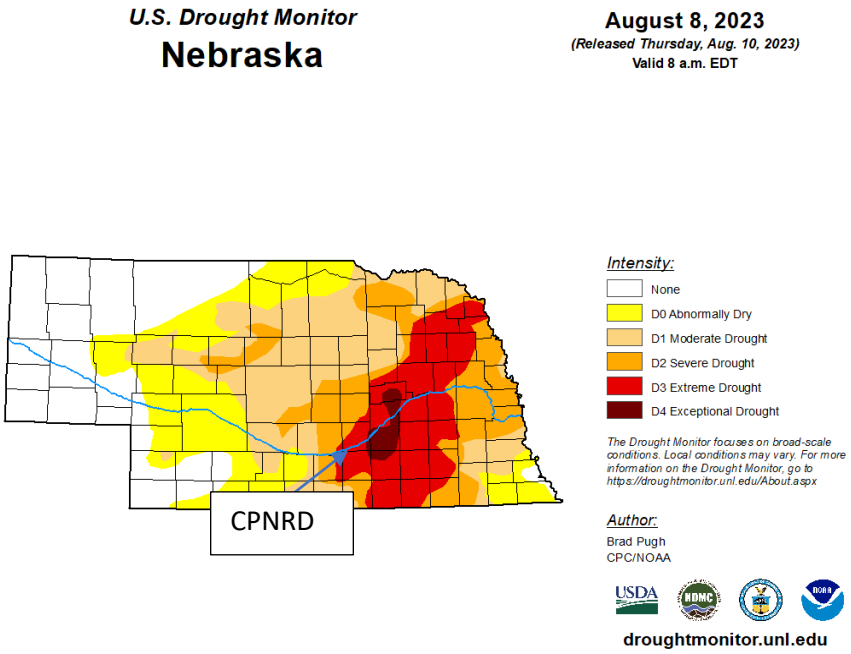
Evaluation Criteria C – Other Project Benefits

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

- *Explain and provide details of the specific issue(s) in the area that is impacting water sustainability. Consider the following:*
  - *Describe recent, existing, or potential drought or water scarcity conditions in the project area.*
    - ❖ Water use and management of groundwater, surface water, and water quality are specific issues of concern in CPNRD. In some sections of the CPNRD, including the project area, water levels are declining both in groundwater and streamflow. Throughout CPNRD, drought has impacted water resources. The project takes place in an area that has been continually impacted by varying

snowpack and water conditions year by year. Continuing variability in precipitation throughout the year and an unreliable snowpack lead to continued variability in drought conditions and water scarcity in future years.

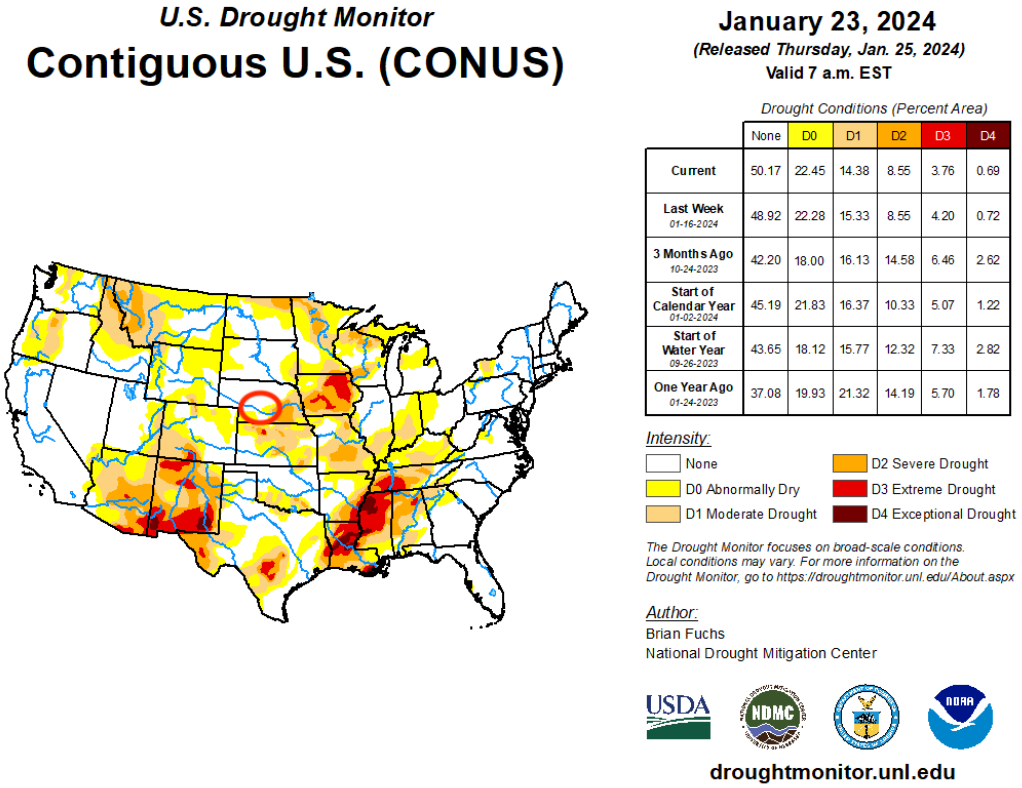
- *Is the project in an area that is experiencing or has recently experienced drought or water scarcity?*
  - ❖ Yes, this area has been significantly impacted by drought. Much of CPNRD is frequently in the area designated as moderate to severe drought by the Drought Monitor published by the National Drought Mitigation Center at the University of Nebraska-Lincoln.



Irrigated agriculture is the focus of this proposal, which will conserve water through improved irrigation efficiencies. Improving the irrigation efficiency in CPNRD and the project area will reduce the volume of water delivered to the fields. Groundwater that is pumped to augment low canal water deliveries will be reduced since the canal system will be more efficient. Consequently, the amount of energy consumed either in the form of electricity or fossil fuels will be reduced and will have a positive impact on energy sustainability. Improved management through irrigation efficiency will reduce the electricity demand in the project area and the Platte River Basin.

- *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).*
  - ❖ According to the Climate Mapping for Resilience and Adaptation portal (https://livingatlas.arcgis.com/assessment-tool/explore/map), the average annual total precipitation in the project area is around 21.9 inches. This area is

currently just above the semi-arid amount of annual rainfall, and climate modeling predicts that this area will remain consistent in this precipitation amount. Currently, surrounding areas of proximity have seen D1 moderate drought, and D2 severe drought, as seen in the image below, via the National Weather Service. For reference, the proposed project area, located in Dawson County, NE, has been circled in red. (https://droughtmonitor.unl.edu/data/png/current/current_conus_cat.png)



As climate change continues, it is expected that the severity of drought and water scarcity will increase within the area that encompasses CPNRD. Drought has already had a negative impact on the area. As recently as December 2022, the USDA designated twelve Nebraska Counties in a state of disaster due to drought. The twelve counties included a portion of the CPNRD, and the majority of the remaining counties in CPNRD were eligible for assistance as contiguous counties to the primary counties affected.

- *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.*
  - ❖ At present, excess water flows through the system to maintain adequate amounts for irrigators. When water flows into the system and is lost through leaks or seepage, it creates unnecessary energy expenditure, which promotes needless energy consumption. Additionally, when allocation flows are not achieved, the producer is forced to pump groundwater to offset inadequate deliveries or accept reduced crop

yields due to lack of water. Pumping requires energy use, and this increases reliance on fossil fuels and results in increased pollution.

- *Please describe how the project will directly address the concern(s) stated above.*
  - ❖ This project is expected to reduce the overall amount of water lost through conveyance, reducing the amount of total water required to meet CDSID's demands while preventing wastage of water by retaining excess flows in the main channel upstream. Additionally, this project will allow CDSID to control and measure the flow of water, which will, in turn, increase the ability to maintain customer service levels more adequately.
- *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 allow water managers to control flow and eliminate leaks. Additionally, the SCADA integration will allow for a quicker response to changes within the system allowing for more efficient management of water to take place.
- *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.*
  - ❖ Water conserved because of this project will be retained in the Platte River. Only needed flows will be diverted, therefore allowing more water to stay in the Platte River and thereby remain for threatened and endangered species, recreational use, water supply, and other beneficial uses.
    - *Indicate the quantity of conserved water that will be used for the intended purpose(s).*
      - ❖ The exact quantity of conserved water will vary depending on the annual totals flowing through the system. It is expected that water conserved via this project will be retained within the CDSID system since diversion and delivery will be more precise due to flow measurement and the SCADA system. The installation of the headgates funded by this project and the integration of all of the flume and sluice-style gates into the SCADA system are expected to better manage the annual diversions, deliveries, and returns. It is estimated that installing state-of-the-art water management equipment with automated cloud-based SCADA control in the canal system will improve water efficiency by 5,140 AF-water year.
    - *Provide a description of the mechanism that will be used, if necessary, to put the conserved water to the intended use.*
      - ❖ The water savings will be a result of applying accurate and automated flow measurement and using a SCADA system to transmit the information to the ditch and canal operators, water resources managers, producers, engineers, and scientists.

- *Will the project assist States and water users in complying with interstate compacts?*
  - ❖ The Platte River Recovery and Implementation Plan (PRRIP) is the recovery plan that includes portions of Nebraska, Colorado, and Wyoming and covers CPNRD. The PRRIP has three main elements:
  1. Increasing stream flows in the central Platte River during relevant time periods. Target flow increases range from 130,000 to 150,000 acre-feet per year.
  2. Enhancing, restoring, and protecting habitat lands for the target bird species
  3. Accommodating certain new water-related activities

  These elements are implemented according to underlying principles that require interests in land to be acquired only from willing participants and that they avoid increasing tax burdens to local citizens by paying taxes or their equivalent on PRRIP lands.

  The background and history of the PRRIP include efforts to re-license Kingsley Dam on the North Platte River in western Nebraska, the presence of threatened and endangered species, and the U.S. Fish and Wildlife Service's 1994 Biological Opinion on Platte River operations. The States of Nebraska, Colorado, and Wyoming and the U.S. Department of Interior (with the Bureau of Reclamation being the lead agency) joined together in July 1997 to sign the "Cooperative Agreement for Platte River Research and Other Efforts Relating to Endangered Species Habitat along the Central Platte River, Nebraska".

  The CDSID Canal Automation and Efficiency Project will reduce surface water consumption, and thereby, Platte River flows will increase. As a result, CPNRD will help the PRRIP achieve the program's objectives.

- *Will the project help to prevent a water-related crisis or conflict? Is there frequently tension or litigation over water in the basin?*
  - ❖ Yes, the project will help prevent water-related crises or conflicts. Due to heavy development, areas of decline in groundwater and surface water resources have occurred. To address the declines, river basins throughout the state have been evaluated, and some areas have been identified as fully-appropriated or over-appropriated surface water status. When a river basin, subbasin, or reach is designated as fully appropriated the NeDNR places an immediate stay on the issuance of any new natural-flow, storage, or storage-use appropriations. The CPNRD contains both fully-appropriated and over-appropriated basins. Since groundwater is hydrologically connected to surface water in CPNRD, conflict occurs between the groundwater and surface water users and agencies responsible for the management of threatened and endangered species. By accurately measuring groundwater use, the data will be available to scientifically answer what is the amount of consumption.

  The project will benefit the PRRIP as described above in the previous question. The recovery plan includes portions of Nebraska, Colorado, and Wyoming and covers CPNRD and the project area. As a result, streamflow will increase since groundwater

and surface water are hydrologically connected. This will help provide more flow to the Platte River, helping the PRRIP achieve the programs objectives

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

- *Will the project benefit species (e.g., federally threatened or endangered, a federally recognized candidate species, a state-listed species, or a species of particular recreational or economic importance)? Please describe the relationship of the species to the water supply and whether the species is adversely affected by a Reclamation project or is subject to a recovery plan or conservation plan under the Endangered Species Act (ESA).*
  - ❖ Yes, by reducing the amount of water diverted, additional water flows can be allocated to augment downstream flows to the Platte River, home to multiple endangered species, including the Whooping crane (*Gus Americana*) -Endangered, American Buring Beetle (*Nicrophorus americanas*) - Threatened, the Piping Plover (Charadrius melodus) – Threatened, and the Northern Long-eared Bat (*Myotis septentrionalis*) and Interior Least Tern.
- *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.).*
  - ❖ Yes, this project will improve the CPNRD and CDSID's overall ability to control flow through the canal, resulting in water being held for longer durations of time. Through the implementation of automation, water usage will not only be able to be quantified and leaks reduced, but the level of water will be maintained to a higher degree to ensure efficient deliveries to agricultural customers. Additionally, diverted excess flows during non-irrigation season can be stored in the canal system and later returned to the Platte River, the fields, or to recharge the groundwater.
- *Will the proposed project reduce the likelihood of a species listing or otherwise improve the species' status?*
  - ❖ Yes, the proposed project will conserve water in the Platte River Basin. It is documented by the Platte River Recovery and Implementation Program (PRRIP) and the COHYST study the impact that hydrology has on threatened and endangered species such as the Whooping crane (*Gus Americana*) -Endangered, American Buring Beetle (*Nicrophorus americanas*) - Threatened, the Piping Plover (Charadrius melodus) – Threatened, and the Northern Long-eared Bat (*Myotis septentrionalis*). More efficient use of irrigation water will reduce consumption. Thereby allowing more water to stay in the Platte River and improving the species' status.
  - ❖
- *Please describe any other ecosystem benefits as a direct result of the project.*

- ❖ The proposed project will allow for more available water to stay in the canal by reducing water delivery inefficiencies that arise from spillage and flow measurement errors. Increasing the amount of water that is kept in the canal positively impacts agricultural producers, and positively impacts riparian ecosystems by allowing excess saved water to be released back into the Platte River or reduce the amount of water diverted at the headgates for deliveries.

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 adept to bolster drought resilience.*
  - ❖ The proposed project will increase the efficiency and sustainability of the delivery of water to agricultural providers by minimizing spillage through precise flow measurement and automation. Correctly timed releases aid in application efficiency that increases sustainability and resiliency during times of drought brought on by unpredictable water years and climate change.
- *Does the project seek to improve ecological resiliency to climate change?*
  - ❖ Yes, by managing the flow of water more consistently and sustainably, more water is left in the river and canal at a maintained level. The reduction in spillage and seepage allows for water to be utilized by all other aspects of the environment while still in the stream/canal. This consistent management also helps irrigators avoid large spillages and unnecessary flooding that can cause crop, land, and structure damage.
- *Does the proposed project seek to reduce or mitigate climate pollution, such as air or water pollution?*
  - ❖ Yes, currently, all gate adjustments in the project area are accomplished manually. The introduction of automation via this project will eliminate the need for district employees to drive to individual gates to make changes and evaluate flow. The reduction in miles driven will lower the number of emissions generated by CDSID vehicles.
- *Does the proposed project include green or sustainable infrastructure to improve community climate resilience?*
  - ❖ Creating automation within the ditch and canal will address the impacts of climate change through the responsible usage of available water. The use of automated gates increases water conservation while minimizing water lost through spillage and leaks at headgates. The installation of the automated gates will support the automated adaptation of each gate to the changing canal water levels in real-time, allowing for a quick and sustainable response time regarding gate and flow level adjustments. Additionally, the automation of the canal negates the need for individuals to travel to the site and manage the canal. The elimination of routine vehicle travel reduces the

overall carbon emissions associated with manual gate operations. The control panel for the proposed automated gates is also operated via solar power and a solar panel, further contributing to CDSID's ability to manage their water through sustainable means. Along with the tangible benefits of an automated upgrade to the ditch and canal district, the employees will be gaining a new modern skillset while learning to operate new systems in ways that are sustainable and setting the staff up for success for future upgrades and growth in the district.

- *Does the proposed project contribute to climate change resiliency in other ways not described above?*
  - ❖ Through sustainable water management, this project would also allow for more consistent water availability for the end users, environmental factors, and wildlife throughout the project area landscape.

Evaluation Criteria D – Disadvantaged Communities, Insular Areas, and Tribal Benefits

Subcriterion D.1. Disadvantaged Communities*: E.O. 14008 affirms the advancement of environmental justice and equity for all through the development and funding of programs to invest in disadvantaged communities. This criterion, which is used to identify projects that advance the Justice 40 Initiative, includes all Federally recognized Tribes and Tribal entities, and any disadvantaged communities in insular areas (American Samoa, Guam, the Northern Mariana Islands, or the Virgin Islands) identified pursuant to the following criteria.*

- *Please use the White House Council on Environmental Quality's interactive Climate and Economic Justice Screening Tool (CEJST), available online at Explore the map - Climate & Economic Justice Screening Tool (https://screeningtool.geoplatform.gov/en/#17.59/36.63278/-105.181329) to identify any disadvantaged communities that will benefit from your project. The CEJST developed by the White House Council on Environmental Quality is a geospatial mapping tool that utilizes publicly available, nationally consistent data sets related to climate change, the environment, health, and economic opportunity to identify disadvantaged communities. In addition to identifying specific census tracts that are disadvantaged, the CEJST considers the lands of Federally Recognized Tribes as disadvantaged communities. In addition, regardless of whether a Federally Recognized Tribe has land, all Federally Recognized Tribal entities are considered disadvantaged communities for the purposes of the Justice40 Initiative.**[1]***
  - ❖ Yes, there are communities found to be disadvantaged and underserved via the White House Council on Environmental Quality's Interactive Climate and Economic Justice Screening Tool within a beneficial proximity of the project. The primary CPNRD areas are in portions of Grand Island, Lexington, Callaway, Hamlet, and Kearney, Nebraska, and counties with less than the median annual income for Nebraska are listed in the next question. Benefits to these communities will be water

sustainability of water resources for all users and beneficial uses, including agriculture, municipal, industrial, and domestic uses.

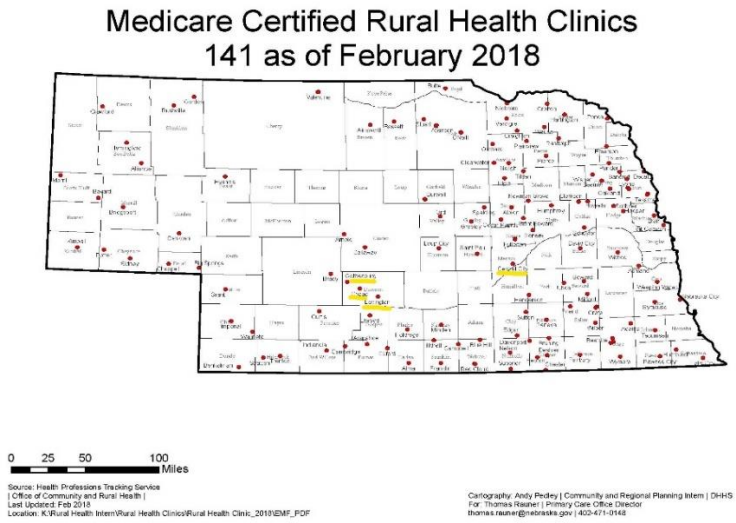
- *If applicable, describe how the proposed project will serve or benefit a disadvantaged or underserved community, identified using the tool. For example, will the project improve public health and safety by addressing water quality, add new water supplies, provide economic growth opportunities, or provide other benefits in a disadvantaged or community?*
  - ❖ The project will positively impact agricultural producers in the CDSID's service area that stand to be disproportionately impacted by the effects of climate change. The proposed project is beneficial to the above-listed disadvantaged communities by contributing to more reliable and consistent management of water supplies, more predictable and dependable water flow downstream, and benefits as seen from the availability of consistent and sustainable water flow and management. An unstable water supply due to climate change would disproportionately affect growers in this region who do not have the economic ability to fund this project regionally.

    From 2022 data from the U.S. Census Bureau reports that the annual median household income for the State of Nebraska is $71,722. The proposed project is in Dawson County. The median annual income from the seven counties in the CPNRD is less than the statewide annual median household level, as shown in the table below:

CPNRD Counties	2022 Median Household Income
Dawson County, Nebraska	$67,462
Buffalo County, Nebraska	$70,093
Hall County, Nebraska	$63,553
Howard County, Nebraska	$70,766
Merrick County, Nebraska	$57,873
Nance County, Nebraska	$60,054
Polk County, Nebraska	$67,695
State of Nebraska	$71,722

    Consequently, the project area meets the criteria for a disadvantaged community as defined by Section 1015 of the Cooperative Watershed Act. (https://data.census.gov)

    The State of Nebraska Department of Health and Human Services has designated medical facilities for underserved communities in the state. Medicare-certified rural health clinics were created to serve rural underserved areas with affordable and accessible primary health care services. Four communities in the CPNRD, including Gothenburg, Cozad, Lexington, and Central City, have received this designation as shown in the map below.



Subcriterion D.2. Tribal Benefits: *The Department of the Interior 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. Please 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?*
  - ❖ No, this project does not directly benefit or serve a tribe.
- *Does the proposed project support Tribally led conservation and restoration priorities, and/or incorporate or benefit Indigenous Traditional Knowledge and practices?*
  - ❖ No, this project does not specifically support the above-mentioned programs.
- *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?*
  - ❖ No, this project does not specifically support tribal resilience.

[1] *OMB, CEQ, & CPO, M-23-09, Addendum to the Interim Implementation Guidance for the Justice40 Initiative, M-21-28, on using the Climate and Economic Justice Screening Tool (CEJST) (Jan. 27, 2023), https://www.whitehouse.gov/wp-content/uploads/2023/01/M-23-09_Signed_CEQ_CPO.pdf.*

Evaluation Criteria E – Complementing On-Farm Irrigation Improvements

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.*
  - ❖ NA
- *Have the farmers requested technical or financial assistance from NRCS for the on-farm efficiency projects, or do they plan to in the future?*
  - ❖ NA
- *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.*
  - ❖ NA
- *Applicants should provide letters of intent from farmers/ranchers in the affected project areas.*
  - ❖ NA
- *Describe how the proposed WaterSMART project would complement any ongoing or planned on-farm improvement.*
  - ❖ NA
- *Will the proposed WaterSMART project directly facilitate the on-farm improvement? If so, how? For example, installing a pressurized pipe through WaterSMART can help support efficient on-farm irrigation practices, such as drip irrigation.*
  - ❖ NA

OR

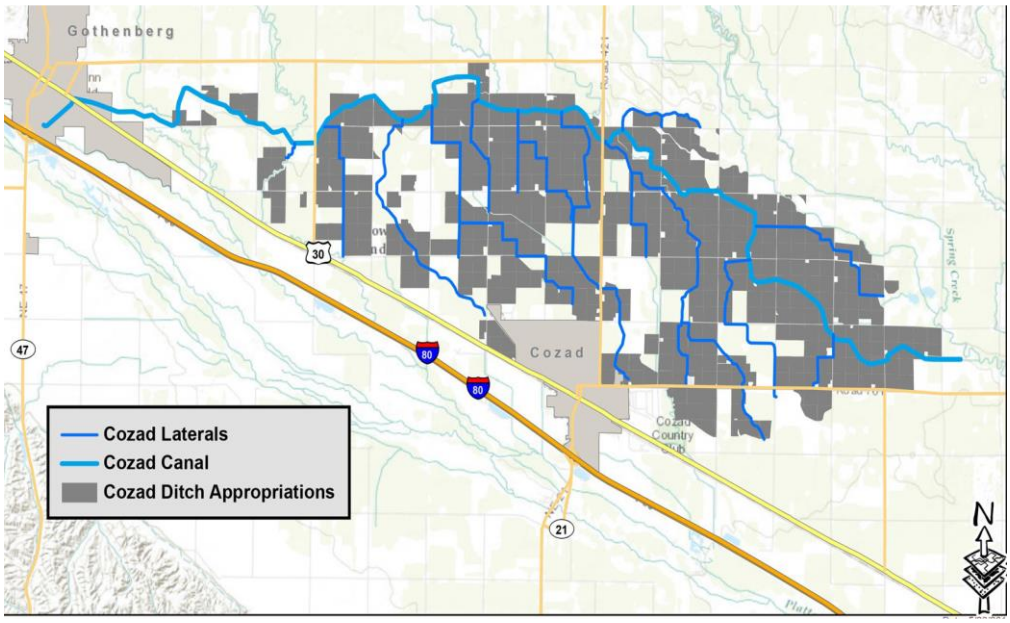
- *Will the proposed WaterSMART project complement the on-farm project by maximizing efficiency in the area? If so, how?*
  - ❖ Yes, the proposed WaterSMART project will complement the on-farm water conservation programs. The surface water canal irrigation will complement and supplement groundwater irrigation in the area. By delivering irrigation water precisely measured and using an automated SCADA system, canal water will be more efficiently used. Ultimately, this will reduce the need for groundwater irrigation augmentation in the project area and allow more water to stay in the Platte River.
- *Describe the on-farm water conservation or water use efficiency benefits that are expected to result from any on-farm work.*

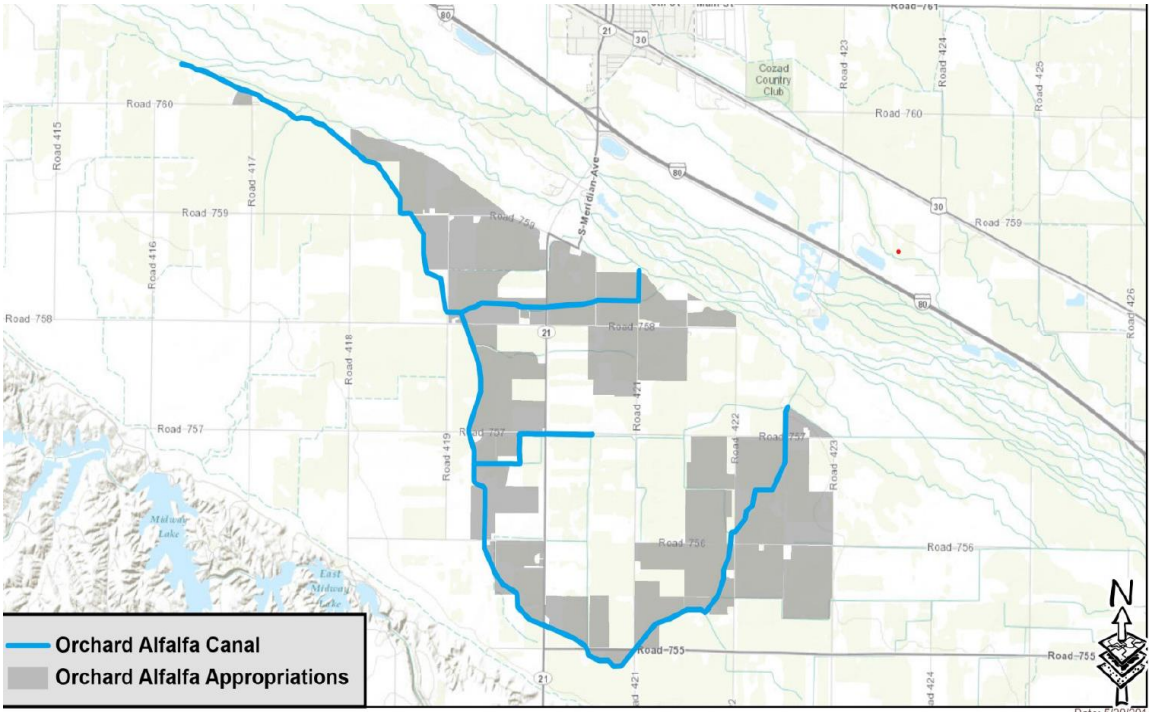
- ❖ The automated SCADA system, coupled with the precise flow regulation and distribution system, will increase efficiency. The benefits are water conservation, thereby reducing costs for producers, time and energy savings due to reduced time that district employees need to manually adjust gates and reduction in the need for groundwater irrigation in the project area and the associated pumping costs.

- *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.*

  In Criteria A, it was discussed that efficiency after implementation of the project would be a reduction of 29% of the natural flow. For a water savings of 5,140 AF-water year. With the water savings, allocations could be increased or remain at a more constant level ensuring greater crop production.

  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.





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

Evaluation Criteria F – Readiness to Proceed

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: please 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.*
  - ❖ CPNRD and CDSID have already completed 90% of the design of the civil works and the equipment requirements. The specification of flow requirements, equipment installation, and the design of the concrete structures are near completion.

    No landowner's agreements are necessary since the CPNRD and CDSID own the land.

The final Design will be completed by February 2025, and then site grading and staking will occur. Concurrently, the CPNRD will bid out the equipment and installation of the concrete work.

Construction of the concrete structures will occur in March 2025. Installation of the equipment will occur in April. A final report will be completed and submitted to Reclamation in August 2025.

- *Describe any permits that will be required, along with the process for obtaining such permits.*
  - ❖ Yes, a U.S. Army Corps of Engineers (USACE) 404 permit will likely be needed for this project if working directly within the channel. It is anticipated that Nationwide Permit (NWP) 2 – Structures in Artificial Canals, may be utilized to authorize this activity. CPNRD is requesting that the Nebraska-Kansas Area Office secure the permits and approvals; if needed, CPNRD can complete any necessary work.
- *Identify and describe any engineering or design work performed specifically in support of the proposed project.*
  - ❖ Each structure installation is unique, requiring some modification to the canal. CDSID crews are familiar with the construction of the flume and sluice gates. 90% of the design has been completed, which includes the design of the site grading and concrete structures, as well as the identification of flow requirements and installation requirements.
- *Describe any new policies or administrative actions required to implement the project.*
  - ❖ No new policies or administrative actions will be required to implement and complete this project.
- *Describe the current design status of the project. If additional design work is required prior to construction, describe the planned process and timeline for completing the design work.*
  - ❖ The project is currently at a 90% complete design level. The final design will include construction staking, bidding of civil works, and the advertising, bidding, purchase, and installation of the equipment.
- *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?*

Project **Schedule:**

Task	**Start**	**Finish**
Submit application for Reclamation Review	Dec 2023	Feb 2024
Successful notification of award from Reclamation	July 2024	July 2024
Sign contract with Reclamation	Oct 2024	Oct 2024
Approval of environmental and cultural compliance from Reclamation	Jan 2025	Jan 2025
Bid the civil works and equipment/installation	Jan 2025	Feb 2025
Final Design	Jan 2025	Feb 2025
Construct 13 concrete structures	Mar 2025	Mar 2025
Install 13 flume and sluice gates	Apr 2025	May 2025
Prepare final report for Reclamation	June 2025	Aug 2025

CPNRD is requesting that the environmental and cultural compliance review for the project be performed by the Nebraska-Kansas Area Office. CPNRD discussed this with Reclamation employee Joshua Neuffer. If needed, CPNRD can also perform the review. For planning purposes, it is assumed that the review will be done by January 2025.

Evaluation Criteria G – Collaboration

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?

Yes, there is widespread support for the proposed project. The CPNRD, Cozad Ditch, and Southside Irrigation District all support this project. Stakeholders and producers throughout the project area support the proposed project because they will benefit in many ways from a more efficient system. Installation of the flume and sluice gates and SCADA system will improve water distribution efficiency, thereby helping CPNRD comply with the requirements of the Integrated Management Plan (IMP). The members of the PRRIP will receive benefits because additional water will remain in the Platte River, thereby providing flows for threatened and endangered species. Additionally, the Nebraska Department of Natural Resources is a funding partner and fully supports this project.

- *What is the significance of the collaboration/support?*
  - ❖ Collaboration and support are critical for the implementation of this project. By demonstrating how water savings can be achieved through the implementation of precise measurement of flume and sluice gates and a SCADA system, irrigation

practices will be improved. The significance is that water savings will be increased by raising awareness of these improved irrigation practices.

- *Will this project increase the possibility/likelihood of future water conservation improvements by other water users?*
  - ❖ Yes, this innovative project will affect a portion of the Platte River Basin and complement the regional COHYST hydrologic model. The successful implementation of this project will have the potential to be replicated in other irrigation districts in the Platte River Basin, other portions of Nebraska, as well as other states. Automated water control of irrigation canals is an ongoing and future need for surface water irrigation.
- *Will the project benefit multiple sectors and/or users (e.g., agriculture, municipal and industrial, environmental, recreation, or others)?*
  - ❖ Yes, water conserved due to improved efficiency will improve flows in the Platte River. This benefits agricultural, municipal water users, environmental concerns, and recreational users. It will also improve surface water flows helping CPNRD meet PRRIP target flow requirements of increasing flow by 130,000 to 150,000 acre-feet per year. This will also benefit threatened and endangered species.
- *Please attach any relevant supporting documents (e.g., letters of support or memorandum of understanding).*
  - ❖ The signed Resolution from the CPNRD Board of Directors meeting can be found as an Appendix to this application. It codifies the support of this Board for this proposal. Additionally, the Nebraska Department of Natural Resources Letter of Support can be found as an Appendix.

Evaluation Criteria H – Nexus to Reclamation

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

- *Does the applicant have a water service, repayment, or operations and maintenance (O&M) contract with Reclamation?*
  - ❖ No, CPNRD and CDSID do not currently have a contract with Reclamation for water supply.
- *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, CPNRD and CDSID do not receive water through any Reclamation contractors, or by any other contractual means.
- *Will the proposed work benefit a Reclamation project area or activity?*
  - ❖ Yes, since Reclamation is the lead Federal agency in the PRRIP, increasing water use efficiency and potentially improving groundwater levels and, ultimately, flows in the Platte River will provide benefits to Reclamation and the other user participants in the PRRIP.

- *Is the applicant a Tribe?*
  - ❖ No, CPNRD and CDSID are not tribes.

Performance Measures

Performance Measure A.3: SCADA and Geographic Information Systems: For projects that install or expand a SCADA and/or GIS system, the applicant should consider the following:

- *How SCADA or SCADA/GIS implementation will differ from pre-project operations in terms of how improved data availability will be incorporated into daily operational decisions*
  - ❖ Real-time water control use data will be available to CPNRD and CDSID managers and operators. This information will be supplied to producers, and conversely, producers will be able to communicate their water needs to water managers and operators. This will improve water management throughout the project area. This is also a significant improvement when compared to pre-project operations, which relied on district employees to manually operate the water distribution system.

    Real-time water use will be available to the CPNRD and their irrigators, and for the COHYST model and complying with the Platte River Recovery Implementation Program (PRRIP).
- *How SCADA or SCADA/GIS systems will be maintained once implemented. Discuss balance of in-house expertise anticipated vs. reliance on third part services provider(s).*
  - ❖ Training on equipment operations and maintenance by the vendor will be provided as part of the contract. Additionally, CPNRD and CDSID personnel will be on hand during installation, this will allow district personnel to gain expertise in operating the new equipment. Third-party providers are not expected.
- *The projected opportunities for improved operational efficiencies that could be realized through implementation of a SCADA or SCADA/GIS system (e.g., improved delivery equity, improved response to unanticipated events, reduced administrative spillage, and enhanced productivity of human resources)*
  - ❖ The operational efficiencies will be improved by the SCADA system. District employees will no longer be required to manually operate the system, improving productivity. Control of the system will be handled by water managers remotely, thus allowing a comprehensive operation of the entire canal system.
- *The response process to SCADA or SCADA/GIS failures/outages*
  - ❖ The advantage of the SCADA system is that operational failure will be determined in real-time, thereby allowing an immediate response. The response process to system outages will result in operating the system manually until the automated operation can be re-established.
- *Applicants are encouraged to review published reports on considerations when implementing a SCADA system (e.g., Freeman, B. and C. Burt, 2009. Practical experience*

with state-of-the-art technologies in SCADA systems, Irrigation Training and Research Center, California Polytechnic State University, San Luis Obispo, California.)

- ❖ CPNRD and CDSID will review published reports regarding SCADA.

Pre-project estimations of baseline data:

- *Collect data on diversions and deliveries to water users*
  - ❖ The CDSID has been collecting data on diversions and deliveries. Headgates within the project scope do not currently have SCADA and are, therefore, unable to produce data for comparison.
- *Document employee pre-project time spent on ditch/canal monitoring and water control*
  - ❖ The pre-project time that CDSID employees have spent on ditch/canal monitoring and water control will be retrieved for documentation.

Post-project methods for quantifying benefits of SCADA or SCADA/GIS system projects:

- *Track and record the diversions to water users and compare to pre-project diversions. This would show results of improved management if yearly fluctuations in weather are accounted for.*
  - ❖ Water diversions to the canals and deliveries to the producers will be tracked on a continuous basis. Water use data will be shared between the irrigators and CPNRD and CDSID water managers. Comparisons to pre-project diversions to the canals and deliveries will be made. At a minimum, baseline data will be established. This will allow the tracking of water use to go forward. This frequently collected data will enable producers to improve seasonal irrigation efficiency (timing irrigation events throughout the season) and aid basin-wide water management by delivering continuous water use data to CPNRD water managers.
- *Report delivery improvements (e.g., changes in supply, duration, or frequency that are available to end users because of SCADA/GIS).*
  - ❖ CPNRD and CDSID will report deliveries to the State of Nebraska and other organizations such as the PRRIP and COHYST. As delivery improvements are identified, the data can be used by producers to reinforce the value of best management practices for surface water irrigation. During times of water deficit or times of surplus, agricultural practices can be adjusted.

Budget

Funding Plan

The following section provides details to support the “Cost Classifications” specified in SF-424C. SF-424C is submitted in this application.

The non-federal cost share required for the project has been appropriated by the Nebraska Department of Natural Resources (NeDNR) based on the anticipated approval of this project by the Bureau of Reclamation. Funding in the amount of $356,824 will be contributed to the Cozad Ditch and Southside Irrigation District Canal Automation and Efficiency Project (see attached letter of commitment) upon the successful award of this application. The CPNRD has budgeted over the two-year duration.

There are no third-party in-kind contributions, and those are covered using the funding requested from Reclamation and any requested pre-award costs.

Funds expended by CPNRD will be used to purchase flume and sluice gates, SCADA system equipment, miscellaneous equipment for installation, and contractor services for installation. Grant funds from Reclamation would be used for the same expenses. No other federal sources of funds have been requested. No pending funding requests would negatively affect the project if not approved.

Budget Proposal & Narrative

Budget Detail

Budget Item Description	Computation $/unit	Computation Quantity	Quantity Type (hours/days)	Total Cost
Personnel				
	Not requesting reimbursement for personnel			
Fringe Benefits				
	Not requesting reimbursement for fringe benefits			
Travel				
	Not requesting reimbursement for travel			
Administrative and Legal Expenses				
	Not requesting reimbursement for administrative and legal expenses			
Land, Structures, Rights-of-Way, Appraisals etc.				
	Not requesting reimbursement for land, structures, rights-of-way, appraisals			
Relocation Expenses and Payments				
	Not requesting reimbursement for relocation expenses and payments			
Architectural and Engineering Fees				
	Not requesting reimbursement for architectural and engineering fees			
Other Architectural and Engineering Fees				

	Not requesting reimbursement for other architectural and engineering fees			
Project Inspection Fees				
	Not requesting reimbursement for project Inspection Fees			
Site Work				
	Not requesting reimbursement for site work			
Demolition and Removal				
	Not requesting reimbursement for demolition and removal			
Construction				
13 Flume and sluice gates, and SCADA Installation. See quote in the Appendix	$117,600	1		$117,600
Equipment				
13 Flume and sluice gates, and SCADA equipment. See quote in the Appendix	$531,170	1	each	$531,170
Supplies and Materials				
	Not requesting reimbursement for supplies and materials			
Miscellaneous				
	Not requesting reimbursement for miscellaneous			
Other Direct Costs				
	Not requesting reimbursement for other direct costs			
Contractual				
	Not requesting reimbursement for contractual			
Contingency 10%				
				$64,877
TOTAL COST				**$713,647**

Budget Narrative

Personnel Salaries and Wages

The CPNRD is not requesting reimbursement for salaries and wages for personnel costs.

Fringe Benefits

The CPNRD is not requesting reimbursement for fringe benefits.

Travel

The CPNRD is not requesting reimbursement for travel.

Administrative and Legal Expenses

The CPNRD is not requesting reimbursement for administrative and legal expenses.

Land, Structures, Right-of-Way, Appraisal

The CPNRD is not request reimbursement for land, structures, right-of-way, appraisal.

Relocation Expenses and Payments

The CPNRD is not requesting reimbursement for relocation expenses and payments.

Architectural and Engineering Fees

The CPNRD is not requesting reimbursement for architectural and engineering fees.

Other Architectural and Engineering Fees

The CPNRD is not requesting reimbursement for other architectural and engineering fees.

Project Inspection Fees

The CPNRD is not requesting reimbursement for project inspection fees.

Site Work

The CPNRD is not requesting reimbursement for site work.

Demolition and Removal

The CPNRD is not requesting reimbursement for demolition and removal.

Construction

The construction expenditures are anticipated for the installation. The time estimate for installation of each piece of equipment was determined from the average usage on similar past projects. The estimated cost for construction of the ten structures in Cozad Ditch is 96,600. The estimated cost for construction of the three structures in Southside Canal is $21,000. These construction costs will be advertised and bid.

Equipment

All equipment to be used on this project will be owned and purchased by CPNRD. The equipment purchases will be advertised and bid. The estimated cost is $531,170. The estimated cost was obtained from a quote from a vendor.

Cozad Ditch	
Headgates Flume gates (2)	$83,750
Steer Check Flume gate (1)	$42,950
Geiger Check Flume gate (1)	$42,950
Banner #2 Check Flume gate (1)	$42,725
Banner #3 Check Flume gate (1)	$39,085
Lane South Flume gate (1)	$42,725
Brownie #1 Flume gate (1)	$42,725
Brownie #3 Flume gate (1)	$35,600
Twin Curvettes Flume gate (1)	$39,085
Southside Canal	
Headgates Sluice gates (2)	$78,840
Lower Canal/Hueftle Farm Flume gate (1)	$40,735
Total	$531,170

Materials and Supplies

The CPNRD is not requesting reimbursement for materials and supplies.

Miscellaneous

The CPNRD is not requesting reimbursement for miscellaneous.

Other Direct Costs

The CPNRD is not requesting reimbursement for other direct costs.

Contractual

The CPNRD is not requesting reimbursement for contractual expenditures.

Contingency

The 10% contingency expense of $64,877 is listed as miscellaneous is for unforeseen expenses that might arise, such as inflation, repair of damaged flume and sluice gates during installation, electrical components, wire, freight, or tools that might break.

Indirect Costs

The CPNRD is not requesting reimbursement for indirect costs.

Environmental and Regulatory Compliance Costs

The CPNRD is requesting that Reclamation conduct the environmental and regulatory compliance review. This has been discussed with the Nebraska-Kansas Area Office and they agreed to perform the work. If needed, the CPNRD will conduct the environmental and regulatory compliance review.

Third-Party In-Kind Contributions

The CPNRD does not anticipate any contributions matching this description.

Local Match, NeDNR	$356,824
Federal Match	$356,823
Total Project Cost	$713,647

Environmental and Regulatory Compliance Costs

CDSID will call upon Reclamation to assist with all Environmental and Regulatory Compliance requirements prior to any construction activities related to this project.

Environmental & Cultural Resource Compliance

Please answer the questions from Section H.1. Environmental and Cultural Resource Considerations in this section.

- *Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.*
    - ❖ Minor excavation in the selected areas will be needed to pour concrete footings for gate inserts. A concrete truck will deliver ready-mix concrete for concrete pouring into the excavated areas. Minor grading may be necessary to restore canal slopes and heavy equipment travel paths. No other earthwork activity is expected. Impacts to the area will be minimal and mitigation practices such as regrading will restore the impacted areas. Minor impacts to the surrounding area are also expected from heavy equipment loading. Minimal vegetation matting and soil compaction are likely. No other actions of concern will be conducted that will affect the surrounding environment.
- *Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?*
    - ❖ There are Federally listed threatened or endangered species within selected areas. Listed species identified by the Nebraska Game and Parks Commission known to be within range of the selected areas are the Whooping crane (*Gus Americana*) -Endangered, the American Buring Beetle (*Nicrophorus americanas*) - Threatened, the Piping Plover (Charadrius melodus) – Threatened, and the Northern Long-eared Bat (*Myotis septentrionalis*) – Threatened. However, the selected areas do not overlap with the listed critical habitat, and there appears to be no suitable habitat for the Whooping Crane, the American Burying Beetle, the Interior Least Tern, or the Northern Long-eared Bat within the selected areas. Therefore, it is not anticipated that the project activities will affect any of the listed species.
- .*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.*
    - ❖ Yes, the Cozad Canal and the Orchard Alfalfa Canal are both classified by the United States Geological Survey (USGS) as an intermittent stream, a jurisdictional Water of the United States. The United States Fish and Wildlife Service (USFWS) lists Cozad Canal as a riverine, lower perennial, unconsolidated bottom, semi-

permanently flooded, excavated stream (R2UBFx), with some portions of the canal classified as a temporarily flooded, forested, excavated, palustrine wetland (PFOAx). The USFWS lists Orchard Alfalfa Canal as a riverine, intermittent, streambed, seasonally flooded, excavated stream (R42BCx), with some portions of the canal classified as a temporarily flooded, forested, excavated, palustrine wetland (PFOAx), and palustrine, emergent, persistent, seasonally flooded, excavated wetland (PEM1Cx).

- *When was the water delivery system constructed?*
  - ❖ The Southside / Orchard Alfalfa Canal has been in place since its water right was approved in 1898, with water rights to irrigate 4,326 acres of land. The CPNRD and Southside Irrigation Company signed a management lease agreement in 2012. The canal company became an irrigation district in 2014, making the Southside Irrigation District a political subdivision.
  - ❖ The Cozad Ditch has been in place since its water right was approved in 1894, with water rights to irrigate over 25,000 acres of land. The CPNRD and Cozad Ditch Company signed a management lease agreement in 2012.
- *Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.*
  - ❖ Yes, the canal will receive gates to control water appropriation in select areas. Modifications include the installation of concrete footings and metal gate inserts at the select locations. No other modifications will be applied.
- *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.*
  - ❖ No, there are no buildings, structures, or features listed or eligible for listing on the National Register of Historic Places within or near each of the selected sites. Additionally, History Nebraska does not list any buildings, structures, or features within or near the selected sites.
- *Are there any known archeological sites in the proposed project area?*
  - ❖ No, there are no known archeological sites and/or sites listed on the National Register of Public Places at the selected sites.
- *Will the proposed project have a disproportionately high and adverse effect on any communities with environmental justice concerns?*
  - ❖ No, the project actions are not expected to have a disproportionally high and adverse effect on low-income or minority populations.
- *Will the proposed project limit access to, and ceremonial use of, Indian sacred sites or result in other impacts on tribal lands?*

- ❖ No, the project activities are not expected to contribute to limited access or the use of ceremonial Indian sacred sites or result in impacts on lands.

- *Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?*
  - ❖ No, the proposed project actions will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species. The project does not involve a watercraft, nor does it involve the transfer of equipment from one aquatic resource to another, which is the primary source of transfer and spread of aquatic invasive species.

Required Permits and Approvals

Yes, a U.S. Army Corps of Engineers (USACE) 404 permit will likely be needed for this project if working directly within the channel. It is anticipated that Nationwide Permit (NWP) 2 – Structures in Artificial Canals, may be utilized to authorize this activity. CPNRD is requesting that the Nebraska-Kansas Area Office secure the permits and approvals; if needed, CPNRD can complete any necessary work.

Overlap or Duplication of Effort Statement

The CPNRD does not have any projects that overlap or duplicate the effort of the proposed project in terms of activities, costs, or commitment of key personnel. The proposed project has not been or will be submitted for funding considerations to any other potential funding source – whether it be Federal or non-Federal.

Conflict of Interest Disclosure Statement

Applicability

CPNRD will take the appropriate steps to avoid conflicts of interest in its responsibilities under or with respect to Federal financial assistance agreements. The procurement of supplies, equipment, construction, and services by recipients and sub-recipients shall be in accordance with the provisions of 2CFR§200.318.

Notification

CPNRD will disclose in writing any conflict of interest to Reclamation. CPNRD will establish internal controls that include procedures to identify, disclose, and mitigate or eliminate identified conflicts of interest.

Restrictions on Lobbying

CPNRD will not use funds under a grant or cooperative agreement for lobbying activities and will provide the required certifications and disclosures. CPNRD does retain a lobbyist, and that information is reported in Form SF-LLL.

Review Procedures

CPNRD will resolve any conflict of interest if determined by the Financial Assistance Officer.

Uniform Audit Reporting Statement

CPNRD did not receive $750,000 or more in Federal grant award funds for the most recent fiscal year of 2023. The district did receive greater than $750,000 in award funds during the period of 2020/2021.

Unique Entity Identifier and System for Award Management

The CPNRD is registered with SAM under the Unique Entity Identifier TH5CAGKVG7X8.

Certification Regarding Lobbying

CPNRD is requesting more than $100,000 in federal funding and is certifying such in Form SF-424, which is attached to this application.

Disclosure of Lobbying Activities

A fully completed and signed SF-LLL is attached to this application.

Official Resolution

The Official CPNRD Board Resolution is attached to this application in Appendix B.

Letters of Funding Commitment

The Nebraska Department of Natural Resources Letter of Funding Commitment is attached to this application in Appendix C.

Appendices

Appendix A – Central Platte Natural Resources District Integrated Management Plan

Appendix B – Central Platte Natural Resources District Board Resolution

Appendix C – Letter of Financial Commitment from Nebraska Department of Natural Resources

Appendix D – Quote from Rubicon

Appendix E – A Systematic Approach for Estimating Water Losses in Irrigation Canals

BOARD RESOLUTION 23-002

Of the

Central Platte Natural Resources District

RESOLUTION to submit an application on behalf of Southside Irrigation District to the U.S. Bureau of Reclamation's WaterSMART Water and Energy Efficiency Grant Program.

WHEREAS: The Central Platte Natural Resources District and the Southside Irrigation District (SID) wish to engage in infrastructure improvement projects to increase water delivery efficiencies for SID.

RESOLVED:

1. ÂLyndon Vogt, General Manager of Central Platte NRD has the legal authority to enter into contracts and agreements with all entities involved.

2. ÂThe Central Platte NRD Board of Directors approves this application for submittal.

3. ÂCentral Platte NRD will work with the U.S. Bureau of Reclamation to meet all deadlines and project deliverables.

Mick Reynolds

Board Chairman

Central Platte Natural Resources District

CPNRD
CENTRAL PLATTE
NATURAL RESOURCES DISTRICT

215 Kaufman Ave Grand Island NE 68803
T: (308) 385-6282 F: (308) 385-6285
www.cpnrd.org

January 29, 2024

To Whom It May Concern,

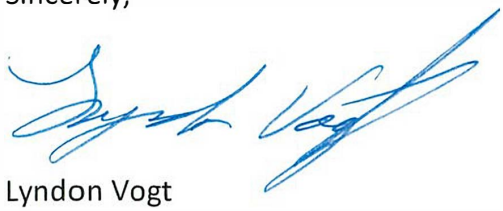
The Central Platte Natural Resources District (NRD) is fully committed to providing project funding as part of Central Platte NRD's applications to the U.S. Bureau of Reclamation's WaterSMART Water and Energy Efficiency grant.

The Southside Irrigation District and Cozad Ditch Company Flow Measurement and Canal Efficiency Project, submitted under the Water and Energy Efficiency Grant, totals $713,647 of which the Central Platte NRD commits $356,824. The breakdown of costs is as follows:

Southside/Cozad (Rubicon) Project	
DESCRIPTION	**COST**
Construction	$117,600
Equipment/Installation	$531,170
Subtotal	$648,770
Contingency 10%	$64,877
Total	**$713,647**
NeDNR/CPNRD Funds	$356,824
Bureau of Reclamation	$356,823

The Central Platte NRD funding commitments will be available upon successful completion and receipt of the WaterSMART monies. There are no time constraints or other contingencies associated with the matching funds.

Sincerely,



Lyndon Vogt
General Manager
Central Platte NRD

BOARD RESOLUTION 23-003

Of the

Central Platte Natural Resources District

RESOLUTION to submit an application on behalf of Cozad Ditch Company to the U.S. Bureau of Reclamation's WaterSMART Water and Energy Efficiency Grant Program.

WHEREAS: The Central Platte Natural Resources District and the Cozad Ditch Company (CDC) wish to engage in infrastructure improvement projects to increase water delivery efficiencies for CDC.

RESOLVED:

1. [2] Lyndon Vogt, General Manager of Central Platte NRD has the legal authority to enter into contracts and agreements with all entities involved.

2. [2] The Central Platte NRD Board of Directors approves this application for submittal.

3. [2] Central Platte NRD will work with the U.S. Bureau of Reclamation to meet all deadlines and project deliverables.

Mick Reynolds

Board Chairman

Central Platte Natural Resources District

NEBRASKA

Good Life. Great Water.

DEPT. OF NATURAL RESOURCES

Pete Ricketts, Governor

February 13, 2024

Lyndon Vogt, General Manager
Central Platte Natural Resources District
215 Kaufman Ave
Grand Island, NE 68803

Dear Lyndon:

Please consider this letter a formal expression of support and commitment from the Nebraska Department of Natural Resources to provide up to $356,824 of matching state funding for your Bureau of Reclamation WaterSMART grant application for the Cozad Ditch and Southside Irrigation District Project. These types of projects are key investments toward sustaining irrigation operations over the long term, and enhancing water supplies during periods of drought. The Department's current plans pertaining to the project area include an integrated management plan developed in partnership with your District and the Basin-Wide Plan. Both plans recognize the benefits of these types of activities in supporting goals aimed at the long-term sustainability of irrigation uses in the basin.

Should your grant application be approved, Department staff will work with you to develop a contract that implements this financial commitment. Once again, the Department fully supports your District's efforts to implement these water supply improvements and appreciates your District's efforts in working to support the state's integrated management plan and basin-wide plan goals.

Sincerely,

Thomas E. Riley

Thomas E. Riley, P.E., Director

Thomas E. Riley, P.E., Director
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