WaterSMART Small-Scale Water Efficiency Project Grant Application

NOFO: R24AS00059
Fiscal Year 2024
Bureau of Reclamation

Well Meter Upgrade and Water Efficiency Project

January 16, 2024

Applicant:

Little Blue Natural Resources District

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Little Blue
Natural Resources District

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EXECUTIVE SUMMARY

Date: January 16, 2024

Project Name: Well Meter Upgrade and Water Efficiency Project

Applicant Name: Little Blue Natural Resources District (LBNRD)

Project Location: *Applicant Headquarters*: Davenport, NE; *District Counties*: All or part of Adams, Clay, Fillmore, Jefferson, Nuckolls, Thayer, and Webster Counties; *State*: Nebraska

Applicant Eligibility Category: Category A – Water District

Period of Performance: September 2024–September 2026 (24 months)

Is Project on a Federal Facility: The project is not located on a Federal Facility

Conflict of Interest (COI) Statement: No conflicts of interest exist at the time of submission.

Project Summary:

The Little Blue Natural Resources District (LBNRD) was established as one of 23 Natural Resources Districts (NRDs) across the State of Nebraska in 1972 with boundaries delineated by major river basins. One of its primary responsibilities is to manage groundwater resources within its boundary. Located in the south-southeastern portion of Nebraska, this seven-county area is heavily reliant on groundwater for agriculture, the major economic driver in the District, drinking water, and wildlife habitat, among other uses. Over 98% of water used in the District comes from groundwater. This heavy use along with prolonged drought conditions in recent years has led to areas of groundwater decline and the potential for conflict over this limited resource. As a result, there is a growing need for better water use efficiency and modern equipment that more accurately and effectively measures groundwater pumping to support data-driven decisions.

The LBNRD Well Meter Upgrade and Water Efficiency Project proposes to upgrade 79 aging flow meters (pre-1990) on high-capacity wells in areas showing groundwater declines. The meters will be upgraded to the latest models of flow meters with advanced features including digital readouts, telemetry capabilities, and more durable components. Upgrading these meters will provide more accurate, real-time flow data and remote capability. Since 98% of the groundwater used in the District is for agriculture, making these upgrades can have a significant impact on water use and conservation. The LBNRD is using a phased approach and upgrading a percentage of meters in the high priority areas through this project with plans on expansion and pursuing additional grant funding in the future. This project supports the goals and initiatives outlined in the LBNRD's Groundwater Management Plan (2017), the basin-wide Little Blue Basin Water Management Plan (2015) that spans two NRDs, and the Integrated Management Plan (2019) that governs areas where groundwater and surface water are hydrologically connected.

The LBNRD's longer-term goal is to upgrade a significant portion of the 6,100 meters on high-capacity wells in the District as they age out to newer models with remote capability. Because there is such a tight knit community in the District, peers have a strong influence on acceptance and implementation of management practices. The District anticipates that as the benefits of upgrading meters through this project become apparent, peer-to-peer recommendations will serve as an added education and outreach benefit to help this initiative gain traction.

1. TECHNICAL PROPOSAL

1.1 BACKGROUND INFORMATION

The LBNRD was created by the Nebraska Legislature in 1972 as one of 23 Natural Resources Districts (NRDs) in the state with one of its primary responsibilities management and protection of groundwater resources. The boundaries of the NRDs were determined based on major river basins and each district is governed by a locally elected board of directors. The LBNRD encompasses over 2,402 square miles in south-southeast Nebraska including all of Thayer County and portions of the Adams, Clay, Fillmore, Jefferson, Nuckolls, and Webster Counties, and incorporates nearly the entire Little Blue River Basin (Basin). **Figure 1** (Section 1.2 – Project Location) shows the LBNRD's boundary and location in Nebraska. Most of the LBNRD lies over the High Plains Aquifer and a Paleovalley Aquifer, but there are also areas of the LBNRD that are not above an aquifer and virtually void of adequate groundwater.

Groundwater has been the primary source of water in the LBNRD for decades accounting for 98% of water used in the District. The advent of groundwater irrigation in the 1940s gave rise to a new era of economic viability and community stability focused mainly on agriculture, and today, nearly 98% of groundwater is used for agriculture. Only about 100 deep groundwater irrigation wells existed before 1950, but due to the drought years of the 1950s, expansive irrigation development occurred in the 1960s and has continued through the decades. High development periods generally match the climatic conditions as producers often see irrigation water as a way to ensure crop viability during unpredictable summer heat and drought.

Today, the LBNRD has just under 6,500 registered active irrigation wells which irrigate approximately 673,000 acres of land at an average rate of 9.4 inches/acre. An additional 953 private domestic wells and 33 community water systems in the LBNRD all rely on groundwater for drinking water and other domestic needs. Collectively, just under 50,000 people reside in the District with the largest community, Hastings, having a population of 25,000 residents. Remaining communities range from 49 residents to just under 4,000, and farmland and rural areas make up the majority of land use at 97% of the 1.54 million acres.

In 1984, the Nebraska Legislature passed legislation requiring NRDs to develop a Groundwater Management Plan (GMP), which describes the groundwater resources of each District and outlines a strategy to protect and conserve groundwater resources within each NRD. The LBNRD first developed its GMP in 1986 and continues to update periodically and use this plan to provide direction and guidance for groundwater programs including specific initiatives to sustainably manage groundwater.

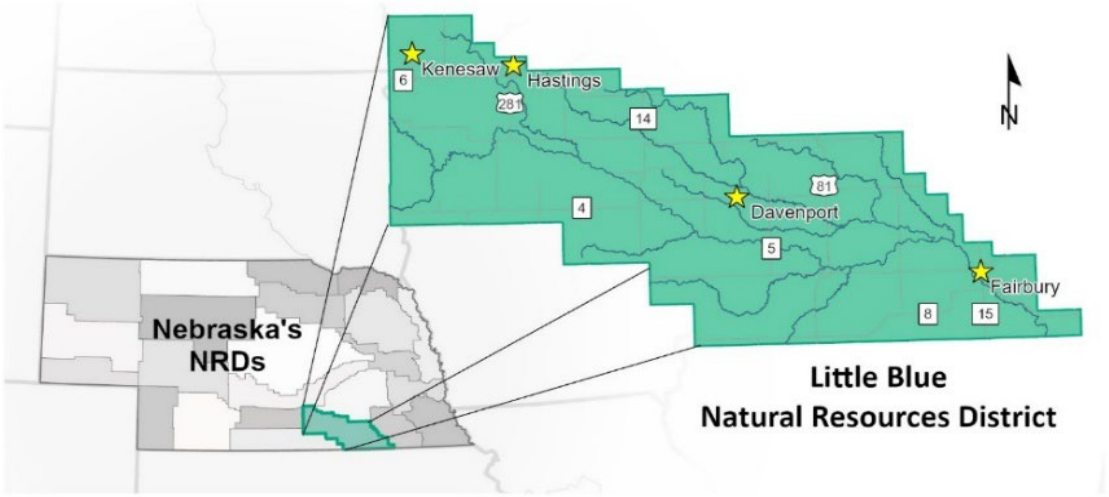
Efforts to equip all irrigation wells and certify acres across Nebraska began in earnest as early as 1985 and the entire District was designated a Groundwater Management Area (GMA) in 1997, effectively providing the impetus to develop additional rules, regulations, and management programs to manage groundwater resources. This designation includes the objectives to: (1) build farm operator awareness of water pumped from the aquifer, and (2) increase understanding of soil moisture conditions and actual crop water needs to promote and implement irrigation efficiency. Initiatives related to these objectives in the GWP include voluntary and required installation of metering equipment to measure withdrawals from high-capacity water wells when certain triggers for groundwater level declines occur.

The LBNRD Well Meter Upgrade and Water Efficiency Project is designed to address the growing issue of groundwater depletions in specific target areas of the District and meet provisions of the GMP and other basin plans by providing the most modern equipment to make flow measurements on high-capacity wells (generally irrigation). This information can then be used for data-driven, water use management decisions using the best available information. With such a heavy reliance on groundwater for irrigation and many high-capacity wells in the District, making these upgrades can have a significant impact on water use efficiency and conservation. In addition, the LBNRD Voluntary Integrated Management Plan (IMP) where the District and the Nebraska Department of Natural Resources (NDNR) work collaboratively in areas where ground water and surface water are hydrologically connected. The project is described in greater detail in Section 2.3 – Project Description.

1.2 PROJECT LOCATION

Figure 1 shows the location of the LBNRD, which is located in south-southeast Nebraska. For this project, two priority areas were identified in the District based on declining groundwater levels and large clusters of aging flow meters on high-capacity irrigation wells in portions of Adams, Clay, Filmore, Nuckolls, and Thayer Counties in Nebraska (**Figure 2** – Section 2.3).

Figure 1 - LBNRD Location in Nebraska



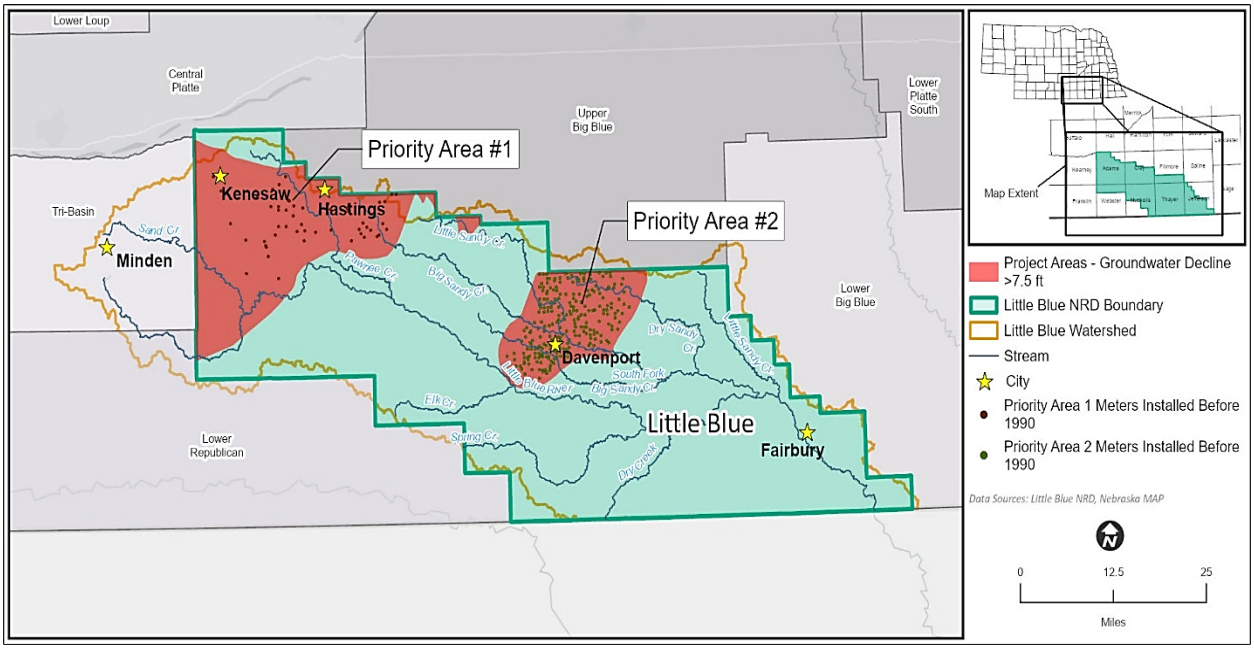
1.3 PROJECT DESCRIPTION

The goal of the LBNRD Well Meter Upgrade and Water Efficiency Project is to increase water use efficiency in areas of the District that show a trend of declining groundwater levels. Data collected from annual LBNRD monitoring programs along with additional studies and research show that several areas of the District are experiencing sustained declines in groundwater levels. Declines range from 10-30 feet since predevelopment and 7.5 feet or greater in the last 23 years. These areas are heavily reliant on groundwater for irrigation, drinking water, and other uses and the demand continues to grow necessitating the need for water conservation measures particularly for high-capacity irrigation wells where over-irrigation due to inaccurate readings can individually and collectively have a significant impact on groundwater levels. Prolonged drought conditions and variable rainfall over the past two decades have exasperated the problem and led to heavier pumping during the growing season to ensure crops receive required water.

This project will upgrade ageing flow meters installed prior to 1990 with the latest models of flow meters that have digital readouts and telemetry installed or are telemetry-capable for future upgrade and expansion. Installing telemetry units on irrigation wells gives water resource managers and producers important flow data with incredible speed and accuracy. Realtime data is relayed either by cellular or satellite signal without having to travel to the location simply by logging in or using a smartphone. This also saves time, effort, and fuel costs for producers and District personnel who often must travel 60 miles or more each way to take measurements. All meters will have new and more durable components increasing the useful life of the meters.

The District has delineated two priority areas for this project: **Priority Area #1** ('Hastings Area' in Adams and Clay Counties) and **Priority Area #2** ('Davenport Area' in Filmore, Nuckolls, and Thayer Counties) that have met all of the following criteria: (1) show a declining trend in groundwater levels from 2000-2023 (latest data available) based on annual measurements, (2) have flow meters that were installed prior to 1990, and (3) have a significant reliance on groundwater for irrigation and a high number of high-capacity irrigation wells in the area. **Figure 2** shows the two priority areas in the District (*red-shaded areas*) and meters that are older than 1990. Priority Area #1 has 137,024 irrigated acres and 52 wells that meet the criteria and Priority Area #2 has 80,076 irrigated acres and 243 meters also meeting the criteria. **APPENDIX B** shows a larger version of the priority area map and proximity to neighboring communities for reference.

Figure 2 - Project Priority Areas and Pre-1990 Meter Locations



Using the criteria above and considering the funding available through this grant request, a total of 79 meters are targeted to be upgraded for this project. This includes 67 meters that will be upgraded with telemetry-*capable* propeller meters with digital readouts, and 12 that will be upgraded with telemetry-*installed* propeller meters also with digital readouts. All 52 meters in Priority Area #1 and 27 meters in Priority Area #2 will be upgraded through this project. The existing meters will be upgraded to the following McCrometer meters and components, which have undergone an evaluation by the LBNRD staff to qualify for the District approved meter list:

- **Telemetry-capable (telemetry not yet installed)**: 67 meters will be upgraded to the MO300 McCrometer McPropellor Flow Meters with FlowCom digital registers and stainless-steel components with telemetry (FlowConnect) capability for future installation.
- **Telemetry-installed**: 12 meters will be upgraded to the MO300 McCrometer McPropellor or the McCrometer SmartTrax MO308 Flow Meters with stainless-steel components and FlowConnect Wireless digital registers with antennae extensions and telemetry-ready.
- **Data Transmission, Hosting Costs, and Software**: For the telemetry-ready meters, the LBNRD will arrange and set up any software and data plan systems. Any costs will be borne by the District.

Although 79 wells upgraded represents a small percentage of the 751 wells meeting the evaluation criteria that need upgrading throughout the District, the impact on water conservation can be significant due to the large volume of groundwater pumped by these high-capacity wells. This project signifies an important starting point and continuation of water use efficiency efforts outlined in the LBNRD's GMP.

2. EVALUATION CRITERIA

2.1 EVALUATION CRITERION A – PROJECT BENEFITS

Benefits to the Category A Applicant's Water Delivery System: *Describe the expected benefits to the Category A applicant's water delivery system. Address the following:*

Clearly explain the anticipated water management benefits to the Category A applicant's water supply delivery system and water customers.

- *Will the project result in more efficient management of the water supply?*

Yes, the project will ensure more efficient management of the water supply by upgrading existing, aging meters to more accurate meters with digital registers can provide data on demand and are remotely accessible, reducing travel and energy consumption. Many of the existing meters manufactured before 1990 are not as accurate (±5 to 10%) as the new meters (±1 to 2%) proposed for installation. Having more reliable and timely data allows producers to better quantify actual water use to improve pumping efficiency. This will help to optimize irrigation water application to better match crop water needs and reduce groundwater consumption both in the target areas and for the larger regional aquifer. Producers often look to each other for guidance and ideas, so the project will also provide outreach and education on a broader scale as the benefits become apparent. This project will also lead to more accurate water use reporting that is used by the LBNRD to evaluate conditions and make management decisions.

Not only does this project provide water use efficiency benefits and conserves the groundwater supply (aquifer), but it helps to prepare for expansion of the telemetry network throughout the District to address the much greater and widespread need. In times of drought and variable weather patterns, the aggregated benefit of conserving groundwater will allow for reduced pumping pressure on the aquifer since irrigators will know more precisely what they are pumping and not over irrigate to ensure crops receive enough water. Collectively, water

conservation by many will provide greater resiliency to drought and variable rainfall experienced in the region.

- *Where will any water conserved as a result of the project go and how it will be used?*

Greater accuracy in flow readings will improve efficiency of pumping practices in LBNRD and reduce unnecessary pumping, which may help slow or reverse depletions allowing the aquifer to recover. Because groundwater in the region can move from 200-350 feet/year, this also benefits the regional High Plains Aquifer that underlies a large portion of the Basin. Groundwater use in Nebraska is governed by correlative rights where shared resources such as groundwater must be used fairly for beneficial purposes. Any landowner can extract groundwater from an underlying aquifer subject to management by the public and by following permitting and other governing processes. Consequently, conservation of this shared resource benefits anyone in the region who can access the underlying aquifer via a well. In areas of hydrologically connected groundwater and surface water, stream flows will also benefit as groundwater will continue to feed stream flows. This contribution to the stream flow in the Little Blue River would help keep Nebraska in compliance with the amount of water that is required to be supplied to the State of Kansas as a part of the Blue River Compact Agreement (Compact).

Explain the significance of the anticipated water management benefits for the Category A applicant's water delivery system and customers. Consider:

- *Are customers not currently getting their full water right at certain times of year?*

Water users are currently getting their full amount of groundwater as needed, however, there is some level of uncertainty that this will be the case over time due to the heavy demand and prolonged drought. Nebraska's groundwater is considered a shared resource and governed through correlative rights. Essentially, this means that based on landowners' beneficial and reasonable use of groundwater (shared resource), each party is given a correlative right to a share of the available water. This sharing also applies to any restrictions or allocations as determined by the NRDs, who were given management and regulatory authority over groundwater by the Nebraska Legislature in the Groundwater Management and Protection Act (1975). The LBNRD has developed triggers in its GMP that would initiate controls and restrictions if declines hit those triggers such limits on expansion of irrigated acres, greater well spacing, rotation of groundwater use, reduction of irrigated acres, and others as needed. This project aims to take a proactive approach to groundwater use management in areas of groundwater decline due to heavy groundwater pumping to prevent triggering these restrictions in the future.

- *Does this project have the potential to prevent lawsuits or water calls?*

Yes. Groundwater conserved as a result of this project would help the aquifer to recover in areas of decline preventing the triggers that would implement restrictions as outlined in the LBNRD's GWP. Although having statutory standing, there can be legal challenges when water use or expansion is restricted, so taking more proactive, voluntary approaches such as with this project can reduce chances for conflict and lawsuits. Additionally, in the areas where groundwater and surface are hydrologically connected, conserving groundwater benefits stream flow including the portion of the Little Blue River that is groundwater-fed and provides a specific minimum state line flow to Kansas as required in the interstate Compact (**Figure 2**). This will ensure that all of Nebraska's obligations in the Compact are met, reducing the chances for conflict between states and the need for any legal remedies.

- *What are the consequences of not making the improvement?*

If the meters are not upgraded, water users may not have accurate and necessary information to make the best water use decisions. Instead, they will rely on older meters that may not provide accurate data and may begin to experience functional issues as meters become less reliable and even fail due to wear and tear. This could lead to over-irrigation based on poor or no data and continued declines in the groundwater levels due to over-pumping. If this continued, the groundwater level triggers outlined in the GMP would be met and water use restrictions would go into effect including allocations and limits on expansion of irrigated acres. Producers could be required to reduce or rotate water use, which could negatively impact crop production and the regional economy driven largely by agriculture. Anytime restrictions are put into place, there is also an increased chance of conflict and lawsuits.

Lack of groundwater-fed streamflow for the Little Blue River could result in non-fulfillment of the Compact. If there is not enough river flow to fulfill the Compact, surface water irrigation permits with priority dates subsequent to November 1, 1968 are subject to closing, (pump shutdown) while irrigation permits prior to November 1, 1968 are subject to regulation. This occurred in 2012 when flows of the Little Blue River fell below the Compact target and 111 junior irrigation rights and 129 storage rights in the Basin were closed. Noncompliance with the Compact would result in legal challenges and other sanctions.

- *Are customer water restrictions currently required?*

The LBNRD currently has a set of rules and regulations outlined in the GMP that are currently in effect including: (1) well spacing restrictions (1,000 feet spacing between all new high-capacity water wells), (2) required flow meters for all high-capacity irrigation wells, and (3) a limit on expansion of irrigated acres to prevent increases in the consumptive use of groundwater withdrawals from wells used for irrigation or other beneficial purposes. This project is designed to implement the second requirement (above) to install meters for the high-capacity wells. In addition, the GMP has identified a groundwater decline level that would trigger additional restrictions. When the District's groundwater monitoring activities indicate that the average spring water level has declined one (1) foot or more below the established 2016 spring groundwater level (baseline), the LBNRD Board will initiate the allocation of groundwater to water users, and any other control or combination of controls from the statutory authorities available to the District including stays on new wells, and expansion of irrigated acres, rotation of groundwater use, and reduction in irrigated acres.

Many of these restrictions would only be used when voluntary and incentive-based approaches are not working and/or the thresholds have been met for decline, but the groundwater is already showing a significant declining trend and restrictions are eminent if that trend is not reversed. The groundwater decline trigger was established to be proactive as emerging issues are observed through annual monitoring rather than reactive where depletions could be difficult to reverse. The overarching management strategy of the LBNRD for groundwater quantity management focuses on increasing producer awareness of water pumped from the aquifer and greater understanding of actual crop water needs to promote and implement irrigation efficiency. This project helps to achieve this goal and would help to avoid mandatory allocations and restrictions.

- *Other significant concerns that support the need for the project?*

Although rules and regulations have been developed and several controls have already been implemented, groundwater level declines are still occurring in several areas of the District, which is concerning. Targeting those areas where the greatest impact on improved water conservation can be achieved is critical to addressing this growing problem before it becomes unmanageable through

voluntary and incentive-based approaches, and allocations and restrictions are triggered. Restricting water use, shutting down new development, or even rotating use for allocations would have a significant impact on the local economy and individual operations. Since irrigation accounts for 98% of all groundwater use in the priority areas for this project, getting producers the most accurate flow measurement equipment would be one of the best ways to help them make better water use efficiency decisions. One barrier to upgrading equipment is cost as new meters with telemetry can be very expensive. In an industry like agriculture where margins are thin, any added costs can be very burdensome for producers. Through this project, the cost barrier and regulatory burden will be reduced, and producers will be empowered to make data-driven decisions that benefit many.

Sustainability of groundwater is also a big concern given the current declining trend. As the region continues to experience drought conditions and variability in weather patterns, groundwater pumping only increases further to account for a lack of rainfall and puts added pressure on the aquifer. Very difficult choices will have to be made on who gets how much water if groundwater continues to decline and hits the District's trigger level. Looking longer term, the strategy to provide better data through upgraded equipment also improves reliability and sustainability of groundwater and provides a level of resilience to drought. Individually making better water use decisions that conserve groundwater will collectively have a larger, regional impact.

Broader Benefits: *Describe broader benefits expected as a result of the project. Consider:*

- *Will the project improve broader water supply reliability at sub-basin or basin scale?*

Yes, installing updated meters will improve irrigation efficiency and groundwater management, resulting in greater water availability and distribution on a broader scale across the Little Blue Basin. The areas that were selected for meter replacement have the greatest sustained groundwater depletion levels and irrigators draw from the same aquifer as other users in the larger Basin area. Improving water use management in the target areas will have a positive benefit across the entire District and beyond by conserving groundwater and reducing drawdown of the High Plains Aquifer, which underlies a significant portion of the region. It will also benefit the areas downstream of the project in hydrologically connected areas, because water users will experience sustained spring flows due to improved baseflow from groundwater. As the Basin continues to experience drought and variable rainfall, better conservation of groundwater will help build drought resiliency regionally as less precipitation is available and pumping increases on a broader scale. More groundwater regionally also helps Nebraska meet requirements of the Compact for water delivery to Kansas via the Little Blue River.

Better data leads to better decision-making and irrigators can collectively have a markedly large impact on reversing the declining trend in groundwater by making one simple change and upgrading their meters. Meters with telemetry installed will allow for on-demand access to data remotely, so this reduces the travel burden and will allow producers and District staff to gather data remotely and more frequently no matter how far away a location may be in the region. Data sharing and transfer is greatly improved across the District and with other cooperating management partners. Subsequently, this leads to better response times to adjust pumping to correct for over-irrigation and even as an indicator that a system may not be functioning properly. Earlier detection and continuous monitoring from anywhere at any time will support better data-driven management decisions. Even for the meters that are telemetry-capable but not yet installed, the improved accuracy and confidence in this data will improve water use decisions which benefit so many who share a very large regional aquifer as their source of groundwater.

- *Will the proposed project increase collaboration and information sharing among water managers in the region? Please explain.*

Yes, installing the new meters will facilitate data-sharing among irrigators and the LBNRD, as well as NRDs and other cooperating partners. Water use data is used for many purposes whether for on-farm management decisions, to better understand water use in the District, and as a source of information for basin-wide, regional, and even statewide initiatives. Utilizing new technologies with greater accuracy allows for better data accessibility, more frequent monitoring, greater confidence in the data, and more efficient data sharing. On demand data also allows for quicker response time and the ability to access or share with other management partners from anywhere. The LBNRD uses this information to monitor conditions in the District and assist producers with making the best water use management decisions and help shape strategies, programs, and plans.

Across NRD borders, this water use data provides the baseline information to make watershed or basin-wide decisions since groundwater is a common resource that transcends political borders, and management decisions often need to be made collaboratively with other water managing entities who also have a vested interest. For example, in 2014, the LBNRD and the neighboring Tri-Basin NRD began work on the Little Blue River Basin Water Management Plan to establish a comprehensive strategy to manage surface water and groundwater quality and quantity in the portions of the Basin that are within Nebraska (1,702,393 acres) over the next 30 years. Better water use data would help improve basin-wide planning and management, which occurs frequently. There is a very tight knit community in the District and peers have a strong influence on acceptance and implementation of management practices. The District anticipates that as the benefits of upgrading meters through this project become apparent, peer-to-peer recommendations will serve as an added education and outreach benefit to help this initiative gain traction and create "champions" of the practice.

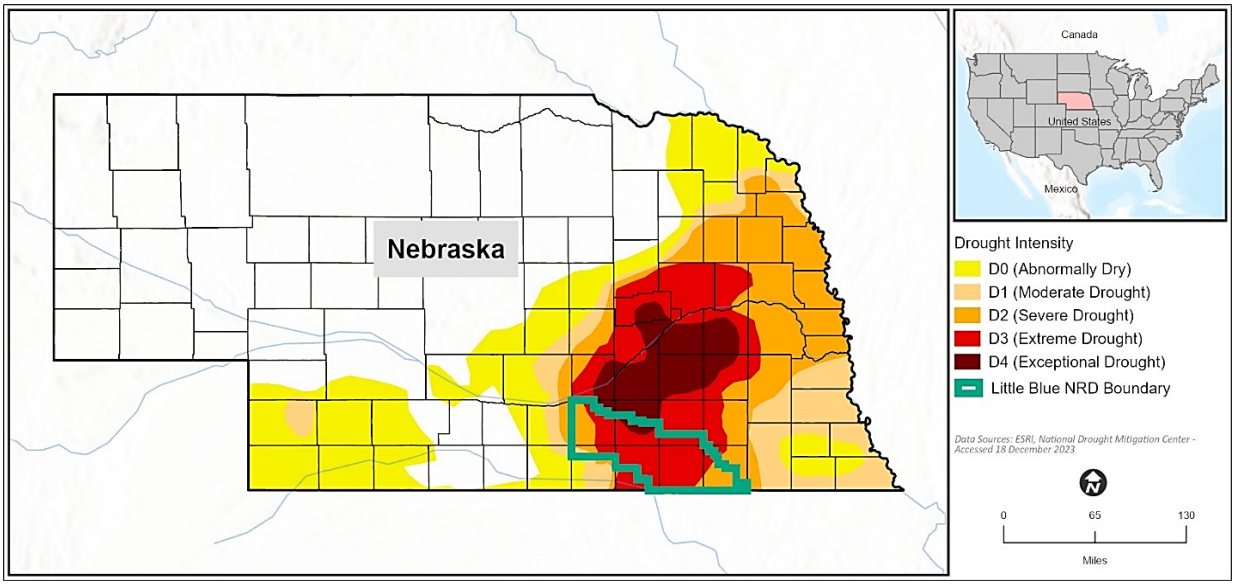
- *Is the project in an area experiencing, or recently experienced, drought or water scarcity? Will the project help address drought conditions at sub-basin or basin scale? Please explain.*

Yes. The Basin has been in a sustained drought since 2000 that has led to more intense irrigation pumping and contributed to a declining groundwater table. Rainfall has also been unpredictable and variable at times often leading irrigators to pump more to make up for a lack of precipitation and further adding to the problem. The priority areas identified in this project are currently in the 'Extreme' or 'Exceptional Drought' categories (see **Figure 3** – Drought Map) as is most of the Basin. The upgraded meters will provide accurate and reliable flow measurements allowing irrigators to make more informed and timely decisions regarding water applications to their crops and reduce overwatering and water consumption that have led to the current groundwater declines. Conservation in the priority areas also benefits the regional aquifer since it underlies most of the region including the larger geographic Basin area.

- *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 explain.*

Yes. The Rainwater Basin Complex (RWB) is a unique wetland resource managed by the U.S. Fish and Wildlife Service (USFWS). The management goal of the USFWS within the RWB is to restore the natural hydrologic and ecological function of wetlands for the benefit of migratory birds and resident wildlife. The entire LBNRD north of the Little Blue River is part of the RWB

Figure 3 - Drought Map



wetland complex and has several designated Waterfowl Production Areas and Wildlife Management Areas. The RWB is a critical part of the Central Flyway and provides vital food, roosting habitat, and shelter for over 250 migratory bird species, including the federally endangered Whooping Crane (*Grus americana*), the Sandhill Crane, and 27 waterfowl species. The Sandhill Crane Migration is a major ecotourism event in Nebraska. According to a study by the University of Nebraska-Kearney in 2017, the annual Sandhill Crane migration brought in 46,500 visitors and had an economic impact of $14.30 million in central Nebraska. This project would benefit the RWB through better groundwater management ensuring the water table remains high enough to provide the wetlands in the area with the water they need to function.

- *Will the proposed project positively impact/benefit various sectors and economies within the applicable geographic area (e.g., impacts to agriculture, environment, recreation, and tourism)? Please explain.*

Groundwater accounts for most of the estimated water used within the LBNRD for a variety of uses including agriculture, domestic and municipal water supplies, aquatic habitat, recreation, and industry among others. Agriculture is the largest economic sector in the LBNRD and accounts for over 98% of groundwater use in the District, which also mirrors the reliance in the Basin. There are over 900 private domestic wells and 33 community water systems in the LBNRD, and all rely on groundwater for drinking water and other domestic needs.

The wetland complexes in the RWB and other important stands of habitat located in the District dependent on groundwater to support habitat for a variety of fish and wildlife species. Eco-tourism and outdoor recreation would also benefit from more sustained sources of groundwater that increase stream flow and feed surface water bodies. Groundwater is not just important to the region, but vital, so measures to improve water use efficiency will help conserve the shared groundwater resource and benefit all of the various sectors and economies in the District and the larger geographic Basin region.

- *Will the project complement work being done in coordination with NRCS in the area (e.g., the area with a direct connection to the Districts water supply)? Please explain.*

Yes. The LBNRD has a long history of working with NRCS to promote and cost share on various irrigation management practices. The LBNRD shares the cost for positions at local NRCS offices within the District to enroll producers in NRCS costshare programs including EQIP, where producers can sign-up for irrigation efficiency and water management practices including drop nozzles, variable rate irrigation, soil moisture sensors, and data loggers and ET gauges among others. The proposed project compliments and expands on the efforts through these NRCS programs to improve on-farm operations and helps to expand and broaden the impacts and benefits. Upgrading to new meters will directly benefit the other on-going efforts by providing some of the necessary measurements that can be combined with other data and information for data-driven management decisions and improved irrigation use efficiency.

2.2 EVALUATION CRITERION B – PLANNING EFFORTS SUPPORTING THE PROJECT

Plan Description and Objectives: *Is your project supported by a specific planning document or effort? If so, describe the existing plan. When was the plan developed? What is the purpose and objective of the plan?*

Yes. This project supports several existing plans and efforts including: (1) LBNRD Groundwater Management Plan (GMP), (2) Little Blue River Basin Water Management Plan for Little Blue Natural Resources District and Tri-Basin Natural Resources District (WMP), and (3) Little Blue Natural Resources District Voluntary Integrated Management Plan (IMP). The first planning document and primary driver of this project is the GMP that was developed in 2017. The objective of the GMP is to describe the groundwater resources of the LBNRD, document uses and demands on the resource, describe measures already in place to manage the resources, and outline measures the District will use in the future. In the GMP, the District has developed an overarching management strategy focused on building agricultural producer awareness of groundwater pumped from the aquifer. The GMP includes rules, regulations, and a framework for managing groundwater quantity and quality, many of which relate directly to this project.

This project also supports the 2015 WMP to establish a comprehensive strategy for management of surface water and groundwater quality and quantity in the portions of the Basin within Nebraska (1,702,393 acres) over the next 30 years. The WMP provides a single, coordinated strategy between the LBNRD and the Tri-Basin NRD (TBNRD) to identify water quality and quantity threats and needs, prioritize watersheds and areas for improvement, and identify practices and activities appropriate to address the known deficiencies in water quality and quantity in the Basin. The intent of the WMP is to make management action recommendations to reduce or reverse groundwater level declines; maintain surface water flows; establish conservation practices; and encourage property owners and agricultural producers to participate in plan development and implementation among other initiatives.

Finally, this project supports the initiatives found in the IMP that was developed in 2019 by the LBNRD and NDNR to jointly manage water resources that are hydrologically connected. The IMP is intended to serve as a road map and framework for the District and NDNR to coordinate management actions and monitor groundwater and surface water. For this proposed project, the southwestern position of Priority Area #2 near the Little Blue River is a hydrologically connected region where groundwater declines can impact stream flow in the Little Blue River.

Nebraska and Kansas signed the Compact requiring a certain amount of water to be delivered at the border in the Little Blue River to stay in compliance. Installing upgraded meters on irrigation wells through this project supports the water conservation and management goals and specific initiatives found in the GMP, WMP, and IMP for both the priority areas and the larger region.

Plan Development: *Who developed the planning effort? What is the geographic scope of the plan? If the planning effort was not developed by the Category A applicant, describe the Category A applicant's involvement in developing the planning effort.*

The GMP, which was developed by the LBNRD and approved by DNR, focuses on water resources management within the District's boundary (see **Figure 1**). The WMP was jointly developed by the LBNRD and TBNRD and encompasses Little Blue River Basin in Nebraska. The IMP was jointly developed by the LBNRD and NDNR and encompasses the entire LBNRD.

Support for the Project: *Describe to what extend the proposed project is supported by the identified plan. Consider: Is the project identified specifically by name and location in the planning effort? Is this type of project identified in the planning effort? Explain whether the proposed project implement a goal, objective, or address a need or problem identified in the existing planning effort? Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures.*

- **GMP**: ***Districtwide Groundwater Plan***: Section 5.0 *Groundwater Management Objectives* of the GMP lists specific measures to help meet the GMP goals. Several are already in place and relate directly to this project, which serves as a means of implementing groundwater quantity measures. These include:
  - Required *installation of devices for measuring groundwater withdraws* from water wells: All high-capacity irrigation wells are required to have an operable flow meter installed by March 31, 2017, to help water users have a better understanding of their water use. This project is in direct alignment with this measure.
  - Mandatory educational requirements: *Farm operator training* events which focus on groundwater quality, *groundwater quantity*, geology, soil conservation, soil health and current rules. Peer-to-peer outreach and education is a part of the project.
  - Mandatory *reporting of seasonal groundwater withdraws by high-capacity water users* and certification of irrigated acres. Flow measurements will provide data.
  - Additional Restrictions /Trigger: The GMP also identifies a specific groundwater decline level that would trigger additional restrictions. When the District's groundwater monitoring activities indicate that the average spring water level has declined one (1) foot or more below the established 2016 spring groundwater level (baseline), the LBNRD Board will initiate the allocation of groundwater to water users, and any other control or combination of controls including stays on new wells and expansion of irrigated acres, rotation of groundwater use, and reduction in irrigated acres. This project is intended to provide an intermediate step for better irrigation use decisions to avoid triggering these additional restrictions, which are more limiting and could have a significant impact for agricultural producers.
  - The new meters will improve the data collected on volumes of groundwater pumped within the priority areas to provide accurate data to help make better water used decisions and meet requirements of the GMP.

- **WMP**: ***Basin-wide Plan***
  - Section 1.2 – Plan Overview: Describes management action recommendations related to groundwater quantity include *reducing groundwater level declines* or where possible reversing the trend, maintaining surface water flows, establishing conservation practices, and encouraging property owners and *agricultural producers to participate* in plan development and implementation. Each of these are supported by the proposed project.
  - Section 1.8 – Basin Plan Long-Term Goals: identifies specific goals, objectives, and tasks related to the proposed project. These include managing water resources in a manner that will further enhance capabilities for agricultural development while maintaining necessary stream flows in the Little Blue River (Goal 2 / Obj 1 / Tasks 1 & 2); *Utilize monitoring as a key tool* in the adaptive management approach to support management decisions (Goal 4 / Obj 1 / Task 3).
  - Section 6.5.2 – Groundwater Policy Recommendations: The project is consistent with this section which promotes *water use efficiency for reduced consumptive use*. Water measurements will be taken at a higher degree of accuracy than the existing meters and will also aid in the implementation of technology such as datalogging flow rates or remote meter monitoring.
- **IMP**: ***Hydrologically Connected Groundwater and Surface Water***
  - Section 6-1: *Increase groundwater and surface water monitoring*; improving understanding of water supplies and uses (Obj 1.1 & 1.2 / Actions 1.1.1, 1.1.3, 1.1.4, 1.1.5, 1.2.3, 1.2).
  - Section 6-2: Scientifically sound, *locally based management actions to protect interconnected groundwater and surface water* including financial and technical assistance (Obj 2.1, 2.2, & 2.3 / Actions 2.1.1, 2.1.2, 2.1.3, 2.2.2, 2.3.1, & 2.3.2).
  - Section 6-3: Education efforts to *raise the level of awareness* about finite, interconnected groundwater and surface water resources (Obj 3.1, 3.2, 3.3, & 3.4; Actions 3.1.1, 3.1.2, 3.3.1, 3.3.2, & 3.4.2).

2.3 EVALUATION CRITERION C – PROJECT IMPLEMENTATION AND RESULTS

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

The project will be implemented by LBNRD staff as part of their typical duties. Assuming that BOR funding is authorized in September of 2024, initial meter installation would begin in October 2024 following harvest. The District's goal would be to install approximately 5-10 meters a month excluding planting, irrigation and harvesting times to minimize impacts to producers with all 79 installed by April 2026. With reporting requirements and testing, the project should be completed by September 2026, making the total project length 24 months. A schedule and milestones are indicated below, but a more detailed schedule will be developed:

- Sept 2024 (Est.): Notice of Award; Initial sites selected, and first meter order placed.
- Oct 2024-Apr 2025: Meter installation/field testing for accuracy begins (post-harvest).
- Summer 2025: Continued field testing; Additional sites selected and meter order placed.
- Oct 2025-Apr 2026: Complete meter installation/field testing for accuracy (post-harvest).
- Summer 2026: Additional field testing and troubleshooting.
- Sept 2026: Final reports prepared and submitted to BOR; Project ends.

- *Describe any permits and agency approvals that will be required along with the process and timeframe for obtaining such permits or approvals.*

No permits or agency approvals will be required for this project.

- *Identify and describe any engineering or design work performed specifically in support of the proposed project. What level of engineering design is the project currently? If additional design is required, describe the planned process and timeline for completing the design.*

No engineering or design work is required for the project.

- *Does the applicant have access to the land or water source where the project is located? Has the applicant obtained any easements that are required for the project? If the applicant does not yet have permission to access the project location, describe the process and timeframe for obtaining such permission.*

Yes, the LBNRD has access to the locations where the proposed upgraded meters will be installed and will confirm prior to installation. No easements will be required for this project since the District already has permission to access the locations using pre-existing access roadways.

- *Identify whether the applicant has contacted the local Reclamation office to discuss the potential environmental and cultural resource compliance requirements for the project and the associated costs. Has a line item been included in the budget for compliance costs?*

On Dec 19, 2023, the LBNRD contacted Josh Neuffer with the McCook, NE Reclamation office and informed him of this project. A District representative discussed questions on environmental and cultural compliance with Mr. Neuffer, who mentioned several areas to be aware of including NEPA, NHPA, ESA, 404 Permits, USFWS requirements, and others. He also stated that the regional offices will be ones to help and coordinate any compliance work once an award is made and a grants manager will be assigned. Based on other similar projects, compliance requirements are anticipated to be minimal, so no budget amount has been added for this category.

The Buy America Domestic Procurement Preference requirements were also discussed, but it was determined that this project falls below the threshold for compliance as stated in the NOFO (Section F.2.11.) and is covered under the existing DOI general applicability small grant waiver as described at: www.doi.gov/grants/BuyAmerica/Generalapplicabilitywaivers on the basis that the total award amount does not exceed the Simplified Acquisition Threshold (SAT) of $250,000.00. It is noted that while this waiver permits the use of non-domestic materials for DOI financial assistance awards that do not exceed the SAT. The LBNRD will make an effort to maximize the use of domestic materials, whenever possible.

2.4 EVALUATION CRITERION D – NEXUS TO RECLAMATION

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

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

No, the LBNRD does not have a water service repayment or O&M contract with Reclamation.

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

No, the LBNRD does not receive Reclamation water through a Reclamation contractor or other contractual means.

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

Although there are no active Reclamation projects or sites in or near the project priority areas, the benefits of this project support and align with the goals of Reclamation's multi-state "*High Plains States Groundwater Recharge Demonstration Program*" that included Nebraska and several sites near the project priority areas. The goal of this Reclamation Program is to conserve water in the High Plains Aquifer, the same principal aquifer that underlies the project area, and will benefit from groundwater conservation efforts resulting from this project.

2.5 EVALUATION CRITERION E – PRESIDENTIAL AND DEPARTMENT OF THE INTERIOR PRIORITIES

E.1.5.1. Sub-criterion No. E1. Climate Change

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

The prolonged heat and dry conditions in the Basin and project priority areas have had significant impacts on the groundwater and contributed to declining water table in these areas and over a larger geographic region. **Figure 3** – Section 2.1 shows that there are areas of 'Extreme' and 'Exceptional Drought' in the District presently. This region has been in a sustained drought for over two decades, which has caused some degree of uncertainty in the future as it pertains to sustainable yield in community and agricultural water supply. Reducing over-pumping through improved water use efficiency provides a larger reserve volume of groundwater in the aquifer and helps with greater reliability and availability during prolonged dry periods when precipitation may be sparse or variable and pumping increases to meet crop water use needs.

With the ability to get flow meter readings remotely through this project, the District will be able to reduce fuel consumption and GHG emissions, while also allowing for remote troubleshooting and system checks by producers that would further reduce fuel consumption and GHG emissions. District crews currently use gas powered vehicles to travel an estimated 200 miles each month to collect data from meters within the service area. This equates to approximately 2,400 miles annually, and $1,572 of annual expense using the current Federal mileage rate of $0.655/mile that can be saved along with reduced fuel use and GHG emissions.

- *Does this proposed project strengthen water supply sustainability to increase resilience to climate change? Does the proposed project contribute to climate change resiliency in other ways not described above?*

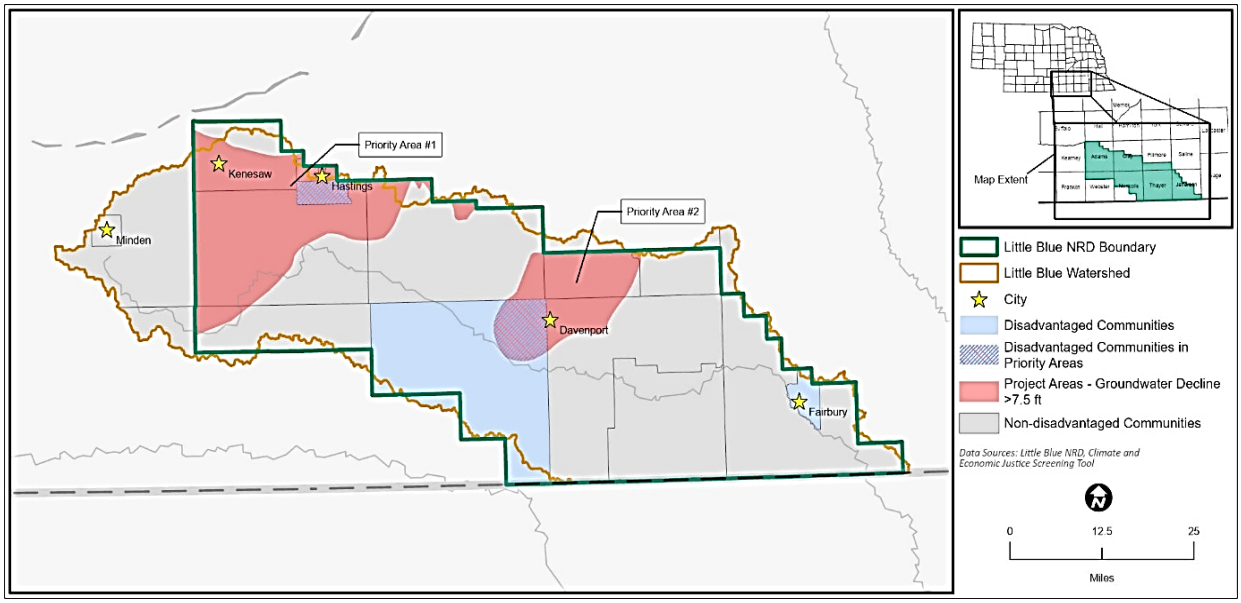
Yes, this project would strengthen supply sustainability and provide resilience to climate change and its effects such as drought. When there are drought conditions and rainfall is variable and unpredictable, pumping often increases to ensure crops receive the necessary water. This can put further stress on groundwater resources, which are already in decline in our priority areas for this project. This meter upgrade project will allow producers to determine more accurate pumping rates and align with crop water use needs to avoid over-application. Water conserved would then help to replenish the groundwater aquifer and provide some resilience if drought conditions continue or worsen. For the telemetry-ready meters, having real-time, continuous data will allow producers the opportunity to take more proactive, incremental actions to manage irrigation application over time rather than react and pump heavily along with others in the region possibly leading to even further decline in the water table. Because of peer influence in the Basin, installation of these meters would lead to a paradigm shift in normal operations for water use.

E.1.5.2. Sub-criterion No. E2. Disadvantaged or Underserved Communities

- *Please use the White House Council on Environmental Quality's interactive Climate and Economic Justice Screening Tool to identify any disadvantaged communities that will benefit from your project.*
- *If applicable, describe how the project benefits those disadvantaged or underserved communities identified using the tool.*

A check with the White House Council on Environmental Quality's interactive Climate and Economic Justice Screening Tool, determined that the southern portion of the City of Hastings (Priority Area #1), along with several other areas located within Priority Area #2 southwest of Davenport, NE are considered disadvantaged communities because they meet more than one burden threshold and the associated socioeconomic category (**Figure 4** – Disadvantaged Communities). Major concerns in the climate change category include expected agricultural loss rate, expected building loss, expected population loss, coupled with the population being low income. There are other concerns in the energy, health, and housing categories, also. The project would increase the reliability of water supplies by promoting water conservation and provide economic growth opportunities as the area is so heavily reliant on groundwater for agriculture.

Figure 4 - Disadvantaged Communities



E.1.5.3. Sub-criterion No. E3. Tribal Benefits – No tribes are located within the project area.

3. PROJECT BUDGET

3.1 FUNDING PLAN AND LETTERS OF COMMITMENT

The total proposed project budget is $205,200 (see SF-424A). The LBNRD will be providing the Non-Federal cost share portion through monetary contributions totaling $105,200 which meets and slightly exceeds the minimum 50% Non-Federal cost share rate at 51%. **Table 1** summarizes Non-Federal and Federal sources of funding for the proposed project.

Table 1. Summary of Non-Federal and Federal Funding Sources

FUNDING SOURCES	AMOUNT	PERCENT
Non-Federal Entities		
Little Blue Natural Resources District	$ 105,200	51%
Non-Federal Subtotal	**$ 105,200**	**51%**
Requested BOR Funding	**$ 100,000**	**49%**
TOTAL PROJECT FUNDING	**$ 205,200**	**100%**

3.2 BUDGET PROPOSAL

The LBNRD proposes to apply all Federal and Non-Federal funds that may be associated with the grant agreement to funding the implementation of the Well Meter Upgrade and Water Efficiency Project including equipment purchases. A summary of the estimated project costs by funding source is presented in **Tables 1 and 2** and has been prepared using the prescribed outline from the NOFO.

Table 2. Budget Summary – Aggregate of Project Costs

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE	TOTAL COST
	$/Unit	Quantity		
Salaries and Wages				$ -
Fringe Benefits				$ -
Equipment				$ 205,200
Upgraded MO300 McCrometer McPropellor Flow Meter with FlowComm Telemetry Register *Installed*	$3,700*	12	Per unit	$ 44,400
Upgraded MO300 McCrometer McPropellor Flow Meter with FlowComm Telemetry Register *Capability*	$2,400*	67	Per unit	$ 160,800
Supplies and Materials				$ -
Contractual/Construction				$ -
Consulting Services				$ -
Third-Party In-Kind Contributions				$ -
Environmental and Regulatory Compliance				$ -
Other				$ -
TOTAL DIRECT COSTS				**$ 205,200**
Indirect Costs				$ -
TOTAL ESTIMATED PROJECT COSTS				**$ 205,200**
* Includes 5% contingency for anticipated inflationary increases				

3.3 BUDGET NARRATIVE

a. Salaries and Wages

Mr. Scott Nelson, LBNRD General Manager, Mr. Tyler Goeschel, LBNRD Assistant General Manager, and Mr. Kevin Orvis, LBNRD Project Manager, will provide overall administration and oversight of the project on behalf of LBNRD including overall project management and reporting. In this regard, the District's office personnel will track costs, maintain financial records, handle any invoicing, and will manage any contracting and consultant oversight activities. **Work performed for this project by LBNRD staff will be completed as part of the District's daily operations and will not be included as part of the Non-Federal cost share commitment**.

The LBNRD will not be asking for reimbursement or reporting any "In-Kind" contributions for any Salaries and Wages costs. The LBNRD is proposing not to track these costs separately from daily operations even though employees will be providing services necessary for completion and implementation of the grant-funded project including installation of the upgraded meters and other associated equipment along with necessary testing. Accordingly, no expenses under "Salaries, Wages, and Fringe Benefits" have been included in **Table 2**.

The LBNRD estimates that two staff members can install up to four units per day (8 hours), requiring a minimum of 20 days (320 hours) to perform all installations. The average hourly pay rate for field staff is approximately $22/hour, resulting in a cost to LBNRD of $7,040. Additionally, there will be an estimated 5,800 miles to travel to the well sites for the installation and meter testing and verification. Using the current Federal mileage allowance of $0.655 per mile, the cost to LBNRD will be nearly $4,000 for vehicle use. This represents an additional combined contribution of just over $11,000 by LBNRD not reflected in the budget.

b. Travel

Travel by the LBNRD staff to the project sites will be covered under LBNRD's operating budget. Accordingly, no expenses have been included under "Travel" in **Table 2**.

c. Equipment

All Federal and Non-Federal funds are expected to be applied to the purchase of the 79 wells. Table 4 details the equipment unit and total costs. The 67 telemetry-capable meters are estimated to cost $2,400 each, which includes a 5% contingency amount to account for any rise in costs that occur in the time period between estimates and funding award. The 12 telemetry-ready meters are estimated to cost $3,700 each, which also includes a 5% contingency amount. Total cost for both sets of meters is $205,200 as shown in **Table 2**.

d. Materials and Supplies

Acquisition of office supplies needed for the project will be a general operating expense of LBNRD that will take place outside of the grant agreement. Accordingly, no "Materials and Supplies" expenses have been included in **Table 2**.

e. Contractual

No contractual work is expected for this project and LBNRD personnel will install and test the upgraded meters. If assistance is needed beyond the capability or capacity of the District staff, the LBNRD will procure necessary assistance using established procurement policies and procedures including a competitive, qualification-based process when required. All costs for any contractual assistance that is deemed necessary, although not anticipated, will be borne by the LBNRD.

f. Third-Party In-Kind Contributions

No third-party in-kind contributions are budgeted for this project in **Table 2**. As noted above, the LBNRD will not be asking for reimbursement or reporting any "In-Kind" contributions for any Salaries, Wages, or Fringe Benefit costs.

g. Environmental and Regulatory Compliance Costs (as applicable to the project)

The proposed project will involve installing meters at existing locations where infrastructure is already in place and no earth-moving or disturbance will occur. Access will be through established roadways. Therefore, no environmental or regulatory compliance costs are included in **Table 2**.

h. Other Expenses

All project expenses are included in the cost items described above. Therefore, no other costs are listed for this budget category in **Table 2**.

i. Indirect Costs

No indirect costs are budgeted for this project; thus, this category does not apply in **Table 2**.

j. Total Costs

The estimated budget for the proposed project is presented in **Table 2.** The total budget for the project is estimated at **$205,200**, with **$100,000 in requested Federal grant funding (49%)** and **$105,200 in Non-Federal cost-share funds (51%)** to be furnished by the LBNRD. Although not accounted for in the budget, it is estimated that the LBNRD is contributing nearly $11,000 for staff time and travel to install and test the new meters.

4. ENVIRONMENTAL AND CULTURAL RESOURCE CONSIDERATIONS

Environmental and Cultural Resource Considerations

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

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

The proposed project involves upgrading 79 existing meters at sites that are already established and used for agricultural crop production with existing wells, infrastructure, and access roadways. The sites are previously disturbed, and no earth-moving or any type of disturbance is expected. Minimal dust may occur; however, it is not expected to affect air quality, water resources, or animal habitat. The existing access roads will be used to reach the locations to upgrade the meters and all materials will be properly recycled and disposed of. Activities are not expected to result in impacts to the local 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?*

According to the Nebraska Game and Parks Commission's Conservation and Environmental Review tool there is no critical habitat present in the Priority Areas. Some areas in the areas

District may be used as foraging or water for Threatened and Endangered Species; however, existing access roads will be used to travel to the existing meters and potential habitat will not be disturbed. None of the species will be directly affected by activity at the proposed meter upgrade locations since the work is local to the meters only. Many of the species present in the area will benefit from the water conserved as a result of the project.

- *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.*

The project is occurring at specific locations and access will be via existing access roads. No impacts to wetlands or other Waters of the United States will occur.

- *When was the water delivery system constructed?*

Meters to replace were installed prior to 1990 with dates ranging from 1976 to 1989. Wells were constructed at various times in the two priority areas ranging from 1946 to the late 1980's.

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

The project will not have any effects on an irrigation system, other than promoting water conservation.

- *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.*

This project has no effect on an irrigation system, any buildings, structures, or features listed or eligible for listing on the National Register of Historic Places. The improvements are limited to the meter assemblies only.

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

No sites are known. The improvements will be made at specific meter sites which have already been disturbed. No new disturbances are anticipated.

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

No.

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

No.

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

No.

5. REQUIRED PERMITS OR APPROVALS

No permits or additional approvals are required to complete this project.

6. OVERLAP OR DUPLICATION OF EFFORT STATEMENT

There is no overlap between the proposed project and any other active or anticipated proposals or projects in terms of activities, costs, or commitment of key personnel. This proposal is not in any way duplicative of any proposal or project that has been or will be submitted for funding consideration to any other potential Federal or Non-Federal funding source.

7. CONFLICT OF INTEREST DISCLOSURE STATEMENT

No conflict of interest exists at the time of this submission.

8. UNIFORM AUDIT REPORTING STATEMENT

The LBNRD acknowledges the requirement for a Single Audit Report and has/will continue to comply with this requirement. The LBNRD does not meet the threshold of expending $750,000 USD or more in Federal award funds in the applicant's fiscal year that requires a Single Audit report for that year through the Federal Audit Clearinghouse's Internet Data Entry System and was not required to submit a Single Audit report for the most recently closed fiscal year.

9. LETTERS OF SUPPORT AND FINANCIAL COMMITMENT

Letters of support have been provided by the Nebraska Department of Natural Resources, the Tri-Basin NRD, and the Rainwater Basin Joint Venture (**APPENDIX C**). These organizations are long-term partners with LBNRD and have collaborated to help manage water resources in the region. No other organizations outside LBNRD are contributing financial support for this project and the entire Non-Federal costshare amount will be provided by LBNRD.

10. OFFICIAL RESOLUTION

The LBNRD will be the organization responsible for administering and managing the grant award. The District has pledged existing budget resources and staff to ensure the financial and legal obligations are met that are associated with receiving Federal financial assistance through the WaterSMART Small-Scale Water Efficiency Project grant program for FY24. The LBNRD has developed a resolution indicating support for this project including a pledge to provide the Non-Federal costshare amount. This resolution will be on the agenda of the LBNRD Board of Directors meeting scheduled for the evening of January 16, 2023. Since the official signed resolution was not executed before this application was submitted, a copy could not be included, but will be provided upon selection of this application for funding. A copy of the unsigned version of the resolution is included in **APPENDIX D** for reference and to indicate this commitment.

APPENDIX A: References

- **Little Blue Natural Resources District**. 2000-2023. Annual Water Level Monitoring Network Data. December.

- **Little Blue Natural Resources District (LBNRD) and Nebraska Department of Natural Resources**. 2019. Little Blue Natural Resources District Integrated Management Plan. August.

- **Little Blue Natural Resources District**. 2017. Little Blue Natural Resources District Groundwater Management Plan.

- **Little Blue Natural Resources District**. 2015. Little Blue Basin Water Basin Plan.

- **Little Blue Natural Resources District**. 2011. Little Blue Natural Resources District Geologic & Hydro-Geologic Study.

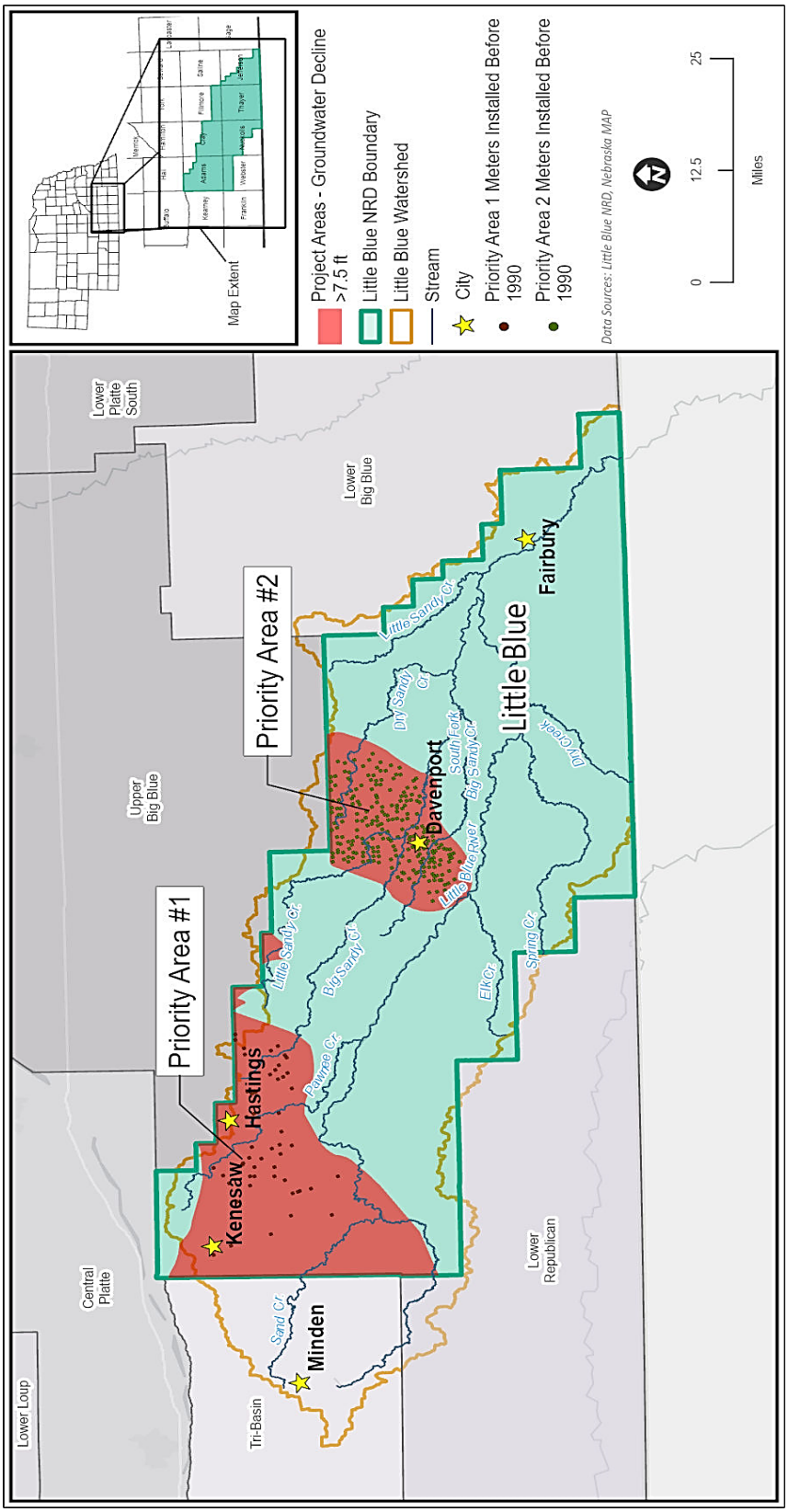
- **K. Quandt**. 2023 and 2024. Email and Phone Communications with McCrometer Representative on flow meter specs and costs. October, November and December – 2023; January 2024.

- **Bureau of Reclamation (BOR)**. 2023. BOR Online Social Justice Screening Tool. https://screeningtool.geoplatform.gov/. Accessed December 15, 18, and 22, 2023.

- **University of Nebraska – IANR School of Natural Resources**. 2023. Groundwater Data Webpage. https://snr.unl.edu/data/water/groundwater/index.aspx. Accessed December 13, 18, and 21, 2023.

- **Nebraska Department of Natural Resources.** 2023. Groundwater Well Database. https://dnr.nebraska.gov/groundwater. Accessed December 8, 11, 20, 2023.

APPENDIX B: Maps and Figures



APPENDIX C: Letters of Support

NEBRASKA

Good Life. Great Water.

DEPT. OF NATURAL RESOURCES

Jim Pillen, Governor

12/27/2023

Bureau of Reclamation
Water Resources and Planning Office
Attn: Nickie McCann, Program Coordinator
WaterSMART – Small-Scale Water Efficiency Projects Grant Program
Mail Code: 86-6300
P.O. Box 25007
Denver, CO 80225-0007

RE: Letter of Support for the Little Blue Natural Resources District's Flow Meter Upgrade and Efficiency Project Application to the Bureau of Reclamation's WaterSMART FY24 "Small-Scale Water Efficiency Projects" Grant Program

Dear Ms. McCann:

The purpose of this letter is to indicate our support for the Little Blue Natural Resources District's (LBNRD) grant application to the Bureau of Reclamation's (BOR) WaterSMART Small-Scale Water Efficiency Projects grant program to upgrade older, less efficient flow meters in areas of the District with declining groundwater levels and aquifer vulnerability, and replace with new, advanced meters to support more sustainable and efficient use of groundwater in the Little Blue River Basin. The installation of these new meters will provide a better understanding of actual water use and real-time data that supports initiatives outlined in the basin-wide Integrated Management Plan (IMP) and District Groundwater Management Plan (GWMP) supporting regional water conservation efforts.

This region is heavily reliant on groundwater for a variety of beneficial uses including agriculture, water supplies, and support of threatened and endangered species among others. Because some areas in the basin have a hydrological connection between groundwater and surface water, river flows can also be impacted by groundwater fluctuations leading to concerns regarding domestic drinking water supplies, irrigation, fish and wildlife habitat, recreation, meeting water rights and obligations, and overall watershed health.

The Nebraska Department of Natural Resources (NeDNR) helps water management organizations including Natural Resources Districts (NRDs) such as the LBNRD with the support, data, and analyses they need to make informed resource management decisions. As

Thomas E. Riley, P.E., Director
Department of Natural Resources
245 Fallbrook Blvd., Suite 201 OFFICE 402-471-2363
Lincoln, Nebraska 68521 FAX 402-471-2900
dnr.nebraska.gov

such, we strongly encourage efforts by NRDs and other management partners to employ the most effective equipment and tools available to assist with better understanding groundwater use and making data-driven management decisions such as the approach proposed in this grant application. This project will not only help local water users, but collectively, will have a profound impact on sustainable management of groundwater over a broader region in the basin.

For all of the reasons stated and to continue our mission to help decision-makers and water resources managers in Nebraska make informed decisions based on the best data available, we fully support the LBNRD's application to the WaterSMART Small-Scale Water Efficiency Projects grant program to install new flow meters in groundwater decline areas in need of upgraded and more advanced flow measurement equipment. We encourage the BOR to fund this application request, which supports the implementation of water conservation and management approaches through installation and use of the best equipment available today for better understanding of water use and increased water use efficiency.

Sincerely,

Thomas E. Riley

Thomas E. Riley, P.E., Director
Nebraska Department of Natural Resources

Tri-Basin NRD
1723 Burlington St.
Holdrege, NE 68949

Tri Basin Natural Resources District

(308) 995-6688
Fax: (308) 995-6992
tribasin@tribasinnrd.org

January 10, 2024

US Bureau of Reclamation
Water Resources and Planning Office Attn: Nickie McCann, Program Coordinator
WaterSMART - Small-Scale Water Efficiency Projects Grant Program
Mail Code: 86-6300 P.O. Box 25007 Denver, CO 80225-0007

RE: Letter of Support for the Little Blue Natural Resources District's Application to the Bureau of Reclamation's WaterSMART Grant Program

Dear Ms. McCann: The purpose of this letter is to indicate our support for the Little Blue Natural Resources District's (LBNRD) grant application to the Bureau of Reclamation's (BOR) WaterSMART Small-Scale Water Efficiency Projects grant program to upgrade older flow meters in areas of the District with declining groundwater levels and replace them with new, advanced meters to support sustainable and efficient use of groundwater in the Little Blue River Basin. The installation of these new meters will provide LBNRD with a better understanding of actual water use.

This project will provide LBNRD and irrigators with real-time data that supports initiatives outlined in the basin-wide Integrated Management Plan (IMP), of which Tri-Basin NRD is also a participant, as well as the LBNRD District Groundwater Management Plan (GWMP). This region of Nebraska is heavily reliant on groundwater for a variety of beneficial uses including irrigated agriculture, drinking water supplies for humans and livestock.

As an adjoining natural resources district and a partner with LBNRD in managing regional groundwater supplies, we strongly support LBNRD's application to the WaterSMART Small-Scale Water Efficiency Projects grant program for better understanding of water use and increased water use efficiency.

Sincerely,

John Thorburn
Manager

RAINWATER BASIN JOINT VENTURE
2550 N Diers Ave, Suite G
Grand Island, NE 68803-1214
(308) 382-8112
www.rwbjv.org
Andy Bishop, Coordinator
(308) 380-8691

North American Waterfowl Management Plan

January 11, 2024

US Bureau of Reclamation
Water Resources and Planning Office
WaterSMART -Small-Scale Water Efficiency Projects Grant Program
Mail Code: 86-6300 P.O. Box 25007 Denver, CO 80225-0007

RE: Letter of Support for the Little Blue Natural Resources District's Application to the Bureau of Reclamation's WaterSMART Grant Program,

Dear Ms. McCann,

The Rainwater Basin Joint Venture (RWBJV) is a public/private partnership that is focused on wetland and grassland conservation in Nebraska's mixed grass prairie ecoregion for the benefit of migratory birds. The partnership fully supports the WaterSMART Grant Application submitted by Little Blue Natural Resources District.

This grant will provide financial assistance for 72 new meters as well as telemetry upgrades to 12 high-capacity irrigation wells in Adams County. This is an important portion of the Rainwater Basin Wetland Complex with several public and private wetlands that have been restored through federal and state conservation investments. Providing producers with equipment and technology to monitor and manage their irrigation inputs will reduce over application. Improved irrigation water management has multiple benefits. These include reduced leaching of nitrogen and other agriculture chemicals to the aquifer, reduced pumping, and eliminating runoff that can alter wetland hydrology. Rainwater Basin wetlands that receive excessive irrigation runoff have altered hydrologic regimes and often transition to monocultures of cattails and river bulrush. These vegetation communities have limited habitat value for the 8.6 million migrating waterfowl that rely on these wetlands during spring migration. Restoring natural hydrology through improve irrigation water management will help promote early successional vegetation communities that provide 10 times more foraging resources for the waterfowl that rely on these wetlands.

I look forward to collaborating with you on this proposal should it be funded.

Sincerely,

Andy Bishop

Andy Bishop
Coordinator, Rainwater Basin Joint Venture
andy_bishop@fws.gov

Management Board Members

Bob Bettger Landowner Fairmont, NE	Barb Cooksley Landowner Anselmo, NE	Roric Paulman Landowner Sutherland, NE	Mel Taylor Landowner Milligan, NE	Kelsi Wehrman Pheasants Forever Nelson, NE	Brad Dunbar Lindsay Corporation Omaha, NE
Ele Nugent Ducks Unlimited Grand Island, NE	Joe Bilka, Alternate Landowner Tri-Basin NRD Holdrege, NE	Steve Shaw Landowner Little Blue NRD Edgar, NE	David Raffety Landowner Tri-Basin NRD Kearney, NE	Patrick Lechner Nebraska Farm Service Agency Lincoln, NE	Dave Eigenberg Upper Big Blue NRD York, NE
James Huntwork Natural Resources Conservation Service Grand Island, NE	Dr. Tim McCoy Nebraska Game and Parks Commission Lincoln, NE	Mark Porath U.S. Fish & Wildlife Service Grand Island, NE	John Thorburn, Chairman NE Association of Resources Districts Holdrege, NE	Rich Walters The Nature Conservancy Kearney, NE	

APPENDIX D: Official LBNRD Resolution

A signed version of the official LBNRD Board of Director's resolution will be provided upon selection of this application for funding. An unsigned copy is included here for reference since board action could not be taken before the submission date for this grant program.

Little Blue Natural Resources District
100 East 6th Street, P.O. Box 100 • Davenport, NE 68335 • (402) 364-2145
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RESOLUTION NO. 2024-01

RESOLUTION OF THE BOARD OF DIRECTORS OF LITTLE BLUE NATURAL RESOURCES DISTRICT APPLICATION FOR THE UNITED STATES DEPARTMENT OF THE INERIOR, BUREAU OF RECLAMATION WATERSMART SMALL-SCALE WATER EFFICIENCY PROJECTS NOTICE OF FUNDING OPPORTUNITY NO. R24AS00059

WHEREAS the Little Blue Natural Resources District Board of Directors wishes to actively participate in the United States Department of Interior WaterSMART Small-Scale Water Efficiency Projects Notice of Funding Opportunity No. R24AS00059 for the purpose of increasing water use efficiency in areas that show a trend of declining groundwater levels.

WHEREAS the benefits of new flowmeters will result in reduced operation and maintenance costs, improved accuracy of irrigation water measurement resulting in improved irrigation management decisions, which will improve water availability throughout the Little Blue Natural Resources District.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Little Blue Natural Resources District authorizes an application to the United States Department of the Interior, Bureau of Reclamation WaterSMART Water Efficiency Projects Notice of Funding Opportunity No. R24AS00059 for the amount up to $205,000 for new flowmeters, of which The Little Blue Natural Resources District will contribute $105,000 and pledge to work with the Bureau of Reclamation to meet established deadlines for entering into the grant and authorizes its General Manager, Scott Nelson, to sign such agreements on behalf of the Little Blue Natural Resources District.

PASSED AND ADOPTED the 16th day of January 2024 by the Board of Directors of the Little Blue Natural Resources District:

_____
Alan Wiedel
Chairman
Little Blue Natural Resources District