



SOUTHEAST WATER USERS

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Advanced Metering Infrastructure Improvements Phase II Project Mantador, North Dakota

Project Proposal for Bureau of Reclamation Funding Announcement

Funding Opportunity Title WaterSMART Small-Scale Water Efficiency Projects

Funding Opportunity Number No. R24AS00059

Applicant:

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Unique Entity Identifier

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1.0 TECHNICAL PROPOSAL AND EVALUATION CRITERIA

The Technical Proposal is comprised of the following sections:

- 1.1 Executive Summary
- 1.2 Project Location
- 1.3 Technical Project Description
- 1.4 Evaluation Criteria

The mandatory federal forms (SF424 family) were included within the Grants.gov submission.

1.1 Executive Summary

Date: July 9, 2024

Applicant Name: Southeast Water Users District

City: Mantador

County: Richland County

State: North Dakota

Applicant Category: Category A

Southeast Water Users District (“SEWUD”), located in six southeastern North Dakota counties, is in the process of implementing an Advanced Metering Infrastructure (AMI) System as part of the Advanced Metering Infrastructure Improvements Project, a phased project that is currently planning to begin the second phase of the overall project. This second phase of the project is presented in the grant application and includes the procurement and installation of 1,000 AMI Nodes, which will terminate SEWUD’s reliance on the current manually read meters. When the installation of the AMI nodes is coupled with the telemetry based infrastructure installed in Phase I, the project will provide accurate real-time data to SEWUD through AMI technology. This real-time data will aid in controlling water loss, water consumption spikes, water theft, as well as identify and respond to leaks, which will enable SEWUD to efficiently conserve and manage water supplies.

The anticipated start and completion dates for this project phase are April 1, 2025 and October 31, 2026, respectively, assuming that the materials and supplies can be procured and delivered in a timely manner. This project is not located on a Federal facility.

1.2 Project Location

The Advanced Metering Infrastructure Improvements Project Phase II is located throughout SEWUD’s service area which includes approximately 5,010 square miles in six southeastern North Dakota Counties; Dickey, LaMoure, Logan, Ransom, Richland and Sargent Counties. The large service area is due to SEWUD providing potable water to rural homes, farms, commercial businesses, and small communities through three separate and independently operated water systems, SEWUD - East, SEWUD – Central, and SEWUD – West. A map showing SEWUD’s



water service area by water system is provided in **Figure 1**. The proposed project phase will mainly focus on the SEWUD – Central and SEWUD – West service areas.

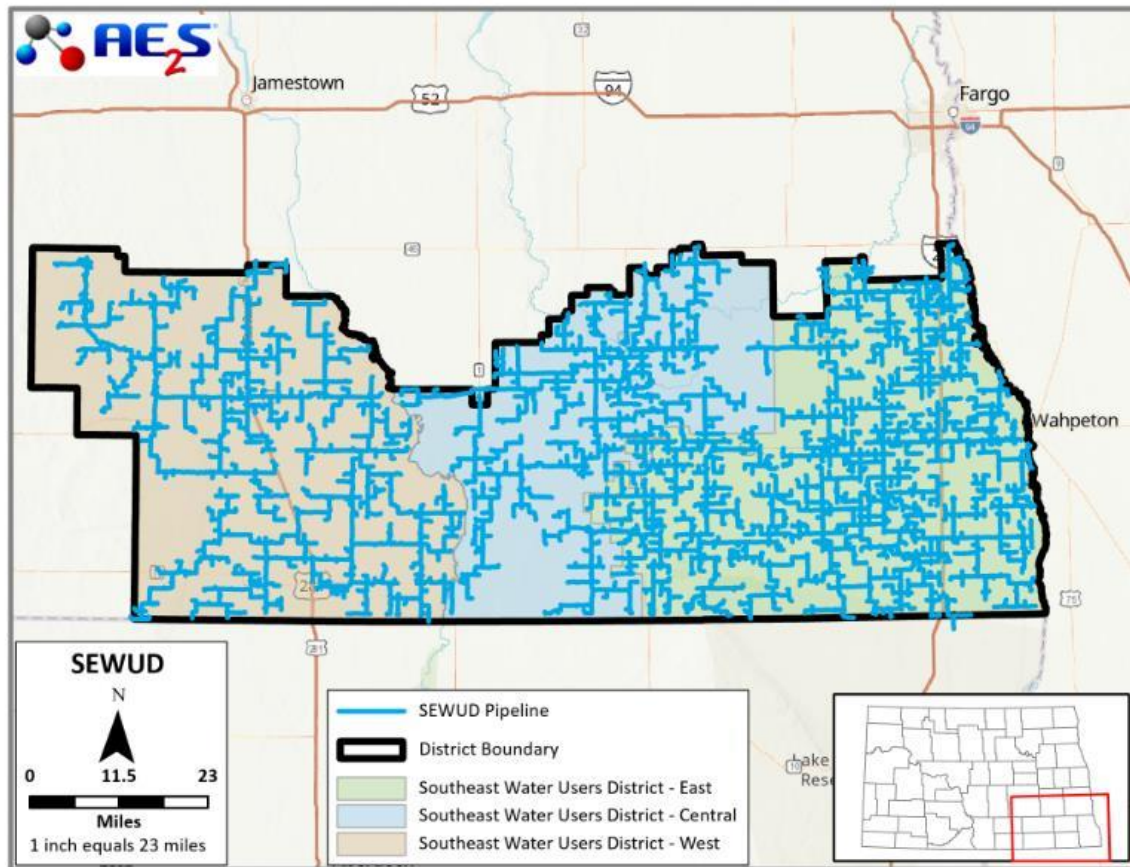


Figure 1: SEWUD District Wide Map with System Boundaries

1.3 Technical Project Description

SEWUD’s Advanced Metering Infrastructure Improvements Phase II Project, includes the installation of 1,000 AMI nodes heads to existing manually read water meters to facilitate the automation of monitoring water usage. The installation of AMI nodes and infrastructure by SEWUD will support SEWUD on their journey towards implementing a complete AMI system and will end SEWUD’s reliance on the current manually read meters.

Upon completion of this project, SEWUD will be able to see water meter readings in real-time (for the meters equipped with new AMI nodes), which will help control water loss and water theft, identify and respond to water leaks and usage spikes more efficiently, and provide customers access to real-time water usage data. SEWUD expects to experience a more efficient water monitoring efforts upon completion of the project.



1.3.1 Background Data

SEWUD is a North Dakota political subdivision with a board of directors and general manager that operates three separate water treatment and distribution systems to convey water to rural water users within an approximate 5,010 square mile area in six southeast North Dakota counties. SEWUD’s total active water service accounts is approximately 3,820 accounts with an estimated total population served of 18,460 (include census estimates of communities served and 2.5 people were rural service connection). The following sections provide additional information on the water system infrastructure and the water production/use.

1.3.1.1 *Water System Infrastructure*

SEWUD’s water treatment system is comprised of has 3 water treatment plants that utilize groundwater from three separate groundwater aquifers; SEWUD – East utilizes water from the Hankinson Aquifer, SEWUD – Central utilizes water from the Sheyenne Delta Aquifer, and SEWUD – West utilizes water from the LaMoure Aquifer. The untreated groundwater is pumped to the respective WTP for treatment prior to being conveyed to users through the distribution system.

SEWUD’s water distribution system is comprised of approximately 3,200 miles of water system piping ranging in pipe diameter, pipe material, and install date. The system also has 23 ground storage reservoirs with booster pump stations (total storage is 4,162 thousand gallons) used to maintain storage levels and distribution system pressures, and 4 booster pump stations used to maintain distribution system pressures. SEWUD has approximately 3,800 active customer water meters located throughout the district. Currently, SEWUD’s current water meters are manually read meters and with the implementation of the AMI nodes through the project the manually read meters will be improved to enable automatic meter readings.

1.3.1.2 *Water Production, Water Use, and Non-Revenue Water*

SEWUD’s annual produced water totals, annual billed water totals, annual non-revenue water totals, and annual non-revenue water percentage from years 2016 to 2023 are provided in **Table 1**. Also included in the table is the SEWUD’s annual non-revenue water percentages for each of the eight-years assessed. Additionally, the eight-year averages for each respective column is included at the bottom of **Table 1**.

SEWUD’s average non-revenue water amount from 2016 to 2023 was 178.7 AC-FT/YR (this value is used in calculations going forward).

SEWUD has an approximate active meter total of 3,820, as a result, it is estimated that each customer account utilizes 0.39 AC-FT (typical annual billed usage of 1493.9 AC-FT/YR divided by 3,820 accounts) of water per year.



Table 1. Water Purchased, Water Billed, and Non-Revenue Water

Year	Total Water Produced (AC-FT)	Total Water Billed (AC-FT)	Non-Revenue Water (AC-FT)	Non-Revenue Water Percentage
2016	1535.6	1355.1	180.5	13.3%
2017	1590.1	1416.6	173.5	12.2%
2018	1586.7	1416.7	170.0	12.0%
2019	1560.1	1395.2	164.9	11.8%
2020	1709.0	1535.0	174.0	11.3%
2021	1859.8	1660.7	199.1	12.0%
2022	1770.5	1547.1	223.4	12.6%
2023	1769.1	1625.0	144.1	8.1%
Average	1672.6	1493.9	178.7	10.7%

1.3.1.3 *Project Phases*

In 2022, SEWUD began the processes of identifying a suitable vendor for the AMI nodes and meter replacements to conduct the first phase of SEWUD’s AMI Project. Due to the large service area of SEWUD, the board of directors decided to phase out the project, with the first phase focusing mainly within the SEWUD – East system. The first phase of the project included procuring and installing collectors, repeaters, approximately 1,300 AMI nodes, AMI software, and upgrading approximately 1,730 meters as needed for compatibility with AMI nodes. This phase was the first step in improving SEWUD’s water metering system from a manually read meter system to a fully automated and transparent system. The proposed project under this grant is for the project’s Phase II which includes the procurement and installation of 1,000 AMI nodes to improve existing meters that are currently manually read to an AMI meter reading system. Upon completion of all phases of the project, SEWUD will improve metering accuracies, provide SEWUD access to real-time water usage data, and strive to further reduce the SEWUD’s non-revenue water (NRW) amount by tracking water losses, theft, and usage spikes.

In 2025 and beyond, SEWUD intends to re-apply for grants under the WaterSMART Program and utilize the cost-share funding to install the remaining 1,518 AMI nodes, as well as replacing all of the remaining 268 water meters, which are incompatible with the AMI nodes. Table 2 below shows the anticipated phased project plan.



Table 2. Phased Project Plan

Phase No.	Year	Description of Improvements
Phase I	2022-2024	<ul style="list-style-type: none">- Install Associated Radio Infrastructure (collectors and repeaters)- Install approximately 1,300 AMI Nodes- Replace approximately 1,730 Water Meters
Phase II	2025-2026	<ul style="list-style-type: none">- Install 1,000 AMI Nodes- <i>This is the project proposed in this application.</i>
Future Phases	2026 and Beyond	<ul style="list-style-type: none">- Install remaining approximately 1,520 AMI Nodes- Replace approximately 270 Water Meters

1.3.2 Problems and Project Need

This section outlines the need for the project, which includes the following sections: distribution system losses, residential losses, and affordability challenges.

1.3.2.1 Distribution System Losses

Over the past eight years, 10.7% or 1,429.5 AC-FT (as shown in) of purchased water was being lost. These losses are occurring in the SEWUD distribution system (somewhere between the treatment plant meters and the customer meters) through either: (1) apparent losses, such as unauthorized consumption and customer meter inaccuracies, or (2) real losses through infrastructure systems including water main, storage, and service connection leaks. SEWUD consistently monitors non-revenue water and actively strives to keep this number low.

1.3.2.2 Customer Account Losses

A study conducted by the Environmental Protection Agency (EPA) states that average water loss through a residential home (i.e. leaky appliances, plumbing issues, etc.) is 13.7% of total water use. Based on this value, it is estimated that each single-family residences within SEWUD loses 0.05 AC-FT/YR (13.7% x 0.39 AC-FT/YR) through residential plumbing leaks, recognizing that some of the older homes may lose more water and some of the newer homes may lose less water. Based on this calculation, the total estimated average customer losses experienced throughout the SEWUD is 191 AC-FT/YR (0.05 AC-FT/YR x 3,820 customer meters).

The total estimated water loss through distribution system losses and residential losses is 369.7 AC-FT/YR (191 AC-FT/YR + 178.7 AC-FT/YR), or approximately 330,047 gallons per day. With improved meter reading accuracy through AMI nodes, these losses can be isolated and mitigated.



1.3.2.3 *Affordability Challenges*

Because SEWUD supplies water services to customers across a large area, the cost to pump and deliver water to its customers is higher, resulting in higher rates than other utilities in the area. In order to keep rates as low as possible for its customers, SEWUD intends to utilize the full extent of their updated AMI system to accurately track and bill their customers. Additionally, utilizing the AMI systems data to inform future rate modeling and water fund budgeting, would allow SEWUD to delay the need for water rate increases through more accurate resource planning, providing those desired economic benefits to their customers.

1.4 Evaluation Criteria

The answers to the evaluation criteria are provided in **red**.

E.1.4.1 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. Consider:
 - Will the project result in more efficient management of the water supply?
 - This project will install AMI nodes and supporting infrastructure throughout SEWUD and will help SEWUD transition their water metering system from a non-AMI system to a fully AMI system. It is anticipated that this project will lower and stabilize the amount of water SEWUD loses in both distribution system losses and residential losses through utilization of AMI. The upgraded AMI system will help SEWUD staff identify and respond to water usage spikes caused by leaks, unaccounted for water use and watermain breaks throughout the distribution system, improve the efficiency and accuracy of SEWUD's water meter readings and billings, and help customers conserve water through SEWUD's ability to access real-time usage data to compare against pumped data.
 - On average from 2016 to 2023, SEWUD had a non-revenue water percentage of 10.7%, which equates to 178.7 AC-FT/YR or 159,533 gallons per day in distribution system losses. SEWUD bills water at an average rate of \$4.60 per thousand gallons; therefore, SEWUD loses approximately \$733 per day in non-revenue water (\$275,200 per year).
 - In reviewing Table 1 for the water loss information from 2023, which was the first year with an AMI phase 1 project being implemented, a significant decrease in water loss, from 12.6% to 8.1% a savings of 79.3 AC-FT, was observed. It is anticipated that SEWUD will continue to reduce water losses through implementation of the future phases of this project, in turn saving SEWUD money. The money saved from operating an AMI monitored distribution system could be used towards other critical water infrastructure improvements while alleviating the



- burden of significant water rate increases to ensure SEWUD continues to provide affordable and equitable water service.
- Where any of the conserved water as a results of the project will go and how it will be used?
 - The conserved water resulting from reducing water losses through this project will simply be additional water supply available to SEWUD's water users. Therefore, this project's conservation of water will improve the water security and resiliency to drought concerns of SEWUD.
 - 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 rights at certain times of year?
 - Customers are currently getting their full water rights.
 - Does this project have the potential to prevent lawsuits or water calls?
 - Because the project will upgrade SEWUD's metering system to an AMI system, SEWUD will have a capacity to see real-time water usage using the newly installed AMI nodes, which should result in fewer water billing disputes and water calls.
 - What are the consequences of not making the improvement?
 - If this project is not completed, SEWUD would be required to continue to rely on manually read meters readings, which puts strains on SEWUD's staff, and inconsistent water meter readings could potentially cause SEWUD's non-revenue water amount to increase and requiring SEWUD to raise rates to cover additionally costs from lost water.
 - Are customer water restrictions currently required?
 - There are currently no water restrictions and no water restrictions are forecasted; however, 2021 was a dry year where much of the state experienced drought, leading some municipalities in the state to employ restrictions on outdoor lawn watering to minimize the negative impacts of drought. Additionally, in 2021, SEWUD-West nearly exceeded its groundwater permit allocation which would have required SEWUD to implement a level of water restrictions.
 - Other significant concerns that support the need for the project.
 - This project will reduce the amount of calls and dependency on customers to adequately report meter readings. It will free time currently spent by SEWUD staff on collecting meter readings and phone calls to focus on other needs of the water system.
 - Real time data will also aid in the ability to rely on fewer assumptions to generate an accurate hydraulic model of the three systems, to adequately assess and correct any hydraulic areas of concern.
 - Upon project completion, the SEWUD's water metering system will be more optimized, reliable, and efficient. SEWUD expects to experience environmental, economic, and social benefits through enhanced and efficient water delivery and monitoring efforts because of this project.



- **Broader Benefits:** Describe the broader benefits that are expected to occur as a result of the project. Consider the following - Will the project improve broader water supply reliability at sub-basin or basin scale?
 - Extent to which the proposed project will increase collaboration and information sharing among water managers in the region
 - This project will provide SEWUD access to real-time water usage data. Additionally, this data could be shared across the state and region for incorporation in various state and regional studies and benchmarking efforts.
 - Is the project in an area that is experiencing, or recently experienced, drought or water scarcity? Will the project help address drought conditions at the sub-basin or basin scale?
 - SEWUD is located in the Red River Basin and the James River Basin, regions that has historically been stricken with catastrophic flooding and periods of drought. North Dakota experienced one of its worst droughts of the last century in 2021. By upgrading the SEWUD's metering system to an AMI system, the current non-revenue water losses should improve in turn conserving that lost water volume for use during times of water shortage and drought. This conservation will more efficiently utilize available water resources and lessen the impacts of water shortages during drought. Additionally, the AMI could be used to monitor and enforce water use restriction efforts, if needed, during future water shortages or droughts.
 - Will the project benefit any federally threatened or endangered, federally recognized candidate species, a state listed species, or species of particular recreational or economic importance?
 - Not applicable.
 - Any anticipated positive impacts/benefits to local sectors and economies within the applicable geographic area (e.g., agriculture, environment, recreation, tourism)
 - Utilizing AMI will reduce the amount of water that is lost throughout SEWUD's water distribution system by monitoring real time use data versus pumped water data. Anticipated environmental benefits of reducing water losses include reductions in both the chemicals used for water treatment and the energy consumption for water treatment and pumping. Utilizing the AMI system's data to inform future rate modeling and water fund budgeting, could potentially allow SEWUD to delay the need for water rate increases though more accurate resource planning, providing economic benefits to their customers.
 - Extent to which the project will complement work done in coordination with NRCS in the area (e.g., with a direct connection to the district's water supply).
 - This project will complement the NRCS EQIP, by enabling real time data to be reviewed to assess if a leak is experienced on a pasture tap.



E.1.4.2. Evaluation Criterion B---Planning Efforts Supporting the Project

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

- Annually, SEWUD identifies, assesses, and plans projects for its Capital Improvements Plan (CIP). The overall goal of the CIP is to ensure SEWUD continues to be positioned to continue to provide a high quality water service to its customers by continuing to update, expand, and improve its rural water system. Over the past ten years, SEWUD has identified an AMI project to replace the existing manual reading of meters on its CIP in order to assist in reducing/accounting for non-revenue water, accurate monthly billings, identifying leaks, and to calibrate hydraulic models to identify potential distribution improvements/optimizations. As such, SEWUD underwent a 500 mile and 520 user system-wide expansion between 2017 and 2020, during this project SEWUD implemented 520 new meters that were compatible with multiple AMI manufacturers in planning and preparation for this AMI project. Additionally, in 2021 SEWUD had a significant volume of 199.1 AC-FT of Non-Revenue water lost and SEWUD-West nearly utilized its entire permitted water allocation, which resulted in the AMI project receiving a higher priority ranking in the CIP. As such, in 2021, SEWUD began to prioritize the AMI project and a project plan was developed in hopes to reduce the non-revenue water to less than 5%. Due to the size of SEWUD's service area, the project was broken down into phases as outlined in Criterion C. The first phase which began in 2022 vetted a proper AMI system and supplier and has installed several AMI nodes, radio collectors/repeaters, and implemented the AMI software/technology, and the subsequent phases are outlined in Table 2 above.

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?

- SEWUD developed the planning effort for implementation of the overall project throughout the entire SEWUD service area. The planning effort resulted in the first phase focusing more in the oldest system, SEWUD – East, where the main district office is located and build the infrastructure out to the other systems using the district office as a central “hub” through additional phases.

Support for the Project: Describe to what extent the proposed project is supported by the identified plan. Consider:

- Is the project identified specifically by name and location on the planning effort?
 - Yes.
- Is this type of project identified in the planning effort?
 - Yes.
- Explain whether the proposed project implements a goal, objective, or address a need or problem identified in the existing planning effort?



- The project is consistent with the board of directors and SEWUD staff goals, including: operating and maintaining a resilient and reliable water system while minimizing non-revenue water to less than 5% and providing affordable services to customers. As can be seen in Table 1, after the implementation of Phase 1 in 2022 non-revenue water reduced from 12.6% in 2022 to 8.1% in 2023.
- Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures?
 - The project was determined as a priority as a result of SEWUD’s significant volume of 199.1 AC-FT of Non-Revenue water lost and the SEWUD – West System, nearly exceeding its groundwater allocation permitted usage both of which occurred in 2021. These facts encouraged SEWUD staff and board of directors to prioritize implementing an AMI system that could conserve water by aiding in accounting for identifying water losses, utilizing real time water usage to calibrate the hydraulic model to aid in system optimization.

E.1.4.3. Evaluation Criterion C--- 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.
- Per the grant application requirements, this project will not be started prior to March 2025 and be completed prior to March 31, 2027. The proposed project schedule is outlined below in **Table 3**.

Table 3. Proposed Project Schedule

Approximate Date	Major Tasks
March 2025	Anticipated Award Date
April 1, 2025	Project Start Date / Procure 1,000 AMI nodes
April 1, 2025	Estimated Arrival of 1,000 AMI nodes
April 15, 2025	Estimated Completion of Environmental and Cultural Compliance Requirements
May 2025-March 2027	Install 1,000 AMI nodes (Milestone is to install 12 meters per week)
March 31, 2027	Project Completion Date

- This project was broken out into phases, please see Table 2 for a description of the phases.
- The water nodes that will be installed under this Project is planned to be installed by SEWUD staff. If SEWUD is successful in receiving grant funding, SEWUD will work cooperatively with the Bureau of Reclamation to meet specific milestones adhere to schedule requirements set forth by the Bureau of Reclamation. Based upon Phase 1 project results, an average 12 meters being installed per week is attainable while continuing to provide a high quality service to customers.



- Describe any permits and agency approvals that will be required, along with the process and timeframe for obtaining such permits or approvals.
- o Because the AMI nodes will be installed in at existing meter locations with homes, businesses, and meter pits, no permits will be required for this project, beyond a determination for Environmental and Cultural Compliance. Customers will be notified prior to installation of the water nodes.
- 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.
- o No engineering or design work is anticipated for this 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.
- o As result of the AMI nodes being installed on existing meters in customer homes, businesses, and meter pits, customer outreach will be important during this project. However, easements will not be required.
- 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 costs associated with compliance? If a contractor will need to complete some of the compliance activities, separate line items should be included in the budget for Reclamation's costs and the contractor's costs.
- o There are limited concerns regarding potential environmental and cultural resource compliance given this project is adding to existing water meters in existing water meter locations. As such, the local Reclamation office has not been contacted to discuss potential environmental and cultural resource compliance requirements and costs, but it is understood prior to any work being performed a level of Environmental and Cultural Compliance will be need to be completed.

E.1.4.4. Evaluation Criterion D---Nexus to Reclamation

- Is the proposed project connected to a reclamation project or activity?
- o No, this project is not directly connected to a reclamation project or activity.
- If so, how? Please consider the following:
 - o Does the applicant have a water service, repayment, or operations and maintenance contract with Reclamation?
 - No.
 - o Does the applicant receive Reclamation project water?
 - No, but could potentially utilize reclamation project water in the future (see below narrative regarding RRVWSP).
 - o Is the project on Reclamation project lands or involving Reclamation facilities?



- No.
- Is the project in the same basin as a Reclamation project or activity?
- There is an ongoing project connected to the Bureau of Reclamation. According to the Bureau of Reclamation website, the Bureau of Reclamation signed a record decision on January 15, 2021, selecting the preferred alternative proposed for the Eastern North Dakota Alternate Water Supply (ENDAWS) Project. The selected alternative includes construction of infrastructure to provide up to 165 cubic-feet-per-second of water from the McClusky Canal. Water will be delivered through a buried pipeline along a northern route and connect with the main transmission pipeline of the state-led Red River Valley Water Supply Project (RRVWSP). Both ENDAWS and the RRVWSP are located in North Dakota (Bureau of Reclamation Region 5).
- Will the proposed work benefit a Reclamation project area or activity?
 - Not directly. However, SEWUD does provide water to users within the Oakes Test Area which was originally a Bureau of Reclamation project. By serving users with SEWUD potable water this removes demand from the Oakes Aquifer for future irrigation practices.
- Will the proposed work contribute water to a basin where a Reclamation project is located?
- No.

E.1.4.5. 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 reduction of water losses from the distribution system should result in a decrease in the energy consumption to produce, treat, and pump water from the utility, which is powered by natural gas/ coal, thereby decreasing the use of fossil fuels for energy and resultant carbon 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?
- This project is anticipated to promote and encourage water conservation efforts by continuing to provide SEWUD with access to real-time water usage. With drought conditions becoming an increasing reality in this region, especially with North Dakota experiencing a significant drought in 2021, water conservation is a key component to



maintaining water supplies and services to customers during water shortages and drought conditions.

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, available online at Explore the map – Climate & Economic Justice Screening Tool (<https://screeningtool.geoplatform.gov>) to identify any disadvantaged communities that will benefit from your project.
 - Utilizing the tool, the areas that encompass SEWUD identified as disadvantaged are in and around the southern portions of Richland and Sargent Counties and labeled as the Lake Traverse Reservation (Sisseton).
- If applicable, describe how the project benefits those disadvantaged or underserved communities identified using the tool. For example, does the project increase reliability of water supplies, improve water quality, provide economic growth opportunities, improve or expand public access to natural areas or recreation, or provide other benefits in a disadvantaged or underserved community?
 - The following benefits are anticipated for SEWUD’s underserved or disadvantaged water customers:
 - Improved management of water supplies
 - Customers will not have to read and report their meter readings back to SEWUD.
 - The project enables SEWUD to monitor the water usage on a real time basis to help limit water losses, which would in turn lower water bills.
 - Improved response time to water system leaks.
 - More economical operation of water system, which should translate to more affordable water service.

E.1.5.3 Sub-criterion No. E.3. Tribal Benefits

- Does the proposed project directly serve and/or benefit a Tribe? Will the project improve water management for a Tribe?
 - The project assists a few customers that are located in the Lake Traverse Reservation. See Paragraph E.1.5.2 Sub-criterion No. E2 Disadvantaged or Underserved Communities for response.
- Does the proposed project support Tribal resilience to climate change and drought impacts or provide other Tribal benefits such as improved public health and safety by addressing water quality, new water supplies, or economic growth opportunities?
 - The project assists a few customers that are located in the Lake Traverse Reservation. See Paragraph E.1.5.2 Sub-criterion No. E2 Disadvantaged or Underserved Communities for response.



3.0 ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE

The following questions were provided in the notice of funding opportunity (NOFO), and answers to the questions are provided in **red**.

- 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 impact to the surrounding environment will be negligible during the installation of AMI nodes and necessary meter upgrades given that they will be installed at existing water meter locations within existing service locations. SEWUD's staff will take all necessary precautions and steps to minimize negative effects towards air, water, or animal habitat during installation of the infrastructure.

- 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?

Within the six North Dakota Counties that are service by SEWUD, there are 5 federally listed threatened or endangered species: Northern Long-eared Bat (mammal), Piping Plover (bird), Whooping Crane (bird), Dakota Skipper(insect), and the Western Prairie Fringed Orchid (flowering plant). Although there are threatened or endangered species listed in the project area, none will be affected by the installation of the new infrastructure. The AMI Nodes and mounting brackets will be installed within existing water meter locations.

- 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, but the project will not impact any 'Waters of the United States' because the installation of the AMI Nodes and mounting brackets will be within existing water meter locations.

- When was the water delivery system constructed?

For SEWUD-East's water delivery system's first construction phase commenced in 1977, SEWUD-Central's water delivery system's first construction phase was completed in 1997, and SEWUD-West's water delivery system's first conveyed water in 1996.

- 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.

No.



- 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.

Not Applicable.

- Are there any known archeological sites in the proposed project area?
There are known archeological sites in the proposed project area, however, since this project will install AMI Nodes and mounting brackets within existing water meter locations, no archaeological sites are anticipated to be impacted.
- Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?
The project will have positive impacts on low income and minority populations as a result of every property owner with a water meter will be monitored through a SEWUD accessible online portal that allows them to view customers water usage in real-time and setup any alarms/alerts as necessary or requested. Having this information will allow SEWUD to be more cognizant of water use and allow SEWUD to catch water spikes caused by leaks or plumbing fixtures left on inadvertently.
- 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.

4.0 REQUIRED PERMITS OR APPROVALS

No permits are required for this project. Property owners will be notified in advance prior to installation of the AMI Node on their water meter.

5.0 OVERLAP OF DUPLICATION OF EFFORT STATEMENT

The only overlap that could potentially exist between this project and other projects is if SEWUD is forced to start improving water meter end points in the event they go dead, requiring immediate action. This grant application submitted for consideration under this program does not in any way duplicate a proposal or project that has been or will be submitted for funding consideration to any other potential funding source. SEWUD would like to continue to apply for future WaterSMART grant opportunities, as applicable and available, to continuously improve their water system.

6.0 CONFLICT OF INTEREST DISCLOSURE STATEMENT

There are no conflicts of interest or lobbying activities to disclose.



7.0 UNIFORM AUDIT REPORTING STATEMENT

During fiscal year 2023, SEWUD did not expend \$750,000 USD or more in Federal award funds, as such SEWUD was not required to submit a Single Audit report for 2023 (the most recent fiscal year).

8.0 CERTIFICATION REGARDING LOBBYING

There are no conflicts of interest or lobbying activities to disclose. The amount being requested in this application is not more than \$100,000.

9.0 SF-LLL: DISCLOSURE OF LOBBYING ACTIVITIES

There are no conflicts of interest or lobbying activities to disclose.

10.0 LETTERS OF PROJECT SUPPORT

The project has the full support of the Board of Directors and SEWUD staff. This project phase was presented to SEWUD's Board of Directors at the December 19, 2023 Board meeting and has the support of the Board.

11.0 LETTERS OF PARTNERSHIP

Not applicable, as SEWUD is a Category A applicant.

12.0 OFFICIAL RESOLUTION

The Official Resolution was adopted at the December 19, 2023 Board meeting and submitted to the Bureau of Reclamation WaterSMART Grant application process.

13.0 LETTERS OF FUNDING COMMITMENT

The non-federal share for this project will be funded through SEWUD's general fund. Therefore, no letters of funding commitment were included.



APPENDIX A – MATERIALS AND SUPPLIES – DATA SHEETS

MUELLER

MI.NET[®] NODE

AMI Fixed Network Meter Interface Unit

FEATURES

Two Way Communications: The Mueller Systems Mi.Net AMI Node (AMI Node) is a meter interface unit provides connection to all Mueller water meters equipped with an encoder register. The primary function of this AMI Node is to provide full, two way communications between the network and the water meter.

System Components: Information retrieved from a water meter is stored temporarily within the AMI Node unit's internal memory. As a default, the AMI Node will transmit hourly meter data at a predetermined time once per day to network. On demand reads to the node can be requested at any point in time and are typically delivered within seconds. This data is sent to a Multi Network Collector (MNC) via an unlicensed radio frequency and then relayed to the Mi.Net host server for analysis and storage. Designed to provide features for Internet of Things (IoT) applications, the AMI Node utilizes advanced noise filtering technology that allow the Mi.Net system to maximize range while keeping infrastructure to a minimum. Multiple routing options for each node also allow it to ensure that the data will be retrieved by the server with ease.

Construction: The AMI Node unit incorporates multiple moisture barriers to address concerns over moisture intrusion even in meter box environments. An o-ring sealed thermoplastic enclosure, coated electronic board and potting compound provide a water resistant package that permits Mueller Systems to offer a 20 year warranty on the AMI Node unit. A large lithium ion battery provides plenty of power over the life of the unit.

Scalable and Upgradeable: The AMI Node is designed to provide water conservation solutions for all types of residential and commercial applications. Its functionality can be upgraded remotely. All system of the AMI Node units can be scheduled for an upgrade at one time and the system will notify the user when the process is complete.

The AMI Node seamlessly connects directly to the Mueller 420 RDM (Remote Disconnect Meter) for easy but secure actuation of the valve through the user interface.



MATERIALS AND SPECIFICATIONS

Compatible for fast response times, on-demand reads in seconds, not hours

Interfaces with water meters that output a protocol same as the Mueller Systems Solid State Register

Logs and stores up to 512 days of hourly data in internal memory

RF antenna contained inside AMI Node unit enclosure

FCC compliant

Nicor Cable Connector 5' or 25'

Power Output: 1W

Power Source: D Cell Lithium Battery

Transmit Frequency: 902 MHz – 928 MHz

Data Integrity Verified with every data message

Temperature Range: -40°F to + 158°F (-40°C to + 70°C)

Humidity: 0% - 100% condensing

Dimensions: 6 5/8" high x 2 15/16" wide x 3 3/8" deep

Automatically detects encoder meter type connected

No external power supply required for operation

Notifies the system of low battery level for preemptive maintenance

Tamper and leak notification

For more information about Mueller or to view our full line of water products, please visit muellersystems.com or call Mueller customer service at 1.800.423.1323.

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APPENDIX B – OFFICIAL RESOLUTION

The Official Resolution was adopted at the December 19, 2023 Board meeting and is attached.

**OFFICIAL RESOLUTION OF THE SOUTHEAST WATER USERS DISTRICT
REGARDING PARTICIPATION IN FUNDING FOR A BUREAU OF
RECLAMATION WaterSMART GRANT PROJECT.**

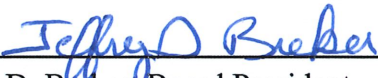
A. WHEREAS, the United States Department of the Interior, Bureau of Reclamation, Water Resources and Planning Office under its WaterSMART Grant Program, has made available to qualifying applicants grant funding on a matching fund or challenge grant basis funds for water conservation and management projects; and

B. WHEREAS, Southeast Water Users District has identified a project that exemplifies the objectives of the WaterSMART grant program in its Advanced Metering Infrastructure Program;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Southeast Water Users District:


1. The Board of Directors verifies that (Steven Hansen) has legal authority to enter into an agreement with Reclamation.
2. The Board of Directors has reviewed and supports the application submitted.
3. The Board of Directors is capable of providing the amount of funding and/or in-kind contributions specified in the funding plan.
4. That if selected for a WaterSMART Grant, the board will negotiate and execute a Cooperative Agreement with Reclamation on/or prior to the established deadline, to fund up to 50% of the project costs and provide documentation showing the sources of non-federal funding that totals the remaining project costs.

ADOPTED AND APPROVED this 19th day of December 2023.



Jeffrey D. Breker, Board President

Attest:



By: Donald Lingen, Acting Secretary

The following pages contain the full application in response to the Bureau of Reclamation Funding Opportunity R24AS00059.

This full application contains a Table of Contents, Technical Proposal, Budget Narrative, and the optional recommended application components, including:

Environmental and cultural resources compliance, required permits and approvals, overlap or duplication of effort statement, conflict of interest disclosure statement, uniform audit reporting statement, SF-LLL disclosure of lobbying activities statement, letters of support, letters of partnership, official resolution, and letter of funding commitment.



2.0 PROJECT BUDGET

The proposed project budget is described in the forthcoming sections.

2.1 Funding Plan and Letters of Commitment

The funding plan for this project is to utilize money from the SEWUD general fund to fund the SEWUD's cost-share portion of the project. These funds are available and already programmed in the SEWUD's budget, so no time constraints exist on the available funds. The total estimated project costs (including federal and local cost shares) for this project are \$200,013.00. SEWUD is requesting \$100,000 (50% of total project costs) in federal cost-share from the Bureau of Reclamation under this grant, with the remaining amount to be funded by the SEWUD through their general fund.

Included in the notice of funding opportunity were the following parameters, which are answered in **red**. Please identify the sources of the non-Federal cost-share contribution for the project, including:

- Any monetary contributions by the applicant towards the cost-share requirement and source of funds (e.g., reserve account, tax revenue, and/or assessments)
SEWUD will use budgeted funds from SEWUD's reserve water fund to pay for the non-federal share of the Project costs.
- Any costs that will be contributed by the applicant
SEWUD is planning to complete the project and install all procured AMI Nodes themselves. The salary and wages associated with these activities are outlined in the budget proposal and budget narrative, time estimates were based on experience from the Phase 1.
- Any third-party in-kind costs (i.e., goods and services provided by a third party)
No.
- Any cash requested or received from other non-Federal entities
No.
- Any pending funding requests (i.e. grants or loans) that have not yet been approved and explain how the project will be affected if such funding is denied
No.

Pre-award project costs for the AMI materials and supplies for Phase II is anticipated to keep this project on schedule if allowed by the Bureau of Reclamation (See paragraph 2.3.5 below). A summary of the total project costs is provided in **Table 4**. It should be noted that SEWUD is registered (and maintains an active registration) in the System for Award Management (SAM). SEWUD is willing to process payments through the Department of Treasury Automate Standard Application for Payments (ASAP) system with the Bureau of Reclamation.



Table 4. Total Project Costs

Source	Amount	Percentage
Costs to be reimbursed with the requested Federal funding	\$100,000.00	50.0%
Costs to be paid by applicant	\$100,013.00	50.0%
Value of third-party contributions	\$0.00	0%
TOTAL PROJECT COST	<u>\$200,013.00</u>	100%

2.2 Budget Proposal

The budget proposal for this project is provided below in **Table 5**.

Table 5. Budget Proposal

Budget Item Description	Computation		QTY Type	Total Cost
	\$ / Unit	QTY		
Salaries and Wages				
Operator 1	\$40.55	1,250	HOUR	\$50,687.50
Fringe Benefits				
Operator 1	\$9.50	1,250	HOUR	\$11,875.00
Travel				
Mileage	\$0.67	5,150	MILES	\$3,450.50
Equipment				
Supplies and Materials				
Mueller Systems Mi.Net AMI Node	\$125.00	1,000	EA	\$125,000.00
Wall Kit Mueller Node Enclosure	\$9.00	1,000	EA	\$9,000.00
Contractual/Construction				
Other				
TOTAL DIRECT COSTS				\$ <u>200,013.00</u>
Indirect Costs				
TOTAL INDIRECT COSTS				\$ 0.00



2.3 Budget Narrative

The following categories were included in the notice of funding opportunity and provide the budget narrative for this project.

2.3.1 Salaries and Wages

SEWUD plans to install the AMI nodes themselves. Time has been budgeted for this work to be completed. The budgeted staff members are compensated at a rate of \$40.55 per hour, and this is the rate used to determine the cost for the time budgeted for the installation of the AMI nodes. A review of the Phase 1 project was used to aid in determining an appropriate estimate of time (1.25 hours) required to install a water meters.

2.3.2 Fringe Benefits

The budgeted staff members are compensated at a rate of approximately \$9.50 per hour, and this is the rate used to determine the cost for the time budgeted for the installation of the AMI nodes. A review of the Phase 1 project was used to aid in determining an appropriate estimate of time (1.25 hours) required to install a water meters.

2.3.3 Travel

Travel is included in the budget proposal as reimbursable expense for mileage at the IRS rate of \$0.67 per mile. This mileage is required for travel to and from the installation location for each AMI node.

2.3.4 Equipment

As a result of this being Phase II and SEWUD plans to conduct the improvements themselves, SEWUD already has the equipment necessary; therefore, no reimbursement is requested.

2.3.5 Materials and Supplies

Reimbursement is being requested for the procurement and installation of 1,000 Mueller Systems Mi.Net AMI Node and respective wall mounting kits. SEWUD has received pricing for AMI nodes and wall mounting brackets from Winwater with the unit prices being \$125 per AMI node and \$9 per wall mounting bracket. Included in **Appendix A** are the data sheets for the AMI Nodes planned to be installed.

If SEWUD is selected for grant funding, SEWUD would like to be considered for procuring the materials and supplies as soon as they are notified of grant award or as a pre-award cost (if allowed by the Bureau of Reclamation). Through discussions with various suppliers, the materials and supplies outlined in this grant application have long lead times due to the labor shortages, foreign conflicts, supply chain issues, etc. Early procurement of the materials and supplies will help SEWUD maintain the schedule outlined in the Project Implementation Plan.



2.3.6 Contractual

No contractual services are anticipated; therefore, no reimbursement is requested.

2.3.7 Third-Party In-Kind Contributions

No third-party in-kind contributions are anticipated; therefore, no reimbursement is requested.

2.3.8 Environmental and Compliance Costs

No environmental and compliance costs are anticipated; therefore, no reimbursement for this is requested.

2.3.9 Indirect Costs

No indirect costs are anticipated; therefore, no reimbursement is requested.

