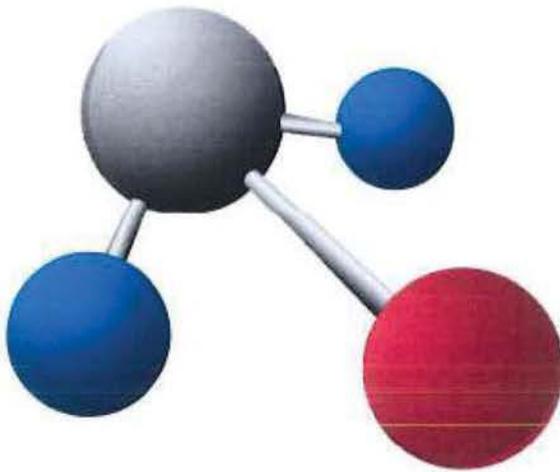


**REMOTE READ
WATER METER
PROJECT**

PREPARED FOR:

**Traill Rural Water
District,
Clifford, ND**



*Funding Announcement No. BOR-DO-17-F011
AE2S Project No. P00210-2017-002
March 6, 2017*

**PROJECT PROPOSAL
WaterSMART:
Water and Energy Efficiency
Grants for FY 2017**

Advanced Engineering and Environmental Services, Inc.
4050 Garden View Dr Ste 200, Grand Forks, ND 58201
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MAR 13 '17 PM 1:28

**PROJECT PROPOSAL FOR BUREAU OF RECLAMATION
FUNDING ANNOUCEMENT NO. BOR-DO-17-F011**

**TRAILL RURAL WATER DISTRICT
REMOTE READ WATER METER PROJECT**

**SUBMITTED BY
NEIL BREIDENBACH, MANAGER
TRAILL RURAL WATER DISTRICT
26 PLUMMER STREET SOUTH
PO BOX 25
CLIFFORD, ND**

March 6, 2017

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I hereby certify that this report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of North Dakota.



Geoffrey Slick, PE

Date: 3-7-17

Reg. No: PE-9235

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1.0 EXECUTIVE SUMMARY

Trail Rural Water District (TRWD) located in Clifford, North Dakota proposes to add new residential Automatic Meter Read (AMR) systems, which are composed of AMR compatible meters and SmartPoint heads, to all traditional and bulk users within the TRWD system. The AMR system would be able to provide real time data to the TRWD staff rather than having to manually read meters to decipher if the user is using water, leaking water, or stealing water. The current meter arrangement does not allow for proper leak detection throughout the system. It is TRWD's intent to phase the AMR meter project over the course of ten months with a completion date of May, 2018. Currently 300 of TRWD's 773 users have AMR systems. The intent of this project is to install AMR systems to the remaining 473 TRWD users. The savings earned from reducing water loss under the previous WaterSMART project savings coupled with potential grant funding assistance would offset the need to raise customer's water rates. Grant funding will be used as a 50% contribution to the project while the other 50% of project funding would be contributed by the owner through monetary, in kind work, equipment, labor, and materials from TRWD installation of the AMR systems.

Currently, water loss throughout the system is 64.6 AF/yr, which has been decreased from the 83.9 AF in 2015. Water reduction was attributed in part from the 2015 Water Conservation Field Services Program Report (WCFSP) project, which helped track water loss through the system through the addition of 300 AMR systems. Also, it is estimated that TRWD customers lose 17.5 AF/yr through residential plumbing. System water losses coupled with residential water losses result in an estimated annual water loss of 82.1 AF/yr in 2016 for TRWD customers. Therefore, by implementing the proposed project it is estimated that TRWD could save up to 82.1 AF/yr in water loss each year, hence conserving water and promoting energy efficiency. The Bureau of Reclamation (Reclamation) has cost shared in a past WCFSP project with TRWD, which involved installing 300 AMR systems to the TRWD system. With the successful completion of the 2017 WaterSMART project TRWD intends to complete the system wide AMR project.

2.0 BACKGROUND

2.1 Project Location

An area map of the project location can be found below. The entire project area lies within Traill County, including the cities of Hillsboro and Mayville. Traill Rural Water District (TRWD) currently serves rural users in the southern quadrant of Traill County, with some users located in east Steele County and north Cass County. TRWD's office is located in Clifford, ND. The City of Hillsboro (Hillsboro) is located in the southeastern quadrant of Traill County on US Interstate Highway 29 and old US Highway 81. The City of Mayville (Mayville) is located in the northwestern quadrant of Traill County on Highway 200. TRWD currently receives finished water from Water Treatment Plants (WTP) located within Mayville and Hillsboro, which is further explained in Section 2.3.

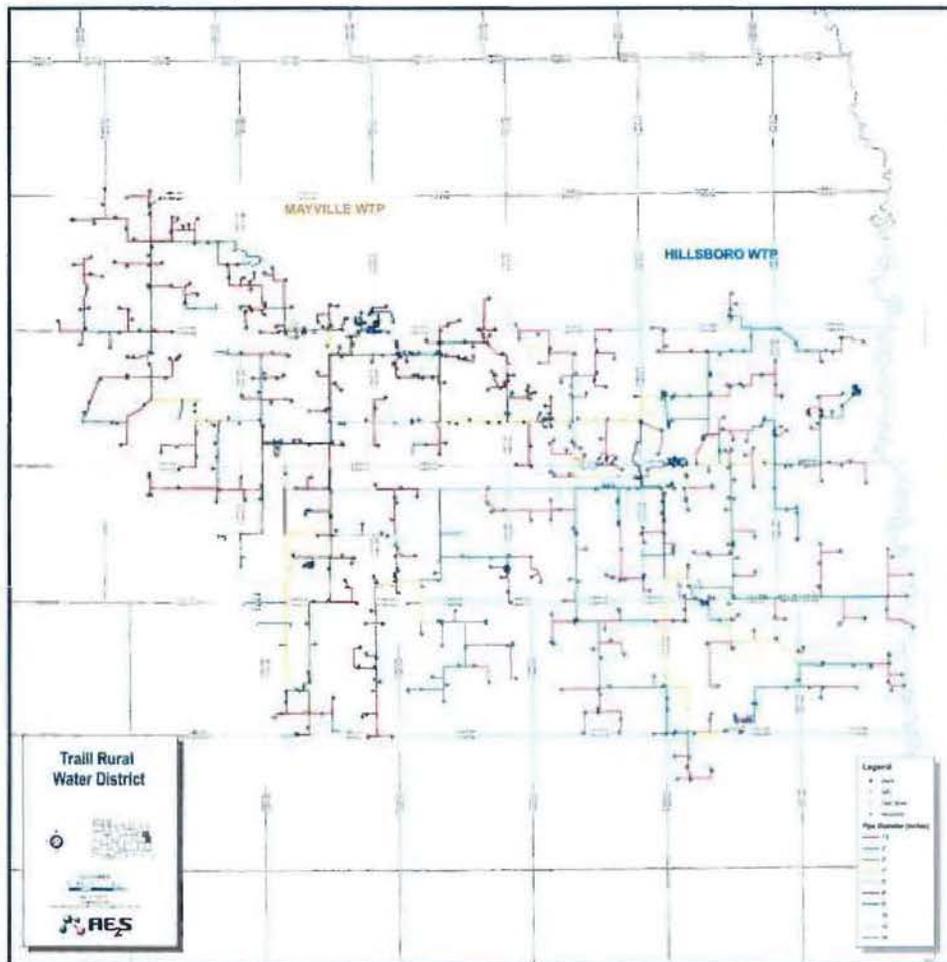


Figure 1.1: Traill Rural Water District

2.2 Organizational Structure

2.2.1 Regional Water Supply Project

In the late 2000's with funding help from the Garrison Diversion Conservancy District, the ND State Water Commission, U.S. Army Corps of Engineers, Rural Development and North Dakota State Revolving Fund, a Regional Water System (RWS) was formed. The RWS was formed between TRWD and the Cities of Hillsboro & Mayville. The RWS consisted of Joint Ownership of associated new raw and finished water infrastructure constructed during the RWS Project. The construction of this infrastructure began in 2009 and was completed in 2013.

The new RWS infrastructure consisted of the following components:

- Two (2) WTP's located in the cities of Hillsboro and Mayville
- Thirty-five (35) miles of raw water transmission pipelines and miscellaneous appurtenances
- Three (3) well fields
- One (1) water transfer station/reservoir.

TRWD's role within the RWS is to provide raw water to the cities of Hillsboro and Mayville. The role of Hillsboro and Mayville is to receive the raw water from TRWD and treat the water through their new/renovated WTP's. Once, treated TRWD will receive the water and distribute to their customers.

Because the role of TRWD is to provide raw water to Hillsboro and Mayville, it is also their responsibility to operate, maintain, and replace the raw water infrastructure per the joint powers agreement. Finished water infrastructure, consists of the Hillsboro WTP and Mayville WTP and is the responsibility of Hillsboro and Mayville to operate, maintain, and replace per the joint powers agreement. The Mayville WTP serves the City of Mayville as well as 404 TRWD rural customers. The Hillsboro WTP serves the City of Hillsboro as well as 369 TRWD rural customers.

Table 2.1 below summarizes the ownership breakdown of the raw and finished water infrastructure that was installed within the RWS Project.

	TRWD	Mayville	Hillsboro
Raw Water Infrastructure	44%	22%	34%
Mayville WTP	50%	50%	-
Hillsboro WTP	40%	-	60%

Table 2.1 - Regional Water System Infrastructure Ownership

2.2.2 Water Source

Raw water is withdrawn from the northeast portion of the Galesburg Aquifer system by way of three (3) separate well fields. The well fields consist of two new well fields and the original TRWD system well field. The original TRWD well field consists of 8 wells which were constructed in 1970. There are 2 new well fields with each well field

consisting of four (4) wells. In summary, the three (3) well fields contain 16 individual wells and have a total raw water capacity of 2,100 gallons per minute (gpm). TRWD holds three water permits (presented in Table 2.2), with total allocation of 1,660 acre-feet of groundwater annually with a maximum withdrawal rate of 1,975 gpm. In 2016, TRWD sold a total quantity of 877.79 AF to the cities of Hillsboro and Mayville.

Permit No.	Appropriation (annual acre-feet)	Max Pumping Rate (gpm)	Status
ND #01954	322	550	Perfected
ND #03243	322	520	Perfected
ND #05862	1,016	905	Conditionally Approved
Total	1,660	1,975	NA

Table 2.2 - Traill Rural Water District Permit Information – Galesburg Aquifer

2.2.3 Finished Water Conveyance

TRWD was originally constructed in the early 1970's to provide potable water to approximately 705 traditional rural users. Since that time, the number of rural users has increased to 773, which includes individual services service to users within the communities of Clifford, Blanchard, Kelso, and Caledonia. TRWD also provides bulk service to the Cities of Portland, Grandin, and Galesburg. Three (3) TRWD finished water pumping stations convey finished water through 650 miles of finished water pipelines and miscellaneous appurtenances.

Currently, TRWD purchases their finished water from the Cities of Hillsboro and Mayville. In 2016, TRWD purchased 165.7 and 161.81 AF of finished water from the Cities of Hillsboro and Mayville, respectively, for a total purchased quantity of 327.51 AF. The total quantity of water sold by TRWD however, only amounted to 262.9 AF, accounting for a 19.7% water loss.

TRWD currently sells 56.17 AF/yr of water to three bulk accounts and 206.74 AF/yr to 773 residential users, which accounts to .27AF per user per year.

2.3 Bureau of Reclamation Involvement

2.3.1 2015 Remote Read Water Meter Project

In 2015, TRWD applied for and was successful in being awarded a \$100,000 (50%) cost share grant with the Reclamation, through the WCFSP. The remaining 50% of project costs was furnished by TRWD through in-kind services performed by the water district. With funding from the 2015 Remote Read Water Meter Project TRWD was able to install 300 AMR meters and SmartPoint heads to the system. The addition of the 300 AMR systems made a noticeable difference with loss reduction throughout the system. In 2015-2016, with the help from new meters under the WCFSP project TRWD was able to reduce water loss from 83.9 AF to 64.6 AF, a savings of 19.3 AF. The WCFSP grant coupled with the 2017 WaterSMART Grant: Small-Scale Water Efficiency Projects

would allow TRWD to complete their meter installation project, and in turn significantly reducing water loss throughout the system.

3.0 TECHNICAL PROJECT DESCRIPTION

3.1 Scope of Work

3.1.1 Distribution System Losses

Due to recent water loss and lack of revenue throughout the TRWD system, staff members have been entering customer's residences and have been testing and replacing faulty residential meters and upgrading with new manual read meters that are capable of being hooked up to AMR meters. AMR meters automatically collect consumption from the water meter and then transfer the data to a central database for billing. In order for the data to be transferred a SmartPoint head needs to be installed with each AMR meter. The SmartPoint head is a radio transceiver that gives the operator radio frequency inbound and outbound access to water measurements and ancillary device diagnostics. These SmartPoint heads collect data from the AMR meter register the data and then proceed transmit it to a collection device, in this instance a tablet. TRWD uses the walk-by/drive-by mode; the SmartPoint will continuously collect data and wait for an activation signal from the tablet when it is within the required distance. Once the signal is received by the SmartPoint, meter readings are transmitted to the collection device (tablet).

The replacement of the existing manual meters to AMR meters would be a similar process of installation of the manual read meters as described above; however, the meter itself would be complete upgrade. The new remote read meter would not be replacing broken meters with the same type meter, but rather replacing existing manual read meters with new technologies to better assist with water conservation by being able to utilize new AMR technologies. AMR meter technology is far superior to the original manual read meters that exist in the system. Currently TRWD customer's read and report their meter readings each month and then are billed according to the reported reading. These manual read meters allow for discrepancies between the actual water used vs. the reported water use. These discrepancies could be accidental recording errors or even intentional reporting errors by the water user. Water theft from TRWD customers has been an ongoing problem within the system; AMR systems will all but eliminate the issue. With new AMR systems TRWD users will no longer have to read and report their meters. Data will be transmitted via the SmartPoint heads, which are attached to the AMR meter, and automatically transmitted to the collection device (tablet) that the TRWD employee's use.

The new AMR system is anticipated to reduce system water loss by finding water that is lost through leaks in the distribution system or stolen by TRWD customers. TRWD is broke up into 7 different metered zones, therefore by having a master meter showing how much water is being pumped into each zone and having residential meters recording how much is being taken at that time TRWD will be able to locate problem areas and remedy the potential water loss problems.

In 2015, TRWD reported losing approximately 83.9 AF of water throughout their distribution system. Under the WCFSP project it was anticipated that TRWD would reduce system water loss from 83.9 AF to 69 AF over the course of 2015-2016. As it turns out from 2015-2016, with help from the 300 new meters, which were acquired through funding from the WCFSP project, TRWD exceeded expectations by reducing water loss from 83.9 AF in 2015 to 64.6 AF in 2016.

The water loss throughout the TRWD distribution system was 64.6 AF in 2016, therefore it is anticipated the addition of the new AMR meters acquired by this grant over the next several months will help TRWD reduce water loss from 64.6 AF to ~ 0 AF. Therefore, under this WaterSMART project an estimated 64.6 AF of water loss will be eliminated, from within the distribution system, with the addition of the new 473 AMR meters and SmartPoint heads.

3.1.2 Residential Losses

Currently, a study conducted by the Environmental Protection Agency (EPA) states that average water loss through a residential home, i.e. leaky appliances or plumbing, is 13.7% of total water use. Therefore, it is estimated that each TRWD resident losses $13.7\% \times .27AF = 0.037$ AF/yr through residential plumbing leaks.

Therefore, the total water loss through TRWD residential plumbing accounts for 473 user $\times 0.037$ AF/yr, which accounts for 17.5 AF/yr. Therefore, under the WaterSMART grant TRWD anticipates that in total they would reduce water loss by 17.5 AF/yr + 64.6 AF/yr = 82.1 AF/yr.

3.2 Purpose and Objective

TRWD currently has 773 customers, 300 of which already have the new AMR system. With potential funds from this WaterSMART grant TRWD is looking to finish automating the system, by addressing the remaining 473 users that still have manual read meters. In order to complete automating the system TRWD needs to purchase 140 AMR capable meters and 473 SmartPoint heads. TRWD only needs to buy 140 more AMR meters because they already have 333 in stock. It is estimated that the remaining meters and SmartPoint heads will cost \$74,805.00, which will be funded by the WaterSMART grant. This grant requires that half of the project cost is funded by the recipient; hence TRWD plans to fund an additional \$74,811.33 towards the project through monetary, in-kind work, equipment, labor, and materials from TRWD installation of AMR systems. It is anticipated that this project will cost \$149,616.33; a budget breakdown can be seen in Table 8.2.

In 2015, TRWD's water loss was 83.9 AF. The annual water loss was calculated by taking the water purchased from the Cities of Hillsboro and Mayville, minus the water sold to the customers. Similar, water districts throughout the region have a system water loss of 0-5%. The objective of this project would be to reduce the water loss to a value close to 0%.

Due to the installation of AMR systems during the WCFSP project and countless hours of work by the TRWD staff; many leaks, stolen water, and faulty meters were found. The work by TRWD reduced the water loss from 83.9 AF to 64.6 AF over the course of 2015-2016, which is still a large number, but shows that the new meters have helped to lower water loss by ~5% in one year.

Additional water loss reduction will be achieved by being able to obtain real time data of the water leaving the master meters and the water entering the customers AMR meters throughout the whole system. This will allow TRWD to more closely find leaks by knowing which customers are taking water when they are looking at real time data. The water can be narrowed from larger branches to smaller branches. By minimizing project area, leaks will be more easily found, detected and fixed. The ability to track down and repair the leaks is proposed to cut water losses down from 19.7% to ~0%.

TRWD will also be able to more readily determine if a customer has a problem within their plumbing, by seeing irregular water uses. The new AMR systems would allow for TRWD to find irregularities within water use. TRWD would notify the customer of the irregular water use, allowing the customer to fix the problem, in turn saving the district and the customer water loss.

3.3 Proposed Project Schedule

Based on the anticipated project requirements, a proposed schedule for project implementation is presented in Table 3.1. A change in scope would most likely be related back to funding approval or the ability to obtain required amount of meters from the supplier. It is unlikely legal or financial troubles would delay progress schedule. It is anticipated that fifty (50) AMR systems will be installed per month.

Date	Event	Anticipated Monthly Expenses
March-17	Submit Proposal	\$6,000
Mar– July-17	Await approval of funding/Begin scheduling meter installation	-
Aug-17	Install AMR Systems 1-50	\$15,181.43
Sep-17	Install AMR Systems 51-100	\$15,181.43
Oct-17	Install AMR Systems 101-150	\$15,181.43
Nov-17	Install AMR Systems 151 – 200	\$15,181.43
Dec-17	Install AMR Systems 201-250	\$15,181.43
Jan-18	Install AMR Systems 251 – 300	\$15,181.43
Feb-18	Install AMR Systems 301– 350	\$15,181.43
Mar-18	Install AMR Systems 351 – 400	\$15,181.43
Apr-18	Install AMR Systems 401 – 450	\$15,181.43
May-18	Install AMR Systems 451 – 473	\$6,983.46

Table 3.1 – Proposed Progress Schedule

4.0 EVALUATION CRITERIA

Application Evaluation Scoring Criteria **(Answers can be seen in blue)**

E.1.1. Evaluation Criterion A—Planning Efforts Supporting the Project (35 points)

Describe how your project is supported by an existing planning effort.

- Does the proposed project implement a goal or address a need or problem identified in the existing planning effort?

TRWD has an extensive planning effort in place. One of the steps of this existing planning effort is to reduce water loss via proper water metering. With the installation of the additional 473 AMR systems TRWD will be able to fully incorporate the metering step of its water plan. Currently only 300 users on the TRWD system are metered with the new AMR system. With the installation of the remaining 473 AMR systems TRWD will be able to better track down and remedy existing and potential future system losses, by having a “true” complete Automatic Meter Read System.

- Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures.

The proposed project has been determined a priority among many other proposed measures due to water loss, which corresponds with a loss of income for TRWD. Currently TRWD is losing 64.6 AF of water a year or 21,050,832 gallons. This amounts to a value of 21,050,832 gallons x \$7/1000 gallons= \$147,355.82 in revenue lost annually. Water loss can be generally attributed to three different things; leaks in the system, faulty meters, or water theft. Due to the age and condition of older meters TRWD believes a majority of it water loss can be attributed to faulty meters. TRWD has also had issues with water theft from homeowners intentionally providing wrong meter readings over the years. With the addition of the AMR systems water users won't be able to provide false meter readings because the new AMR systems are automated. With the incorporation of this WaterSMART grant it is expected that TRWD will be saving 64.6 AF of water each year and generating an additional \$147,355.82 in revenue.

E.1.2. Evaluation Criterion B—Project Benefits (35 points)

- Describe the expected benefits and outcomes of implementing the proposed project.
 - What are the benefits to the applicant's water supply delivery system?

TRWD will strive to reduce water loss within their system to close to 0%. Currently, the remaining 473 residential meters are manual read meters. The meters are supposed to be read each month by the residents, with the monthly usage sent to TRWD for payment. However, many users do not read these meters or do not read them correctly. When a meter is misread TRWD staff aren't aware of how much water they are actually losing month to month. The AMR systems will allow TRWD to know the amount of water lost daily. Also, it will provide TRWD the opportunity to track the amount of water that passes through the residential meters on a minute by minute basis. This will allow

TRWD to track leaks that users may have throughout their current plumbing or that reside throughout the distribution system.

The 19.7% (64.6 AF) water loss throughout the delivery system coupled with the EPA's average of 13.7% (17.5 AF) lost through home owner's appliances amounts to 82.1 AF/yr of water lost per year. The new meter technology will not only help TRWD operators track down leaky system branches, but it will help customers conserve water by being notified when water use seems erratic or out of the ordinary.

After the project is complete, TRWD will monitor water usage and water pumped daily. They will determine the most likely areas water is being lost or stolen. They will concentrate their efforts to these areas to fix the problems. Each month they will compare water loss to previous years water losses in order to see system trends. The idea would be to trend water loss from 19.7% to approximately 0% throughout the system over the next year. TRWD intends to remedy these problem areas by fixing leaks that are found in the distribution system. Also by monitoring water usage TRWD will be able to more easily locate illegal hookups, areas of unauthorized connection, and will be able to ensure all current users are metered properly.

In 2016 64.6 AF of water was lost throughout the distribution system, this amounts to 21,050,832 gallons. TRWD charges customers \$7 per 1000 gallons of water used. Hence, TRWD lost \$147,355.82 in revenue for 2016. With the addition of the 473 new AMR meters systems it is the hope of TRWD that water loss would be trended to near 0 and revenue loss would follow suit.

- If other benefits are expected explain those as well. Consider the following:
 - Extent to which the proposed project improves overall water supply reliability
See above.
 - The expected scope of positive impact from the proposed project (e.g., local, sub-basin, basin)
Does Not Apply
 - Extent to which the proposed project will increase collaboration and information sharing among water managers in the region

TRWD expects the AMR systems to drastically reduce system water losses. This is because TRWD has already seen the positive trends of water loss reduction in several nearby water systems, which can be contributed to AMR technologies. Many other systems in the region have manual read meters in most residences. With expected success in the TRWD system it is anticipated that through "word of mouth" the managers will be able to decipher previous factual trends and then proceed to incorporate the appropriate AMR systems which suit them best, hence increasing water conservation throughout the region.

- Any anticipated positive impacts/benefits to local sectors and economies (e.g., agriculture, environment, recreation, tourism)

Utilizing new AMR technologies will reduce the amount of water that will be lost throughout the system. With a more efficient system more capacity will be created that can be used to benefit the agricultural sector. During spray season the system is

generally stretched to its capacity limits, by eliminating loss more capacity will be generated giving more flow that farmers can use for spraying. When water loss is reduced there would also be a benefit to the environment. Aforementioned benefits can be attributed to less chemicals used during water production and less power used for the pumping of the lost water.

E.1.3. Evaluation Criterion C—Project Implementation (15 points)

- 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.

See Section 3.3.

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

No further permits will be required.

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

With the proposed project the only engineering and design work performed is the WaterSMART Grant Report.

- Describe any new policies or administrative actions required to implement the project.

In order to implement this project The TRWD Board of Directors had to approve the spending of the total project costs.

E.1.4. Evaluation Criterion D—Nexus to Reclamation (15 points)

- How is the proposed project connected to a Reclamation project or activity?

In 2015, TRWD applied for and was successful in being awarded a \$100,000 (50%) cost share grant with the Reclamation through the WCFSP. This project allowed TRWD to install 300 new AMR systems to a portion of the TRWD system. The WCFSP funds were able to provide TRWD with 300 new AMR systems. With this addition TRWD was able to cut losses from 83.9 AF in 2015 to 64.6 AF in 2016, a 5% reduction in one year. This reduction equated to a water loss reduction of 19.3 AF, which saved TRWD \$44,022.43 in potential revenue loss. The previous WCFSP grant coupled with the 2017 WaterSMART grant would allow TRWD to complete their meter installation project and possibly reduce water and revenue loss to near 0.

- Will the project help Reclamation meet trust responsibilities to any tribe(s)?

No tribes are located in Traill County.

- Does the applicant receive Reclamation project water?

TRWD does not receive reclamation water, but use infrastructure funded by Reclamation to retrieve their water.

- Is the project on Reclamation project lands or involving Reclamation facilities?

See E.1.4 Question 1 above.

- Is the project in the same basin as a Reclamation project or activity?

Not Applicable.

- Will the proposed work contribute water to a basin where a Reclamation project is located?

Not Applicable.

5.0 ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE

5.1 Environmental Impact

The environmental impacts are beneficial for the proposed project. The environmental benefits will outweigh any detriments to this project. The environmental impacts recognized from reducing water loss would be directly proportional to chemicals used during water production and power used for the additional pumping of the lost water; however these would be hard to quantify. The power/chemical reduction although not extensive is a way of making a more "green" system. Also, there will be no new ground disturbance so no environmental impacts are anticipated.

5.2 Environmental Compliance Questions

Below are the questions from the FOA Section IV.D.6 Environmental Cultural Resources and Compliance, answers can be seen in [blue](#).

(1) Will the 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 effects to surrounding environment will be little to negligible; during the installation of the AMR systems. TRWD will take all steps necessary to minimize any air, water or animal habitat, during installation of the remote read meters.](#)

(2) Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?

[There are no species listed or proposed to be listed as a Federal threatened or endangered species in the project area.](#)

(3) 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 project may have.

[Yes, but the project will have no impact upon the waters of the United States, because all meters will be installed within residential homes.](#)

(4) When was the water delivery system constructed?

[The water system was constructed between the periods of 1970-2016.](#)

(5) Will the project result in any modification of or effects to, individual features of an irrigation system (e.g., head gates, 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 modifications will be made to irrigations systems.](#)

(6) Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.

[No buildings or structures from the National Register of Historic places will be affected.](#)

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

There are no known archeological sites in the proposed project area which would be affected.

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

The project will not have a disproportionately high and adverse effect on low income or minority populations, but could save them money by helping to find potential plumbing leaks in their residences.

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

The project will not limit access to ceremonial sacred sites and will not have impacts upon any tribal lands.

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

The project will not contribute to the introduction, continued existence, or spread of noxious or non-native invasive species known to occur in the area.

6.0 REQUIRED PERMITS OR APPROVALS

No permits are required.

7.0 OFFICIAL RESOLUTION

See Appendix A

8.0 PROJECT BUDGET

8.1 Letters of Commitment

TRWD will utilize their reserve funds for their cost share portion of the project.

8.2 Funding Plan

8.2.1 Question Breakdown

1. How will you make your contribution to the cost share requirement, such as monetary and/or in-kind contributions and source funds contributed by the applicant (e.g., reserve account, tax revenue, and/or assessments)

The owner will both use monetary and in-kind work contributions to the project. The monetary contributions will use reserve funds to pay for all project expenses incurred during the project in order to meet grant cost share percentages. The in-kind work will include the installation of all AMR systems in user's homes.

2. Describe any costs incurred before the anticipated Project start date that you seek to include as project costs. For each cost, identify:

(a) The Project expenditure and amount:

It is anticipated that the cost incurred prior to the project will be \$6,000 for the WaterSMART Grant Report.

(b) Whether the expenditure is or will be in the form of in-kind services or donations

The cost incurred for the report will be incurred by TRWD financially.

(c) The date of cost incurrence:

February 2017.

(d) How they benefitted the project:

The WaterSMART Grant benefitted the project, by quantifying the cost of the project, providing the potential savings, as well as outlining a plan for TRWD to systematically install the AMR meters to successfully minimize system water loss.

3. Describe any funding requested or received from other Federal partners.

No other federal funds will be used during the WaterSMART project.

4. Describe any pending funding requests that have not yet been approved, and explain how the project will be affected if such funding is denied.

At this time there is no pending funding.

Table 8.1 below breaks down a summary of the non-federal and other federal funding sources. Please note that in-kind contributions are denoted with an asterisk (*)

Funding Sources	Funding Amount
Non-Federal Entities	
Traill Rural Water District*	\$ 74,811.33
Non-Federal subtotal:	\$ 74,811.33
Other Federal entities	
<i>Other Federal Subtotal:</i>	\$ 0
Requested Reclamation Funding:	\$ 74,805.00
Total Project Funding:	\$ 149,616.33

Table 8.1 – Summary of non-Federal and Federal funding sources

8.4.2 Fringe Benefits

Currently, both the operator and administrative assistant receive fringe benefits. The fringe benefits equal \$11.00 per hour.

8.4.3 Travel

It is anticipated that each meter will take 15-miles of travel. A federal rate of \$.54/mile was used to calculate the estimated cost of travel. TRWD vehicles will be used for all travel purposes.

8.4.4 Equipment

All equipment used under the project is under \$5,000 in value and are comprised of small hand tools.

8.4.5 Materials and Supplies

The primary materials will be the Meters and SmartPoint heads. TRWD worked with Dakota Supply Group during the WCFSP to obtain the costs for the Meters and SmartPoint heads.

8.4.6 Contractual

TRWD hired AE2S to compile a report for the WaterSMART grant and to better quantify their needs. The report is a pre project cost and is anticipated to be paid for by TRWD.

8.4.7 Environmental and Regulatory Compliance Costs

It is anticipated that there will be no environmental and regulatory costs due to the fact that the all of the project will be installed in residences. There was no percentage of the project cost budgeted for Environmental and Regulatory Compliance because this is a non-construction project with no ground disturbance anticipated.

8.4.8 In-Direct Costs

With the inability to forecast in-direct costs, 10% of TRWD direct share cost was used as a place holder for in-direct costs.

8.4.9 Total Costs

Total project cost can be found in Table 8.2.

8.5 Budget Form

See Appendix B for Budget Forms SF-424, SF-424A, and SF-424B.

APPENDIX A – OFFICAL RESOLUTION

**OFFICIAL RESOLUTION OF THE TRAILL RURAL WATER
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, 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, Traill Rural Water District has identified a project that exemplifies the objectives of the WaterSMART grant program in its Advanced Metering Structure Program;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Traill Rural Water District:

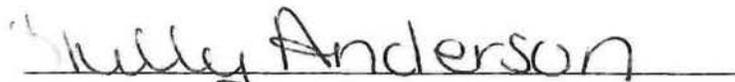
1. The Board of Directors verifies that (Eric Strand) has legal authority to enter into an agreement with Reclamation.
2. The Board of Directors has reviewed and supports the application submitted.
3. The Board of Directors is capable of providing the amount of funding and/or in-kind contributions specified in the funding plan.
4. That if selected for a WaterSMART Grant under the Fiscal Year 2017, the board will negotiate and execute a Cooperative Agreement with Reclamation on/or prior to the established deadline, to fund at least 50% of the project costs and provide documentation showing the sources of non-Reclamation funding that totals 50% of project costs for the Project.

ADOPTED AND APPROVED this 7 day of March 2017.



Eric Strand, President

Attest:


Shelly Anderson, Board Secretary/Treasurer