

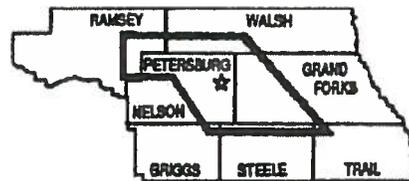
United States Bureau of Reclamation

WaterSMART Grant

Small-Scale Water Efficiency Projects for Fiscal Year 2018

FOA No. BOR-DO-18-F009

## **TRI-COUNTY WATER DISTRICT**



**Rural Water for Better Rural Life**

Tri-County Water District

Phase 1 Automatic Meter Reading (AMR) Project

Tri-County Water District

Mr. Mike Blessum, Manager

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# Technical Proposal and Evaluation Criteria

Executive Summary

Date: June 2018

Applicant: Tri-County Water District (TCWD) – Petersburg, ND  
DUNS # 962905238

Location: Nelson, Ramsey, Walsh, Steele, and Grand Forks Counties - North Dakota

The proposed project consists of replacement of existing self-read water meters in the Tri-County Water District (TCWD) system with automated meter reading (AMR) meters and the associated AMR components. The funds will be used to modernize infrastructure by providing new meters which will allow TCWD to reduce water loss and improve reliability of the water supply. The ability to better monitor water usage with the AMR system and meter upgrades will allow TCWD to conserve water and use it more efficiently.

The project is expected to take approximately twelve (12) months to complete with an estimated completion date of Fall of 2019. The project is not located on a Federal Facility.

## Background Data

The Tri-County Water District (TCWD) is an existing regional rural water supply system designed to provide residents in selected counties of northeastern North Dakota a safe and dependable domestic water supply and a supplemental, or total, livestock water supply. Currently, the water system serves residents in part or all of Grand Forks, Nelson, Ramsey, Steele, and Walsh counties. The water system is served by a single Water Treatment Plant (WTP), in addition to a connection to the neighboring rural water system, Greater Ramsey Water District (GRWD). The TCWD WTP currently has a maximum operating capacity of 600 gpm, pumping water out of the Elk Valley Aquifer (current permits allocate 392 acre-ft per year). The TCWD distribution system consists of over 1,020 miles of 1" - 8" PVC pipeline, an elevated and ground storage tank (300,000 gallons each), and four (4) pump stations. TCWD has a system-wide SCADA system for control and monitoring. TCWD currently distributes approximately 140,000,000 gallons, or 430 acre-feet, per year to its customers to meet its current demand and is coordinating a connection to a separate water utility to provide supplemental capacity for projected water demand. The primary beneficiaries of the TCWD water distribution system are the 1,055 rural customers, and the communities of Petersburg, Dahlen, Niagara, Lawton and Brouck.

TCWD has a past working relationship with the United States Bureau of Reclamation. TCWD worked with Reclamation securing MRI grant funds with oversight being provided for their Phase 1, Phase 2, and Phase 3 System Expansion and System Improvement projects:

- Phase 1: Added 76 new users and 88 miles of pipeline in 2001.
- Phase 2: Added 109 new users, 208 miles of pipeline, and a new elevated storage tank between 2002 and 2004.

- Phase 3: Connected TCWD to the Greater Ramsey Water District, added 10 new users, and 26 miles of pipeline between 2008 and 2010.

#### Project Location

The Tri-County Water District (TCWD) is located in northeastern North Dakota serving residents in part or all of Grand Forks, Nelson, Ramsey, Steele, and Walsh counties. A System Map has been included with this application to provide an overall project location as Attachment A in the Appendix.

#### Technical Project Description

The scope of work proposed for this grant application consists of replacement of existing self-read water meters in the TCWD system with automated meter reading (AMR) meters and the associated AMR components. The primary tasks to be performed would be the removal of the existing water meter, installation of the new AMR meters and endpoints, and connection to the automated meter reading system. Because the work simply involves removal and replacement of meters, there will be no engineering costs associated with the work nor will there be any ground disturbing activities.

Water use would be measured and accessible on a continuous basis with information provided to TCWD for operation and maintenance purposes. Currently a majority of water accounting and billing is done through data collected by TCWD customers reading and reporting their own water use. There are problems with this approach. First, the accuracy of the water use depends on the timeliness and accuracy of the customers reading their own meters. Second, potential problems such as leaks or excessive use are only apparent on a monthly basis. With the AMR meters in place, water use would be measured and accessible on a continuous basis providing much better operational control to TCWD water treatment plant and distribution system operators by providing real-time water usage and locations of that use. Leaks and the associated water loss will be greatly reduced which will help to both conserve overall water used by the system as well as reduce operational costs and system run times. The use of the AMR system will allow TCWD to better monitor their water usage pattern and remain good stewards of their water supply.

#### Evaluation Criteria

##### *Evaluation Criterion A – Project Benefits*

With the aging metering equipment in significant portions of the TCWD system, the proposed project will modernize existing infrastructure in order to reduce water loss and make more water available for beneficial use. The AMR system will allow TCWD to monitor the water use on a daily, if not hourly, basis instead of the current monthly self-report process. With current water losses exceeding 15%, the improved monitoring will allow TCWD to determine the extent and cause of water loss to identify and resolve issues. The expected benefits include reduced water loss, reduced power (pumping) and maintenance costs, better management of water sales, and improved customer service. Reduced water loss would make more water available in the

distribution system and would allow TCWD to provide service to additional customers in the geographic area. The current self-read system is not timely, has inherent problems with accuracy and is not an effective water management system. With the consistent monitoring provided by the AMR system the District will be able to greatly enhance their water management abilities. TCWD will be able to receive alerts if there is sustained flow for an extended period of time, signifying a leak. This will have a positive impact on TCWD as well as local customers allowing the remote identification of leaks which, if left unaddressed, could result in property damage, freeze-ups, or significant water loss/bills.

Several other water districts in the area currently have or are in the process of implementing AMR infrastructure into their systems. The proposed AMR project will provide TCWD with additional monitoring capabilities allowing them to increase collaboration and information sharing among water managers in the region.

*Evaluation Criterion B – Planning Efforts Supporting the Project*

Tri-County has continued their planning effort to reduce system water loss over the past several years. Specific problems identified in the water loss reduction planning efforts have been the aging metering infrastructure and the self-reporting of usage by customers. TCWD has already addressed major problems contributing to water loss including replacement of glued pipe that has reached its useful life or addressing shallow pipelines which were susceptible to freezing/breaks. Having resolved these items, the next priority to reach the planning effort goal of water loss reduction is to address the system metering and improve monitoring of water use through the use of Automatic Meter Reading (AMR). TCWD has been reviewing the different types of AMR systems available over the past 12 months. Representatives of TCWD have attended numerous conferences, presentations, and roundtable discussions reviewing the pros and cons of cellular, satellite, and fixed base AMR systems in their planning efforts. Over the last few months, TCWD has been working closely with a local supplier reviewing budgetary pricing and system-wide feasibility of an AMR system.

*Evaluation Criterion C – Project Implementation*

Since this work will be performed by TCWD staff and therefore does not require a construction contract, activities can begin within a fairly short time frame after receipt of funding. There are essentially two stages: acquiring materials and replacement of the meters. It is anticipated it would take 4-6 weeks to place an order and receive the materials. Following receipt of the meters, removal and installation could begin immediately. It is difficult to assign major tasks/milestones/dates as TCWD will need to coordinate with individual customers to schedule access to replace each meter. The best time to do this work would be during the fall, winter and spring due to the increased water use and associated operation and maintenance activities that take place during the summer. It is expected that upon entering into a financial assistance agreement that meter replacement could commence in the Fall of 2018 with all of the work completed by Fall 2019. There would be no required permits, engineering or design work,

environmental compliance, or new policies or administrative actions required to implement the project.

*Evaluation Criterion D – Nexus to Reclamation*

A clear nexus exists between the proposed project and Reclamation projects. TCWD worked with Reclamation securing MRI grant funds with oversight being provided for their Phase 1, Phase 2, and Phase 3 System Expansion and System Improvement projects. Through the three phases of system expansion/improvement many miles of pipeline and users were added to the TCWD distribution system. The proposed project will benefit the the TCWD distribution system as a whole including the portions that were constructed under Reclamation projects. The project does not impact any tribe.

*Evaluation Criterion E – Department of the Interior Priorities*

The proposed project supports these Department of Interior priorities:

Restoring trust with local communities:

The proposed project will improve relationships with and expand the lines of communication with local communities and persons served by the Tri-County Water District. With the consistent monitoring provided by the AMR system, TCWD will be able to identify leaks/breaks and alert customers in a timely manner. If left unidentified/unaddressed, a leak or break could result in property damage, freeze-ups, or significant water bills for the local customer. The ability to identify end user issues more quickly and mitigate negative outcomes both expands the lines of communication and builds trust.

Modernizing our infrastructure:

TCWD has aging metering equipment in significant portions of their system. The proposed project will modernize their existing infrastructure in order to reduce water loss and make more water available for beneficial use. It will also support cyclical maintenance of the water system infrastructure as the life cycle/warranty coverage of the AMR meters in the proposed project will essentially provide a built-in cyclical maintenance schedule for replacement.

## Project Budget

Funding Plan and Letters of Commitment

The funding for this project will be a combination of federal funds in the form of this WaterSMART Grant from the Bureau of Reclamation and contributions from Tri-County Water District. The District will provide in-kind contributions as wages and benefits to existing full time District staff along with current District owned equipment used for the operation and maintenance of the system with the remainder of the contribution coming from user fees. The District does not intend to hire additional staff to complete this project or obtain any new equipment. There will be no project funding provided by a source other than the applicant and WaterSMART Grant.

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

| FUNDING SOURCES                | AMOUNT      |
|--------------------------------|-------------|
| Non Federal Entities           |             |
| 1. Tri-County Water District * | \$77,460.00 |
| Non Federal Subtotal           | \$77,460.00 |
| Other Federal Entities         |             |
| 1. None                        | \$0.00      |
| Other Federal Subtotal         | \$0.00      |
| REQUESTED RECLAMATION FUNDING  | \$75,000.00 |

Budget Proposal

The complete budget for this project is shown in Table 2 below.

Table 2 – Complete Budget Proposal

| BUDGET ITEM DESCRIPTION        | COMPUTATION |          | Quantity Type | Total Cost   |
|--------------------------------|-------------|----------|---------------|--------------|
|                                | \$/Unit     | Quantity |               |              |
| Salaries and Wages             |             |          |               |              |
| Employee 1                     | \$21.50     | 350      | hours         | \$7,525.00   |
| Employee 2                     | \$18.50     | 350      | hours         | \$6,475.00   |
| Fringe Benefits                |             |          |               |              |
| (actual cost per employee)     | \$9.50      | 700      | hours         | \$6,650.00   |
| Travel                         |             |          |               |              |
| N/A                            |             |          |               |              |
| Equipment                      |             |          |               |              |
| Vehicles                       | \$20.80     | 700      | hours         | \$14,560.00  |
| Supplies and Materials         |             |          |               |              |
| Altair Meter w/ VN-LTE         | \$315.00    | 350      | water meters  | \$110,250.00 |
| External Antenna               | \$20.00     | 350      | antenna       | \$7,000.00   |
| Contractual/Construction       |             |          |               |              |
| N/A                            |             |          |               |              |
| Environmental Compliance Costs |             |          |               |              |
| N/A                            |             |          |               |              |
| TOTAL DIRECT COSTS             |             |          |               | \$152,460.00 |
| Indirect Costs                 |             |          |               |              |
| N/A                            |             |          |               |              |
| TOTAL ESTIMATED PROJECT COSTS  |             |          |               | \$152,460.00 |

## Budget Narrative

### *Salaries and Wages*

The TCWD staff included in this application are operators that will be used to construct the project with rate of compensation and estimated hours identified in the budget proposal. The time for the Manager of the District, Mike Blessum, spent providing project management and staff supervision was not included in the estimate. These are ongoing daily duties of the manager. No specific estimate for compliance with reporting requirements was included but it is understood that this will be completed by TCWD in consultation with Reclamation. No estimates for clerical personnel were included in this project.

### *Fringe Benefits*

Fringe benefits of \$9.50 per hour are the rates for billing purposes for each employee.

### *Travel*

No travel expenses were included in the budget for this project.

### *Equipment*

The equipment to be used on the project will consist of existing TCWD 4x4, ¾ ton crew pickup trucks. The hourly rate is the average total hourly rate (\$/HR) outlined by the USACE Construction Equipment Ownership and Operating Expense Schedule (EP 1110-1-8) for a “4x4 ¾ TON CREW GAS” model in Region IV.

### *Materials and Supplies*

The materials for the project consist of Metron-Farnier meters (Altair) and external antennae needed for construction and operation. 350 meters and antennae are needed to upgrade the existing infrastructure for this phase. The unit prices for the meters and antennae are identified in Table 2. Costs were estimated from budgetary quotes provided by material suppliers.

### *Contractual*

No contractual expenses were included in the budget for this project.

### *Environmental and Compliance Costs*

No environmental or compliance costs were included in the budget for this project.

### *Other Expenses*

No other costs were included in the budget for this project.

### *Indirect Costs*

No indirect costs were included in the budget for this project.

### *Total Costs*

The budget for the entire project as shown in Table 2 is \$152,460.00. Of that estimated amount \$77,460.00 will be provided by Tri-County Water District (non-Federal) and \$75,000 through the Bureau of Reclamation WaterSmart Grant (Federal).

## Environmental and Cultural Resources Compliance

The proposed project will not impact the surrounding environment as there is no earth-disturbing work or any work that will affect the air, water, or animal habitat in the project area.

There are threatened or endangered species in the project area, however; none will be affected by any activities associated with the proposed project.

There are wetlands and surface waters that potentially fall under CWA jurisdiction as “Waters of the United States” in the project area, however; none will be affected by any activities associated with the proposed project.

The Tri-County Water District water delivery system was first constructed in 1976.

The proposed project will not result in modification of or effects to individual features of an irrigation system.

There are no buildings, structures, or features that are part of the Tri-County Water District that may be eligible for listing on the National Register of Historic Places.

There are no known archaeological sites in the proposed project area that will be affected.

The proposed project will not have a disproportionately high and adverse effect on low income or minority populations.

The proposed project will not limit access to and ceremonial use of Indian sacred sites and will not result in other impacts on tribal land.

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

## Required Permits or Approvals

The Tri-County Water District is not aware of any required permits or approvals needed for the project. The project is located within the boundary of the district and will not require the acquisition of any easement, temporary or permanent.

## Official Resolutions

See following page for TCWD Board of Directors Official Resolution

## Resolution of Governing Body of Tri-County Water District

Resolution authorizing filing an application with the Bureau of Reclamation for a grant under the WaterSMART grant program.

Whereas, under the terms of the WaterSMART grant, Tri-County Water District has the financial capability to provide the amount of funding /contribution specified in the funding plan.

Now, Therefore, BE IT RESOLVED:

**Board of Directors of Stutsman Rural Water District:**

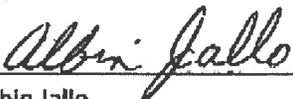
1. That **Mike Blessum, Manager**, be and is hereby authorized to execute and file a grant application on behalf of Tri-County Water District with the Bureau of Reclamation, United States of America, to aid in the construction of its **Phase 1- Automatic Meter Reading Project** for the replacement and installation of 350 water meters and AMR endpoints.
2. That **Mike Blessum, Manager**; be and is hereby authorized and directed to furnish such information as the Bureau of Reclamation may reasonably request in connection with the grant application, which is authorized to be filed, to sign all necessary documents, and, on behalf of Tri-County Water District, to accept/receive payment of grant funds.

### **CERTIFICATE OF RECORDING OFFICER**

The undersigned duly qualified and acting President of the Board of Directors of the Tri-County Water District, does hereby certify:

That the attached resolution is a true and correct copy of the resolution, authorizing the filing of the application with the Bureau of Reclamation, as regularly adopted at a legally convened meeting of the Board of Directors, duly held on the 12<sup>th</sup> day of July, 2018; and further that such resolution has been fully recorded in the minutes of the proceedings shown in the records held at the Tri-County Water District Office.

In WITNESS WHEREOF, I have hereunto set my hand this 12<sup>th</sup> day of July, 2018.

  
\_\_\_\_\_

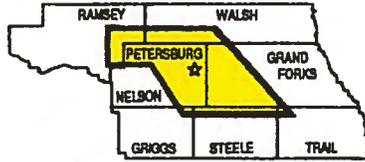
Albin Jallo  
President, Board of Directors  
Tri-County Water District

## APPENDIX

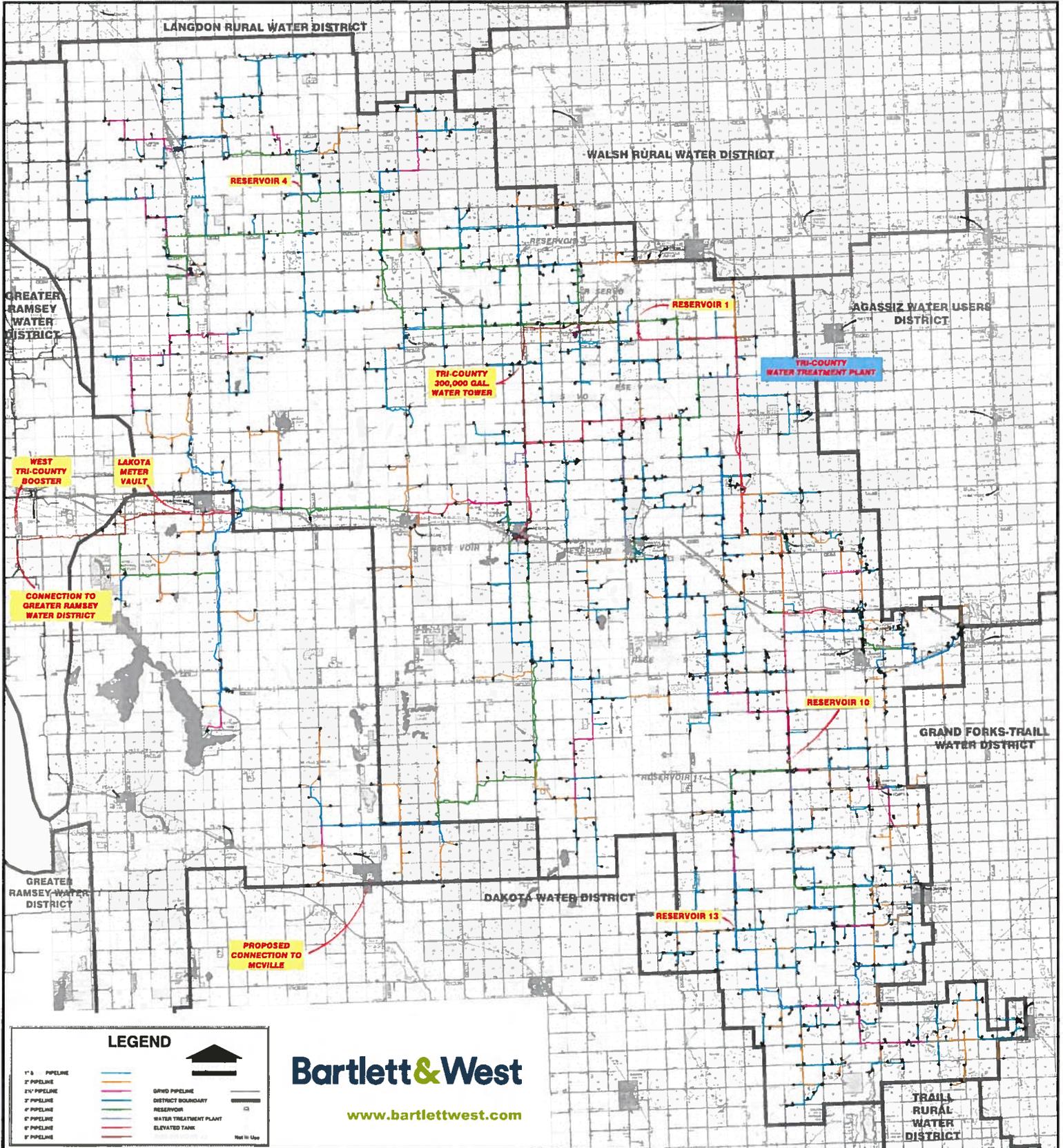
Attachment A

System Map

# TRI-COUNTY WATER DISTRICT



## RURAL WATER FOR BETTER RURAL LIFE



### LEGEND

|              |  |                       |  |
|--------------|--|-----------------------|--|
| 1" PIPELINE  |  | 6" DWD PIPELINE       |  |
| 2" PIPELINE  |  | DISTRICT BOUNDARY     |  |
| 4" PIPELINE  |  | RESERVOIR             |  |
| 6" PIPELINE  |  | WATER TREATMENT PLANT |  |
| 8" PIPELINE  |  | ELEVATED TANK         |  |
| 12" PIPELINE |  |                       |  |

Not to Scale

**Bartlett & West**

[www.bartlettwest.com](http://www.bartlettwest.com)

Attachment B

SF-424 Application for Federal Assistance

## LETTER OF TRANSMITTAL

To: Bureau of Reclamation  
 Financial Assistance Support Section  
 Attn. Mr. Matthew Reichert  
 PO Box 25007, MS 84-27814  
 Denver, CO 80225

Date: July 23, 2018  
 Project No.: 003056.024  
 Re: Tri-County Water District

- We are sending you the following:
- |                                       |   |                                 |  |  |
|---------------------------------------|---|---------------------------------|--|--|
| <input type="checkbox"/> Submittal    | <input type="checkbox"/> Prints         | <input type="checkbox"/> Plans  | <input type="checkbox"/> Samples             | <input type="checkbox"/> Specifications            |
| <input type="checkbox"/> Change Order | <input type="checkbox"/> Copy of Letter | <input type="checkbox"/> Report | <input checked="" type="checkbox"/> Attached | <input type="checkbox"/> Under separate cover via: |
|                                       |   |                                 | <input checked="" type="checkbox"/> Other    |  |

| Copies | Date    | No. | Description                                |
|--------|---------|-----|--|
| 1      | 7/23/18 |     | 2018 Water Smart Grant Application Package |
|        |         |     |  |
|        |         |     |  |
|        |         |     |  |
|        |         |     |  |
|        |         |     |  |
|        |         |     |  |
|        |         |     |  |

These are transmitted as noted below:

- |  |  |   |
|--|--|---|
| <input checked="" type="checkbox"/> For approval | <input type="checkbox"/> Resubmittal is not required | <input type="checkbox"/> Resubmit copies for approval   |
| <input type="checkbox"/> For your use            | <input type="checkbox"/> Make corrections as noted   | <input type="checkbox"/> Submit copies for distribution |
| <input type="checkbox"/> As requested            | <input type="checkbox"/> Revise and resubmit         | <input type="checkbox"/> Return corrected copies        |
| <input type="checkbox"/> For your information    | <input type="checkbox"/> Rejected                    | <input type="checkbox"/> For signature & return         |

Remarks:

cc:  
 File: Tri-County 2018 Funding

From:   
 Philip Markwed, P.E.