

Smart Meter Installation Project for City of Tishomingo, Oklahoma

Area affected by project:

- City of Tishomingo, Oklahoma
- Pennington Creek
- Cumberland Pool
- Tishomingo National Wildlife Refuge

Smart Meter Installation Project for City of Tishomingo, Oklahoma

Water SMART Grant: Small-Scale Water
Efficiency Projects for Fiscal Year 2018
BOR-DO-18-F009

Prepared for: Bureau of Reclamation
Financial Assistance Support Section
Attn: Mr. Matthew Reichert
P.O. Box 25007, MS 84-27814
Denver, CO 80225

Applicant: City of Tishomingo
1130 East Main Street
Tishomingo, OK 73460

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July 31, 2018

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TECHNICAL PROPOSAL

Executive Summary

Date: July 31, 2018
Applicant Name: City of Tishomingo
City, County and State: City of Tishomingo, Johnston County, Oklahoma

Project Summary

The City of Tishomingo is pleased to submit this application for grant funding to install Automatic Meter Reading (AMR) smart meters within the City of Tishomingo distribution system. The requested funding will allow the City to purchase 27 smart meters and necessary hardware and software to read and transmit meter data. Installation of these meters will serve large institutional water users, assist in reducing significant water loss currently experienced within the distribution system, enhance management of current water supplies, and make the most efficient use of limited water supplies from Pennington Creek, the community’s sole source of water.

The proposed project is one element of a larger effort by the City of Tishomingo to improve aging water infrastructure, increase capacity and maximize water reliability. The overall effort, including this proposed project, is supported by existing local and regional water resource planning efforts, including technical assistance from the Chickasaw Nation.

The meter installation project will be completed within 18 months. The proposed project is not located on a Federal facility.

Background Data

Tishomingo is the largest city in Johnston County in southeastern Oklahoma as well as the county seat (Figure 1). The Oklahoma Department of Commerce projects that the City of Tishomingo will have a population of 5,350 people in 2060, up from 3,034 in 2010. The City, located within the Chickasaw Nation, utilizes an old and deteriorating water treatment plant—a situation the City is currently and aggressively addressing in partnership with the Chickasaw Nation.

The City has historically relied solely on the small river that runs through town—Pennington Creek—but this source almost dried up during the drought of 2011. A further concern is rapid growth due to proposed developments by the Chickasaw Nation, including a burgeoning music and entertainment scene. The City succeeded earlier this year in expanding its surface water right to 7,000 acre-feet per year (AFY). However, this legal right to capture more water does not improve the physical quantity of water available in Pennington Creek. City officials are very conscious of the fact that the next drought could result in water shortages and associated economic woes.

The water infrastructure in Tishomingo, including water treatment plant and distribution system, is aging. The City has initiated a project to upgrade and expand the water treatment plant. A recent system audit concluded that the water distribution system experiences up to 50% water loss, an alarmingly high percentage that the City is committed to addressing. Also, in January of this year, the City declared a state of emergency due to the loss of telemetry communication at the water plant. The telemetry system is a vital component to an effective operating water system. As a result, the City funded \$46,390 toward installation of a SCADA system to effectively reduce water losses. This essential SCADA system is part of the match for this grant opportunity.

The City has pursued a program to install Automatic Meter Reading (AMR) meters in order to address the significant water loss, promote water conservation and inform future water planning. Tishomingo's distribution system consists of over 35 miles of distribution lines, three storage tanks totaling 350,000 gallons in capacity, and a pump station with two pumps rated at 710 gallons per minute (gpm) and 510 gpm, respectively. Currently, the system has 1,200 HydroPro 3G Master Meters installed; an additional 20 larger water users are currently using failing traditional meters and seven are currently unmetered. These current meters are not AMR (i.e., "smart") meters and do not have the same capabilities.

The City of Tishomingo provides water for a major Chickasaw Nation health clinic. The distribution system also has a connection with Murray State College and Johnston County Hospital for emergency supply.

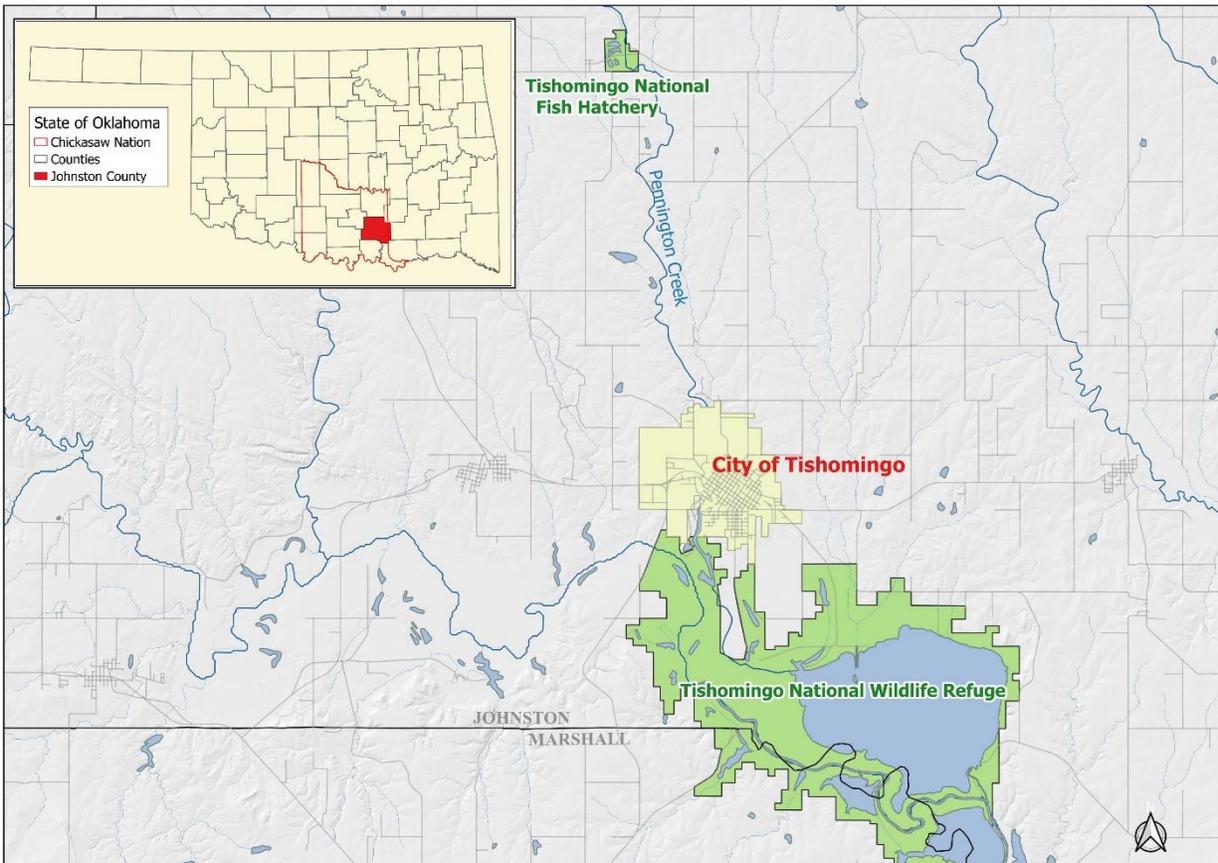


FIGURE 1. CITY OF TISHOMINGO

Project Location

The proposed project is located in the City of Tishomingo in Johnston County, Oklahoma which is approximately 120 miles southeast of Oklahoma City. A shapefile of the City of Tishomingo water service area has been submitted with this proposal.

Technical Project Description

The City of Tishomingo has identified 27 water system locations that are currently either unmetered or utilize only traditional meters. Installing AMR meters at these locations would provide valuable data that would facilitate the mitigation of water losses within the municipal water supply system. Grant funds would be utilized to install an 6-inch AMR meter at the Tishomingo National Wildlife Refuge; two 4-inch AMR meters at apartment complexes; three 5/8-inch meters at Pennington Park, Tishomingo Cemetery and a small downtown building, including a museum; and 21 2-inch meters at locations throughout the City, including the Tishomingo Fire Department, Johnston County Sheriff's Department, County Court House, Tishomingo Sports Complex, Murray State College Offices, and several Chickasaw Nation facilities. Figure 2 identifies the location of these larger institutional and multi-housing unit water meters that require replacement.

Installation of the SCADA system and AMR metering system at 27 locations throughout the distribution system will provide critical operational control of the water supply infrastructure and a more accurate estimate of water demands that would provide significant savings associated with future operation of Tishomingo’s new planned water treatment plant. Additionally, water conserved through leak reduction will result in more water in Pennington Creek and the downstream Tishomingo National Wildlife Refuge, which is operated by the U.S. Department of Interior’s Fish and Wildlife Service.

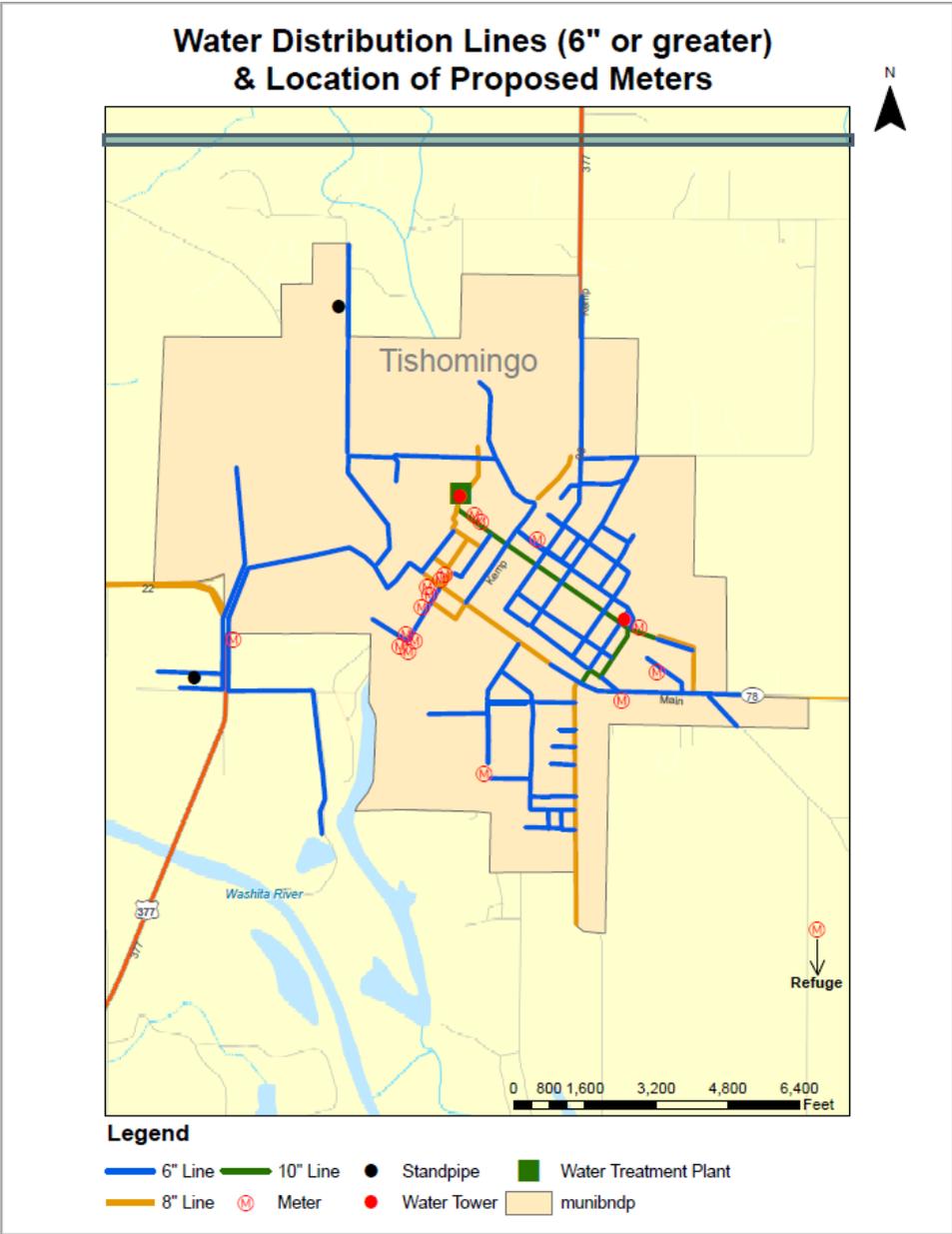


FIGURE 2. TISHOMINGO DISTRIBUTION SYSTEM

Evaluation Criteria

Evaluation Criterion A – Project Benefits (35 points)

Describe the expected benefits and outcomes of implementing the proposed project.

The City of Tishomingo’s water distribution system experiences significant water loss, resulting in loss of revenue, unnecessary withdrawal of water from Pennington Creek, and unnecessary demands on the water treatment plant. Additionally, there are currently several large water users that are unmetered due to malfunctioning traditional meters. Installation of AMR smart meters and a SCADA system will help mitigate customer water loss as well as quantify previously unmetered water use in the system. The proposed project will facilitate the reliable accounting of water use of a critical water supply and increase revenue for the City.

Evaluation Criterion B – Planning Efforts Supporting the Project (35 points)

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

The 2012 Oklahoma Comprehensive Water Plan Lower Washita Watershed Planning Region report recognizes the unreliability of the City of Tishomingo’s water supply and recommends distribution system improvements to meet their current and future supply needs. A recently completed BOR Drought Contingency Plan for the Arbuckle-Simpson aquifer also recommended drought conservation measures to assist the City of Tishomingo.

The Choctaw and Chickasaw Nations have instigated a comprehensive regional water planning initiative for their jurisdictional homelands in Southeast Oklahoma. In this role, the Chickasaw Nation has a vested interest in ensuring that communities across the region, including Tishomingo, are able to meet their water needs. A letter of support from the Chickasaw Nation for the proposed project is attached.

The City of Tishomingo has been proactive at addressing their water system needs by conducting a water audit, pursuing water treatment plant expansion, and funding installation of SCADA system improvements to ensure reliability for their water system customers. This proposed project is intended to support that effort.

Evaluation Criterion C – Project Implementation (10 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.

The following table outlines the major tasks, milestones and schedule for the proposed project. The project is estimated to require 18 months for completion and includes installation of 27 AMR meters following notice of award and acquisition of materials.

Project Tasks and Milestones	Year 1				Year 2			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Receive notice of award	★							
1. Acquisition of materials / Contractor Selection Process								
2. Contractor installation of 27 meters								
Submit Interim Performance Report				★				
Submit Final Performance Report						★		

Project Reporting

The required financial reports will be submitted at least on an annual basis. Interim performance reports will also be submitted on an annual basis specifying project status, including a summary of project milestones as well as any cost revisions and potential issues impacting scheduled project completion.

A Final Performance Report will be submitted after the project is completed and will include whether the project objectives and goals were met, a discussion of the benefits achieved by the project and any relevant documentation, including photos.

Installation of equipment for the proposed project is ready to proceed upon funding notification and acquisition of the required equipment. Detailed engineering and design work is not required to implement the project. Environmental compliance costs are not anticipated for the proposed project. The proposed project will not require permits.

Evaluation Criterion D – Nexus to Reclamation (10 points)

Is the proposed project connected to a Reclamation project or activity? If so, how?

Pennington Creek, which is the City of Tishomingo’s main water supply, is a shared resource in the Washita River Basin. The Tishomingo National Fish Hatchery, operated by the U.S. Fish and Wildlife Service (another agency within the Department of the Interior) relies upon adequate flows from the creek for its operation. The Tishomingo National Wildlife Refuge, also in the basin, provides critical habitat for crappie, sand bass and channel, flathead and blue catfish in

the Cumberland Pool, which is fed by both Pennington Creek and the Washita River. The proposed project will help ensure the efficient use of water supplied by Pennington Creek.

Will the project benefit any tribe(s)?

The Chickasaw Nation has a number of facilities in the City of Tishomingo, including the former Chickasaw Nation Capitol building, constructed around 1900. Improving city infrastructure to provide adequate and reliable water supplies benefits both tribal government and the local community and surrounding region.

Evaluation Criterion E – Department of the Interior Priorities (10 points)

Up to 10 points may be awarded based on the extent that the proposal demonstrates that the project supports the Department of the Interior priorities. Please address those priorities that are applicable to your project.

The City of Tishomingo will use the AMR smart meters and SCADA system to more efficiently manage their water supplies, including the identification and repair of significant (50 percent) water leakage and losses currently occurring in the City’s municipal water distribution system. Such water stewardship and conservation measures are also a priority of the Department of the Interior. This project will also result in enhanced water reliability, including under drought conditions, for local water users, which is also an initiative of the WaterSMART Program through which Reclamation works with tribal and other entities to increase water supply through infrastructure modernization and related activities. From an environmental/ecosystem perspective, the City's anticipated water efficiency will result in augmented flows in Pennington Creek and the downstream U.S. Fish and Wildlife Service Tishomingo National Wildlife Refuge.

The Department of the Interior priority of supporting and enhancing the water and related economic security of Tribal Nations is also aligned with this project. Water security is improved through more efficient use of water and economic security is improved through decreased water losses and waste in the Tribal territory.

PROJECT BUDGET

Funding Plan

The following paragraphs respond to the Funding Plan questions outlined in the FOA.

How will you make your contributions 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).

This proposal requests \$74,850 in federal grant funding requiring a cost-share match from the City of Tishomingo in the amount of \$75,010. The City of Tishomingo cost-share will consist of \$46,390 matching funds for recently purchased SCADA equipment (see attached invoice) and \$28,620 of in-kind services (labor) applied towards smart meter installation management and overview. The City of Tishomingo passed a resolution (attached to this proposal) supporting the funding for this project on July 2, 2018.

Describe any in-kind costs incurred before the anticipated Project start date that you seek to include as costs.

The SCADA equipment has been acquired.

Describe any funding requested or received from other Federal partners.

There are no funding requests that would affect the proposed project.

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

There are no pending funding requests that would affect the proposed project.

TABLE 1. SUMMARY OF NON-FEDERAL AND FEDERAL FUNDING SOURCES

Funding Sources	Amount
Non-Federal Entities	
City of Tishomingo In-Kind	\$28,620
City of Tishomingo Cash Match	\$46,390
Non-Federal Sub-Total	\$75,010
Other Federal Entities	
None	\$0
Other Federal Subtotal	\$0
REQUESTED RECLAMATION FUNDING	\$74,850
Total Project Cost	\$149,860

Budget Proposal

Table 2 provides a summary of the proposed project budget. The budget narrative explains the budget proposal in more detail.

TABLE 2. BUDGET PROPOSAL

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	\$/Unit	Quantity		
Salaries, Wages and Fringe				
Public Works Director	\$30	774	hours	\$23,220
City Manager	\$45	120	hours	\$5,400
Travel				
Mileage		0	miles	\$0
Lodging		0	days	\$0
Per diem		0	days	\$0
Equipment				
				\$0
Supplies and Materials				
AMR Smart Meters and installation parts				\$47,350
Contracts/Construction				
SCADA System				\$46,390
AMR Smart Meter installation				\$27,500
Other				
				\$0
Environmental and Regulatory Compliance Costs				
				\$0
TOTAL DIRECT COSTS				
Indirect Costs				
				\$0
TOTAL ESTIMATED PROJECT COSTS				\$149,860
Total In-Kind				\$28,620
Total Cash Match				\$46,390
Total Federal Request				\$74,850

Budget Narrative

The proposed total project cost is \$149,860. This application requests Reclamation funding of \$74,850 to support just under 50% of the proposed project cost. The applicant will support the remaining 50% of the project costs with \$28,620 of in-kind services and a \$46,390 cash match. The following items provide more detail on the proposed budget.

Salaries and Wages and Fringe Benefits: Hourly rates listed for City of Tishomingo staff are inclusive of fringe benefits and included as in-kind project services amounting to \$28,620. The rates listed in the budget proposal table represent the actual labor rates of the identified personnel.

Travel: Reimbursable travel is not required by the applicant staff for this project.

Equipment: All equipment used for the oversight and management of the installation of the new meters, including service trucks and construction equipment, are owned by the City of Tishomingo. No new equipment having a value of over \$5,000 is anticipated for the project.

Materials and Supplies: Materials for this project include 27 AMR smart meters and installation parts at a total cost of \$47,350 (see Table 3 for a breakdown).

TABLE 3. MATERIALS AND SUPPLIES BREAKDOWN

Meter Size	Number of Meters	Unit Cost*	Total Cost
6"	1	\$4,200	\$4,200
4"	2	\$3,200	\$6,400
2"	21	\$1,700	\$35,700
5/8"	3	\$350	\$1,050
Total	27		\$47,350

*Note: Unit Cost includes meter and installation parts

Contractual: Funds for the installation of a new 5 GHZ SCADA Telemetry System and accompanying pole system is included as a \$46,390 cash match for the project. This contractual cost was determined to be fair and reasonable by the City of Tishomingo as issued in their contractual agreement with Whit Industries for installation of a SCADA Telemetry System. An invoice for this system is attached.

Federally-requested Reclamation funding for the contracted installation of 27 AMR smart meters is \$27,500 (see Table 4 for a breakdown). These contractual budget costs were determined to be fair and reasonable by the City of Tishomingo.

TABLE 4. CONTRACTUAL BREAKDOWN

Meter Size	Number of Meters	Unit Labor Hours	Price per Hour	Unit Installation Labor Cost	Total Contractual Cost
6"	1	4	\$500	\$2,000	\$2,000
4"	2	3	\$500	\$1,500	\$3,000
2"	21	2	\$500	\$1,000	\$21,000
5/8"	3	1	\$500	\$500	\$1,500
Total	27				\$27,500

Other: N/A

Indirect Costs: N/A

Environmental and Regulatory Compliance Costs: No such costs are anticipated for this project.

Total Costs: The total cost of this project is \$149,860. The City of Tishomingo will provide \$75,010 of in-kind contributions. The amount of Federal grant funds requested is \$74,850.

- The City of Tishomingo is registered in the System for Award Management (SAM)
- Unique Entity Identifier: DUNS Number 962064114
- The City will maintain an active SAM registration with current information at all times in which it maintains an active Federal award or application under consideration by a Federal awarding agency.

Environmental and Cultural Resources Compliance

The following paragraphs respond to the Environmental and Cultural Resources Compliance questions outlined in the FOA.

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

The proposed project will not significantly impact the surrounding environment. Installation of the project materials and supplies will occur within the already developed areas of the distribution system within the City's water service area.

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?

The activities associated with the proposed project are not anticipated to affect any threatened or endangered species, or related critical habitat.

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.

There are no impacts anticipated to wetlands or surface waters as a result of the proposed project.

When was the water delivery system constructed?

Pennington Creek has been the water supply for the City of Tishomingo since the 1850s. The City of Tishomingo’s current water treatment and water distribution system was built in the 1970s.

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, the proposed project does not involve an irrigation system.

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.

Yes, however none of the buildings either registered or eligible are included within the scope of this project.

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

No, there not any known archeological sites in the proposed project area.

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

No, the proposed project will not have any adverse effect on low income or minority populations.

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

No, the proposed project will not limit access to or ceremonial use of Indian sacred sites. It will not result in any negative impacts to tribal lands.

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

No, the proposed project will not contribute to the introduction or spread of noxious weeds or invasive species.

Required Permits or Approvals

No permits are anticipated during the completion of this project.

ATTACHMENTS

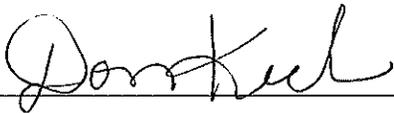
- Official Resolution
- Letter of Support
- City of Tishomingo water service area shapefile
- SCADA invoice
- Mandatory Federal Forms

Resolution # 2018-04

Approving the City of Tishomingo working with the Chickasaw Nation to submit a grant to the Bureau of Reclamation for financial assistance in replacing nonfunctioning water meters.

Whereas, the City of Tishomingo seeks authorization to work with the Chickasaw Nation on a proposal to the Bureau of Reclamation in response to the FY 2018 WaterSMART Small-Scale Water Efficiency Projects grant funding opportunity to install smart meters within the City of Tishomingo distribution system. This project will reduce water losses and more efficiently and effectively manage water demand. Whereas the proposal will request \$75,000 in federal grant funding requiring a cost share match from the city of Tishomingo in the amount of \$75,000. The City of Tishomingo cost share will consist of \$46,390 matching funds (SCADA¹ equipment recently purchased) and \$28,610 of in-kind (labor) towards meter installation and water planning efforts.

Now therefore the City Council members of the City of Tishomingo, Oklahoma, do hereby authorize City staff to work with the Chickasaw Nation on a proposal to the Bureau of Reclamation seeking funds to purchase new smart meters.



July 02, 2018

Mayor Don Keel
City of Tishomingo

Date

¹ SCADA is an acronym for Supervisory Control and Data Acquisition – an industrial computer system that monitors and controls a process. In this case the Water Treatment Plant operations.



OFFICE OF THE GOVERNOR

The Chickasaw Nation

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BILL ANOATUBBY
GOVERNOR

May 9, 2018

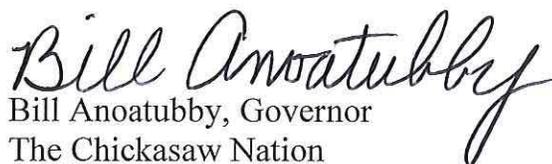
Mr. Matthew Reichert
Bureau of Reclamation
Financial Assistance Support Service
Post Office Box 25007, MS 84-27814
Denver, CO 80225

Dear Mr. Reichert:

We support the City of Tishomingo's water efficiency proposal to install "smart meters" within its water distribution lines. Targeting and correcting water loss, within the distribution system, will allow the city to more effectively manage its overall water demand. The Chickasaw Nation has a number of facilities within Tishomingo and supports Tishomingo's effort to upgrade and improve city infrastructure.

The Chickasaw Nation appreciates the opportunity to work with the City of Tishomingo and the U.S. Bureau of Reclamation on this project that will improve system reliability and efficiency through the installation of smart meters. If you have any questions, please contact Mr. Kristopher Patton at kristopher.patton@chickasaw.net or at (580) 399-8975.

Sincerely,


Bill Anoatubby, Governor
The Chickasaw Nation