

City of Denison Municipal Metering
for Improved Water Efficiency



Submitted by:

City of Denison

John Janes, Grants Coordinator

300 W Main Street

Denison, TX 75076

(903)465-2720 X2510

JJanes@denisontx.gov

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Executive Summary

The City of Denison is located in Texas' Texoma region within Grayson County. The project described is for upgrading manual read water meter registers to modern remote read registers. The city has been proactively upgrading these meters by purchasing new radio read registers annually since 2015 when the city purchased new handhelds and software to begin the transition to modern read systems. Currently the City has the following distribution of meter types 11% of meters reporting remotely, 69% handheld read, and 20% manually read. Upgrading meters with radio-based devices will result in several benefits including improved accuracy of water usage reading, reduced man-hours in both water billing and meter reading, improved performance of meters, improved efficiency, reduced liability, and improved sustainability. These benefits will help to significantly reduce unaccounted for water loss in the system and gain efficiencies in meter reading and billing. The project will be implemented by City staff. This project will take approximately 12 months to complete.

89% of water meters have not been updated in decades. In 2023, the City of Denison experienced an average water loss of 13% over the past 5 years and recent years showing 16% waterless, exceeding typical recommended water loss levels of 10%. With rapid city growth we estimate this number to continue to grow unless action is taken. The City of Denison believes that much of the annual water loss is related to the outdated meters. Following their replacement, we expect to see an increase in billed water and a decrease in reported lost and unaccounted for water. The goal of the project is to increase the efficiency of the water meter reading process, increase accuracy in metered water use, and reduce lost and unaccounted for water. These things will increase water supply reliability and use our water resource more efficiently. We estimate a full year from award to close out for the project to be completed, with meter replacement taking place over 7-8 months. Meter replacement does not take place at a federal facility.

1.2 Background Data

The City of Denison owns and operates its own treatment and distribution system and is the sole provider of water to its residents. The city owns all of the water rights to city-owned Lake Randell, and a substantial amount of water-rights storage in Lake Texoma. The far-reaching vision of leadership has provided Denison with a sound and reliable potential for development for decades to come.

The Dean Rylant Water Treatment Plant is located near Lake Randell and is rated to treat up to 12.8 million gallons of water per day. On a yearly basis, the plant treats 4.6 million gallons per day. The Randell Plant is a conventional sedimentation-filtration treatment system.

In 2023, Denison had 14,630 Metered connections as shown in the below table. Please note the 11,985 Residential meters will be the focus of this application.

Retail Customer Category	Number of Connections	Gallons Metered
Residential - Single Family	11,985	683,447,907
Residential - Multi-family	1,369	51,641,969
Industrial	6	200,253,741
Commercial	1,261	289,719,739
Institutional	9	98,609,165
Agricultural	0	0
Total Retail Water Metered¹	14,630	1,323,672,521

¹Residential + Industrial + Commercial + Institutional + Agricultural = Total Retail Water Metered

Additionally, the City of Denison had a 16% waterless as captured by the 2023 water conservation plan.

Total Water Loss in Gallons Apparent + Real = Total Water Loss	Retail Population	Water Loss GPCD²	Water Loss Percent
273,301,192	24,479	31	16.09%

²(Total Water Loss / Residential Population) / 365 = Water Loss GPCD
 (Total Water Loss / Total System Input) * 100 = Water Loss Percentage

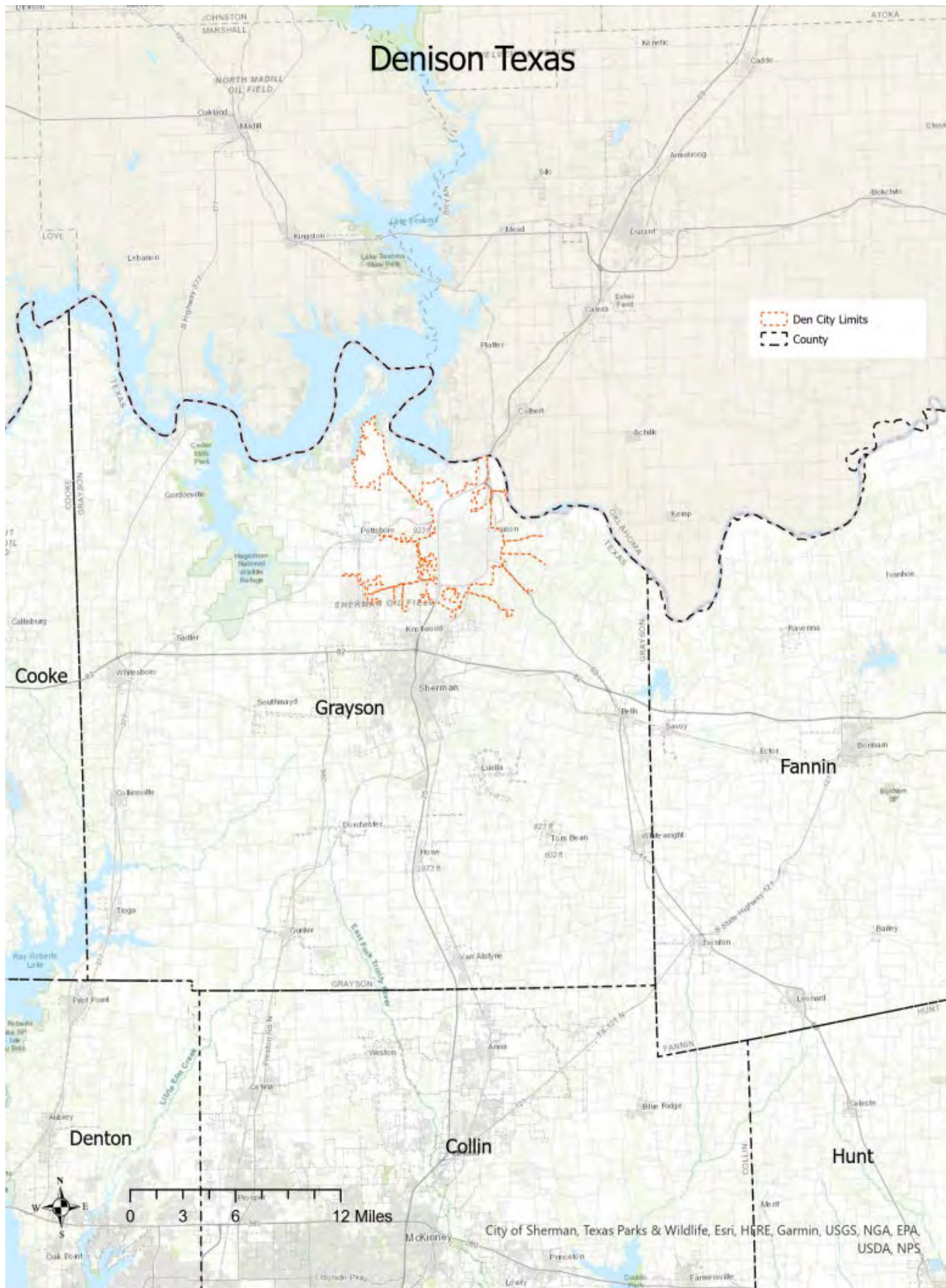
The City of Denison has not received any other State or Federal Funding for this project. In addition, The City of Denison has not received any funding from the Bureau of Reclamation in the past.

City of Denison, Grayson County, Texas.

Category A Applicant

Project Location

The project location is in the City of Denison, located in the Lake Texoma Area of Grayson County. It is situated along U.S. Highway 75, just 75 miles north of Dallas and 4 miles south of the Texas / Oklahoma border. The project latitude is 33.7557'N and longitude is 96.5367'W.



Technical Project Description

The City of Denison is prioritizing the replacement of residential sized meters to more accurately measure water delivery to each property with water service. With over 80% of meters not updated in the past 10 years, unaccounted for water is commonplace.

The City of Denison owns and operates its own treatment and distribution system and is the sole provider of water to its residents. The city owns all of the water rights to city-owned Lake Randell, and a substantial amount of water-rights storage in Lake Texoma. The far-reaching vision of leadership has provided Denison with a sound and reliable potential for development for decades to come.

The Dean Rylant Water Treatment Plant is located near Lake Randell and is rated to treat up to 12.8 million gallons of water per day. On a yearly basis, the plant treats 4.6 million gallons per day. The Randell Plant is a conventional sedimentation-filtration treatment system. An extensive system of water mains delivers potable water to customers within the city, outside users and wholesale contract companies.

In 2014, Denison City Council moved to begin transitioning from a manual read water meter system to radio read systems. This began what is now a decade long water system improvement plan, including major infrastructure investments such as Water Tower Improvements and Main Line Repair. Unfortunately, due to the large number of improvements that have been needed to sustain our current population growth, the replacement of outdated water meters has taken the “backseat.” When budgeting for water meters, oftentimes only enough is budgeted to maintain our current system, not upgrade to modern standards. As a result, outdated manual read meters are constantly serviced, but never upgraded. Year to year this is a smaller expense, but over time we are paying much more in repair than it would cost to replace the system.

The city owns and operates a public water system, providing clean water throughout the municipality. To date, 11% of city-wide meters have been upgraded to remote read registers, primarily in newer developments in the city. The City of Denison is anticipated to double its population within the next 10 years, putting more strain on the city budget for other needed infrastructure projects. This unprecedented growth results in city wide, large capital investments that put additional burdens on the city’s budget, limiting our ability to replace outdated municipal meters without outside funding. Funding will permit the city to prioritize bringing modern municipal metering to people living in homes with older registers.

The Scope of this project is to replace 970 water meters in older, and generally low-income areas of the city with new, accurate meters with advanced radio read technology. Thereby reducing man hours, increasing efficiencies, and providing accurate water loss data which is needed to achieve our water loss reduction goals. This will be done by removing the old meters and replacing it with a new meter. The total cost of this project is estimated at \$250,000 based on current prices from our sole source vender and estimated wages of meter technicians.

Evaluation Criteria

Evaluation Criteria A – Project Benefits (35 points)

Benefits to Applicant's Water Delivery System

Replacing the existing meters with radio-based devices will result in several benefits that will increase Denison's ability to provide accurate readings for true accountability of customer water usage. With water meters in place decades old, this activity will likely reduce reported water lost through more accurate recording and billing of water usage. With this information, Denison will be able to develop a water loss prevention strategy and leverage this information to prioritize municipal metering in the next few years. As an additional bonus, Advanced meters utilize alarms that will alert customers of possible leaks, saving both water and money for all parties. This project will help both the city and its people in conserving water, saving money, and reducing effort in all things regarding household water.

The Service area of Denison's water supply extend to its city limits. Published hydrogeologic reports are not available due to the rural area of Denison and Grayson County. However, Texas aquifers overall are decreasing each year, namely the Trinity Aquifer that runs North from Grayson County to South McLennan County. Prolonged drought, climate change, and population growth increasing water demand result in a rapidly depleting resource across the state of Texas. Reduced water loss will increase sustainability of this aquifer and have a positive impact on water management in the area. By better managing city owned water assets, and decreasing reliance on shared state aquifers and lakes, Denison can ensure water sustainability in the future.

This project will be of great benefit to current and future water customers in the City of Denison and neighboring communities that utilize the Trinity aquifer and Lake Texoma. The project will upgrade meters in historically low income areas, providing increased water reliability and information to the user on their water usage and future bill. This has several benefits to the user and positively benefits Denison Water Customers.

In short, listed below are some major benefits of the project.

- Improved accuracy of water usage reading: Manual read meters are outdated and leave room for both human error and mechanical failure. As stated above, it is cheaper to replace batteries in Manual read meters than it is to replace the entire system. Oftentimes
- Reduced man-hours: Without needing to drive by to read these meters, thousands of man hours, wear and tear on vehicles, and hundreds of gallons of gasoline are saved annually.
- Improved performance of meters

Broader Benefits

The broader benefit of replacing outdated devices with smart meters is to improve sustainability. The City's water supply will have the advantage of quickly identifying anomalies within the system, alerting the city and customers to repair leaks, breaks, prevent billing errors, and modernize end of

life registers that are 8 to 10 years old. As a result of these improvements, water waste will decrease, and the city will be able to complete an important phase of the project. The neighboring communities in both the State of Texas and Oklahoma that use the Trinity Aquifer and Lake Texoma for water use will benefit from the City of Denison's more accurate water accounting and reduced water loss. Upon award the city of Denison will release a press release informing customers and neighboring communities of the award and its benefits to our area. We will work with our neighbors to share funding opportunities and those who wish to equip themselves with the information needed to apply for a federal grant opportunity.

Evaluation Criterion B – Planning Efforts Supporting the Project (30 Points)

Plan Development

The City of Denison's 5 year Water Conservation Plan is publicly available and was approved by City Council in 2023. It was developed as a joint effort between City subject matter experts and 3rd party statisticians for verification of data.

In this Plan, Denison sets goals to reduce consumption to 179 gpcd within five years and to 174 gpcd by 2032, which is in line with the (Texas State) 2021 Region C Water Plan, Section 5B.6.1 "Per Capita Water Use with Implementation of the Recommended Plan" and shows continuing commitment to achieving the long-term goal of 154 gpcd by 2060. Denison will continue to monitor progress toward these goals and may employ a variety of selected strategies, as needed, to help achieve these goals. Denison's 2023 Water Conservation Plan will achieve significant conservation savings to help extend the life of existing supplies without burdening the customer with unnecessary additional costs.

To ensure the long-term goal of 154 gpcd by 2026 the City of Denison has approved 125,000 in matching funds to improve its municipal metering. The City is committed to leveraging funds to improve both city infrastructure and better inform customers of their water usage. City leadership has identified Residential meters, specific outdated meters, as a priority item. Its priority status is a result of its obvious water saving potential as well as its benefits to the community.

Support for the Project

Describe to what extent the proposed project is supported by the identified plan. Address the following:

- Is the project identified specifically in the planning effort? Yes. The City of Denison has made meter modernization a priority since 2015, as described in above narrative. Each year an allocation is created to replace meters with smart meters, which has

significantly increased water efficiency throughout our water system. These budget items received support from our city council and the public, numerous calls asking for upgraded water meters to our water utilities department.

- Explain whether the proposed project implements a goal or addresses a need or problem identified in the existing planning effort? This program has two important goals. First is increased water efficiency by reducing water loss and allowing residents to be informed about their water usage. This includes identifying anomalies within their water usage, catching water leaks sooner before damage and extreme water waste occurs. The second is improved efficiency for city staff and providing an equitable billing system. There is unaccounted for water losses, and installing smart meters will allow the water system supplier to view these leaks as they begin, not sometime after the monthly billing cycle.
- Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures. The city has been replacing water meters and has been limited by city budgeting. The city has annual allocations for water meter replacement. This year the city has \$125,000 budgeted for meter register upgrades, which the city will utilize to match this grant.

Evaluation Criterion C – Implementation and results (20 points)

This project is a recognized priority by both council and citizens. The city has approved system repairs, maintenance, and equipment improvement in FY 2025. Funding is planned with a portion of the budget designated for the meter replacement project. Without grant funding, this project will have an implementation timeline of decades and meters will be replaced when the budget allows. Receipt of the grant will accelerate the entire meter replacement project rapidly and over 900 meters will be modernized within a year.

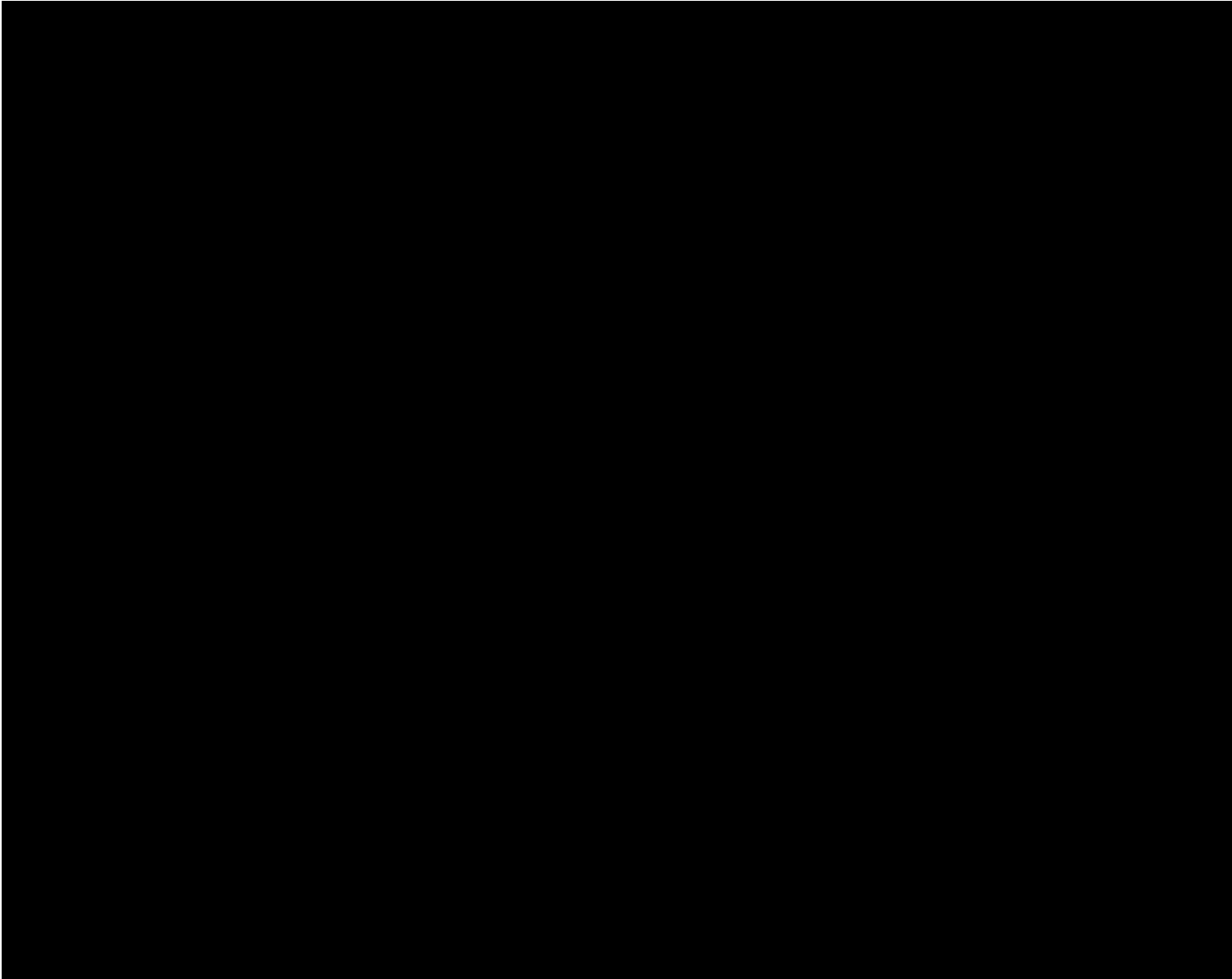
This project will be completed by city staff, the city has an accurate estimate on the approximate timeframe for meter upgrades following award as described below.

1. Complete grant negotiations and sign contract | 1 Month
2. Procure Remote Read Meters and await delivery | 1 Month
3. Meter Installation | 8 Months
4. Closeout of grant | 1 Month
 - No engineering assessments or permits are required for this project.
 - While the Reclamation will need to assess for environmental and cultural compliances, it is our belief that meter upgrades will not require extensive investigation for compliance.

- We estimate upgrading approximately 15 meters per week, totaling to an anticipated 886 meters total throughout the city over the duration of the grant.

Evaluation Criterion D – Nexus to Reclamation (5 points)

The City of Denison relies on up-to-date technology for maintaining high quality water services for our citizens. The work described in this proposal will directly support published Bureau of Reclamation goals of “managing and delivering water more efficiently and effectively to satisfy the needs of municipalities.” It also directly relates to the Oklahoma Texas Area Office Activities of the Bureau of Reclamation including the conservation efforts of Lake Texoma, and by extension the Upper Red River Basin.



Budget Proposal

Funding Plan

The total project budget for this meter upgrade project is \$250,000. The City of Denison requests \$125,000 from the Bureau of Reclamation. The City will provide \$125,000 matching through existing city funds.

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

City Match	\$125,000
Federal Grant Amount	\$125,000
Total	\$250,000

Table 2. – Total Project Cost Table

Budget Item	Cost	Quantity	Total
Water Register (Residential 1” and 2”)	\$245	970	\$237,554
Labor	25.40	490	\$12,446
Total			\$250,000

Budget Narrative

Salaries, Wages and Benefits

This project will be completed using full and part-time staff employed by the City of Denison. Meter Technicians are paid at \$18.50 per hour. Work includes but is not limited to removal of old meter registers and installation of new registers. The total cost column indicates the pay rate for each employee multiplied by the number of hours spent on the project. All employees of the City of Denison are entitled to fringe benefits. The City of Denison Employee Services has determined the rate of fringe benefits to be \$6.90 per hour per person. This rate is multiplied by the combined number of hours of work on the project to equal the cost of benefits. The total cost for salaries, wages, and benefits is \$25.40.

Equipment

All needed equipment is owned by the City of Denison. No additional equipment is needed for project completion.

Supplies and Materials

The equipment listed includes the register unit. Following the grant award, registers will be purchased and installed by the city at a cost estimated in table 1. The City of Denison already has the needed software and computer systems in place to support the new registers.

Contingency

A 20% contingency will be added to the supplies and materials based on the recent quote received. This is added due to the inflationary effects on products over time. Actual costs will be known following material purchases agreements.

Environmental and Cultural Resource Compliance

The new register installation will be fully contained within existing water meters in the city. No protected species or habitat will be disturbed as a result of the project. No wetlands exist within the project boundaries. No historical buildings will be disturbed.

Regarding historic properties. The limits of the project are replacement of meter registers and will not disrupt any historic properties. No cosmetic changes will be made to the water meters, only an internal improvement. The city recognizes that a Section 106 review may be required and will comply with any findings.

Required Permits

No Permits or approvals are required.

Letters of Support

Attached Below

Official Resolutions

The official resolution will be submitted under separate cover within 30 days of Award.

PAT FALLON
4TH DISTRICT, TEXAS

2416 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-6673

Congress of the United States
House of Representatives
Washington, DC 20515-4304
July 9, 2024

Committee on Armed Services

Tactical Air and Land Forces

Cyber, Innovative Technologies and
Information Systems

Committee on Oversight and Reform

Economic Growth, Energy Policy, and
Regulatory Affairs

National Security, the Border, and
Foreign Affairs

U.S. Bureau of Reclamation
Water Resources and Planning Office
P.O. Box 25007
Denver, CO 80225

Subject: Support for the City of Denison's Application for WaterSMART Small-Scale Water Efficiency Project Grant: Water Meter Modernization Project.

Dear Bureau of Reclamation WaterSMART Grant Review Board:

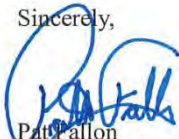
I write to express my support of the City of Denison's application for grant funding through the WaterSMART Small-Scale Water Efficiency Project Grant, for their Water Meter Modernization Project.

Denison is a rapidly growing municipality within Texas Congressional district 4, and the City of Denison has made consistent efforts to improve its water systems, leveraging federal, state, and local funds to make needed improvements for its existing and future population. The City of Denison is planning to replace outdated water meters with radio meters, for the following reasons.

First it will allow the accurate reading of water meters, informing users of leaks within their home before severe damage can occur and allow citizens to estimate their monthly utility bill on a day-to-day basis. Second, converting to radio meters will reduce time and personnel cost. These savings will allow the city to become more efficient with the limited resources it has available.

I thank you for considering this project for funding through the WaterSMART Small-Scale Water Efficiency Project Grant. I believe that the City of Denison will utilize the funds to benefit the citizens of Denison by increasing awareness of water efficiency and by reducing operational costs for water meter measurement.

Sincerely,



Pat Fallon
Member of Congress

Washington D.C. Office
2416 Rayburn HOB
Washington, DC 20515
(202) 225-6673

Rockwall Office
6531 Horizon Road, Suite A
Rockwall, TX 75082
(972) 771-0100

Sherman District Office
100 West Houston Street, 1st Floor
Sherman, TX 75090
(903) 820-5170

New Boston District Office
15 James Carlow Drive
New Boston, TX 75570
(903) 716-7500

Budget Proposal

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