

**Improving Water Efficiency
For the Town of Larkspur
by Updating Water Meters**

Submitted by:
Town of Larkspur
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Technical Proposal

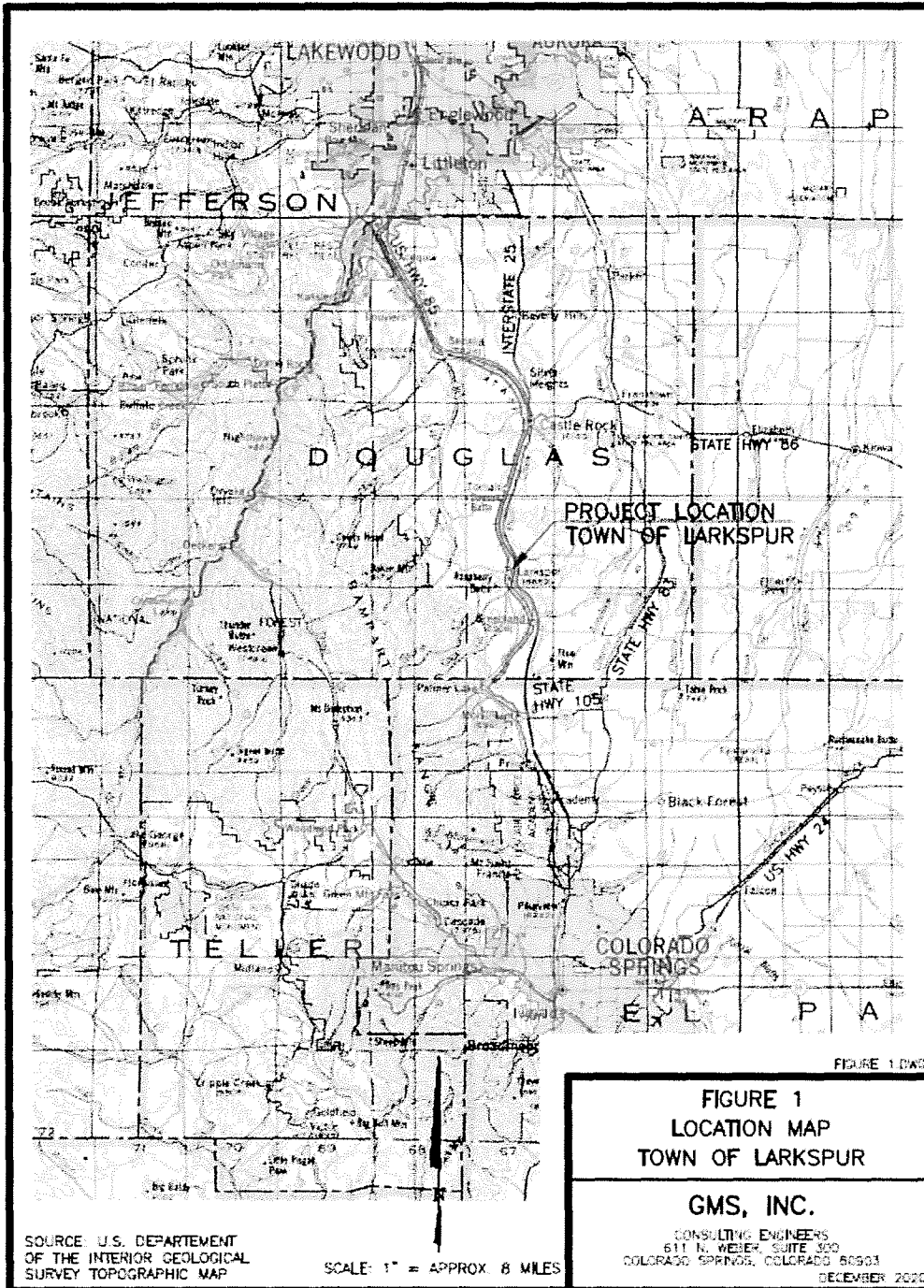
Executive Summary

April 27, 2022
Town of Larkspur
Douglas County, Colorado
Category A Applicant

The Town of Larkspur is located in central Colorado, in the southcentral portion of Douglas County. The Town is on Colorado Highway 18 (Spruce Mountain Road), on the north side of the Palmer Divide. It is on the west side of Interstate-25, approximately 20 miles north of Colorado Springs and 11 miles south of Castle Rock. This application to the Bureau of Reclamation will be a small project that is ultimately part of a much larger water system improvement project. This project will include new radio-read meters and software to accompany the smart meters. Replacing the existing meters with radio-based devices will result in several benefits including improved accuracy of water usage reading, reduced man-hours, 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. This project will take approximately 30 days and will be completed by May 31, 2023. This project is not located on a Federal facility.

Project Location

The Town of Larkspur (Town) is located in central Colorado, in the southcentral portion of Douglas County. The Town is located on Colorado Highway 18 (Spruce Mountain Road), on the north side of the Palmer Divide. It is on the west side of Interstate-25, approximately 20 miles north of Colorado Springs, and 11 miles south of Castle Rock. The Town owns and operates a public drinking water system providing potable water to 103 active customers. The coordinates for Larkspur are 38.2286° N, 104.8872° W.



Technical Project Description

The Town of Larkspur was established in 1864 out of the old Huntsville stage stop and became the center of commerce for southern Douglas County. It has been providing central water service to its constituents since around the time of its incorporation in 1979. The Town's three active groundwater wells are located within the Town limits, and draw from the Arapahoe and Denver formations within the Denver Basin. Several water system improvement projects have been conducted since 1979.

Larkspur is a small, rural community located along Colorado's Front Range. The Town has an active, but small retail business community that provides goods and services to its residents and surrounding areas. Most businesses and commercial activity within the Town are service oriented. The Town of Larkspur has not experienced the explosive growth occurring along the Front Range. This is primarily due to the lack of developable areas within the Town and surrounding areas. The majority of property within the Town is owned by the American Federation of Human Rights (a Co-Masonic fraternal order), which limits growth within its properties to a few homes per year. The western portion of the Town of Larkspur is owned by the Colorado Renaissance Festival, which provides seasonal employment opportunities to what is primarily a transient population. Unless significant properties within or surrounding the Town of Larkspur are made available for development, it is unlikely that any significant growth would occur within the Town's service area. The Town has maintained a population of approximately 210 residents for the past thirty years, largely due to limited land available for development.

In 2012, the Town implemented a major water system improvements project that included a new 450,000-gallon water storage tank on the low-pressure zone, a new Arapahoe groundwater well, a new iron and manganese removal water treatment plant (WTP), and raw water, treated water and distribution piping between the WTP and a new southern distribution system piping loop.

As a continuation of this improvement plan, a Preliminary Engineering Report (PER) was solicited by the Town in 2020 and the work contracted to GMS, Inc., Consulting Engineers. Among other improvements, the PER recommends the installation of water meters for all customers. Currently, the metering is touch-read, using a hand-held wand and data collector, with the meters being read monthly. The Town Clerk enters the meter readings manually for billing purposes. Meters are located within in-ground meter pits. Meters and service lines are typically 3/4-inch in size. The Town also has one 1½-inch meter and three 2-inch meters. Service lines are typically copper pipe extending from the meter to the water main in the street. All three of the Town's wells are equipped with master meters. The WTP meters water pumped through the filters to the distribution system, and filter backwash water from the distribution system to the sanitary sewer. The well meters and the WTP meters do not require replacement and are not included in this project scope.

Unaccounted-for-water represents water pumped into the Town's distribution system that is not measured by the Town's customer meters. Unaccounted-for-water is primarily attributed to unmetered uses such as fire hydrant usage, storage tank overflows, unmetered customers, and leaks and breaks in the distribution system. The American Water Works Association (AWWA)

recommends an unaccounted-for-water goal of 10% with proactive efforts taken to reach this goal. The Town’s current unaccounted-for-water loss is 40%. This is unusually high.

It is recommended that the Town reduce its unaccounted-for-water loss. One of the ways to effectively identify where this loss is occurring is through an improved water meter system.

The meter-related improvements required for this project include:

- 120 new radio-read meters
- Reading equipment
- Radio-read data collector including software and training

This self-contained project is part of the overall Town of Larkspur water system improvement plan. Replacing touch meters with smart meters is a relatively simple process. Once funding is in place and notice to proceed is received, new devices and accompanying materials will be ordered and work scheduled. This project will not proceed until after March 31, 2023.

Assisting the Town in this endeavor is GMS, Inc., Consulting Engineers. This firm will design, oversee and manage the overall project. This includes the administrative requirements for the funding being pursued for the project. GMS, Inc. has undertaken these types of projects since 1978, and has successfully performed these services on projects across the state. Given GMS, Inc.’s experience, expertise and professionalism, the Town is confident the project will be managed to the highest of standards.

Evaluation Criteria

Evaluation Criterion A—Project Benefits (35 points)

Benefits to Town’s Water Delivery System

Replacing the existing meters with radio-based devices will result in several benefits:

- *Improved accuracy of water usage reading* – unintended error while recording water usage at the point of reading the meter and manually entering the data for billing purposes will be eliminated. New meters will transmit water usage of each customer over a defined period, ensuring precisely recorded consumption while identifying anomalies in the system and helping to prevent customer fraud.
- *Reduced man-hours* - the data collection from each customer will automatically occur, rather than manual meter reading once a month at the customer’s location. Additionally, the system will not require the manual entering of the data for billing purposes.
- *Improved performance of meters* – eliminating the need to open each pit to access the meters reduces potential for meter freezing in the winter months. Smart meters will alert the Town when a meter stops counting or loses efficiency.
- *Improved efficiency* – meter data will be downloaded directly into the water billing software and billing will occur automatically, reducing time and improving accuracy. This also allows each customer to be billed on their consumption, making an equitable billing system.

Broader Benefits

The primary broader benefit of replacing the old meters with newer devices is to *improve sustainability*. With smart meters, the water supplier will have the advantage of quickly identifying anomalies in the system to repair leaks and breaks, prevent fraud and replace defective meters. This in turn, will reduce water waste, improving sustainability.

Evaluation Criterion B—Planning Efforts Supporting the Project (30 points)

Plan Development

The Town of Larkspur has been actively pursuing water system improvements over the last decade. This water meter project is part of the overall plan. Though the Town has some employees of its own, it will receive guidance from GMS, Inc., Consulting Engineers to develop the steps moving forward and ensure proper implementation.

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 PER addresses improvements to the customer meters, recommending radio-read metering for customers across the water system.
- *Explain whether the proposed project implement a goal or address a need or problem identified in the existing planning effort?* The goal of this project is to reduce water loss. There are currently unaccounted-for-water losses, as described in the PER and Technical Description of this document. Installing smart meters, will allow the water system supplier to quickly identify where leakages are occurring and ensure reliable, accurate meter readings.
- *Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures.* The Town has committed Water Enterprise funds for the match for this project. This is a strong indicator of the high priority level of this project.

Evaluation Criterion C—Implementation and Results (20 points)

This project will be performed internally with Town of Larkspur existing staff. The following describes the nature of the work performed for the implementation and completion of the project.

- No design and engineering will be required for this project.
- No permits are required for this project.
- Staff will remove existing meters, replacing them with new radio-read meters.
- Staff will dispose of old meters and accompanying materials and supplies.
- Software will be added to the appropriate computer system.
- Training on the meters and software will ensue.
- All Federal guidelines for construction projects will be followed.
- It is estimated that this project will be completed within 30 days of contract execution. The work will begin after March 31, 2023, and will be completed by August 1, 2023.

Evaluation Criterion D—Nexus to Reclamation (5 points)

This project does not demonstrate a nexus with a Reclamation project or activity.

Evaluation Criterion E—Presidential and Department of the Interior Priorities (10 points)

Sub-criterion – Climate Change

By replacing aged, underreading water meters with smart meters, this project will help prevent, identify and repair unaccounted-for-water losses due to leaks and breakage in the distribution system. Therefore, this project strengthens water supply sustainability to increase resilience to climate change.

Sub-criterion – Disadvantaged or Underserved Communities

The Town of Larkspur qualifies as a *Disadvantaged Community* through the Colorado Water Resource & Power Development Authority’s State Revolving Fund. This status is based on several factors including the Town’s Median Household Income (MHI) being equal to or less than 80% of State MHI; Median Household Value (MHV) being less than 100% of State MHV; and number of jobs lost in the County over the prior 10-year time period.

The Town of Larkspur meets the criteria for the MHI and MHV benchmark. The MHI is \$54,844, which is less than 80% of the State MHI (\$60,185). The Town has a MHV of \$146,300, which is below the 100% of State MHV (\$369,900).

The benefits of this project include *public safety* by ensuring there is adequate water supply to manage a fire in the vicinity; and *economic development* by ensuring a stable water supply and system for potential residential and commercial growth in the area.

Budget Proposal

Funding Plan and Letters of Funding Commitment

The total project budget for this meter project is \$67,498. This proposal request is for \$33,500 from the Bureau of Reclamation. The Town will provide the matching \$33,998 using Water Enterprise funds.

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

FUNDING SOURCES	AMOUNT
Non-Federal Entities	
Town of Larkspur	\$33,998
Non-Federal Subtotal	\$33,998
REQUESTED RECLAMATION FUND	\$33,500

Table 2. – Total Project Cost Table

SOURCE	AMOUNT
Costs to be reimbursed with requested Federal funding	\$33,500
Costs to be paid by the applicant	\$33,998
Value of third-party contributions	
TOTAL PROJECT COST	\$67,498

Table 3. – Budget

Budget Item Description	Computation		Quantity Type	Total Cost
	\$/Unit	Quantity		
Salaries and Wages				
James	\$ 30.55	160	Hour	\$ 4,888.00
Fringe Benefits				
Full-Time Employees	\$ 3.13	160	hour	\$ 500.00
Part-Time Employees	\$ -			\$ -
Equipment				
	\$ -			\$ -
	\$ -			\$ -
	\$ -			\$ -
Supplies and Materials				
Radio Smart Meters	\$ 400.00	120	Each	\$ 48,000.00
Reading Equipment	\$ 6,300.00	1	Each	\$ 6,300.00
Neptune 360 Software and Meter Reader	\$ 7,810.00	1	Each	\$ 7,810.00
			Total	\$ 67,498.00

Budget Narrative

Salaries & Wages

This project will be completed using one full-time staff person currently employed by the Town of Larkspur. Listed in this section is the employee, his rate of pay including withholdings, and the number of hours he will be working on this water meter improvement project. Work includes, but is not limited to, removal of existing water meters, installation of new meters, and disposal of old meters and materials. The total cost column indicates the pay rate for the employee multiplied by the number of hours projected to spend on the project. The total cost for salaries and wages is \$4,888.

Fringe Benefits

The employee is entitled to fringe benefits, which has been calculated by the Town to be \$3.13 per hour. This rate is multiplied by the number of hours of work on the project (160) to equal the total cost of \$500.

Equipment

No additional equipment will be needed for this project.

Supplies and Materials

The equipment listed includes the radio smart meters, reading equipment and Neptune 360 Software and Meter Reader. Items will be purchased by the Town.

Contingency

A 20% contingency has been added to the supplies and materials budget due to the inflationary effects on products and services as a result of COVID-19 and Russia's war on Ukraine. Actual costs will be known after the purchase of the materials, which will occur after the contract is executed.

Of note:

- No design and engineering are required for this project.
- No permits are required for this project.
- It is estimated that this project will be completed within 30 days of contract with the construction contractor. The work will begin after March 31, 2023 and will be completed by May 31, 2023.

Environmental and Cultural Resources Compliance

The project of new meter installation will be fully within existing disturbed areas, which would most likely classify the project as a Categorical Exclusion (CE) to NEPA, as there will be no new ground disturbance related to this project specifically. If awarded this grant for this project, the Town recognizes that Reclamation will complete its own environmental review process and determine the required compliance with NEPA.

It is also recognized that Reclamation will also consider if the project will cause effects to historic properties. In previous water projects of similar scope, SHPO determined there would be no adverse effect. As with the NEPA review, the Town recognizes that Reclamation may require a Section 106 review.

Required Permits or Approvals

No permits or approvals are required for this project.

Letters of Support

Please see attached.

Official Resolutions

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

Conflict of Interest Disclosure

Per the Financial Assistance Interior Regulation (FAIR), 2 CFR §1402.112, the Town does not have any known conflicts of interest. If during the award process a conflict arises, the Town will inform Reclamation.

Uniform Audit Reporting Statement

The Town recognizes that any organizations expending \$750,000 in U.S. Federal award funds within one year will require a Single Audit report. After the project is complete, the Town will determine if a Single Project Audit is required and will complete if necessary.

Certification Regarding Lobbying

This request for funding is less than \$100,000 in Federal funding. No Certification Regarding Lobbying is required.

Unique Entity Identifier

Town of Larkspur UEI: MNJ5MNKJCWJ5

April 27, 2022

U.S. Bureau of Reclamation
Water Resources and Planning Office
Mail Code: 86-6300
PO Box 25007
Denver, CO 80225

Dear Ms. Robin Graber:

This letter of support is for the application for the WaterSMART Small-Scale Water Efficiency Project Grant. The Town of Larkspur has made every effort to make improvements to its water system. We are an interested stakeholder in this project. As the County, we work in conjunction with all of the communities within our jurisdiction of which Larkspur is one of them. The Town is making every effort to improve its water system; however, due to the limited resources available, the Town needs assistance to make important upgrades. Of these important upgrades, the replacement of the water meters with radio read meters, have several efficiency benefits. First, the replacement of meters will ensure accuracy of the meters for the Town to better assess if there is water loss. Second, the Town currently reads water meters manually, which is time consuming and is subject to human error. Another benefit of converting to radio read meters with software, the cost to read meters and bill will go down significantly, which greatly impacts a small community like Larkspur. The upgrade of the Town's meters will make the water system more efficient.

We thank you for considering this project for funding through the WaterSMART Small-Scale Water Efficiency Project Grant. We believe that Larkspur will utilize the funds well and the project will benefit all residents of Larkspur by lowering operational costs and enabling the community to be waterwise.

Best Regards,



George Teal
Commissioner