REQUEST FOR PROPOSAL FOR PILOT PROJECT ULTRA SONIC METER SOFTWARE SYSTEM #2024-001 FOR THE PERIOD February 2024 to February 2025

I. GENERAL INFORMATION

A. Village of Taos Ski Valley is seeking an ultrasonic meter reading system vendor to design and supply a fully functional Mesh fixed network system for the reading of water meters. The Village of Taos Ski Valley will receive sealed proposals from qualified firms to provide equipment and optional Install of an Advanced Metering Infrastructure (AMI) System for the municipality. The intent is to find the best design and operating mesh fixed network AMI system which will utilize the latest technology to provide a state-of-art environment that will serve Village of Taos Ski Valley's present needs as well as provide a foundation for the future that allows easy expansion, upgrade, integration, and maintenance. The entire service area of the pilot meters covers approximately 1 square mile. Section IV outlines the requirements for the AMI system, requirements for installation, and several interrogatives, allowing the proposer to discuss the capabilities of their system and approach.

B. The successful candidate will supply all equipment necessary to install the preferred system, as well as act as system implementation specialists. The current plan is that the installation shall be performed as an option for the system bidder. Tasks shall include coordination of all aspects of the system integration with Village of Taos Ski Valley's billing system or provide other billing software, pre-testing and troubleshooting of the system during the field installation process, installation of designated meters, and training of both field and office personnel.

C. Valid proposals will include a project description, scope of work, submission requirements, selection process and criteria, insurance requirements, and Sample Professional Services Agreement. Prospective firms are encouraged to carefully read this Request for Proposal in its entirety.

D. If awarded this price agreement will be available to other entities of the Enchanted Circle Council of Governments Members. You may present options that are at a different scale than for the Village, at a price plus or minus the Village bid. For example, 50% more meters at 150% of bid price for the Village.

IA. Instructions of Proposal Submission

1. Proposals shall be submitted in an envelope marked RFP # 2024-001 and directed to the **Certified Purchasing Officer**
2. An original document and 3 copies should be submitted in the package.
3. **Closing Submission Date**. Proposals must be submitted no later than 3:00 PM (MST) on March 28, 2024 to the address listed below. **Note that there is no guaranteed overnight delivery to the Village of Taos Ski Valley.**

INQUIRIES AND PROPOSALS SHOULD BE DIRECTED TO:

Carroll Griesedieck, Certified Purchasing Officer
Village of Taos Ski Valley
PO Box 100, 7 Firehouse Road
Taos Ski Valley, NM 87525
vtsv@vtsv.org
575-776-8220

All clarifications requests should be submitted to Carroll Griesedieck by 4:00 p.m. (MST) by March 21, 2024.

****Note- There is no overnight guaranteed delivery to Taos Ski Valley****

II. PILOT SCOPE OF WORK

This scope of work calls for the provision of goods and services as necessary to develop, install infrastructure, and make operational an automatic ultrasonic water meter reading system in the Village of Taos Ski Valley. The following primary components of the scope of work are as follows:

A. Provide compatibility with QuikWater billing software, and or provide other billing software.

B. Design a fixed base "network" pilot to receive and relay radio signals from approximately 24 individual residential water meters. The Village will decide whether to install new ultra sonic meters. Then, the Village plans to install and hardware the entire system to cover all the MIUs (Meter Interface Units) within the water system's service area.

C. Provide all software, required system integration, testing devices and testing.

D. Provide start-up training and on-going support.

E. All work listed shall be performed in a thorough and professional manner in accordance with accepted industry methods and practices. All work shall be in strict compliance with all local and state codes, ordinances, laws, and policies.

III. RESPONSIBILITIES OF THE OFFERER

A. The bid applicant shall provide all ultrasonic meters, hardware and software that together comprise the proposed AMI system. This includes encoded meters, meter interface units, wire and wire connectors, data collection units, repeaters, handheld devices, related software, and interfaces. The service provider shall also determine the installation locations for the data collection units and all additional infrastructures required to make the system operational throughout 100% of the water system's service area.

B. Village of Taos Ski Valley's Project Manager will be ready to assist in providing the Service Provider with any available information.

C. The offeror must answer all questions and request for specificity. All responses must reflect current capabilities. All specifications incorporating "shall," "must," etc., are requirements, and failure to comply with these must be specifically noted as exceptions.

D. Proposer must provide copies of manufacturers' specifications or comparable technical documentation for all proposed equipment, devices, and hardware. These documents shall be provided as an attachment to the proposal and shall not be counted as part of the 25-page limitation on the length of the proposal.

The following details provide the work description to cover in the proposal.

IV. PROPOSAL CONTENTS

1. Work Description

A. Overall system Characteristics

Village of Taos Ski Valley recognizes that AMI system features, characteristics, and performance result from the interaction of components, and are to be addressed in this section.

B. Mode of Operation

Describe the system's normal mode of operation (i.e., for obtaining periodic readings, for billing, and other purposes). Describe in detail the sequence of steps by which the system components interact to deliver readings to Village of Taos Ski Valley's Billing office. Provide a schematic or flow diagram depicting the system's normal mode of operation. Describe the communications between system components, including 2-way full communication.1 way communication is not acceptable.

C. Ultrasonic Meter Interval

Village of Taos Ski Valley requires a system that provides 24 hourly reads and a daily read transmitted and time stamped at midnight every day.

D. Changing Ultrasonic Meter Reading Interval

Indicate if the ultrasonic meter reading, MIU transmission, and data collector transmission intervals can be changed, and the range of choices of interval. Village of Taos Ski Valley must have a system that can update the MIU's firmware without a physical visit to each meter location.

E. System Capacity

Village of Taos Ski Valley requires a system with Datalogging capacity built within each MIU and Data Collection Unit. Each MIU must be capable of storing a minimum of 365 days of hourly usage information. Describe the procedure for retrieving meter data from the Data Collection Unit in case of Power or Backhaul outage. Village of Taos Ski Valley requires a system that will not require a visit to each meter for either a visual or drive-by reading should either of the above events occur.

F. Consumption Profiling

Village of Taos Ski Valley requires multiple readings, in the form of a 24-hour data log showing hourly information, be transmitted with the daily transmission received from each MIU to monitor and profile water consumption patterns from a particular ultrasonic meter or group of ultrasonic meters.

G. Radio Communication Band

Village of Taos Ski Valley requires that the radio frequency used between the MIUs and the DCUs must operate in the 902 MHz to 928 MHz open frequency band and operate in a spread spectrum frequency hopping mode without the need for an FCC license to operate the system. Systems requiring an FCC license or dedicated bandwidth will not be considered.

H. Data Transmission Accuracy and Security

The system must include provisions to ensure data transmission accuracy (for example, error checking), security (for example, encryption), and immunity from outside (electromagnetic) interference as well as fading and other form of signal degeneration or attenuation (such as multi-path fading) to prevent accidental loss or interception of customer or ultrasonic meter or equivalent reading data.

I. Tamper Detection

The system shall contain tamper detection capability which, when the ultra-sonic meter, MIU, or any wiring between components has been tampered with (cut wire, tilting of meter, etc.) shall cause a tamper message to be indicated when the MIU transmits its data. Indicate what different kinds of tamper are detected.

J. Unauthorized Usage Detection

The system should give an indication of unauthorized usage; that is, when the customer account record indicates that the customer has been shut off, the system will flag and specifically report any unauthorized usage. Describe this capability, if available.

K. Leak Detection

The system should monitor water consumption through the ultrasonic meter and specifically indicate if there is an abnormal increase in water consumption, if there is no time interval (e.g., at night) when the rate of consumption is zero, or if there is a "running continuously" condition. Leak detection alerts must be triggered and transmitted the moment an event is triggered.

L. Other Detection Features

List other conditions (for example, reverse flow or backflow) the system can detect. Describe these capabilities and how they are accomplished.

M. Additional Features

Describe any additional capabilities of the proposed system, such as remote shut- off or turn-on, pressure monitoring, etc.

N. Data Transfer to Control Computer

Indicate the proposed mode of data transfer between the DCUs and host computer.

O. Read Success Rate

Proposer shall price in its proposal and provide a sufficient number of data collectors and boosters to obtain at least one daily reading within 3 days of the scheduled reading date for billing purposes from at least 98.5 percent of all ultrasonic meters on which the system is installed, to obtain at least one daily read per day including 24 hourly reads from at least 97.5 percent of ultrasonic meters on which the system is installed, and to obtain at least 97.5 percent of all readings taken hourly or at more frequent intervals, unless there are temporary physical barriers beyond the control of Village of Taos Ski Valley or the Proposer.

P. Environmental Tolerances

All system components (except the meter chamber) must operate over an external temperature range of at least -30° F.

Q. FCC Compliance

All applicable system components must comply with FCC regulations 47CFR §15.

R. Component Firmware

Proposer shall preform continuous firmware upgrades for all system components through the life of the system as they become available, including MIUs, DCUs, repeaters and portable interrogator/ programming/ testing units, at no additional cost or separate fee to Village of Taos Ski Valley.

S. Ultrasonic Meter Interface Unit (MIU)

The proposer must provide information for each of the proposed Endpoint product types. The MIU must operate with a spread spectrum frequency hopping capability in the 902–928-megahertz frequency range without need for an FCC license. MIUs must be capable of being upgraded with latest firmware revisions through the wireless mesh network throughout the life of the system.

T. Power Output

Power output must have a minimum power output of 500 Milliwatts (Mw).

U. Hopping Capability

Village of Taos Ski Valley requires that the MIU have unlimited hopping capability and that no routing tables or programming on installation are needed to move the information. Mesh systems designed to have a limited number of pathways and hops between the MIU and data collection unit will not be accepted. MIUs must self-configure within the mesh network upon start-up. Each MIU must have the ability to reconfigure, on its own secondary DCU should its primary DCU go down. Exceptions to this requirement may result in the submitter’s disqualification.

V. Physical Characteristics

Due to maximization of data transmissions by MIUs, Village of Taos Ski Valley requires that MIUs be separate devices from the ultrasonic meter and be lid-mounted only. No

MIUs mounted directly to the ultrasonic meter with or without remote antennas running from the MIU to the ultrasonic meter box lid will be accepted.

W. Batteries

Village of Taos Ski Valley requires a mesh system giving them the ability to choose between utilizing the MIU warranty or performing field service battery changes on their own should battery failures occur. Battery life of MIU must be warranted for a minimum of 20 years (10 years full and 10 years prorated). Conditions of warranty shall be included in the proposal.

With an understanding of how proration curves work and that the main source of failure within an MIU is battery related. Village of Taos Ski Valley requires that the MIU and infrastructure equipment have a battery that is removable and replaceable. All systems that have not been designed around and have the capability for field replacing of the battery will be considered unresponsive.

X. Programmability

The MIU should be able to be initialized or programmed during or prior to field installation. Describe all MIU programmability options, features, and procedures.

Y. Tampering

Describe features, including physical characteristics (seals, tamper resistant bolts, etc.) to minimize, detect, and report tampering with the MIU.

Z. Labeling

The MIU shall be permanently labeled with manufacturer's name, model number, a tamper warning, MIU identification number, required FCC labeling, input/output connections, and date of manufacture. The label should contain a bar code of the MIU identification number. The label should be weatherproof and attached to the MIU where normal installation will not obscure it.

AA. Mounting

In order to achieve maximum range from the MIU, Village of Taos Ski Valley requires all MIUs to be mounted indoors and in an approved mounting enclosure.

BB. Connections to Meter Registers

Wire connections between the ultrasonic meter register and the MIU must be sealed and waterproof. The proposer may use the existing 3-conductor cable between the ultrasonic meter and remote register device, provided cable appears intact upon visual inspection.

CC. Interoperability

The MIUs of the proposed system must read at least 5 different water meter manufacturers' AMR-compatible encoders (AWWA-C707) for all sizes of meters as well as the capability of working with all meters that produce a standard pulse output.

2. Fixed Radio Data Collection Unit

A. Mode of Operation

Indicate the mode of operation and schedule by which the DCU captures, stores, and retransmits data received from MIUs back to the AMI control computer.

B. Communication to Control Computer

Indicate available options and the preferred or recommended method for transmitting ultrasonic meter readings and other AMI system data to the control computer. Village of Taos Ski Valley requires that communication from the DCUs to the control computer be via cellular, WIFI or Ethernet connections.

C. Number of Units

Proposer is solely responsible for determining the mix of data collectors, repeaters, and MIU placement strategies needed to meet or exceed the reading success rates. VILLAGE OF TAOS SKI VALLEY requires that the DCUs have redundancy built into the system in case of DCU failure. The MIUs must recognize that a DCU is not collecting its data and automatically reconfigure to move its data through another DCU in the system. Describe the proposed amount of redundancy and how the redundancy operates.

D. Power Supply

The DCU must run off 110 VAC or DC voltage supported by a solar panel and battery pack.

E. Maintenance

DCU must be warranted for a one-year period and then be covered by an annual maintenance agreement.

F. Protecting Data

In the case of a DCU failure the system must have redundancy that automatically collects the data from the MIUs. This must be done without operator intervention.

G. Repeaters and Other Data Collectors

If the data communication system has available or incorporates repeaters or other receiver/concentrators in addition to DCUs, provide responses to this section for the equipment in each level.

H. Mounting

The added equipment must not be height or location sensitive giving VILLAGE OF TAOS SKI VALLEY's options for choosing the locations for these devices. Indicate options for mounting repeaters and recommended mounting.

I. Power Supply

The repeaters must have three options for power, battery, solar or AC power when available.

J. Programming

Repeaters must automatically connect to the network once set up and not require programming by the operator to work effectively.

K. Electrical Isolation

Repeaters must be equipped with protection against electrical surges such as lightning.

L. Maintenance

Repeaters will carry a warranty of at least one year and then be covered under an annual maintenance agreement.

3. Radio Licenses

A. FCC Licenses

The MIU Repeaters and DCUs must operate with a spread spectrum frequency hopping capability in the 902-928 megahertz open frequency range. VILLAGE OF TAOS SKI VALLEY will not accept a limiting, licensed frequency to operate their system.

B. System Software

Software will need to,

(1) Operate the control computer that interacts with other AMI system components to obtain ultrasonic meter readings,

(2) Manage the database of ultrasonic meter readings and other information, and

(3) Interface to VILLAGE OF TAOS SKI VALLEY Customer Care and Billing system and other information system. These applications may be integrated or separate.

C. Mode of Operation

Indicate normal modes of operation of the AMI system software, including batch processing and single meter reading query processing.

D. Reports

AMI software shall provide the user with reports of the current status and reading history of individual accounts and selectable groups of accounts. The software should be able to sort and list accounts and their meter reading data. The software should be able to create user-defined account groups and aggregate consumption profiles.

E. Interface to Billing System

The AMI system should automatically provide data, corresponding to all the accounts in a billing cycle, ultrasonic meter reading route or other grouping presented to it.

F. Updating Account Data

Describe the procedures for updating relevant account information within the AMI system and/or ultrasonic meter reading database when account information is changed in the billing application.

G. Recovery/Restart

The AMI system must be easily recovered and restarted in the event of any interruption or software freeze.

H. Database

To limit the manpower demands and possible need for designated IT staff, VILLAGE OF TAOS SKI VALLEY will only accept an AMI that is a proposer hosted solution.

I. Multiple Users

VILLAGE OF TAOS SKI VALLEY requires that the system support multiple users at multiple locations.

J. User Interface

Proposer shall include menus, navigators, and major screen shots in its proposals. Describe provisions and guidelines for customizing screens, menus, and navigators.

K. Security

The software shall include a security system, incorporating multiple levels of authorization and access. Describe security features, logging, and levels.

L. Reports

Provide a list, with brief descriptions and screen shots or sample pages, of the standard reports provided for system and component performance; missing or late data; errors, anomalies, and alarm conditions; data transfer, management, and administration; analysis of consumption for individual customers or groups of customers; and other major report categories.

M. Documentation System Manuals

Proposer shall provide manuals and customized written procedures sufficient for complete operation and maintenance – including installation, configuration, diagnostics, and repair - of the system, its software, and its components. These shall be available online or on CD/DVD in a printable format.

4. Training

A. Prerequisite to Installation

The proposer must provide training to VILLAGE OF TAOS SKI VALLEY staff as discussed in **Onsite Support** prior to the commencement of installations.

B. Training On VILLAGE OF TAOS SKI VALLEY Installed Equipment

The proposer should provide all additional training on VILLAGE OF TAOS SKI VALLEY AMR system equipment (including the control computer and database) after it is installed, tested, and accepted by VILLAGE OF TAOS SKI VALLEY. Training should use real data from VILLAGE OF TAOS SKI VALLEY own system.

C. Training Curriculum

The proposer shall provide thorough training in each of the following areas for the designated number of people. The proposer shall specify the teaching method and duration for each of these training sessions.

D. Testing

The proposer's training shall include evaluation of trainees to ensure that they have learned the course content and can perform all necessary functions on the system.

E. Training Aids

Proposer shall provide trainees' workbooks, training aids (including software and video), and system technical manuals prior to or during the training session at no additional cost.

5. Support

A. Extended Support Period.

Proposer should provide telephone and onsite support for 15 years from the date on which the Proposer commences full-scale installation. The proposer shall include in this proposal a schedule of support costs, terms, and conditions.

B. Telephone Support

The proposer shall provide trained persons to answer technical questions and guide VILLAGE OF TAOS SKI VALLEY employees through the use or diagnosis of the system through a toll-free number. Telephone support shall be available at a minimum from 7:00 a.m. through 6:00 p.m. Central Standard time Monday through Friday.

C. Onsite Support

The proposer shall be required to provide onsite assistance at the request of VILLAGE OF TAOS SKI VALLEY.

D. System Monitoring by Proposer

VILLAGE OF TAOS SKI VALLEY desires that the AMI system includes a provision for the Proposer to remotely connect to the control computer or database server to diagnose problem, load patches and upgrades, etc.

6. Installation

A. Installation Schedule

VILLAGE OF TAOS SKI VALLEY and the Proposer shall establish an overall schedule for installation of the entire project. On the first workday of each week, the Proposer will provide VILLAGE OF TAOS SKI VALLEY with an updated schedule of where work is planned for the next week.

B. Daily Reports

At the end of each day, the Proposer shall transmit electronically to the district information on work performed in a VILLAGE OF TAOS SKI VALLEY approved file format.

C. VILLAGE OF TAOS SKI VALLEY Project Manager

VILLAGE OF TAOS SKI VALLEY will designate an employee or agent who will manage the project on behalf of the district.

7. Warranties

A. AMR/AMI Component Warranties

All MIUs supplied in connection with this proposal shall be guaranteed to be free from defects in workmanship for a period of at least 10 years from the date of installation. Any MIUs that fail during this period shall be repaired or replaced at the manufacturer's sole cost. MIUs shall be guaranteed against failure for an additional 10 years such that a failed component will be replaced at a pro-rated increasing cost to VILLAGE OF TAOS SKI VALLEY of the then currently available purchase price.

All other AMR system components shall be guaranteed for one (1) year1 from the date of installation. The Installation Commencement Date for the project is the date following successful pilot testing when the proposer is authorized by VILLAGE OF TAOS SKI VALLEY to begin full-scale production.

B. Installation Warranties

All installation work, including materials used in the installation performed under this contract, shall be guaranteed against defects in workmanship for a period of one (1) year from the date of installation.

8. Ultrasonic Meter Specifications for this project

A.

It is the intent of Village of Taos Ski Valley to install new residential ultrasonic meters. All ultrasonic meters are required to meet the NSF/ANSI Standard 372 for leached lead performance as well as the NSF/ANSI Standard 372 for weighted average lead content.

All meter sizes vary from 5/8"x3/4" to 8" meters. The meters furnished shall conform to the "Standard Specifications for Cold Water Meters" C715, latest revision issued by AWWA. They shall have a bronze Tube with serial number imprinted on the electronics housing of the meter. Only bronze tubes (chambers) will be acceptable. Meters with tubes (measuring chambers) manufactured of a composite, plastic, polyester, or aluminum construction will not be considered respondent.

All ultrasonic meters shall be of an open tube (chamber) construction without reflectors built into the center of the water column within the meter. Ultrasonic meters with reflector plates built within the middle of the chamber and meter that have a built-in strainer, both of which restrict water flow and create pressure loss within the meter, will not be considered. All ultrasonic meters shall register in US Gallons.

The electronic portions of the ultrasonic meter shall be powered by a field replaceable battery. To protect the utility's investment in this type of metering, proposals on meters that do not provide for field replacement of the battery will not be considered responsive. Meters utilizing AC power will not be considered for use.

All ultrasonic meters must provide indication of the following:

- Flow Rate
- Forward
- Flows
- Reverse Flows
- Cumulative Flows
- Partially Filled or Empty Pipe Low Battery

Proposed ultrasonic meters must come with a hinged, protective lid for the register face. Register and ultrasonic meter electronics shall be housed in a casing of high-density synthetic polymer. All ultrasonic meters are to be capable of a direct read but must come pre-wired for use with a remote reading system. To keep replacement costs in check and only have to repair components of the system that may fail over time, the meter or the AMR transmitter, only ultrasonic meters designed for use with an external transmitter will be considered. Due to their higher costs, ultrasonic meters designed with AMR or AMI capability contained within the ultrasonic meter will not be accepted. All ultrasonic

meters must come with a communications cable designed to link the meter with an AMR/AMI device that is designed to be mounted within the lid. Since these cables may become damaged by rodents, insects and elements outside the utilities control, these communications cables must be field replaceable without taking the meter offline to ensure accuracy, especially for intermittent flows, respondent proposals must be accompanied by documentation that the ultrasonic meter polling or sampling rate is set to stay at ½ second intervals or less for the life of the meter. Meters that automatically change polling rates after installation to a slower interval or meters with polling rates of more than ½ second intervals will not be deemed acceptable. All ultrasonic meters must come with a 10-year battery warranty or better designed around this polling/sampling requirement.

It is understood by the utility that temperature changes within the water column can impact the accuracy of ultrasonic metering. With that in mind, to be considered respondent, the ultrasonic meters proposed must contain features within their circuitry that will automatically adjust the readings to reflect changing temperatures of the water traveling through the meter. All proposed meters must be tested to and pass AWWA C-715 standards and come with a factory test tag certifying the accuracy at the three flows (low, intermediate, and high flow) ranges.

All meters shall qualify within “Buy America” guidelines. Or be considered a pre-approved equal by the VILLAGE OF TAOS SKI VALLEY.

V. CONTENT OF PROPOSAL

VILLAGE OF TAOS SKI VALLEY is requesting a proposal for the Scope of Work specified herein. The proposal must include the following elements:

1. Detailed description demonstrating an understanding of the Scope of Work and a detailed description outlining how each of the required services will be provided.

2. Compensation requirement for Firm’s fixed cost for recurring tasks and hourly rates for non-reoccurring (time and material) tasks.

Proposals must include:

a. Provide a cover letter introducing the firm and the individual that will act as the firm’s primary contact for this project. Describe the organization, date founded, and ownership of the firm as well as any subsidiaries and affiliates relevant to VILLAGE OF TAOS SKI VALLEY. The prime Service Provider shall have considerable experience in the management of programs including similar projects. Additionally, it is expected that the Service Provider team, prime contractor, or subcontractor, will provide a team of related level of expertise. This expertise shall include, not be limited to:

- Management of projects similar in size and nature.
- Advanced metering infrastructure system.
- Network hardware and software.
- Communication and data transfer into billing system; and communication plans, and budget control.

b. The proposal shall address separately and in detail each aspect of the work, including all of the work as defined in Section IV. Knowledge and Experience List detailed description of the technical capabilities for implementing of AMI System and the installation of equipment to VILLAGE OF TAOS SKI VALLEY.

VI. PROPOSAL EVALUATION

A. Submission of Proposals

All proposals shall include an original and three (3) copies of the RFP response.

B. Evaluation Procedure and Criteria

VTSV's Certified Purchasing Officer, Administrator and appropriate staff will review proposals and make recommendations to the Mayor and Council for final approval. The Mayor and Council may request a meeting with some qualified Offerors prior to final selection. Proposals will be reviewed in accordance with the following criteria:

- Approach and compliance to scope criteria. (25%)
- Software functionality and effectiveness under environmental extremes. (25%)
- Previous experience with projects of a similar scope. (15%)
- Response from references (3 professional references). (10%)
- Cost. (25%)