



VILLAGE OF ROAMING SHORES, OHIO
440-563-5083

SPECIFICATIONS

WATER METER SYSTEM UPGRADE

Bid Opening: 10:30 a.m., Wednesday, September 28, 2011

Kevin Grippi

Village Administrator

Village of Roaming Shores, Ohio

2500 Hayford Road, P.O. Box 237

Roaming Shores, Ohio 44084

John Ball, Mayor
Leeann Moses, Clerk

Kevin Grippi, Administrator
Robert Cook, President

Cheryl Copeland
Roy Brommer

Joseph Palombi
Holly Mayernick

Chad Vavpetic
Kyle Smith, Solicitor

VILLAGE OF ROAMING SHORES, OHIO

WATER METER SYSTEM UPGRADE

NOTICE TO BIDDERS

Sealed bids will be received by the Village Hall, of the Village of Roaming Shores, Ashtabula County, Ohio, 2500 Hayford Road, P.O. Box 237, Roaming Shores, Ohio, until 10:30 a.m., WEDNESDAY, SEPTEMBER 28, 2011, for the purchase of **A REMOTE READER SYSTEM TO UPGRADE 960 MUNICIPALLY-OWNED WATER METERS** at such time and place the bids will be publicly opened and read aloud.

Detailed specifications and bid forms are on file and copies may be obtained in the Village Hall, 2500 Hayford Road, P.O. Box 237, Roaming Shores, Ohio or online at www.roamingshoresOH.gov.

The Village of Roaming Shores, Ohio reserves the right to reject any or all bids or to correct or waive irregularities in bids should it be deemed in the best interest of the Village of Roaming Shores, Ohio.

By order of the Roaming Shores Village Council
Kevin Grippi
Village Administrator

John Ball, Mayor
Leeann Moses, Clerk

Kevin Grippi, Administrator
Robert Cook, President

Cheryl Copeland
Roy Brommer

Joseph Palombi
Holly Mayernick

Chad Vavpetic
Kyle Smith, Solicitor

**VILLAGE OF ROAMING SHORES, OHIO
WATER METER SYSTEM UPGRADE**

SPECIFICATIONS

Scope of Work

The Village of Roaming Shores intends to purchase the equipment only to upgrade with a remote reader register system their current 10-year old and newer water meter population, which consists of 800 inside register meters and 115 outside pit meters (15 are underwater). The Village currently uses DAP 5320 Handhelds and ARB N_Sight software for their reading system; two separate reading systems will not be used during the upgrade. All proposed product must be compatible with the current meter reading system.

INTEGRATED ENCODER AND METER INTERFACE UNIT (METER)

These specifications cover a fully integrated self-contained solid-state absolute encoder register and a radio frequency meter interface unit metering system designed to obtain simultaneous water meter registration that is guaranteed to exactly match the registration on the register odometer. The metering information shall be obtained through a fully integrated radio frequency device using a compatible data capture system. The above system shall be configured as follows:

- Solid-state absolute encoder meter register – direct mounting, electro-magnetically encoded measuring element into an electronic solid-state odometer. Encoder shall provide value-added flow data including leak, tamper, reverse flow detection, and hourly usage profiling (data logging). Digital counters requiring batteries and volatile memory for consumption data are not allowed. Encoder register shall periodically display flow rate information at register.
- Fully integrated radio frequency meter interface unit providing a communication link for the transmission of information from the register.

Data acquisition equipment with which the above components can be interrogated shall be configured in two types:

1. A device that captures information and displays it visually to confirm correct system installation.
2. A device that is pre-programmed with route information and is capable of storing collected data in solid-state memory. This device shall also electronically transfer the data for use by the utility billing computer.

John Ball, Mayor
Leeann Moses, Clerk

Kevin Grippi, Administrator
Robert Cook, President

Cheryl Copeland
Roy Brommer

Joseph Palombi
Holly Mayernick

Chad Vavpetic
Kyle Smith, Solicitor

METER DESCRIPTION — GENERAL

The unit shall interrogate the solid-state odometer of the absolute encoder register and transmit the meter reading and other information to a data collection reading device. The unit shall be capable of being read by a walk-by handheld computer equipped with an interface unit, a mobile system with a unit mounted in a vehicle, and/or a targeted fixed network data collection system. This shall allow an easy migration between the three systems without any change to devices or need to revisit the site. The absolute solid-state encoder register with meter shall retrofit existing meters in the field via a bayonet mount on top of the main case. The absolute solid-state encoder register with meter shall be manufactured in both inside and pit models. The inside meter will be mounted inside without degradation of performance and the pit meter shall have the ability to be mounted in a pit or an underground vault. The inside meter shall have a water resistant enclosure and a permanent antenna, while the pit meter enclosure shall be a roll-sealed copper can and glass lens designed to ensure a watertight seal, and offer a short whip antenna or an optional through-the-pit-lid antenna to address various applications. The meter battery shall be field replaceable on both the inside set and pit set designs. The meter shall log hourly consumption intervals.

ENCODER DESCRIPTION — GENERAL

The self-contained solid-state absolute encoder register metering system shall be designed to obtain remote simultaneous water meter registration that is guaranteed to exactly match the registration on the register odometer. The solid-state absolute encoder meter register shall be a direct mounted, electromagnetically encoded measuring element in an electronic solid-state odometer. The encoder shall provide flow data including leak, tamper, and reverse flow detection and data logging when communicating with a reader. Encoder register shall display flow rate information at register.

METER PHYSICAL / MECHANICAL REQUIREMENTS

Inside Units (800)

- Capable of mounting indoors;
- Water-resistant and capable of exposure to spray and splash;
- Provide a location for a tamper deterrent seal. Tampering with the device functions or connections shall not be possible without causing visible damage to the device exterior or to the seal;
- Capable of operating at extreme temperatures;
- Circuit board will be coated for moisture protection;
- Battery will be protected by encapsulation in a hard potting and will be easily field replaceable;
- Must retrofit to existing installations; and
- Must be protected against static discharge without loss of data;;

Pit Units (115)

- Sealed to allow for submersion in a constantly flooded environment;

John Ball, Mayor
Leeann Moses, Clerk

Kevin Grippi, Administrator
Robert Cook, President

Cheryl Copeland
Roy Brommer

Joseph Palombi
Holly Mayernick

Chad Vavpetic
Kyle Smith, Solicitor

- Designed with a whip-type antenna for below-the-pit-lid applications;
- Designed for an optional remote antenna capable of being installed through the industry standard 1-3/4" hole in the pit lid for maximum transmission range. The meter interface unit will be capable of mounting to various thicknesses of pit lids from 1/2" to 2-1/2" and various distances from meters;
- Provide a location for a tamper deterrent seal. Tampering with the device functions or connections shall not be possible without causing visible damage to the device exterior or to the seal;
- Capable of operating at extreme temperatures;
- The battery will be protected by a hard potting material. The battery shall be easily field replaceable;
- The through-the-pit-lid antenna option shall be rigid in design to withstand traffic and shall have a dual seal connection to the remote reader meter housing; and
- The meter device must be protected against static discharge without loss of data.

ENCODER REGISTER UNIT

Registration

- Solid-state absolute encoder register shall provide digit visual registration at the meter;
- Provide a meter reading for transmission through the radio MIU;
- Provide hourly consumption data upon request/activation;
- The register shall employ a visual LCD leak indicator as well as provide remote leak indication through an ASCII format to the data collection device;
- The register shall provide reverse flow detection, days of no consumption, and number of days of leak or reverse flow condition;
- Internal batteries shall not be allowed; battery must be external to register and field replaceable;
- The manufacturer will guarantee that the reading obtained electronically matches the LCD odometer reading on the register and that the manufacturer will pay the difference at the current rate whenever a discrepancy appears; and
- The register shall display flow rate information.

Mechanical Construction

- The inside set enclosure shall feature a weld seal. The pit set enclosure shall be a sealed to protect the internal components against moisture;
- The register and remote meter shall be attached to the meter case; fastening screws or nuts shall not be required. A tamper-proof seal pin shall be used to secure the register to the maincase;
- The register shall be removable from the meter without disassembling the meter body and shall permit field installation and/or removal without taking the meter out of service;
- Provision shall be made in the register for the use of seal wires to further secure the register.

John Ball, Mayor
Leeann Moses, Clerk

Kevin Grippi, Administrator
Robert Cook, President

Cheryl Copeland
Roy Brommer

Joseph Palombi
Holly Mayernick

Chad Vavpetic
Kyle Smith, Solicitor

Electrical Construction

- The solid-state absolute encoder register shall incorporate an Application Specific Integrated Circuit (ASIC) and firmware designed to verify accurate measurement, information transmission, and data integrity.

Meter Reading Information

- The solid-state absolute encoder register shall provide to the reading equipment a meter reading; and
- The solid-state absolute encoder register shall provide additional information remotely, such as detailed leak detection data, days of leak state, days of no consumption, and reverse flow indication. This information shall be communicated through the encoder protocol and remote field meter to the route management software to allow the seamless integration of data into a CIS package.

OPERATIONAL SPECIFICATIONS — RF

The manufacturer will guarantee the reading obtained electronically matches the visual reading on the register when the register is interrogated by the remote reader and that the manufacturer will pay the difference at the current rates whenever a discrepancy appears. Synchronization of electronic reading and mechanical reading for any reason (battery change, register change, cut wire, register roll-over, etc.) is not acceptable.

For ease of implementation, the system shall not require any special licensing, including licenses from the FCC. The system must, therefore, operate in the 902 MHz to 928 MHz unlicensed band. In addition:

1. Implementation of the system shall not be delayed due to the uncertainty of Federal licensing requirements. The system must be expandable at any time without getting authorization from the FCC.
2. No wake-up tone shall be necessary.
3. To minimize the potential for RF interference from other devices, the remote meter shall transmit using the frequency-hopping, spread-spectrum technique comprised of alternating pseudo-random frequencies within the 902 MHz to 928 MHz unlicensed band.
4. The meter shall operate within FCC Part 15 regulations for devices operating in the 902 MHz to 928 MHz unlicensed band. The output power of the devices will be governed by their conformance with these relevant FCC standards.
5. Output power shall meet FCC Part 15.247 requirements.
6. Power shall be supplied to the meter by a lithium battery. The Vendor shall warrant that any battery provided with the meters by the vendor shall be free of manufacture and design defects for a period of twenty years – the first ten (10) years from their date of shipment from factory

John Ball, Mayor
Leeann Moses, Clerk

Kevin Grippi, Administrator
Robert Cook, President

Cheryl Copeland
Roy Brommer

Joseph Palombi
Holly Mayernick

Chad Vavpetic
Kyle Smith, Solicitor

without prorating, and the second ten (10) years with pro-rating, as long as the meter is working under the environmental and meter reading conditions specified.

7. The battery life shall not be affected by ambient erroneous wake-up tones (e.g., other water, electric, or gas utilities reading and therefore sending out a wake-up tone).
8. The number of reads performed must not affect the battery life.
9. The unit shall be able to transmit data logging information via the RF for collection by a handheld device upon activation.
10. The batteries shall be field replaceable (the replacement shall be demonstrated) and be designed for a minimum of twenty (20) years' life expectancy. The meter shall not require reprogramming if the battery discharges before it is replaced.
11. No meter programming shall be necessary for installation.
12. The meter shall not send readings older than an hour. Sending a reading older than an hour is not acceptable, as it can lead to incorrect billing.
13. The meter shall transmit the meter reading continuously at a predetermined transmission interval to maximize battery life.
14. Each device shall have a unique pre-programmed identification number. ID numbers will be permanent and shall not be altered. Each device shall be labeled with the ID number in numeric and bar code form. The label shall also display FCC approval information, manufacturer's designation, and date of manufacture.
15. The meter shall transmit the encoder meter reading and a unique meter ID number
16. The meter reading shall be capable of being received by either a handheld receiver, mobile receiver, or fixed network receiver without special configuration or re-manufacture.

Mobile Data Collection System

The mobile data collection device must be a portable, compact electronic system mountable in any vehicle. It must collect the data broadcast by the meter's and store it onto a USB Flash Drive to be downloaded to the host computer at the village hall. The unit shall be easily transportable from vehicle to vehicle or vehicle to office.

Hardware Specifications

The key components of the collection device must consist of a Portable Personal Computer (PPC) and an integrated radio receiver unit packaged in rugged, weatherproof, compact carrying case enclosure.

The mobile data collection device must be prepared to be easily hard-wired/installed into a motor vehicle's power supply for the purpose of meter reading. It must be capable of being mounted securely in a trunk space of a typical SUV. The system must include a magnetic base antenna and the antenna cord as well as all necessary power and communication cables. The mobile data collection device shall draw no more than one (1) AMP of power. The mobile data collection device shall support the connection to any laptop that meets the following minimum system requirements:

- Operating System: Windows XP (32 bit), Windows Vista (32 bit), or Windows 7 (Professional 32 and Home Premium 64)

John Ball, Mayor
Leeann Moses, Clerk

Kevin Grippi, Administrator
Robert Cook, President

Cheryl Copeland
Roy Brommer

Joseph Palombi
Holly Mayernick

Chad Vavpetic
Kyle Smith, Solicitor

- Processor: Intel Pentium processor 1.7 GHz
- Memory: 1GB
- Communication: Internal 802.11 b/g wireless LAN
- USB 2.0

Environmental Conditions

The mobile data collection device must work in the following environmental conditions:

- Operating Temperature: 32°F to 122°F (0°C to 50°C)
- Storage Temperature: -40°F to 185°F (-40°C to 85°C)
- Operating Humidity: 5 to 95% non-condensing relative humidity

Software Requirements

Software and/or a “patch” must be provided, which will adapt to ARB N_Sight Mobile.

Computer Platform

The collection device shall connect to any laptop that meets the following minimum system requirements:

1. Operating System: Windows XP (32 bit), Windows Vista (32 bit), or Windows 7 (Professional 32 and Home Premium 64)
2. Processor: Intel Pentium processor 1.7 GHz
3. Memory: 1GB
4. Communication: Internal 802.11 b/g wireless LAN
5. USB 2.0

Submittal

Bid proposals must include the completion of the attached bid sheet as well product literature and specifications and a brief (maximum two pages) explanation of why the vendor’s product is ideal for the Village’s purposes.

Submittals are due by 10:30 a.m. for a public opening on Wednesday, September 28, 2011 at the Roaming Shores Village Hall. The village reserves the right to reject any and all proposals.

John Ball, Mayor
Leeann Moses, Clerk

Kevin Grippi, Administrator
Robert Cook, President

Cheryl Copeland
Roy Brommer

Joseph Palombi
Holly Mayernick

Chad Vavpetic
Kyle Smith, Solicitor

Village of Roaming Shores
Water Meter Upgrade Bid

Feature	Per Unit Quote	Price quote
800 Inside Remote Registers Only		
115 Pit Registers Only With Antenna		
Mobile Data Collector		
20 -Year Warranty	N/A	
On-Site Implementation & Training	N/A	
Software "patch" (if needed)		
Other		
Other		
TOTAL		

Company name

Street address

City

State

Zip

Company Representative (Print name)

Company Representative (Signature)

Date