TOWN OF VIRGIL

REQUEST FOR PROPOSALS

RFP NO. 24-118

FIXED NETWORK WATER METER READING AUTOMATION SYSTEM

SEALED PROPOSAL SUBMISSION DEADLINE
NO LATER THAN DECEMBER 12th 2024 at 3:00 PM

Interested parties may secure a copy of the RFP and any updates from:
Town of Virgil Town Clerk

General Information and Overview

The Town of Virgil is seeking a Fixed Network Mesh Automated Meter Reading (AMR) System vendor (Proposer) to design and supply a fully functional Mesh fixed network system for the Utility Billing Department. The Town of Virgil will receive sealed proposals from qualified firms to provide an Advanced Metering Infrastructure (AMI) System for the Town of Virgil's Water District. The Town's intent is to find the best design and operating mesh fixed network AMR system which will utilize the latest technology to provide a state-of-art environment that will serve the Town's present needs as well as provide a foundation for the future that allows easy expansion, upgrade, integration, and maintenance. The entire service area, covering approximately 20,800 feet of water mains in the district limits. Section IV outlines the requirements for the AMR system, requirements for installation, and several interrogatives, allowing the proposer to discuss the capabilities of their system and approach.

Qualified firms shall have extensive experience in the development and implementation of AMR System. The successful candidate will supply all equipment necessary to install the preferred system, as well as act as system implementation specialists. Installation shall be performed by a qualified contractor. Tasks shall include coordination of all aspects of the system integration with the Town's utility billing system, pre-testing and troubleshooting of the system during the field installation process, installation of all meters, and training of both field and office personnel.

This proposal includes a project description, scope of work, submission requirements, selection process and criteria, insurance requirements, and Sample Professional Services Agreement. Pricing of Overall system may be presented as a capital outlay and/or alternate financing methods as well. Prospective firms are encouraged to carefully read this Request for Proposal in its entirety.

DATE FOR RECEIPT OF PROPOSALS

Proposals pursuant to this RFP Resolution #24-118 must be received by noon on December 12th, 2024 .

PREPROPOSAL CONFERENCE

An individual pre-proposal conference will be set up upon request. Potential offerors are encouraged to submit written questions in advance of their requested pre-proposal conference date to the Virgil Town Clerk. All questions must be in written form to the attention of the Virgil Town clerk. Questions may be faxed to 607-835-6668 or emailed to townclerk@virgilny.org. Deadline for submission of written questions is December 5, 2024.

Project Scope of Work

This scope of work calls for the provision of goods and services as necessary to develop, install, and make operational an automatic water meter reading system in the Town of Virgil Water District , including the installation of approximately 177 residential and commercial water meters to function as part of the AMR System. The following primary components of the scope of work are as follows:

1. Design a Mesh fixed base "network" to receive and relay radio signals from 177 individual residential or commercial water meters, and provide and install new hardware to entire system.

2. Provide all software, and all required system integration and testing.

3. Install a complete “replacement” meter assembly (meter, register, transmitter, etc.) on all water service connection within the Town of Virgil Water District.

4. Installation of meters will be in the following sizes with estimated quantities: 175 meters. The count for water meters is an estimate and will be used for unit pricing. The AMR system should be able to work with several water meter manufacturers.

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

All work listed shall be performed in a thorough and professional manner and 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.

Responsibilities of the Offeror

The Offeror shall provide all of the hardware and software that together comprise the proposed AMR system. This includes encoded meters, meter interface units, wire and wire connectors, data collection units, repeaters, AMR control computers and related software and interfaces. The service provider shall also determine the installation locations for the data collection units.

The Service Provider shall manage, monitor, coordinate, and ensure that all contract work activities are completed. The selected Proposer shall provide the Town Project Manager with a clear, understandable, and easily accessible method for determining the progress of work.

The Service Provider shall determine the methods and means of installing the meters and meter reading equipment, consistent with this RFP.

The Service Provider shall propose detailed goals and milestones for deliveries or accomplishments within the project schedule established by the Town Project Manager, and subject to approval of the Town Project Manager.

The Service Provider shall be ultimately responsible for coordinating all aspects of work among its project team, Town Project Manager, and any other agencies that may be involved in this project.

Town Project Manager will be ready to assist in providing the Service Provider with any available information. However, the Service Provider will be responsible for gathering additional information as needed (current system utilizing and meter locations etc.) to complete the work.

The Service Provider shall deliver reports detailing budget analysis, schedule report (actual vs. proposed), summary of major accomplishments and problems, discussion of relevant legal issues, and planning.

Work Description

The offeror must answer all Questions and request for Town of Virgil. 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. All specifications incorporating “may,” “should,” ”desires,” etc., are highly desirable features. In the case of a specific requirement not followed by a request for an explanation, Proposer must explicitly affirm that the proposed system or component meets that requirement. Simply taking exception to a requirement without providing an explanation, and where appropriate an alternative, may result in the rejection of proposal, Proposer shall provide a list of all exceptions taken to this RFP. Proposed alternative language, if appropriate, should be incorporated in the response to each requirement.

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 85-page limitation on the length of the proposal.

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

Overall system Characteristics
The town recognizes that AMR system features, characteristics, and performance result from the interaction of components, and are to be addressed in this section. Individual component requirements and characteristics are to be addressed in response to the appropriate sections following this one. Proposer is advised to read the entire RFP first and minimize repetition to the greatest extent possible.

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 Utility Billing office. Provide a schematic or flow diagram depicting the system’s normal mode of operation. Describe the communications between system components, including whether they are normally 2-way or 1-way, and whether meter readings transmitted from MIUs are time-synchronized (and if so, how they are synchronized).

Meter Reading Interval
What is the default frequency or interval of meter reading? What is the default interval for transmitting readings to the data collector? Indicate how many new and repeated readings for a meter are transmitted at one time.

Changing Meter Reading Interval
Indicate if the meter reading, MIU transmission, and data collector transmission intervals can be changed, and the range of choices of interval. Indicate which changes do not require a physical visit to the MIU and these changes must be propagated through electronic communications with the MIU. Describe the procedure. Indicate whether a change in reading or transmission interval is or can be programmed to reset automatically, indicate any impacts on battery life.

Elapsed Time (Latency)
Indicate the amount of time that elapses from a meter reading being taken to the meter reading being available at the AMR control computer and, if the time varies, the range of values, including descriptive statistics and/or a histogram adequate to clearly describe the distribution of the times.

System CapaTown
Describe the capaTown of each system component in terms of the number of meter readings stored (in total and per meter) and/or the number of meter readings that can be transmitted or received in a given time interval. What happens as capaTown is approached? What happens when it is exceeded? (for example, does new data overwrite old data?) Describe any provisions in the system for archiving old meter reading data. Must be able to store at least 320 days of hourly usage data within each device.

Grouping of Meters
Briefly indicate any capabilities or limitations of the system to separate meters into groups (e.g., by routes, types of customers, billing cycles) for reading. Include a description of how the system can be used to gather synchronized readings from a grouping of meters (such as all meters within one pumping district).

Read on Demand
Describe how readings are taken “on demand” from a particular meter. Indicate how long it would take from the request until the meter was read, and how long it would take to provide the reading to the operator of the AMR control computer.

Consumption Profiling
system obtain multiple readings at short intervals (e.g., hourly or several times per day) to monitor and profile water consumption patterns from a particular meter or group of meters? If so, describe the range of intervals and how this is accomplished. Are such short interval readings stored in memory at the MIU or DCU, transmitted all at once, or transmitted as they are received? Provide a table of the interval of readings and the number of readings stored. Describe any impact of the use of this capability on battery life.

Radio Communication Band
Indicate what radio frequencies are used for interactions between the MIUs and DCUs. The Town requires that the radio frequency used between the MIUs and the DCUs operate in the 902 MHz to 928 MHz open frequency band and operate in a spread spectrum frequency hopping mode.

Data Transmission Accuracy and Security
The system shall 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 forms of signal degeneration or attenuation (such as multi-path fading) to prevent accidental loss or interception of customer or meter reading data. Describe how this is accomplished. Do not describe in this section the security systems associated with controlling user access.

Stored Data System Integrity and Security
The system must ensure data integrity (so that the readings from the meters, ID numbers, and other data are always associated with the correct meter and customer) and data access security. The system must ensure against loss of stored data. Describe how the system addresses these issues.

Tamper Detection
The system shall contain tamper detection capability which, when the 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. Town desires the system to communicate to the control computer upon tamper. Indicate how quickly tampering with each component will be reported and how it will be reported. How many times or over what period of time will a tamper indication be provided to the data collection unit (DCU) or to the system operator before it is automatically cancelled? Indicate whether the tamper indication must be reset or reprogrammed, and how this is accomplished.

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.

Leak Detection
The system should monitor water consumption through the 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.
Describe any capaTown to detect leaks for different flow rates.

Large Leak Detection
The system should detect very large leaks and notify the utility as soon as they are detected. Describe how the system could perform this function. Describe how the utility could define the flow rate that would be considered a large leak and trigger a report.

No Flow Detection
The system should indicate when there is an extended period (e.g., 10 days) of no flow through the meter, or an unusually low consumption over a regular reading interval. Indicate how this is accomplished.

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

Multiple Utilities
Describe provisions for handling meter readings from multiple utilities (including more than one water/wastewater utility) within the same system.

Acoustic Leak Detection
Describe the capabilities of this system to support acoustic leak detection (ALD). Indicate the ALD devices (make and model) that are compatible with this system. Under a separate tab, describe in detail how the ALD system works in conjunction with the proposed AMR solution, where the ALD devices are installed, and installation density. Show user interface, sample reports, and screen shots.

Additional Features
Describe any additional capabilities of the proposed system, such as remote controlled shut- off or turn-on, pressure monitoring, etc. Describe specific third-party sensors or controllers that are supported in addition to the ALD devices and their capabilities. Include any deployments of such devices, including the number of units installed, in the References section of the proposal.

Current Versus Planned Capabilities
Indicate any planned future capabilities for the equipment being proposed, the anticipated development and availability schedule, expected unit incremental costs, and the expected procedures for upgrading equipment already installed at Town's facilities.

Data Transfer to Control Computer
Indicate the proposed mode of data transfer between the DCUs and the AMR control computer.

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 2 days of the scheduled reading date for billing purposes from at least 99.5 percent of all 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 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 the Town or the Proposer. Proposer shall define in detail any qualifiers to these requirements. Describe the "rule of thumb" distance the MIU and DCU can be apart and meet or exceed these performance requirements.

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

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

Component Firmware
Proposer shall include firmware upgrades for all system components, including MIUs, DCUs, repeaters and portable interrogator/programming/ testing units, at no additional cost or separate annual maintenance fee. Proposer shall provide any available upgrades or patches to such firmware to correct problems, add new standard features, and ensure system compatibility and full functionality for a minimum of 15 years or the expected life of the components (indicate if it is other than 15 years) at no additional cost, including installation. Firmware upgrades to the MIUs and DCUs must be done over the fixed network without the need to physically visit the equipment in the field. Indicate if and how firmware patches or upgrades would be applied to each system component.

Meter Interface Unit (MIU)
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. Power output must have a minimum power output of 500 Milliwats (Mw).

The Town requires that the MIU have unlimited hopping capability and that no routing tables or programming on installation are needed to move the information. The MIU must self configure and have the ability to reconfigure on its own when a DCU is down and the MIU must move its data to a different DCU.

If there is more than one version of the MIU (e.g., one with more advanced features or memory and one with less), provide responses to the requirements in this section for each version for

those features that are different, clearly specifying which version they apply to. What is the power output and typical transmittal range of the MIU?

Physical Characteristics
Describe the physical characteristics of the MIU, including dimensions and weight. Provide pictures or drawings to scale. Include all optional models.

MIUs for Different Meter Types and Installation Circumstances
Can the MIU automatically distinguish different makes and models of meter registers upon connection? Does the MIU have to be programmed or modified to accept different makes or models of meter registers? How and where is this accomplished? Are different MIUs required for different makes and models of registers? If so, how are these distinguished? Town desires that one MIU model accommodate different meter register manufacturers.

Batteries
What type and size of battery does the MIU use? What is the expected battery life when the MIU is used with normal or default settings? Describe the expected battery life as a range of years within two standard deviations of the average expected life. How will the system prevent loss of programming or data if the battery expires? Does the AMR system provide a warning well in advance of battery failure? If so, what is it and how is this accomplished? Is battery life affected by the type of meter register the MIU is reading? If so, indicate the differences in expected and guaranteed lives. 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 proposal.

The Town requires that the battery be removable and replaceable. What is the current cost of replacement batteries? Can the battery be replaced in the field? Does battery replacement require soldering or special tools, or the application of any sealant? Describe any special MIU battery disposal provisions, and indicate the current cost of providing battery disposal if special handling is required.

ID Number
Each MIU shall have a unique, permanent ID number that is transmitted with the meter readings. This serial number shall be readable on the outsides as well as bar-coded.

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.

Can the MIU store a meter register number or additional account number? Will this number be transmitted with the meter reading data? Can this number be programmed into the MIU from a field programming unit based on information downloaded from an installation work order database? What other data are or can be stored in the MIU? Describe capabilities and procedures. The Town requires that the MIU must be capable of storing and holding hourly data for a minimum of 320 days.

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

Environmental Tolerance
Describe features of the MIU that prevent corrosion or degradation of mechanical or electrical performance (e.g., encapsulation or coating). The MIU must operate in conditions subject to water submergence (i.e., meter vaults). The MIU enclosure should be composed of ultraviolet (UV)-inhibiting ABS or similar material. All materials used in the MIU must be non-hazardous.

Labeling
The MIU shall be permanently labeled with manufacturer's name, model number, "Town of Virgil," 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.

Mounting
Describe requirements for mounting MIU (elevation, orientation, etc.) to ensure maximum adequate radio propagation. Indicate whether the MIU is always separated from the meter.

Ease of Installation
Briefly describe installation procedures. Indicate design provisions to avoid installers' mistakes in installation, connection to meters, and programming. The Town requires the system incorporate a GPS coordinate to help facilitate the location of the meter?

Connections to Meter Registers
Wire connections between the meter register and the MIU must be sealed and waterproof. Proposer may use existing 3-conductor cable between meter and remote register device, provided cable appears intact upon visual inspection.

Interoperability
The MIU must read at least two different water meter manufacturers' AMR-compatible, dial-position encoded registers for all sizes of meters. The MIU should read more than two different water meter manufacturers' AMR-compatible registers regardless of meter size. Proposer must provide a table showing the degree of compatibility of its MIUs with all makes and models of water meters currently available in the U.S. market. Provide clear, sufficient explanations of the reasons why the proposed MIU is unable to read any particular AMR-compatible meter register sold in the United States. Describe any features or information available from a register that the MIU would not be able to collect or transmit.

Manufacturer	AMR-Compatible register model	Degree of compatibility 1-no programming req'd 2-routine programming of MIU or meter req'd 3-Different MIU req'd 4-Technically feasible, non-routine modification (describe) 5-Infeasible	Functionality 1-All features Operational 2-Some functions inoperable (describe)	Support 1-Cross-Licensed 2-Not licensed or supported, no effect on warranties 3-Warranties voided
AMCO	**Absolute Encoder**			
Badger	**ADE**			
Hersey	**Translator**			
Neptune	**E-Coder**			
Neptune	**Pro-Read**			
Sensus	**ICE**			
Other	**Other**			
Other	**Other**			

The estimated number of encoded or equivalent water meters to be installed _____.
The count for water meters is an estimate and will be used for unit pricing. The AMR system should be able to work with several water meter manufacturers.

Fixed Radio Data Collection Unit

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 AMR control computer. Describe any existing capabilities for sending signals to MIUs or other devices for clock synchronization, remote shutoff, flow restriction, customer notification, etc.

Communication to Control Computer
Indicate available options and the preferred or recommended method for transmitting meter readings and other AMR system data to the control computer. Town prefers that communication from the DCUs to the control computer by via GPRS, WIFI or Ethernet connections. Proposer must specify to the best of its ability the capital, installation, operation, and maintenance costs of such communications network.

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. Indicate the estimated number of data collection units needed to achieve that level of performance. The Town desires 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 proposed amount of redundancy and how the redundancy operates.

Mounting
Indicate options for mounting DCUs, and recommended mounting. Indicate minimum and maximum required and recommended heights. Proposer must include estimates of the costs of mounting and any continuing site rental costs in its proposal.

Location
The Town wishes to acquire a hybrid solution that would support a fully automated Mesh Fixed Network Water Meter Reading system over its entire service area, covering approximately 7 square miles in the Town of Virgil. The system must employ innovative technology that has MIUs that can migrate from a drive by system to a fixed mesh network without having to add additional hardware or require physically touching the MIU to program it. The technology must be field proven for its reliability and no single point of failure in the communication infrastructure. The proposed system must be integrated into Town's current operations and flexible to evolve as technology advances by downloading firmware upgrades over the fixed network communication backhaul to the DCUs and MIUs. The proposed system must meet the Towns's functional and business requirements, must have no single point of failure, and must be resilient to certain environmental considerations.

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

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

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. Describe how the proposed system accomplishes this task.

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.

Mode of Operation
Indicate the mode of operation and schedule by which the repeater captures, stores, and retransmits data received from MIUs back to the DCU. The system must have capabilities for relaying signals to the MIUs for advanced functions such as remote shutoff, flow restriction, etc.

Mounting
The added equipment must not be height or location sensitive giving the Town options for choosing the locations for these devices. Indicate options for mounting repeaters, and recommended mounting.

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

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

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

Maintenance
Repeaters will carry a warranty of at least two years and then be covered under an annual maintenance agreement.

Radio Licenses

FCC Licenses
The MIU Repeaters and DCUs must operate with a spread spectrum frequency hopping capability in the 902-928 megahertz open frequency range. The Town will not accept a licensed frequency to operate their system.

Portable Interrogation, Field Programming, and Testing Devices
Portable interrogators may be required to capture readings from MIUs that are in radio "dead" spots, or for other special reading situations. Portable programming units may be required to program MIUs or meter registers. Portable field test units may be required to diagnose problems with MIUs, or other system components. The possible functions are aggregated in this section. Proposer shall respond to this subsection separately for each separate device if there is more than one?

Number of Units
Proposer shall supply all units required for Proposer and its installation contractor. An additional 20 units are needed for maintenance by Town employees. Pricing and totals for these latter units shall be included in the proposal.

Functions/Modes of Operation
Describe all of the functions of each unit in each of the following areas:
(1) Portable Interrogation. The unit should be capable of alerting (if necessary) and receiving the signals from MIUs. The unit should be capable of downloading consumption profile data.
(2) Field Programming. The unit must be capable of programming the MIU with any information required for operation and not pre-programmed. It must be capable of providing instructions to the MIU concerning the make, model, and data protocol of the meter being connected.
(3) Field Testing. The unit must be able to locate and diagnose problems with a MIU unless the system incorporates an alternate way to make such diagnoses. Town desires that the unit be able to ascertain the condition or remaining life of the battery in an MIU.

Portable Interrogator Range
What is the practical maximum distance at which a portable interrogator will reliably receive the complete meter reading signal from an MIU?

Physical Characteristics
Indicate unit weight and dimensions. Describe any features, such as shoulder or belt strap, to facilitate carrying and preventing it from being dropped. Describe the durability of the unit including its capaTown to endure impacts from dropping onto hard surfaces and its resistance to intrusion from water.

Bar Code Reader
The unit should be capable of accommodating a bar code reader or other device or function to capture meter or MIU numbers from bar codes pasted on these components, RFIDs, or the like.

Batteries
Does the unit use rechargeable batteries? If so, what type? If not, what does it use? How long does it take to fully recharge a battery after a full day of normal use? Can the batteries be recharged in charger cradles separate from the unit cradles? Can the battery be recharged from a 12-volt vehicle system?

User Interface
Indicate the display's overall dimensions, the number of characters displayed, and the height and width of the characters. Does the display allow alphanumeric characters? Include an illustration of the display screen and keypad. How does the unit enable the display to be easily readable in bright or dim light? Indicate the angular range readability.

Audible Tones
Describe any audible tones used by the unit, and their function (e.g., confirming a reading or successful programming, warning of an out-of-limits condition, low battery, etc.)? Can the volume be adjusted?

Manual Entry
Does the unit permit manual entry of meter readings and other information (for example, the information necessary to complete a meter or MIU investigation or repair work order)? If so, what other information? Describe its capability to record notes or comments.

Hardware and Network Configuration

Vendor will provide all of the computer hardware and software needed for a complete and working system. What is the operating system of the system being proposed? Indicate the recommended configuration and number of units of the computer hardware (PCs, servers, other peripherals, printers, etc.) and software (operating system, communications, etc.) that Town should have to properly operate the AMR system. Describe the proposed system architecture. Include a diagram with all hardware elements. Network switches, hubs or additional infrastructure changes required must be proposed and costs must be reflected. Describe and justify the proposed server processor and storage capacities. Indicate the minimum expected availability time of the system as a percentage.

Environmental
Any workstation or control computer should be capable of operating in a normal office environment using normal office power supply, require no special installation, and be easily relocatable. Any server required should be capable of operating in a normal server environment. Describe any environmental requirements.

Uninterruptible Power Supply (UPS)
The control computer, if not expected to be housed in a server environment, should include an uninterruptible power supply. Indicate the recommended capaTown of the UPS.

Remote Access
Town desires that the AMR system functions, reports and data on the control computer or server, be securely accessible by properly authorized persons from other workstations on Town's network using IP communications protocol. Describe how this access is provided and how security is ensured?

System Software
Software will need to,
(1) Operate the control computer that interacts with other AMR system components to obtain meter readings,
(2) Manage the database of meter readings and other information, and
(3) Interface to Town's Customer Care and Billing system and other information systems. These applications may be integrated or separate.

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

AMR 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.

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

Updating Account Data

Describe the procedures for updating relevant account information within the AMR system and/or meter reading database when account information is changed in the Sungard PS Utility Billing application.

Recovery/Restart
The AMR system must be easily recovered and restarted in the event of any interruption or software freeze.

Database

The Town of Virgil would prefer the AMR to be a hosted solution.

The Town currently utilizes software from Williamson Law.

The Proposer will obtain information necessary for preparing bills from the proposed database. This database must contain at a minimum: account number, MIU ID number and/or port number, meter number, meter readings, date and time of each meter reading, geographic coordinates, and tamper indications. If acquired as part of the AMR system, the meter reading database may contain additional fields. Describe major database tables and list fields with associated data types. Can Town add or modify fields in database tables? If so, describe provisions and limitations.

Meter Location Data. Indicate any provisions in the database for storing and managing X-Y coordinates or other data for meter location.

Multiple Users
Town desires that the system support multiple users at multiple locations. How many concurrent users can the system accommodate? Can the system process batch transfer of meter reading data in the background while allowing users to conduct queries and other transactions?

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

User Access
What provisions exist for data entry and editing by authorized users? What restrictions are placed on such functions to ensure security and data integrity? The system should provide a method to track and monitor all changes to software, hardware, work processes, and equipment. Are edits traceable by the Town? Are restriction settings customizable by the Town?

Customer Access
Describe any provisions for allowing customers to access their own consumption history and profiles.
CapaTown
Describe any capaTown limitations on the number of accounts, number of readings per account, etc. readily accessible for the configuration proposed. Describe any provisions for archiving and retrieving additional data.

Security

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

Back-Up
Describe data back-up capabilities and procedures to ensure that system and consumption data are not corrupted or lost.

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. Report formats should be user-customizable, using a built-in report writer or third-party commercially available report writer that is included with the control computer software. Reports must be able to be directed to a printer, screen, or data file. The control computer software should enable users to do *ad hoc* queries. Describe any existing applications interfacing with maps for presentation.

Traps for Questionable Readings
Describe any system capabilities to validate meter readings for reasonableness, unusually high or low readings, and potential meter rollovers.

Customization
Indicate the nature and extent to which standard reports can be customized. Permissible customization shall not void any software product warranties, nor prevent any overlay of future software releases.

Software Documentation
Documentation shall be provided with the software and should include at a minimum: system overview description, system flow charts, file descriptions and record layouts (include descriptions of fields that can be customized for Town applications), database structure diagrams, description of program function and logic, back-up and recovery procedures, operating procedures, screen layouts, data entry procedures, report descriptions, descriptions of all user options, and descriptions of all error messages.

Maintenance and Escrow
The Proposer-supplied software shall be available for 15 years with enhancements, patches, and corrections of "bugs," at no additional cost to Town beyond the annual maintenance fee. Proposer must promptly notify the Town if it introduces newer or later versions of the software or any of its components. A copy of the software's source code, compiled form, and documentation shall at the Proposer's expense and be maintained in escrow by a data security company mutually agreed upon by Town and the Proposer. If the software's licensor is dissolved, liquidated, or ceases doing business as an entity, or is put in receivership, the software shall be released to Town under circumstances acceptable to the Town, which shall have a nonexclusive, fully paid-up irrevocable, perpetual, worldwide right and license to use the software source code to the extent necessary to support and maintain the deliverables and performance of the system(s). Town shall be entitled to make copies of the software, including any third-party software, and any user manuals for backup and archival purposes.

Third-Party Software

Town desires that the Proposer shall own all software, except for commercial generic third-party packages used to support the Proposer's system (e.g., relational database management system, report generator). Proposer must secure for the Town sublicenses or direct licenses for all third-party software necessary for the systems to function as proposed.
Indicate third-party provider of software specifically designed to support the Proposer's software. Indicate the warranty, licensing, and support provisions for any such packages. Such specialized third-party software should be under the control of the Proposer, and be subject to the provisions of paragraphs (license and warranty) and (maintenance and escrow).

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/USB Drive in a printable format.

Third-Party Software Manuals
Manuals for any third-party software components incorporated into the system shall be available online or on CD/DVD/USB drive in a printable format, **Updates and Revisions.** Proposer shall promptly update online documents whenever there are any revisions or additions to the manuals.

Change Control Tracking
Provide a method to track and monitor all changes to software, hardware, operation, and maintenance procedures and equipment.

Training

Prerequisite to Installation
Proposer must provide training to Town staff as discussed in **Onsite Support** prior to the commencement of installations. There will be no installations permitted until after Towns's staff is properly trained.

Training On Town's Installed Equipment
Proposer should provide all additional training on Town's AMR system equipment (including the control computer and database) after it is installed, tested, and accepted by Town. Training should use real data from Town's own system.

Location
All training shall be done at Town's offices and facilities, or in the field in Utiity.

Training Curriculum
Proposer shall provide thorough training in each of the following areas for the designated number of people. Proposer shall specify teaching method and duration for each of these training sessions. Town’s training facilities may be used for these sessions. All aspects of the AMR system's operation, including obtaining reads and consumption data from the system; transferring reads and other information between the AMR system and the Sungard Public Sector; creating, analyzing, and customizing performance reports; diagnosing potential problems with system components; and changing or adding customer accounts/MIU/ meters to the system.

Testing
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. Proposer shall notify Town of any employees who fail this evaluation, and provide them additional training as required. Proposer shall repeat a training session at no additional cost to town if a majority of the trainees have not attained the skills from the training session or fail the evaluation at the end of the training.

Training Objectives and Outline
Proposer shall provide a detailed outline of each training session's objectives and content at least 2 weeks prior to the training session to Town for review.

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. At a minimum, the Proposer should provide copies for the number of employees to be utilizing the system plus five (5) extra copies.

Supplemental Training
Proposer shall provide a schedule of costs for additional training beyond the initial training proposed.

Restore Equipment
Proposer shall restore, repair, or replace any Town equipment damaged in training, and restore any hardware or software modified in training.

Instructors
Proposer shall provide trained and experienced instructor(s), and ensure that they do not perform other duties during the training period that will interrupt instruction. Instructor will provide a checklist to trainees to evaluate presentation of course materials for effective feedback to Town.

Support

Initial Support Period
Proposer should provide onsite support during the installation period at no additional cost to town beyond the annual component and software maintenance fees.

Extended Support Period.
Proposer should provide telephone and onsite support for 15 years from the date on which the Proposer commences full-scale installation. Proposer shall include in this proposal a schedule of support costs, terms, and conditions. Support shall be renewed at Town's discretion on an annual basis.

Telephone Support
Proposer shall provide trained persons to answer technical questions and guide Town 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. Mountain Standard time Monday through Friday. Indicate telephone support hours proposed. What is the provision for support outside the telephone support hours? Response time to a Town telephone query shall be within 30 minutes. Indicate proposed provisions for support. Describe Proposer's current support

operations (number of persons, location, hours, etc.) and any planned additions as a result of this project.

Onsite Support. Proposer shall be required to provide onsite assistance at the request of Town. Onsite support should be rendered within twenty four (24) hours of receiving a request for support.

System Monitoring by Proposer
Town desires that the AMR system include a provision for the Proposer to remotely connect to the control computer or database server to diagnose problems, load patches and upgrades, etc.

Preventive Maintenance Provisions
Proposer shall describe in its proposal recommendations and requirements for AMR system preventative maintenance, back-up, archiving, etc.

Escalation Provision
Proposer should provide an issues escalation provision to address issues unresolved within a reasonable timeframe.

Installation

Installation Sequence
Proposer shall conduct installations by route, or group of routes. Route groups should be based on geographic proximity and logistics, and neighborhoods to be determined by Town in discussion with the Proposer. Town will retain the right to prioritize other communities, or to reorganize priorities, both before the program begins, and during the program. Unless approved in writing by Town, the Proposer shall complete at least 90 percent of the installations in one route or group of routes before commencing installation on the next route. Exceptions to the requirement to complete an installation may be granted by the Town. For example, a property that is vacant or abandoned, has no meter or no existing standard connections for a meter, has piping or plumbing deteriorated or in fragile condition, has bad control valves or curb stops, may be excluded by Town from the properties that must be metered. These will be treated as if they had not been assigned when computing the percentage of assigned properties completed.

Installation Schedule
Town and the Proposer shall establish an overall schedule for installation of the entire project. On the first work day of each week, the Proposer will provide Town an updated schedule of where work is planned for the next 3 weeks.

Work Hours
Proposer shall propose normal work hours, which must be approved by Town. Installers must be available for evening and Saturday installations, as well as for installations that must be conducted at other times because of special needs..

Daily Reports
A listing of all installation sites to be visited by Proposer's installers each day shall be electronically transmitted to Town each work day prior to 8:30 a.m. At the end of each day, the Proposer shall transmit electronically to Town information on work performed in a Town approved file format.

24-hour Customer Access
For 90 days after Town was notified of a given installation, Proposer must respond to calls from the customer associated with that installation or Town concerning leaks, loss of service, low pressure, and other problems associated with installation on a 24-hour-per-day basis.

Town Project Manager
Town will designate an employee or agent who will manage the project on behalf of Town. The function of this Project Manager is to coordinate with the Service Provider and promote compliance by the Proposer with the specifications. The designation of a Project Manager shall not relieve the Proposer of its full responsibility to comply with the terms of the Contract and/or all plans and specifications.

Installation Acceptance
Each installation will be accepted by the Town conditioned upon:
(1) Electronic submission of a list of completed installations containing for that installation the premise identification number, address, old and new meter serial numbers, old and new meter readings, MIU serial number, location of meter and MIU, installer's name, Proposer' inspector's name, and all other information relevant to the installation; and,
(2) Receipt or access to required digital photographs;
(3) At its option, satisfactory inspection by Town; and,
(4) Confirmation that MIU ID numbers, meter register numbers, and other information have been correctly captured in the AMR control system database and/or Town's project management database for each customer's premises.

Installation Conditional Acceptance
If Town does not inspect the installation within 7 calendar days of being notified of the installation, or if Town does not attempt to obtain confirming readings for the installation within 7 calendar days of being notified of the installation, or if Town does not confirm that the correct information for the installation has been captured in the AMR control system database and/or Town's project management database within 7 calendar days of being notified of the installation, through no fault of the Proposer, then such installation shall be deemed by Town to be conditionally accepted; and Town shall pay the Proposer. However, if Town finds discrepancies in the conditions of acceptance for 12 months after the date it was notified of installation, Town shall debit the payments from any amounts owed the Proposer, and remands the work to the Proposer for correction.

Payments
Proposer shall provide to Town electronically on a weekly basis its list of newly completed installations and any authorized additional work in an itemized format. This list shall be attached to an electronic draft invoice.

Town shall notify the Proposer of any listed items that do not meet the conditions of Installation Acceptance mentioned above, so that the Proposer may resolve any discrepancies. Town may at its discretion reject the entirety of any list on which there are discrepancies in more than 10 percent of the entries. Town shall process all other items as acceptable and arrange payment for these. Payments will be based on the price schedules as agreed to between Town and the Proposer, based on prices submitted by the Proposer.

Automated Project Control Process
Proposer should utilize an automated installation information management process, so that little or no information has to be captured or entered manually. The system should use electronic tags, bar coding, or the similar means to capture equipment identification numbers. The system shall have a redundant backup process, so that all information is preserved in the event of a breakdown in the primary system. The system should enable the correction of any incorrect information pertaining to meter or service size, meter type, meter location, address, etc.

No Solicitation
No Proposer, or its employees or agents, may solicit business from or perform work for the Town's water customers while engaged on any contract associated with this project.

Proposer Staff

Installation Manager
Proposer shall designate in the proposal an Installation Manager, who shall be responsible for managing the entire installation project on a day-to-day basis on behalf of the Proposer and for seeing that all installations are carried out in a professional manner and in compliance with the procedures required by the system Proposer/manufacturer; Town; and all other applicable local, state, and federal regulations. The Installation Manager should be onsite continuously throughout the duration of the project, except for holidays and vacations, during which the Proposer shall provide a qualified substitute. The Installation Manager shall be experienced in supervising meter installation contracts, and AMR systems with applicable regulations and safe and proper installation procedures. Town shall approve the Installation Manager or a change in the Installation Manager. Proposer shall submit resume and references of candidate(s) for Installation Manager.

Installers
All Proposer's installation employees or subcontractors shall be fully trained by the Proposer in the removal of existing meters and the installation of new meters and MIUs. They shall also be trained in retrofitting newer meters as requested by Town with AMR-compatible registers and MIUs, regardless of size. Town reserves the right to require Proposer to retrain, reassign, or remove from the project any employee or subcontractor who fails to perform workmanlike and competent work. In addition, all installation employees are required to comply with the local codes of the jurisdiction where the work is taking place.

Licensed Plumbers
Proposer shall engage by employment or subcontract at least one person who shall maintain a valid and current Plumber's License. These people will be appropriately licensed and registered in Utiity or any surrounding community they are required to work in.
This person(s) shall be responsible for supervising the work of all Installers, and correcting any problems or damage to plumbing occasioned by the changing of meters or registers and the installation of the AMR equipment under this contract. Proposer shall provide references for each such person. Town reserves the right to approve licensed plumbers for work on this project.

Bonding, Background Checks
Proposer shall bond all Licensed Plumbers and Installers in a manner appropriate for Utiity or any surrounding community in which they are required to work. Proposer shall subject all employees to a criminal offense background check and drug and alcohol testing. Proposer shall

not employ as Installer any person who fails these checks. Town reserves the right to review all background checks and prevent any such employee from working on Town projects. Describe ongoing random testing programs for drugs and alcohol.

Training and Inspection of Employees
Describe training and inspection procedures, and probation provisions for new employees.

Items to be Supplied by Proposer

General
Proposer will supply the following components and aspects of installation: overall project management; training and direct supervision of installers; appointment scheduling; problem solving and complaint handling; and inspection, testing, and quality control.

Tools and Materials
Proposer shall furnish all supplies, materials, tools, and equipment necessary for the successful and timely completion of all meter and AMR installations under this contract as specified herein.

Vehicles
Proposer shall be responsible for all vehicles it uses on the project. Proposer should provide service vehicles onsite stocked with common fittings and supplies needed for normal service restoration and/or replacement. Any employee of the Proposer or its subcontractors who drives a vehicle in connection with this project must have a valid driver's license for the class of vehicle being driven, and must be insured as set forth.

Account Data and Installation Scheduling

Account Data File
Prior to the start of the installations, the Town Project Manager will provide the Proposer with an electronic file containing the information necessary to create work orders for meter/AMR installation. Town will provide the Proposer with weekly updates to this file for routes where the AMR system has not yet been installed. For each meter, the data file will indicate the meter size, make and serial number, whether the meter shall be retrofitted or replaced, the meter location (inside, outside, or unknown), access notes to the meter, and the name and phone number that may be listed on the account.

Customer Notification.
At least 2 weeks prior to the commencement of installations on a particular route, Proposer shall send approved notices to the customers and owners of property on that route indicating the time when installations will occur and requesting that customers and owners call the Proposer if the customer has special needs regarding the momentary disruption of water service. The text of all Proposer letters, door hangers, and other communications with customers must be submitted to Town Project Manager for approval at least 2 weeks prior to use. Proposer shall also develop and submit to Town the scripts for any telephone conversations with customers for approval by the Town Project Manager at least 1 week prior to use. Submit samples of customer communications.

Notification of Owners (Important)
The owner may authorize the Proposer to make an appointment with a tenant or the owner's representative. Proposer shall document such authorization.

Inaccessible Meter
In the event a meter is obstructed or is not accessible, the Proposer will make at least two attempts at any reasonable time within 30 days of encountering the inaccessible meter, to notify the customer to remove the obstruction or provide access to the meter. These attempts must be documented on the work order. After three documented attempts t change the meter, the Installation Manager may request the Town Project Manager to schedule the meter change-out or retrofit.

Installation Procedures

Procedures Approval
Proposer shall propose detailed scheduling and installation procedures to Town for approval prior to scheduling or commencing installations. The procedures should be designed to optimize the work of the Installers, Town field inspectors, and all other staff working on the project.

Procedures Pilot Testing
Prior to the commencement of full scale installation, but after the Proposer shall have installed the AMR system control computer and a sufficient quantity of data collection units, the Proposer shall install the meters and meter reading equipment on three of Town's routes (comprised of approximately 400 meters) following the Proposer-proposed procedures. During this Pilot test and a period not longer than twenty (20) business days following it, Town and the Proposer shall evaluate the procedures for public notification, scheduling installations, meter and MIU installation, data transfer to Towns's billing system, meter reading over the system, installation data management and project control, and problem resolution, to ensure they are working and effective. Town may require the Proposer to modify any procedures that it deems are deficient or ineffective or otherwise unacceptable to Town. No work will be started on other routes until the AMR system equipment is determined to be working to performance requirements on the test routes, the project control procedures and systems are determined to be performing accurately, and the installation procedures have been approved by Town.

Work Order Processing
Proposer shall be responsible for ensuring that all data transferred to and from Town's information systems are properly working before commencing any installations.

Work Order Data
Each work order will include, at a minimum, the customer's address, premises identification number, meter location, meter access notes, designation of replacement or retrofit, existing meter number, existing register number, meter make, model and size, and most recent meter reading, location information, MIU ID number, MIU location, new meter number, and new reading. Town desires that all work orders be electronic.

Site Conditions
Before, or at the time of installation, the Proposer shall inspect the existing water meter setting, including piping and control valves. If the Proposer determines that conditions are such that damage to the existing piping would result, the Installation Manager shall immediately contact the Town Project Manager, shall not attempt the installation until the site is inspected by an

authorized Town representative, and shall postpone installation at that site until the Town Project Manager authorizes the Proposer to proceed with the work.

Old Meter Reading (Replace old meters only if necessary)
Proposer shall apply procedures to ensure that any meter being replaced is read properly. Proposer shall provide digital photographs of the reading on the old meter register Proposer shall apply procedures to ensure that photographs shall clearly show the reading. Such procedures should include taking pictures of the old equipment while it is still installed when this is practical, but should include alternative procedures, as needed, to ensure that pictures are taken in adequate light and from an appropriate angle to ensure that they legibly show the meter reading and are appropriately labeled with date, time, and premise information.

Repairs
At its option, Town may authorize the Proposer to make any repairs necessary to install a meter to service lines or piping, order the customer to make such repairs, or undertake such repairs itself.

Old Piping
Old piping per se should not be grounds for the failure of the Installer to replace a meter designated for replacement, only when old piping is leaking or deteriorated to a point that damage to it could reasonably be expected by changing the meter will poor piping be accepted as a reason for not replacing the meter. Unless Town's Project Manager remands the particular installation to Town for further action, the Proposer is still required to install the meter and AMR equipment if the piping has been repaired or replaced within two months of the determination by Town that repairs are needed.

Meter Replacement
Installer should ensure he is at the correct location of meter, and check for running water prior to commencing meter change-out. Installer must turn off the water to the building, before replacing the meter. Installer shall then replace the meter, using new gaskets or washers. Installer shall return old meter to Town Project Manager. All meter adapters, bushings, or other hardware necessary to install the new water meter in the consumer's existing meter setup must be furnished by the Proposer. Proposer is required to install standard connections (meter couplings) for all 5/8 x 3/4" thru 2" meters if none exists currently. These couplings must receive prior approval from Town.

Proposer shall provide in the pricing tables a price for installing a permanent grounding wire (materials and labor) at each location where one does not exist.

Meter Salvage
Proposer shall return all replaced meters to the town warehouse.

Strainers
If there is a strainer at any installation, the Installer shall clean it and restore it.

Verifying Service Working
Installer shall flush water line after installing a new meter to ensure the meter is registering properly and verify service restoration to the entire premises.

Valves

The control valve located on the main service line immediately upstream of the meter shall be defined as the "stop and waste" valve. If the Installer cannot shut off water using the stop and waste valve (details must be documented on a work order), he or she shall have the option of closing the curb valve, or using a non-Freon-based freezing tool to restrict flow of water in the pipe. At no time shall an Installer use crimping or cause any permanent injury to the plumbing to restrict water flow. It is the premise owner's responsibility to provide an accessible, visible stop and waste valve. If an inside control valve is not visible, the Proposer shall contact Town's field inspector who will verify that there is no accessible stop and waste valve, cite the owner, and explain the corrective measures that must be taken. The curb valve is the appropriate point at which to shut off water service to the home/dwelling so that an inoperable or defective stop and waste valve can be repaired or replaced. If the curb stop valve cannot be located or is inoperable, the Proposer shall notify the Town Project Manager and Town will rectify the problem. If shutoff valves cannot be reopened, the Proposer shall replace such valves following Town rules, regulations and specifications, upon being authorized by Town. Valves provided by the Proposer must conform to Town's specifications and approved materials list.

Internal Plumbing Irregularities

Proposer shall report to the Town Project Manager, prior to the installation of a meter, any internal meter and/or plumbing irregularities including but not limited to meters installed backwards and disconnected meters or any other indication of tampering such as magnets, if meter has been removed and replaced with connecting pipes; if registers are disconnected from meters; if there are illegal connections before a meter; if there are unmetered connections of a customer's plumbing to a service lateral, fire pipe, or water main; or if there are any other violations of Town’s regulations. Proposer shall not proceed with the installation of a meter until the Town Project Manager has authorized such installation in writing.

Dirt or Water Around Meter

Proposer shall be responsible for removing and properly disposing of any reasonable amount of dirt needed to access a meter in a meter vault. Dirt shall be removed such that there is a minimum of 2" clearance below the meter. Proposer shall attempt to expose connection to the service line and any piping between the service line connection and the meter to ensure that they are in a condition that will not be damaged by changing the meter. If a water meter vault is flooded so that the meter is fully or partially submerged, the Installer must pump out the vault before changing the meter. The pumped-out water shall be disposed of in a safe and proper manner as to not cause harm to the surroundings or to others. Installer must ensure that the water service is not in any way contaminated, even intermittently, by standing water in the meter vault. All waste resulting from cleaning the meter vault as well as replacing the ring and lid must be cleaned up and disposed of properly by the Proposer. The existing ring and lid, if replaced, shall be disposed of by the Proposer. If grass or shrubbery is damaged by the installation process, the Proposer must repair the damage to the original condition to the satisfaction of the customer by replanting, resodding, or reseeding. The proposer must provide a photograph of this repair work. The proposer is responsible for any required traffic control. The work must comply with all appropriate traffic safety regulations. Town reserves the right to inspect any installation and cleanup work within 30 days before payment is made to the Proposer. Town reserves the right to inspect any installation and cleanup work within 90 days after installation in response to customer complaints

of damage. Proposer shall be responsible for claims resulting from damage caused by installation.

Service line Damage

Proposer shall be responsible for repairing any service lines it damages at its sole cost and expense, unless the Installation Manager has reported, prior to commencement of installation, a condition of antiquated or inferior plumbing to the Town Project Manager and
the Town Project Manager has authorized the Proposer to proceed with the work. In the event a service line fails during or after the installation procedure has been authorized to proceed, the Proposer's licensed plumber will oversee the repair work required to restore the water service line to working order. The cost of this work will be reimbursed to the Proposer at a price set out in the table below. This price will include site preparation, all labor, material, and permits as required. All work must comply with Town's standards for service repairs or replacement, Town personnel shall inspect all work, payment for which is subject to approval by Town.
Any damage done by the Proposer outside the area and scope of the work of the contract shall be repaired or replaced at the Proposer's sole cost and expense.
All plumbing work other than the replacement of a water meter must be authorized by Town and inspected by a Town field inspector and will be subject to Town approval. Compensation for such plumbing work is:

Service Line Size	Reimbursement per incident (up to 10 feet of pipe)	Reimbursement per foot in excess of 10 feet repaired
5/8”	$150	$30/foot
¾”	$150	$30/foot
1”	$175	$35/foot
1 ½”	$175	$35/foot
2”	$200	$40/foot
Proposer may provide alternate prices for this table		

Meter Retrofit

Installer shall ensure that he/she is at the correct location and meter before commencing installation.

Seals

Installer shall seal the meter register with Town-approved seals. Town will provide seal crimper tools. Installer shall seal MIU if it is so equipped with Town-approved seals. Proposer shall document its procedures for controlling meter seal inventory so that all seals can be accounted for. All unused seals and related tools shall be surrendered to Town at the completion of the project.

Completed Work Orders

Completed work orders shall include: meter size and meter type, verification or correction of existing meter and account information, old meter serial number, final reading on old meter, new meter number, new meter register number, premises identification number, MIU ID number, reading on new meter register, date and time of installation, name of installer, and notice of any problems encountered or repairs made. All information requested on the work order must be completely filled out for the installation to be considered complete and eligible for payment. An

electronic copy of all the work order information must be provided to the Town Project Manager on a daily basis.

Quality Control

Response to Complaints

Should the Proposer receive a call or complaint from a customer or Town regarding installation, the Proposer shall immediately log the call, including caller's name, address, account number if available, date and time of call, nature of problem, and the action taken.
Copies of all call logs shall be forwarded to Town's Project Manager not less than once per day.

Improper Installations

Proposer shall be responsible for replacing any meter, register, MIU, or appurtenances improperly set by its Installer at no additional cost to the Town. Proposer shall correct any damage to couplings, threads, unions or meters by use of improper tools or cross threading by an Installer.

Leaks after Installation

Proposer shall be responsible for correcting any leaks at the valves, couplings, or service lines that could reasonably be attributed to the meter installation if reported by Town or customers within 90 days of installation at no additional cost to the Town or customer.

Installation Control and Audit Procedures

Proposer shall describe in detail its proposed system for ensuring that all data pertaining to installation are correctly recorded during installation, and that all data transferred to the HTE System are accurate. Proposer shall describe procedures to eliminating any opportunities for a meter or MIU to be associated in the control computer or the HTE System with the wrong address or account number.

Project Management

Project Management Approach

Describe the proposed approach to project management to show the relationship between Proposer staff and Town staff. Provide roles and responsibilities of key personnel including:
Installation Manager, Contract Manager, Town Project Manager, Proposer field inspectors, and Town field inspectors.

Project Management Reporting

Provide sample layouts of all anticipated reports for managing the project to ensure the contract is completed, on time, within budget, and meets all performance requirements as outlined.

Installation Management Meetings

Describe the proposed meeting plan including reporting requirements, expected participants, frequencies, and expected topics of meetings to ensure timely, cost-effective, and high-quality installations and customer satisfaction assurance with the installations.

Warranties

AMR 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 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 10 percent-per-year pro-rated increasing cost to Town of the then currently available purchase price.

All other AMR system components shall be guaranteed for two (2) years 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 Town to begin full-scale production.

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.

Guarantee of Meter and MIU Interoperability

AMR Vendors shall provide a written guarantee from the meter manufacturers with which it is compatible. Such compatibility shall be confirmed in writing by the AMR manufacturer. In the event of incompatibility or loss of functionality tied to any changes in the meters, the Service Provider shall be responsible to replace all such meters installed in the , including labor.

AMR vendors shall provide a written guarantee that no changes in the software, firmware, or hardware design of components of its MIUs or DCUs that it provides to the Town for ten (10) years from the Commencement Date will be made without prior testing and verification that such changes will result in no loss of functionality for the meters incorporated in the Town's AMR system. In the event of such incompatibility or loss of full functionality, the Service Provider shall be responsible for replacing all of its equipment that is networking, including labor.

Warranty Against General Nonperformance or Excessive Failures

The Vendor of the AMR equipment shall warrant the MIUs against failures that exceed the guaranteed maximum failure rates. Should the failure rates exceed these levels, or should the system in its totality substantially fail to perform such that Town cannot reliably use the system for billing, or should the occurrence of erroneous or inaccurate meter readings exceed 50 per thousand per year, then Town may notify the Service Provider of this condition, whereupon the Service Provider shall be responsible for promptly restoring the system to its normal level of reliability and accuracy at its sole cost and expense.

Site License

Any meters or meter reading equipment (including software) to be provided by the manufacturer shall be accompanied, at no separate cost to Town, by a perpetual license to use this equipment in combination with any other meter reading equipment or meters, respectively, supplied to Town by any third party, whether or not licensed directly by the manufacturer; provided, however, that such other meters or equipment can be demonstrated not to damage or materially compromise the performance of the manufacturer’s or supplier’s meters or equipment. The site license, as

well as all agreements stemming from the proposal, shall not contain any clauses or languages that prevent parties from acknowledging the existence of the site license or the agreements.

Performance Standards

The following performance standards shall be maintained.

Standard	Definition	Measured over	Limit	Impact on Installation Service Provider
Call Center Performance, call answered	Percentage of call answered within 60 seconds	1 month	85%	No new work given if percentage does not approve to acceptable levels in next month.
Call center performance, call abandoned	Percentage of call abandoned after 60 seconds	1 month	1%	No new work given if percentage does not approve to acceptable levels in next month.
Installation Quality	Percent of installations deemed unsatisfactory upon quality control inspection by Town	Per batch	1%	No new work given if installation quality does not improve to acceptable levels in following month
Contact for Inaccessible Meter	Percent of customer who have obstructed or inaccessible meters for which three attempts were made to install the meter	1 month	99%	No new work given until contact percentage reached
Inspection Sample	Percent of installations that have been inspected for quality	Per batch	5%	No new work given until inspection numbers meet agreed-upon standards
Inspection Sample, New Installers	Percent for new installers and other installers	Per batch	50%	No new work given until inspection numbers meet agreed-upon standards
Customer complaints	Percentage: Number of customer complaints divided by total installs	1 month	3%	Retraining employees on whatever deficiency is involved, still no improvement-possibility of contract termination.
Data Discrepancy	Percent of work orders turned back to Installation Service Provider after failing Town first data validation.	1 month	1%	No payment until confirming reading obtained
Problem Account Follow-up	Installation Service Provider Number of days to make repairs on accounts in which a confirming reading was not received after two attempts and in which	Days form which Installation Service Provider is notified of	99%	15 days to correct problem, If problem not corrected, 10% monies retained on future invoices until such time as problems are corrected.

	a preliminary investigation by the Town inspector determines a possible cause related to Installation Service Provider installation or meter/AMR equipment	the problem accounts		

SOFTWARE / MIU INSTALLATION AND TRAINING

The manufacturer's certified training personnel shall install and test the Reading Data Management Software at the utility location. Upon successful completion of the set-up, the manufacturer's certified training personnel shall provide a minimum of two (2) days training at the utility site on the operation and maintenance of the system. Training shall include training of field technicians on the installation of field MIUs as well as an overview of network infrastructure installation. Initial configuration and testing are the complete responsibility of the successful bidder. Follow up or customized training will be available on an optional per diem basis.

NETWORK INFRASTRUCTURE INSTALLATION AND TRAINING

The manufacturer will offer the utility assistance in the process of surveying, planning and training utility personnel for the installation of the network infrastructure. Furthermore, the manufacturer will offer turn-key installation services for the network infrastructure.

EXPERIENCE

The manufacturer shall have a minimum of ten years of product experience in the field of water AMI / AMR.

PRODUCT / SYSTEM SUPPORT

Manufacturer shall provide continued support of the AMR system after completion of training. Technical support shall be available 24 hours a day, 365 days a year.

GENERAL SYSTEM PERFORMANCE

The Successful Proponent or AMR System Contractor shall provide all necessary plans to test the following system attributes:

1. Data Interface of Utility Billing System to AMR Reading Data Management Software: Demonstrate that the Billing System account information can be sent to the AMR Reading Data Management Software via a working interface file. Also demonstrate that AMR Reading Data Management Software can send a file with consumption readings back to the Utility Billing System via the same working interface file.
2. MIU to DCU Data Communications: Demonstrate that the MIU is being received by the DCU through a report created at the AMR Reading Data Management Software.
3. DCU to AMR Reading Data Management Software Data Communications: Demonstrate that the MIU is being received by the DCU and that the data is being sent to the AMR Reading Data Management Software by generating a report created at the AMR Reading Data Management Software showing the MIU data and its DCU origination point.

Testing can take place as soon as a minimum of 15% of the DCU system infrastructure has been installed. The Successful Proponent or AMR System Contractor must provide written documentation to prove all system attributes have been tested and are working properly prior to the start of the Testing procedure.

TESTING – LIVE SYSTEM FIELD PERFORMANCE

Testing shall follow the consecutive steps outlined below:

1. The Successful Proponent or AMR System Contractor shall demonstrate to the Utility after the first 15% is installed for testing.
2. A minimum of twenty-five (25) MIUs shall be installed in the vicinity of each DCU to be tested in phase two and tested for data communications through the system. The Utility and Successful Proponent or AMR System Contractor shall agree upon the installation locations of the MIUs to be installed. (A minimum of 15% of planned DCUs will be a part of testing.)
3. The Utility and Successful Proponent or AMR System Contractor shall agree on a start date for each seven-day production testing period.
4. The Conditional Acceptance Testing for the DCU and MIUs communicating to it will be deemed successful if an Acceptable Read Success Rate is achieved (i.e. a Read Success Rate of greater than 97.5% for daily readings with 24 hourly reads, with a minimum of 1 reading for 100% of the MIUs in the test) over the 7-day production testing period. Any DCU or MIU circumstance outside of the control of the Successful Proponent or AMR System Contractor such as: power outages, vandalized equipment, etc., not be included in the Read Success Rate of the system.
5. In the event that the system fails to achieve an Acceptable Read Success Rate over a 7-day production testing period, the Successful Proponent or AMR System Contractor shall work with the Transmitter Installation Contractor or Utility to correct the problems and shall notify the Town when the problems have been corrected. The 7-day production testing period shall start over again for the entire batch for a further 7 trouble-free days.
6. Immediately following a successful testing period, the Successful Proponent will invoice the Utility in the amount agreed upon per contract to the Successful Proponent or AMI System Contractor to cover the installation and any other services agreed to per contract, thus indicating conditional acceptance.
7. In the event that either system test fails to achieve an Acceptable Read Success Rate over two (2) successive 7-day production testing periods, the Utility may deem the System be a failure and at its option may terminate the production testing period and terminate the Agreement. The System shall be returned to the Successful Proponent or AMR System Contractor at its expense, and the Contractor shall be responsible for ensuring that installation sites are returned to the same or better condition that they were in before the Work began.

ONGOING GENERAL SYSTEM PERFORMANCE

All future network infrastructure and MIUs will be required to pass the applicable testing outlined below in order for the Successful Proponent or AMR System Contractor to receive payment.

1. MIU to DCU Data Communications: Demonstrate that the MIU is being received by the DCU through a report created at the AMR Reading Data Management Software.
2. DCU to AMR Reading Data Management Software Data Communications: Demonstrate that the MIU is being received by the DCU and that the data is being sent to the AMR

Reading Data Management Software by generating a report created at the AMR Reading Data Management Software showing the MIU data and its DCU origination point.

The Successful Proponent or AMR System Contractor must provide written documentation to prove all system attributes have been tested and are working properly.

Meter Specifications for this project

It is the intent of Town of Virgil install new residential meters currently deployed with an existing AMI system. All meters are required to meet the NSF/ANSI Standard 61 for leached lead performance as well as the NSF/ANSI Standard 372 for weighted average lead content which will become federal law when changes to the Safe Drinking Water Act (SDWA) take effect in January 2014.

Any 5/8”x3/4”, 3/4x3/4”, 1”, 1-1/2” and 2” meters furnished for this project must conform to the “Standard Specifications for Cold Water Meters” C708, latest revision as issued by AWWA. They shall have a bronze maincase with serial number stamped on the maincase between the outlet port and the register. Meters of a composite, plastic, polyester or aluminum construction will not be considered acceptable. Only meters designed to read water veloTown through a multi-port design will be accepted because of improved operation. Mag meters, Ultrasonic Meters, positive displacement and Fluid Oscillation meters will not be considered as an acceptable alternative.

Measuring impeller must contain a sapphire bearing which ride on a stainless-steel shaft with a carbide tip for added life and accuracy. Meters that use magnetic or sonic sensor within their read chambers and positive displacement type meters will not be considered acceptable. Maincases shall be of the removable bottom plate type bronze bottom plate on 5/8”x1/2”, 5/8”x3/4”, 3/4x3/4” and 1” sizes. The ends 5/8”x1/2”, 5/8x3/4”, 3/4x3/4” and 1” shall be standard male meter threads.

Only proposals with Bronze bodied meters with bronze bottom plates will be considered responsive. No “Low Profile” or “Reduced Chamber” meters will be accepted. 5/8”x3/4”, 5/8”x3/4” meters must be designed to flow and read a minimum of 25 gallons per minute at intermittent high flows. Only Multijet meters with this capability published on their current literature will be accepted.

All meters shall contain a removable, 360 deg plastic strainer screen located at the base of the measuring element. The register shall be of the straight reading sealed magnetic drive type and shall measure in US Gallons. The register must have a tempered glass lens, copper base and be roll-sealed and dry. No rounded or domed lens will be accepted. The register must contain a low flow indicator to provide leak detection as well as a separate calibration dial for use in checking the meter accuracy without taking the meter off-line. Register shroud shall be made of high-density synthetic polymer. All meters are to be of a direct read type, with an external AWWA C-707 encoder. The registers shall be secured to the maincase by means of a tamper resistant screw. Tamper seals or pins will not be considered an acceptable alternative.

To ensure accuracy, each meter must be accompanied by a factory test tag certifying the accuracy at the flows required by AWWA C708 (low, intermediate and High flow). 5/8”x3/4”, 3/4x3/4”, 1”, 1-1/2” and 2” meters shall have an accuracy of 97% or more at 1/4 GPM. The bidder shall specify warranty and accuracy of registers and of the entire meter assembly. The meters described herein shall be manufactured by (UTILITY NAME) or pre-approved equal.

Residential Meters 1-1/2” and 2”, that are due for replacement, shall be similar in design. The meters shall meet or exceed the requirements of the latest AWWA Standard C708. These meters shall be furnished with flanged ends. Meters shall measure in US Gallons. Meters must be designed to accept the external encoded device as described within the 5/8x3/4, 3/4x3/4” and 1” requirement.

Two dual-body compound meters, a 4 inch and an 8 inch, are due for replacement. An appropriately sized strainer to be provided for each meter. Meters must be designed to accept the external encoded device as described within the 5/8x3/4, 3/4x3/4” and 1” requirement. Mag meters of a stainless-steel construction and ultrasonic meters will be the only acceptable alternative.

All meters listed above are to be of a direct read variety, with the exception of the commercial mag meters or commercial ultrasonic meters but must have an external encoder device fitted to the outside of the meter register. Replacement of the encoder must be able to be accomplished without need of replacement of the existing register.

All meters shall qualify within “Buy America” guidelines and be manufactured by Zenner or be considered a pre-approved equal by the (UTILITY NAME) .

Meter Specifications for this project

Residential Sized (1/2” to 1 1/2”) Ultrasonic Meters

It is the intent of “Town” to install new residential meters currently deployed with an existing AMR system. All 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 which will become federal law when changes to the Safe Drinking Water Act (SDWA) take effect in January 2014
5/8”x3/4”, 3/4x3/4”, 1” and 1-1/2” meters furnished shall conform to the “Standard Specifications for Cold Water Meters” C715, latest revision issued by AWWA. All meters are required to meet C715 accuracy standards at all times. Meters that require conversion to a “test mode” for accuracy testing that adjusts sampling rates will not be accepted. The meters are expected to stay at one sampling rate, whether for field usage or test purpose, for the life of the meter. 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. Also, Positive displacement style meters and Magnetic sensing (Mag Meters) will not be considered acceptable responses for this proposal. The ends 5/8x3/4”, 3/4x3/4” and 1” shall be standard male meter threads. 1-1/2” and 2” meters shall have flanged ends.

All meters shall be of an open tube (chamber) construction without reflectors built into the center of the water column within the meter. 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 meters shall register in US Gallons.

The electronic portions of the 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 meters must provide indication of the following:

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

Proposed meters must come with a hinged, protective lid for the register face. Register and meter electronics shall be housed in a casing of high-density synthetic polymer. All 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 meters designed for use with an external transmitter will be considered. Due to their higher costs, meters designed with AMR or AMI capability contained within the meter will not be accepted. All meter 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 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 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 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.

Meters 1-1/2" and 2" shall be similar in design to those listed above. The meters shall meet or exceed the requirements of the latest AWWA Standard C715. These meters shall be furnished with oval flanged ends. All 2" meters shall conform to a lay-length of 10-inches so that one meter can readily be used in all residential and commercial applications for this size meter, thus requiring lower inventory demands on the utility.

Respondent proposals shall also provide commercial sized ultrasonic meters available in sizes 3” to 8”. These meters shall conform to AWWA Standard C715. This class must come with flanged ends and conform to what most of the industry considers standard lay-lengths (3” meters= 12”, 4” meters=14”, 6” meters=18”, 8” meters=20”). The meter flanges must conform to AWWA flange standards of 150 psi working pressure and responding bolt patterns.

Commercial Sized (2” to 12”) Ultrasonic Meters

Except as otherwise modified or supplemented herein, the latest revision of AWWA Standard C715 Electronic Revenue Meters & C750 Transit-Time Flowmeters shall provide theory and operation specifics on the basic ultrasonic concept. This document will govern the materials, design, manufacture and testing of all meters furnished under this specification or equal as approved by the Director or his appointed agent.

AWWA Standards C715 and C750 are considered by the

to be only the minimum requirements and shall be supplemented herein to ensure the quality required by the utilities department.

Meters shall be manufactured by a company with a minimum of ten (10) years’ experience in manufacturing *various types* of cold-water meters such as Residential Ultrasonic, Multi-jet, Positive Displacement, Compound and Turbine Type water meters. The manufacturer shall be incorporated in the United States with corporate offices, assembly & repair facilities within the contiguous United States.

Meters shall be bid without strainers and without companion flanges.

The water utilities department reserves the right to request a sample meter of a small size to study prior to awarding bids.

METER MAIN CASE

Outer cases shall provide full compliance with ANSI/NSF 372 (AB1953 or NSF61 G), and be made of one of the following materials:

Cast ductile iron alloy equaling or exceeding AWWA Standards such as those listed in ASTM A536 or ASTM A126. The main case shall be protected by a complete fusion-bonded coating conforming to AWWA C-550.

All external bolts and nuts shall be made of bronze or stainless steel and shall be so designed for easy removal after having been in service for a long period of time.

The main case shall withstand a working pressure of 225 PSI without leakage, seepage in the castings, or distortion affecting the free and accurate operation of the measuring unit.

The size of the meter and the direction of flow shall be case in raised letters on the outer surface of the case. Meter Serial Numbers and manufacturing information shall be stamped or engraved on a metal plate mounted on the flange of the meter.

REGISTER COVER

The register and electronics housing shall be integral to the meter body and shall be made of ductile iron. The register cover shall be made of stainless steel and be equipped with a hinged lid that will overlap the register to protect the reading area. The meter test information shall be placed on the underside of the register cover. Serial number of the meter shall also be permanently programmed in the electronic register.

REGISTER

The factory sealed register shall be electronically driven only and shall be furnished with a low flow leak detection symbol and with a reverse flow notification symbol. The register shall be identical within a given size or model subject to the programming of appropriate flow factors for the particular meter. The register shall be programmed initially to read in US. Gallons, as ordered by the transparent LCD register glass lens shall be made of molded heat-treated 0.19” glass to ensure against scratching and breakage. Serial number shall be permanently programmed in the electronic register.

As defined in these specifications, a "factory sealed" register shall mean an NEMA 6P / IP68 rating which protects the meter and register against fogging, moisture, and dust, and is electronically driven by the measuring section transit time sensors. Registers and electronics package shall be vacuum sealed, and the entire meter must be designed to function in a fully submersible environment. Ultrasonic meters that do not meet an NEMA 6P / IP68 rating shall not be considered.

Appearance of any fogging or moisture inside the register within the warranty period shall constitute component failure and will require a factory replacement.

The register shall have a multi-line display with a minimum of 9 digits on the totalizer and a stationary decimal separating single billable units from fractional billing units. The register shall have a digit rate of flow indicator with a floating decimal to allow high resolution flow measurement. The register shall have the ability to display $1/1000^{th}$ of a measurement unit to allow high resolution for low flow meter testing or on-site inspections. The LCD shall indicate reverse flow, rate of flow, low battery indication, as well as empty/partially filled pipe conditions. When the meter is providing an encoder output (as described in Section 6A), the register shall have the ability to mount a replacement communications cable with a Nicor connector utilizing Near Field Communications (NFC).

BATTERIES

All meters shall be designed with Factory Replaceable Batteries. The manufacturer must be able to replace the batteries within one of their manufacturing facilities within the United States

MEASURING SECTION

The measuring section shall be a unitized unit, completely integral to the meter body. The measuring section shall not include any moving parts and the measuring section shall have an unobstructed flow passage area at least equal to 50% of the nominal Schedule 40 pipe size corresponding to the meter's size. In order for the meter to condition the flow of the water and more accurately read flows, the tube of the meter shall be completely unobstructed by protrusions or reflector plates mounted in the middle of the meter.

All parts of the measuring section shall be similar with assemblies of the same size and material.

The measuring section shall be secured in a position in the main case in such a manner that slight distortion of the outer meter case will not affect the sensitivity or registration of the meter.

To ensure longevity of service, the performance of the measuring chamber shall be guaranteed to meet required AWWA C715 and C750 standards while conforming to the AWWA M6 Manual for a period of five years from date of manufacturer's shipment.

The measuring section shall be covered for this period by written warranty as required in these specifications.

SIGNAL PROCESSING

Paired transducers are to be mounted in the chordal direct configuration in the measuring section to measure the actual transit time of the initiated and reception-generated ultrasonic sound pulses. Transit time measurements for a single pass of initiated and return pulses are to be accurate to within 300 pico-seconds for a loop time.

Multiple measurements are sampled at a minimum of $1/6^{th}$ of a second intervals of these transit time loops that are made to significantly improve accuracy over a single pass transit time measurements as employed in typical ultrasonic meters to achieve low flow rate measuring accuracy.

When the meter is in storage or in transportation to the customer, the meter shall be in SLEEP mode to preserve the battery. Normal sampling and flow measurement shall be automatic when the meter is filled with water and shall not require the meter to be turned on by the manufacturer or an employee of the utility.

Ultrasonic meters using single directional sound transmission to determine flow measurements are not acceptable. Meters that use measurement principals based on Faraday's Law are not permitted.

A. SIGNAL OUTPUTS

The meter shall be designed to output in ASCII with future option for 4-20mA outputs.

The ASCII Output is to be serial communication collector utilizing UI1203 or UI1204 communication protocol. They shall designate, at the time of order, the type of wired output that is desired, either Gallon, Cubic Feet or Cubic Meters Available options are 1) bare colored wires, 2) Nicor compatible connector, 3) Itron compatible connector,. Encoder output provides the following data through the output cable.

Encoder Single output provides the following

- Meter ID
- Meter Totalizer Reading (up to 8 digits maximum)

INSTALLATION REQUIREMENTS

Although they may be used with the meter, the meter shall be designed so that no strainer or straightening vanes are required. There shall be no internal parts blocking the waterway. No straight runs of pipe shall be necessary before or after the meter.

ACCURACY AND HEAD LOSS TESTS

Meters shall meet current AWWA C-715 and C750 test flows, head loss and accuracy standard.

REAL TIME CLOCK

Meters shall have a real time clock and be capable of providing:

1. Data logging direct from the meter, without the requirement of an RF endpoint. The data logger shall provide two data loggings: one data log in minute readings with a minimum of 2,700 data points, and the second data log in hourly readings with a minimum of 1,400 data points. Each log shall be configurable by the Town. The meter shall be able to log at a minimum of one-minute resolution on the first log and a minimum resolution of one hour on the second log. Data logger shall also log system events, tamper, low battery, and reverse flow measurement.

PRESSURE CAPABILITY

Meters shall operate up to a working pressure of two hundred twenty-five (225) pounds per square inch (PSI) and to a temperature of 122 degrees Fahrenheit, without leakage or damage to any parts. The accuracy shall not be affected when operating at this pressure to possible distortion.

ACCEPTABLE METERS

In the interest of standardization, the following meter lines are acceptable, provided they fully comply with the above specifications and meet all requirements in the bid package:

2. Zenner Stealth Ultrasonic (ZSU)
3. APPROVED EQUAL

All meter models above shall be at a minimum ultrasonic type with at least two transit time paths. All meters not listed above shall pre-qualify. In order to pre-qualify, the manufacturer shall send necessary drawings and technical data to complete a minimum of six-months in field testing. Any exceptions to the specifications shall be pre-qualified by the above method.

ACRONYMS USED IN DOCUMENT

- AMI – Advanced Metering Infrastructure
- AMR – Automatic Meter Reading
- MIU – Meter Interface Unit or Transmitter
- DCU – Data Collection Unit or Gateway Receiver
- FCC – Federal Communications Commission
- RF – Radio Frequency
- Cellular (GPRS) – Cellular General Packet Radio Service
- Wi-Fi – Trade name for a popular wireless technology
- LAN – Local Area Network.

CONTENT OF PROPOSAL

The Town 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 the Town. The prime Service Provider shall have considerable experience in the management of programs of similar project. Additionally, it is expected that the Service Provider team, prime contractor or sub contractor, 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 systems;
- Network hardware and software;
- Communication and data transfer into billing systems; 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 4. Knowledge and Experience List detailed description of the technical capabilities for implementing of AMR System and the installation of equipment to The Town of Utiity.

c. The proposal shall include resumes of key staff personnel, including but not limited to the project or contract manager, deputy project manager, and Installation Manager. This shall apply to the entire team: prime and sub-consultant personnel. The Proposers are discouraged from including resumes of high-ranking members of their firms that are expected to have limited participation or role in the project.

d. The proposal shall provide an organizational chart of the proposed team. It shall describe the team members, firm, and their specific roles and responsibilities. The chart shall identify the office location of each team member and the percent of time to be dedicated to the project.

e. Proposer shall create and provide a schedule for the initial phases of the project beginning with the Notice to proceed and including all the activities required before Pilot testing can begin. This schedule should describe at the least the timetable for supplying and installing the initial data collection units; installation of the AMR control computer software and hardware; developing, testing, and installing interfaces between the AMR system and Town computer systems; identifying and acquiring service provider.

f. Proposer shall provide the names, titles, addresses, e-mail addresses, and telephone numbers of three (3) references, if available, from utilities of size and circumstances most

comparable to the Town where it, or its proposed installation subcontractor, if different, has installed AMR Equipment and where the installation contract has been substantially completed within the past three (3) years.

g. The proposal shall describe the performance record of the Service Provider with regard to delivering quality products within schedule and budget. It shall also describe project controls performance regarding cost monitoring and timely delivering of invoices and client required reports. It shall also describe the record retention and document control methods to be used during this project.

h. The proposal shall provide a listing of the resources: human and tools that the Prime and each Sub-consultant will have available for the project.

i. Campaign Contribution Discloser Form – Attachment No. 1 shall be signed and submitted with each copy of the proposal. **Note: failure to comply with this requirement may result in rejection of the proposal.**

j. Other Requirements Offerors shall submit proposal in one (1) original, and five (5) copies. Proposals shall be limited to a maximum of eighty-five (85) pages, excluding cover sheets and section divider tabs and attachments 1 through 3. Failure to comply with this requirement may result in rejection of the proposal.

Promotional brochures and other literature included in the proposal will be counted toward the total page count.

k. The Proposer is responsible for verification of all system resources and operating system, database and communications software if they will be specifying a system that is dependent on a specific feature of the Town's current computing environment. Proposer is responsible for appropriate sizing of all storage and server resources. Proposer is responsible for verification of all telecommunications resources intended to be used in the back haul of data to the data warehouse. Proposer is responsible for outlining quantity (if any) private or public class IP addresses that will be used for all devices and recommended VLAN configuration if appropriate.

CRITERIA FOR EVALUATION

The Town will award this RFP, assuming all RFPs are not rejected, based on the proposal that best meets our specified requirements. While price will be a factor in consideration of the proposals, it is not the sole criterion. The Town will evaluate all proposals on the basis of selection criteria that include, but are not limited to the following:

a.	Qualifications and experience relevant to this proposal.	50 points
b.	Overall quality of the proposal.	50 points
c.	Cost of Services.	100 points

1. Evaluation Criteria for AMR Systems

Total Life-Cycle Cost: Total present value of initial and ongoing costs to acquire, install, operate, and maintain the system (including backhaul communications) over 15 years, discounting uniformly at the Town's inflation-adjusted cost of capital.
System Capabilities: Degree to which proposed system addresses technical specifications, performance requirements, and desirable functions

Clarity of proposal: Degree to which proposal clearly and concisely follows Request for Proposal and is responsive to all questions.

Meter Interoperability: Degree to which proposed system provides interchangeability among various meter models and manufacturers.

Strength of Proposer: Financial stability and solvency, revenue growth and profitability, and ability to acquire bonding and insurance.

Experience: History of deployment of proposed system. Number of units installed, number of systems, sizes, and ages of deployments. Experience in the industry (with prior systems).

Warranty: Period and extent of warranty coverage on meter reading system components. Overall system performance guarantees. Protection in the event of excessive failures.

Support: How the Proposer will deliver maintenance and operational support, as well as training. Response modes and times.

Ease of Operation and Maintenance: Ease of ongoing use and maintenance of system, including component installation, programming and repair; use of software; interface with billing system; and diagnostic and reporting capabilities.

Read Success Rate: Guaranteed percent successful reads for different reading intervals (for billing, consumption profiling, etc.).

Data Management: Data integrity, security, accessibility, backup/recovery, flexibility, cross system balancing, auditing capabilities, report generation, and queries.

Integration Support: Vendor's ability to develop, document, and support interfaces with Sungard Public Sector 5.0 Select, Town's billing system.

2. Evaluative for Installation and Project Management

Total Costs: Total cost, exposure to cost increases for "non-standard" installations

Installation Management System Capabilities: Degree to which installer's project control system and procedures meet technical specifications and desired functionality.

Clarity of Proposal: Degree to which proposal clearly and concisely follows Request for Proposal and is responsive to questions

Project Management Plan: Procedures, policies for project management, security, safety, customer contact, scheduling appointments, troubleshooting and problem solving. Flexibility to adjust to changing circumstances.

Strength of Proposer: Financial stability, revenue growth and profitability, and Ability to acquire bonding and insurance.

Experience of Proposed Staff: Experience of Project Manager and staff Proposed for this project.

Experience: History of deployments of AMR systems of similar size using similar technology under similar installation conditions.

Warranty: Period and extent of coverage on installation.

Support: Responsiveness to installation problems as well as questions from Town and customers.

AWARD OF CONTRACT

The award shall be made to the responsible offeror whose proposal is most advantageous to the Town of Virgil, taking into consideration the evaluation factors set forth in this request for proposal. After initial ranking of the proposals, at the Town's option, the Town may decide to interview the top three (3) ranked firms to develop final rankings or may consider the rankings based on the proposals as final. Discussions may be conducted with offerors which submit proposals determined to be reasonably susceptible of being selected for award, but proposals may be accepted without such discussions.

TERMS AND CONDITIONS

This procurement will be conducted in accordance with the Town of Utiity Purchasing.

1. Incurring Cost

   Any cost incurred by the offeror in preparation, transmittal, presentation of any proposal or material submitted in response to this RFP shall be borne solely by the offeror.

2. Amended Proposals

   Offerors may submit an amended proposal before the deadline for receipt of proposals. Such amended proposals must be complete replacements for a previously submitted proposal and must be clearly identified as such in the transmittal letter. Town of Utiity personnel will not merge, collate, or assemble proposal materials.

3. Offerors' Rights to Withdraw Proposal

   Offerors will be allowed to withdraw their proposals at any time prior to the deadline for receipt of proposals. The offeror must submit a written withdrawal request signed by the offeror's duly authorized representative addressed to the Purchasing Manager.

   The approval or denial of withdrawal requests received after the deadline for receipt of the proposals is governed by the applicable procurement regulations.

4. Proposal Offer Firm

Responses to this RFP, including proposal prices, will be considered firm for one hundred eighty-three (183) days after the due date for receipt of proposals.

5. Disclosure of Proposal Contents

The proposals will be kept confidential until a contract is awarded. At that time, all proposals and documents pertaining to the proposals will be open to the public, except for the material that is proprietary or confidential. The Purchasing Manager will not disclose or make public any pages of a proposal on which the offeror has stamped or imprinted "proprietary" or "confidential" subject to the following requirements.

Proprietary or confidential data shall be readily separable from the proposal in order to facilitate eventual public inspection of the non-confidential portion of the proposal. Confidential data is normally restricted to confidential financial information concerning the offeror's organization and data that qualifies as a trade secret in accordance with the Uniform Trade Secrets Act, 57-3A-1 to 57-3A-7 NMSA 1978. The price of products offered or the cost of services proposed shall not be designated as proprietary or confidential information. If a request is received for disclosure of data for which an offeror has made a written request for confidentiality, the Town Purchasing Manager shall examine the offeror's request and make a written determination that specifies which portions of the proposal should be disclosed. Unless the offeror takes legal action to prevent the disclosure, the proposal will be so disclosed. The proposal shall be open to public inspection subject to any continuing prohibition on the disclosure of confidential data.

6. No Obligation

This procurement in no manner obligates the Town of Virgil or any of its departments to the use of any proposed professional services until a valid written contract is awarded and approved by the appropriate authorities.

7. Termination

This RFP may be cancelled at any time and any and all proposals may be rejected in whole or in part when determined such action to be in the best interest of the Town of Virgil.

8. Sufficient Appropriation

Any contract awarded as a result of this RFP process may be terminated if sufficient appropriations or authorizations do not exist. Such termination will be effected by sending written notice to the awarded vendor. The Town of Virgil decision as to whether sufficient appropriations and authorizations are available will be accepted by the awarded vendor as final.

9. Legal Review

The Town of Virgil requires that all offerors agree to be bound by the General Requirements contained in this RFP. Any offeror concerns must be promptly brought to the attention of the Purchasing Manager.

10. Governing Law

This procurement and any agreement with offerors that may result shall be governed by the laws of the Town of Virgil.

11. Basis for Proposal

Only information supplied by the Town of Virgil in writing through the Purchasing Manager or in this RFP should be used as the basis for the preparation of offeror proposals.

12. Contract Terms and Conditions

The Town of Virgil reserves the right to negotiate with a successful offeror provisions in addition to those contained in this RFP. The contents of this RFP, as revised and/or supplemented, and the successful offeror's proposal will be incorporated into and become part of the contract.

Should an offeror object to any of the Town of Virgil terms and conditions, as contained in this Section, that offeror must propose specific alternative language. The Town of Virgil may or may not accept the alternative language. General references to the offeror's terms and conditions or attempts at complete substitutions are not acceptable to the Town of Virgil and will result in disqualification of the offeror's proposal.

The contract, including all extensions and renewals, shall not exceed two (2) calendar years in duration.

13. Offeror's Terms and Conditions

Offerors must submit with the proposal a complete set of any additional terms and conditions which they expect to have included in a contract negotiated with the Town of Virgil.

14. Contract Deviations

Any additional terms and conditions, which may be the subject of negotiation, will be discussed only between the Town of Virgil and the selected offeror and shall not be deemed an opportunity to amend the offeror's proposal.

15. Insurance Requirements

Until final acceptance by the OWNER of the Work, the Contractor shall procure and maintain at Contractor’s own expense insurance. This insurance shall protect the Contractor from claims under the Workman’s Compensation Act and such comprehensive general liability and automobile insurance as will protect the Town and the Contractor from all claims for bodily injury, death, or property damage which may arise from the performance by the Contractor, or by the Contractor’s employees, or by subcontractors for the Contractor’s function and services required. All insurance provided shall remain in full force and effect for the entire period of the professional services work, up to and including final acceptance, and the removal of all equipment and employees, agents and Subcontractors there from.

E. Certificate of Insurance

The Contractor being awarded the contract shall furnish evidence of Contractor's insurance coverage by a Certificate of Insurance executed on a form acceptable to the OWNER, to be made a part of the Contract and included with the Contract documents prior to signing the Contract. Such certificate shall indicate compliance with these specifications and shall certify that the coverage shall not be changed, canceled or allowed to lapse without giving the OWNER thirty (30) days written notice. Also, a certificate of insurance shall be furnished to the OWNER on renewal of a policy or policies as necessary during the terms of the Contract. The OWNER shall not issue a Notice to Proceed until such time as the above requirements have been met.

16. Right to Waive Minor Irregularities

The Purchasing Manager reserves the right to waive minor irregularities. The Purchasing Manager also reserves the right to waive mandatory requirements provided that all of the otherwise responsive proposals failed to meet the mandatory requirements and/or doing so does not otherwise materially affect the procurement. This right is at the sole discretion of the Purchasing Manager.

17. Notice

The Town of Virgil criminal statutes impose civil and criminal penalties for bribes, gratuities and kick-backs.

18. Agency Rights

The Town of Virgil reserves the right to accept all or a portion of an offeror's proposal.

19. Ownership of Proposals

All documents submitted in response to this Request for Proposals shall become the property of the Town of Virgil.

20. Use of Electronic Versions of this RFP

This RFP is being made available by electronic means. If accepted by such means, the offeror acknowledges and accepts full responsibility to ensure that no changes are made to the RFP. In the event of conflict between a version of the RFP in the offeror’s possession and the version maintained by the Town of Virgil, the version maintained by the Town of Utiity shall govern.

21. Contact with Town of Virgil Officials or Staff Members

Any inquiries regarding the scope of work outlined in this RFP may be made to the Town Clerk. All inquiries shall be in written form.

22. Responsibility of Offeror

At all times, it shall be the responsibility of the offeror to ensure its proposal is delivered to the Town of Virgil by the proposal due date and time. If the mail or delivery of said

proposal is delayed beyond the deadline set for the proposal opening, proposals thus delayed will not be considered.

23. Campaign Contribution Disclosure Form

Offerors **shall** complete Attachment No. 1 - Campaign Contribution Disclosure Form and submit with each copy of the proposal. **NOTE: Failure to comply with this requirement may result in rejection of the proposal.**

ATTACHMENT NO. 1

CAMPAIGN CONTRIBUTION DISCLOSURE FORM

ATTACHMENT NO. 2

STATEMENT OF QUALIFICATIONS

Furnish the following information about your firm's qualifications & experience. Provide detailed description information that will be used in the evaluation of this bid. Use the space provided to answer all questions. Attach additional sheets as necessary.

1. Name of the firm under which you do business: _____

2. Permanent main office address: _____

   _____

3. Phone No.: ( ) _____- _____ Fax No. ( ) _____- _____

   Email: _____

   Type of organization: (Check all applicable)

   ☐ Individually-Owned ☐ Partnership ☐ Corporation ☐ Joint Venture

   ☐ Private ☐ Public ☐ Profit ☐ Non-profit

   If a corporation, enter the date of incorporation and the state in which incorporated:

   Date: _____ State:_____

4 Enter the number of years you have been in business under the present firm name:_____

5. Number of years of Experience:_____

6. Describe the general background and services provided by the organization: Use additional sheets as necessary:
   _____

   _____

7. Experience: Describe previous experience you have had with similar accounts:
   _____
   _____

8. How is your staff supervised, where is the supervisor's office and how does staff communicate with the supervisor?_____

   _____

ATTACHEMENT NO.3

SIGNATURE AFFIDAVIT
RFP No.
AUTOMATIC RADIO READ SYSTEM AND INSTALATION OF METERS

NAME OF FIRM:	
STREET ADDRESS:	
TOWN, STATE, ZIP	
CONTACT PERSON:	
PHONE #:	
FAX #:	
EMAIL:	

In signing this bid, we also certify that we have not, either directly or indirectly, entered into any agreement or participated in any collusion or otherwise taken any action in restraint of free competition; that no attempt has been made to induce any other person or firm to submit or not to submit a proposal; that this RFP has been independently arrived at without collusion with any other proposer, competitor or potential competitor; that this RFP has not been knowingly disclosed prior to the opening of RFP's to any other bidder or competitor; that the above statement is accurate under penalty of perjury.

The undersigned, submitting this bid, hereby agrees with all the terms, conditions, and specifications required by the Town in this Request for Proposal, and declares that the attached bid and pricing are in conformity therewith.

_____

Signature **Title**

_____

Name (type or print) **Date**

ATTACHMENT NO. 4

Projected Failure Rates – MIUs, Data Collectors and Repeaters

Year After Install	MIU Guaranteed Maximum Failure Rates (failures/1000 units/yr)	DCU Guaranteed Maximum Failure Rates (failures/100 units/yr)	Repeater Guaranteed Maximum Failure Rates (failures/100 units/yr)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			