



REQUEST FOR PROPOSAL

Advanced Metering Infrastructure

June 1, 2011

Proposal Due Date: Wednesday, July 6, 2011
and Time: 3:00 p.m. (Eastern Time)

RFP Number: 2011-002-250

Mailing Address: P.O. Box 4000
Ashburn, VA 20146

Delivery Address: 44865 Loudoun Water Way
Ashburn, VA 20147

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Pre-proposal Conference: Wednesday, June 8, 2011
and Time: 10:00 a.m. (Eastern Time)
Location: Loudoun Water's Board Room
Address: 44865 Loudoun Water Way
Ashburn, VA 20147

IF YOU NEED ANY REASONABLE ACCOMMODATION FOR ANY TYPE OF DISABILITY IN ORDER TO PARTICIPATE IN THIS PROCUREMENT, PLEASE CONTACT PURCHASING AS SOON AS POSSIBLE.

PM initials _____

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1. PURPOSE

The intent of this Request for Proposal (RFP) is to obtain proposals from qualified Offerors to provide a commercial off the shelf (COTS) Advanced Metering Infrastructure (AMI) and associated infrastructure hardware to Loudoun County Sanitation Authority (Loudoun Water). Additionally, Offerors that submit an AMI Proposal may also submit proposals for replacement of the existing water meters and/or encoder registers. Proposals for meters and/or encoders only, in the absence of an AMI proposal from the same Offeror, will not be entertained.

Schedule of Events

June 1, 2011	RFP Issued
June 8, 2011	Pre-Proposal Conference (attendance is not mandatory, but strongly encouraged)
June 13, 2011	Questions due (in writing)
June 15, 2011	Answers to questions distributed to all vendors that received the RFP
July 6, 2011	Responses to RFP due
July 20, 2011	Short list notification
August 1-3, 2011	Short list vendor interviews/demos

Following the receipt of the RFP, questions may be submitted in writing prior to the deadline listed above to the contact listed in Section 9. Responses to all questions will be distributed to all parties that have received the RFP.

Proposals may be submitted at any time prior to the due date and in accordance with the requirements set forth in this document. All submitted copies of proposals shall become the property of Loudoun Water.

Loudoun Water will evaluate the written responses to this RFP, and will select the Offeror whose approach, in Loudoun Water's sole opinion, represents the best overall value to Loudoun Water in terms of best fit by experience, approach to the project, software functionality, reliability, warranty, ownership cost and other factors as determined by Loudoun Water.

Loudoun Water will request a presentation and product demonstration from a short-list of Offerors. The demonstrations will be evaluated based on a scorecard approach. Loudoun Water reserves the right to withdraw this RFP, or not award a contract, at any time due to unforeseen circumstances.

The non-mandatory pre-proposal conference will be held in the Boardroom at Loudoun Water's Administrative Services Facility at 44865 Loudoun Water Way, Ashburn, VA 20147.

This RFP, plus the resulting agreement(s), shall be consistent with, and governed by the Virginia Water and Waste Authorities Act (VWWA), the Virginia Public Procurement Act (VPPA) and the Loudoun County Sanitation Authority (Loudoun Water) Purchasing Regulations.

2. COMPETITION INTENDED

- A. It is Loudoun Water's intent that this RFP permit competition. It shall be the Offeror's responsibility to advise the Purchasing Technician in writing if any language, requirement, specification, etc., or any combination thereof, inadvertently restricts or limits the requirements stated in this RFP to a single source. Such notification must be received by the Purchasing Technician not later than ten days prior to the date set for acceptance of proposals.

3. BACKGROUND INFORMATION

- A. The Loudoun County Sanitation Authority (doing business and hereafter referred to as "**Loudoun Water**") is a public body politic and corporate and an instrumentality of the Commonwealth of Virginia, organized under the Virginia Water and Waste Authorities Act, being Chapter 28, Title 15.1, Code of Virginia of 1950, as amended (the "Act"). Loudoun Water was created by action of the Board of Supervisors of Loudoun County, Virginia and was chartered by the State Corporation Commission on May 27, 1959. As an Authority, Loudoun Water receives revenue from user fees, makes no profit, and its operations and finances are independent of the County's tax-supported services.
- B. Loudoun Water has approximately 62,000 connections serving more than 186,000 people. Its service area is predominantly located in eastern Loudoun County, and consists of more than 1,800 miles of water and wastewater pipelines. Water supply is provided through agreements with the City of Fairfax and Fairfax Water. Wastewater treatment is currently provided through an agreement with the District of Columbia Water and Sewer Authority supplemented by Loudoun Water's Broad Run Water Reclamation Facility (BRWRF). Loudoun Water also operates several small community water and wastewater treatment plants throughout Loudoun County.
- C. Loudoun Water currently has an existing BadgerMeter Orion drive-by Automated Meter Reading system (AMR) installed for approximately 54,000 water meters. An additional 8,000 meters utilize an AMCO TRACE AMR drive-by system. Of these meters, approximately 2,500 are for commercial applications. These systems are used quarterly for gathering meter reading information. That information is then passed to an external billing system (MUNIS) by means of file transfers.

- D. Loudoun Water's entire meter reading data is currently stored in BadgerMeter's Read Center database. The proposed AMI system will be implemented as a 'date-forward' solution. Legacy data migration, including migration of the Read Center data, is not required.
- E. The proposed AMI software is intended to be installed on a server(s) that will be purchased and installed by Loudoun Water. Any required workstations will be purchased and installed by Loudoun Water, including all user desktop workstations and laptops. Loudoun Water currently uses Dell PowerEdge Servers. If any additional servers are required as part of the product offering due to requirements of the Offeror, then these servers will be specifically quantified in the Offeror's proposal and furnished and installed by the Offeror at a location(s) designated by Loudoun Water. Loudoun Water's preferred server configuration is as follows:
 - 1. Windows Server 2008 64-bit edition
 - 2. Microsoft SQL Server 2008 standard edition
 - 3. Microsoft IIS 7 (for web servers)
 - 4. Microsoft Office 2010 (where required)
- F. Loudoun Water's standard desktop configuration is as follows:
 - 1. Processor: Intel Core 2 Duo 2.33GHz processor
 - 2. Operating System: Windows 7 Professional
 - 3. Memory: 4.0GB 800MHz
 - 4. Hard Drive: 80GB SATA
 - 5. CD/DVD Drive: 24X CDRW/DVD Combo
 - 6. Monitor: 21" (Minimum) Flat Panel monitor
 - 7. Video Card: Integrated video - Intel GMA3100
- G. Loudoun Water has prepared a meter database which includes the following information. Interested Offerors must contact Loudoun Water to obtain the database.
 - 1. Existing Meter and Endpoint Location Street Address
 - 2. Existing Meter Size
 - 3. Existing Meter Type
 - 4. Existing Meter Manufacturer and Model
 - 5. Existing Endpoint Manufacturer and Model

4. ADVANCED METERING INFRASTRUCTURE (AMI) SYSTEM REQUIREMENTS

- A. The AMI Fixed Base solution must be capable of meeting the data collection needs of Loudoun Water now and in the future for its service area. The AMI Fixed Base System shall collect meter data and alarms from the utility meter base and transmit the data wirelessly "over-the-air" to one or more data collection points.
- B. Loudoun Water requires an AMI that is web-based. If the AMI has a desktop-based client, then the AMI should also include a web-based client that can be used, at a minimum, to view real-time data and reports.

- C. Loudoun Water intends to purchase an AMI that can be integrated with other enterprise software packages that are currently in use or will be used in the future at Loudoun Water. These integration components are not required as part of the current scope of services, but the AMI software chosen must have the capability to eventually integrate and exchange data with these software packages:
1. ERP – Tyler Technologies' MUNIS 7.4 software is Loudoun Water's current ERP software solution. This system is used to manage purchasing, financials, human resources, invoicing for services rendered utility billing, and customer information.
 2. Asset Management – Loudoun Water currently uses Infor's Hansen 8 software to maintain and manage water and wastewater assets, including inventory and the management of service requests and work orders.
 3. ArcGIS - Loudoun Water uses ESRI's ArcGIS technology to manage geospatial data. A SQL Server 2005-based ArcSDE 9.3 database supports ArcGIS Desktop 9.3 and ArcGIS Server 9.3 users. Loudoun Water is currently upgrading ArcGIS Server to version 10.
- D. The supplying Offeror shall be the sole manufacturer of the different elements comprising the fixed base system which include the Fixed Base Radio Frequency Meter Transceivers, Data Collection Devices, programmers, software, Vehicle Base Stations, and Hand-Held Devices.
1. If the Offeror determines that the existing meters and/or meter encoder registers are not compatible with his proposed Fixed Base Radio Frequency Transceivers, the Offeror may propose a suitable replacement and a cost-benefit justification. Offeror shall include product technical information showing dimensions, connections, accuracy, and flow range with his Proposal.
- E. Definitions
1. Advanced Metering Infrastructure System ("Fixed Base System", "System", "AMI System"): The Fixed Base System consists of Fixed Base Host Software, Data Collection Points, Communications Backhaul/ Wide Area Network (WAN), and Fixed Base Radio Frequency Meter Transceivers to enable the remote collection of metering data from appropriately equipped water meters or other compatible devices.
 2. Host Software: The Fixed Base Host Software package will be installed on the host system at Loudoun Water's main campus site or a remote location. The Fixed Base Host Software shall manage the communication with the Collectors and Meter Transceivers. The host software will also serve as the interface to the Customer Information system (CIS) and/or billing system. The transfer process is to be provided through the use of an Application Programming Interface (API). The Fixed Base Host Software shall contain a graphic user interface (GUI), configurable reporting, automated processing capabilities, and mapping. The host system will have the ability to interface to multiple billing and CIS systems. The host software will serve as the data collection repository from either a mobile and/or fixed base solution. Access to data within the host

- software shall also be available through the use of standard SQL query language.
3. Wide Area Network (WAN): The WAN is the communications link between the Fixed Base Host Software and Data Collection Points. The standard WAN backhaul is Ethernet.
 4. Data Collection Point (Collector or DCU): The Collector is the enclosed hardware/software that serves as the communication link between the Fixed Base Meter Transceiver and the Host Software. The Collector will incorporate two-way communication capabilities to receive, store, and transmit meter data and commands immediately. The Collector must also have the ability to store up to thirty days-worth of data in case of an unexpected loss of power or communications with the host software.
 5. Fixed Base Radio Frequency Meter Transceiver (meter transceiver), also known as Meter Interface Unit (MIU): The Meter Transceiver is the radio frequency data collection device that attaches to the meter for the purpose of collecting and transmitting meter reading data, unique identification numbers, operating status information, and various alarms. The Meter Transceiver shall transmit on a radio frequency. The Meter Transceiver shall be a two-way communication device that is available in both wall (indoor) and pit-mount (outdoor) configurations. The Meter Transceiver must also be available in configurations that can incorporate up to two meters.

F. Fixed Base System Overview

1. The Fixed Base AMI System must provide two-way communication from the Host Software/Computer system to strategically located Data Collection Points and also have the ability to communicate down to the installed Fixed Base Radio Frequency Meter Transceivers. The two-way communication must allow for time synchronization, firmware upgrades, and programming options to the Data Collection Points and also the Fixed Base Radio Frequency Meter Transceivers. These applications must be performed "over-the-air" and without the need to visit a Fixed Base Radio Frequency Meter Transceiver or Data Collection Point. The communication from the data collector to the Meter Transceivers shall utilize a highly efficient, reliable, and interference-minimizing radio infrastructure. The System must be capable of migration from mobile to fixed base AMI and shall allow data collection (manual, mobile RF, and/or fixed base) to operate together seamlessly in a mixed system that utilizes the same technology with a common interface to the Loudoun Water CIS. The System shall also provide a means of reading meters equipped with a fixed base Radio Frequency Meter Transceiver via a handheld device equipped with an RF transceiver.
2. The Fixed Base AMI System must be designed to provide coverage for all meters (100% Coverage of existing customer accounts) located within the Loudoun Water service area to collect data. The Fixed Base System must have the ability to support conservation initiatives, off cycle reads, customer leak detection alerts, reverse flow and distribution line leak detection. During the programming initialization, the system should provide the ability to identify

- successful transmission and allow the installer the ability to verify transmission success while at the installation site. The Data Collection Devices should incorporate a store-and-forward redundancy feature and should transmit the data to the back end system immediately upon receipt. The Fixed Base AMI System must be scalable in order to handle the anticipated growth of the meter population with minimal financial impact to cost of the overall system.
3. The Fixed Base Host Software shall provide numerous applications and/or feature sets to support various departments such as customer service, billing, operations, meter reading, revenue protection, asset management, and others. The software shall allow for configurable reports using the data collected. The software shall provide pull down easy application screens for the end user to manage the system. Specific reports should be automated to inform the end user when alarm conditions occur or insufficient data has been collected from specific accounts and or regions. The software should also provide customizable usage graphs for applications that can be set to report daily/weekly/monthly and hourly data. The system shall also provide the ability to incorporate mapping capabilities for proactive maintenance and analyzing purposes.
 4. Data Collection Point Reliability
 - a. Each Data Collection Point shall be available to communicate (2-way) with Fixed Base Radio Frequency Meter Transceivers and Fixed Base Host Software at a reliability rate of at least 99.5% measured over an annual period or 8,716.2 hours per year. This requirement is exclusive of power outages and vandalism.
 5. Data Collection Point Service Contract
 - a. Offeror shall enter into an annual Collection Point Service Contract with Loudoun Water. The Collection Point Service Contract shall be separate from and in addition to services under the Offeror's warranty.
 - b. The Collection Point Service Contract shall begin upon LW's acceptance of the complete AMI System or the end of the contract period, whichever occurs first.
 - c. Offeror shall include cost for a five (5) year Collection Point Service Contract in his Price Proposal.
 - d. After the fifth year, Loudoun Water shall have the option to renew the contract annually at a price to be negotiated between Loudoun Water and the Offeror.
 - e. Data Collection Point Service Contract terms shall include
 - i. Upon notification by Loudoun Water (written or verbal) of a problem with one or more Data Collection Points, Offeror shall furnish and install required equipment, parts, etc. and labor to provide an operable and completely functioning Data Collection Unit(s) within the time period necessary to ensure the Data Collection Unit(s) operate at the specified reliability rate.
 - f. Other terms of the Data Collection Point Service Agreement, including remedies if Offeror does not honor the agreement terms and/or Offeror's

equipment does not meet the required reliability rate, will be negotiated during the Price Negotiation phase.

G. Host System (Hardware/Software) Overview

1. The Host Software must exist as a browser-based application that runs on a server. The Host Software shall interface with the Utility's CIS for meter reading. The Host Software shall support fixed base AMI, handheld meter reading, and mobile meter reading on one platform. The Host Software must support reading performance reports and advanced usage analysis capabilities. The Host Software must be able to export data to Microsoft Excel and Adobe PDF formats. The Host Software shall have the basic capability of providing the following data to Loudoun Water on an "on demand" basis and daily basis for monthly billing applications:
 - a. An hourly time-stamped meter reading taken from all water meters for monthly billing purposes from the Fixed Base Radio Frequency Meter Transceiver;
 - b. Hourly usage/consumption readings for resolution of customer billing disputes and improved customer service from the Fixed Base Radio Frequency Meter Transceiver;
 - c. Collect and report on the alarm data received from the Fixed Base Radio Frequency Meter Transceivers (non-read, non-numeric read, etc.);
 - d. Collect and report on the leak data received;
 - e. Hourly reading data for Fixed Base Radio Frequency Meter Transceivers in the system that can report the consumption intervals for a selected time-frame.

H. Host System (Hardware/Software) Requirements

1. Host Software Requirements
 - a. The Host Software must provide all the control needed in the network and provide for the essential functions of network management, meter communications, reporting, database configuration, and alarms monitoring. Host Software must be able to obtain a current meter reading "On Demand" initiated by User or through the API.
 - b. In the event of a loss of communications between the Host and Data Collection Units, Host shall be capable of integrating data stored at the Data Collection Units into the database automatically once communications are restored.
 - c. It shall comply with prevailing industry standards and should run on a Windows Server 2008 compatible computer. The Host Software must be able to interface with handheld and mobile meter reading software to enable a mixed meter reading approach that utilizes the same technology. The Host Software must interface to the utility's CIS, billing, and asset management software. Host shall provide access to stored data through the use of API or web services.
 - d. The meter reading data communicated to the CIS system shall be provided through use of APIs and/or web services. The Host software will be installed on a server that will be furnished and installed by Loudoun Water. If any

- additional servers are required as part of the product offering due to requirements of the Offeror, then these servers will be specifically quantified in the proposal and furnished and installed by the Offeror at a location(s) designated by Loudoun Water. The user computer hardware will be provided by Loudoun Water.
2. Computers must meet the following minimum requirements:
 - a. Windows Server 2008®/Windows 7®
 - b. Dell PowerEdge Server
 - c. Network adapter appropriate for the type of local-area, wide-area, wireless or home network you wish to connect to, and access to an appropriate network infrastructure; access to third-party networks may require additional charges.
 - d. Ability to transmit via secure file transfer access.
 - e. System shall be capable of operating when antivirus software is utilized.
 - f. Software must be compatible with a VMWARE vSphere 4 virtual environment
 3. Information Requirements:
 - a. Storing additional meter readings and status flag information from other monitoring devices (such as distribution line leak noise loggers).
 - b. Must support single and dual register meter information.
 - c. Must support meter readings with a minimum of nine digits and Fixed Base Radio Frequency Meter Transceiver ID numbers with a minimum of ten digits.
 - d. Must support alpha-numeric account numbers up to 20 digits.
 - e. Must interface with handheld device and vehicle-based reading equipment to support mixed system operation.
 - f. Must support GPS-type data to identify locations of account geographically.
 - g. Capability to store all meter data information obtained from the Collectors for 36 months. Older data should be able to be archived to and retrieved from an external location when necessary.
 - h. The System must utilize the latest version of Microsoft SQL Server for data storage.
 - i. The System must be able to monitor the status of the WAN and alert the user in the event of a problem impacting communication between the Collectors and Fixed Base Software (Server receiving alarm information about signal strength, etc.).
 - j. The system must provide for the ability to monitor the status of the Collector and provide alarms back to the utility.
 - k. The System must have the capability to monitor Fixed Base Radio Frequency Meter Transceivers that have transmitted for the first time to identify successful installation and operation.
 - l. The Offeror must provide the service of remotely monitoring the system and have controls in place to ensure optimized system operation.
 - m. There must be capability to monitor status/performance of the Collectors strategically located in the network.
 - n. Diagnostics must be available such that operators can evaluate performance

- and send instructions “over-the-air” to optimize performance of the network.
- o. The system shall be capable of supporting a minimum of 20 concurrent users.
4. Network Management
- a. The Fixed Base system should provide a “Health Management” application within the host software to monitor the status of the Collectors. The network monitoring solution should provide data with regard to the Meter Transceiver transmission strength and its corresponding Collector and/or multiple Collectors. Reports should be available on a daily basis and must have the ability to alert appropriate personnel of certain triggered alarms.
 - b. Basic Functions
 - ii. The Host Software must provide the ability to maneuver data to various reports and also to compatible software applications. The system shall provide the ability to verify the percentage of reads received for particular areas and/or selected meter routes. This data shall then be exposed to various configurable parameter sets, such as high/low parameters to assure the accuracy of the data. Once this review has taken place, the data shall then be grouped for use by the billing and/or CIS system within the utility. The host software must also have the ability to group route information and both import and export that data to a handheld meter reading and/or programming device. Host shall be capable of creating user defined routes utilizing any grouping of Fixed Base Radio Frequency Transceivers. Host shall be capable of assigning one Fixed Base Radio Frequency Transceiver to multiple routes if selected by the user.
 - iii. Host shall post readings from Data Collection Units onto appropriate accounts within the database.
 - iv. Host shall provide for backup copy of routes within the database to include current system configuration files.
 - v. Host shall support exporting routes from the database to the utility billing software.
 - vi. Host shall be capable of limiting access to data based on multiple User defined security profiles.
 - vii. Host shall support initiating firmware updates to Fixed Base Radio Frequency Transceivers and Collection Units
 - c. The Mobile Host Software must include the following:
 - i. Loads to/unloads from the handheld devices by serial communications at a minimum speed of 19,200 bps and via Ethernet communications at a minimum speed of 10 Mbps.
 - ii. Provides database with optional backup/restore capability.
 - iii. Enables the user to specify the data to be exported from the database for transferring to the billing system.
 - iv. Enables the user to search the database for records matching specified information.
 - v. Allows the user to define up to 100 notes.

- d. Software must be compatible with a VMWARE vSphere 4 virtual environment
- e. A data dictionary must be provided for the database.
- f. Typical Read Cycle – the Host Software must allow the following operations:
 - i. Merging of routes into the existing database for loading onto a data collection device.
 - ii. Posting of readings from the data collection device onto appropriate accounts within the database.
 - iii. Creation of a backup copy of the routes within the database (including current system configuration files).
 - iv. Printing pre-selected reports.
 - v. Exporting routes from the database to the utility billing system.
- g. Reporting - the Host Software must provide normal reporting and exceptional reporting capabilities that must address basic operational requirements:
 - i. Host shall support printing of reports.
 - ii. The Host Software must have the ability to identify three types of reading information to include;
 - iii. Numeric reads (successful reads that can be used for billing)
 - iv. Non-numeric reads (reads that cannot be used for billing but may indicate a problem with the meter register or Meter Transceiver or tamper condition); and
 - v. No readings (no transmitted reading was received).
 - vi. The Host Software must allow the user to review total number and percentage of successful reads, unsuccessful reads, and no reads.
 - vii. Network Status Reports – must identify by day or date range, a summary of the total number and percentage of successful reads, unsuccessful reads, and no readings.
 - viii. Collector Status Report – must provide a summary of the total number and percentage of successful reads, unsuccessful reads and no readings. Sorted by day or date range.
- h. Standard reporting to include the following information:
 - i. Zero Consumption
 - ii. Unread Meter (no readings)
 - iii. Billing List (numeric reads)
 - iv. All Readings
 - v. Invalid Readings (non-numeric reads)
 - vi. Meter ID Mismatch
 - vii. Meter Transceiver ID Mismatch
 - viii. Meter Transceiver Status
 - ix. Reading Summary (Statistics page, Read vs Unread/Non-numeric)
 - x. Reverse Flow Event
 - xi. Duplicate Identification Numbers
 - xii. High/Low Consumption Report
 - xiii. Suspected Leak Events
 - xiv. Acoustic Leak Loggers (such as the AMR Permalog on the distribution

- lines)
 - i. The Host Software must allow the user to select specific fields from the database to be exported to a third-party report generator for custom reports.
 - j. Host shall support the creation and printing of user defined reports.
- I. Data Collection Units and Fixed Base Radio Frequency Transceivers
 - 1. Data Collection Unit (Collector or DCU)
 - a. Data Collection Unit must have the capability to collect data wirelessly from the Fixed Base Radio Frequency Transceiver and communicate back to the Fixed Base Host Software.
 - b. The Collector must support two-way communications over a radio frequency with the Fixed Base Radio Frequency Meter Transceiver and provide such functionality as priority alarms and over-the-air updates.
 - c. The Collector must be capable of remotely initiated firmware updates.
 - d. The Collector must be capable of locally initiated firmware updates.
 - e. The Collector must be capable of sending Fixed Base Radio Frequency Transceivers remotely initiated firmware updates.
 - f. The Collector must be flexible with regards to installation option
 - g. The Collector must be AC powered.
 - h. The Collector must provide memory back-up (30 days, minimum).
 - i. The Collector must be able to support and process a large volume of Fixed Base Radio Frequency Meter Transceivers in order to minimize the need for infrastructure.
 - j. The Collector must have a battery backup capable of maintaining a minimum of eight hours of operation.
 - 2. Wide Area Network (WAN) Backhaul Requirements
 - a. The Collector must be capable of using both a primary and secondary data links providing two-way Ethernet TCP/IP with the following as WAN backhauls for data:
 - i. Wired (DSL or cable)
 - ii. Wireless
 - iii. Wi-Fi
 - iv. Fiber
 - v. GPRS
 - vi. CDMA
 - 3. Power Requirements
 - a. The Collector must be powered via 110 - 220V AC.
 - b. Upon power failure, the Collector shall retain the past thirty (30) days (minimum) of meter data in a non-volatile memory.
 - c. Upon start-up after power failure, the Collector must restore databases, tables, and logs to the previous state.
 - 4. Communication Requirements
 - a. The Collector must log all events mentioned below and communicate to the host computer:
 - b. Link failures:

- i. The Collector link failure time and date-to-the-Host must be logged and all data must be saved thirty (30) days.
 - ii. The Collector must try continuously to re-establish a link to the host.
 - iii. The Collector must be able to be reset by the Host computer.
 - iv. Manual reset functionality must be available.
 - v. The Collector shall transfer the past thirty (30) days of data stored in a non-volatile memory to the Fixed Base Host Software upon power up reset.
 5. Installation/Mounting Requirements
 - a. The Collector antennae should primarily have the ability to be installed on the top of infrastructure owned by Loudoun Water. Geographic location and elevation data for these facilities is available on request. Specific locations to be considered as a minimum include:
 - i. Brambleton Tank #1
 - ii. Broadlands Tank #1 or #2
 - iii. Sterling Standpipe
 - iv. Dulles South Tank #1 or #2
 - v. Waterford Radio Antenna
 - vi. Loudoun Water Broad Run WRF Building 70
 - vii. Elysian Heights WTP
 - viii. Courtlands Effluent Pond Pump Station
 - ix. Rokeby WTP
 - b. Other installation locations such as but not limited to cell towers, tall buildings, and/or other elevated structures shall be determined and listed by the Offeror.
 6. Environmental Characteristics
 - a. The Collector must have an operating temperature of -20°F to +140°F.
 - b. The Collector must have an operating humidity of 0 to 95% Non-Condensing.
 - c. The Collector must have a NEMA 3R enclosure and pass the UL50 (Underwriter's Laboratory) rain test.
 7. Approvals
 - a. The Collector must be UL Listed.
 - b. The Collector must meet appropriate FCC regulations for the proposed radio technology.
- J. Fixed Base Radio Frequency Base Meter Transceiver or Meter Interface Unit (MIU)
1. The Fixed Base Radio Frequency Meter Transceiver must be an electronic device that allows for the connection to an absolute encoder register or incremental encoder register (pulsed output register). As defined by pre-programmed settings, the Fixed Base Radio Frequency Meter Transceiver shall interrogate the encoder register and transmit the meter reading and other information to a Data Collection Point. The Fixed Base Radio Frequency Meter Transceiver shall be compatible with a wide range of meter encoder registers. The Fixed Base Radio Frequency Meter Transceivers shall attach to meter encoders registers without "Gel Cap" splices unless no other means is

available, or they shall easily retrofit to existing meters with encoder registers in the field. The Fixed Base Radio Frequency Meter Transceiver shall be manufactured in both non-pit and pit set models supporting both residential and commercial applications. The Fixed Base Radio Frequency Meter Transceiver shall have the ability to be mounted on a wall. The pit set Fixed Base Radio Frequency Meter Transceiver shall have the ability to be mounted in a pit set environment or an underground vault. The non-pit and pit set Fixed Base Radio Frequency Meter Transceiver shall have the battery and electronics encased in a waterproof enclosure that is submersible.

2. Physical/Mechanical Requirements

a. Non-Pit Fixed Base Radio Frequency Meter Transceiver

- i. The non-pit Fixed Base Radio Frequency Meter Transceiver housing shall be constructed of a polycarbonate plastic compound. The battery and electronics will be housed in water proof enclosure. The Meter Transceiver shall be capable of operating at temperatures of -30°F to +165°F with a humidity of 0 to 95%.
- ii. The Fixed Base Radio Frequency Meter Transceiver must be waterproof, submersible, and capable of exposure to water spray and splash. The Meter Transceiver shall provide a location for a tamper deterrent seal.
- iii. The Fixed Base Radio Frequency Meter Transceivers must be capable of being field retrofit to existing meter encoder register installations.

b. Pit Set Meter Transceiver

- i. For pit or vault applications, the pit Fixed Base Radio Frequency Meter Transceiver antenna shall be designed to be installed through the industry standard 1-3/4" hole in the pit lid with no degradation of transmission range. The pit set Fixed Base Radio Frequency Meter Transceiver antenna unit will be capable of mounting to various types and thicknesses of pit lids — Cast Iron, Aluminum, Concrete, Composite or Plastic from 1/2" to 2-1/2" in thickness. Pit set meter transceiver shall include a lid lock for mounting on the meter pit lid. The Offeror will indicate any exceptions to lid materials as part of their proposal.
- ii. The device shall be capable of operating at temperatures of -30°F to +165°F and be 100% submersible.
- iii. The Meter Transceiver circuit board and battery will be encapsulated for superior water ingress protection. The pit set Fixed Base Radio Frequency Meter Transceiver must be suitable for operation in flooded pits and be able to be submerged for extended periods of time. The range will not be affected when the pit is flooded, provided the pit Fixed Base Radio Frequency Meter Transceiver antenna is not submerged under water.
- iv. The pit set Fixed Base Radio Frequency Meter Transceiver antenna shall be made of a material to withstand traffic.
- v. The pit set Fixed Base Radio Frequency Meter Transceiver shall provide a location for a tamper deterrent seal.

- vi. The pit set Fixed Base Radio Frequency Meter Transceiver must be capable of being field retrofitted to existing meter encoder register installations.
3. Operation Specifications
 - a. The Fixed Base Radio Frequency Meter Transceiver shall utilize secure two-way communications with the Collector to allow for "over-the-air" communications between the two devices for re-programming and time synchronization. The Fixed Base Radio Frequency Meter must support two-way communications over a radio frequency with the Data Collection Point(s) and provide such functionality as priority alarms and over-the-air updates.
 - b. The Fixed Base Radio Frequency Meter Transceiver shall be configurable via "over-the-air" communications and locally. The Fixed Base Radio Frequency Meter Transceiver shall support firmware upgrades "over-the-air" and locally.
 - c. The Fixed Base Radio Frequency Meter Transceiver shall be capable of switching from mobile to fixed network mode automatically.
 - d. Power shall be supplied to the Fixed Base Radio Frequency Meter Transceiver by a lithium battery and a capacitor. The Offeror shall, as a minimum, warrant that any battery provided and installed in the Meter Transceivers by the Offeror shall be free of manufacture and design defects for a period of twenty (20) years - the first ten (10) years from the date of shipment from factory will be warranted for full replacement cost, and the second ten (10) years will be warranted on a prorated basis.
 - e. The Fixed Base Radio Frequency Meter Transceiver battery must be field-replaceable and be designed for minimum twenty (20) years life expectancy.
 - f. The Fixed Base Radio Frequency Meter Transceivers must be capable of reading two encoder registers at one time.
 - g. The Fixed Base Radio Frequency Meter Transceiver shall interface to a wide variety of encoder registers without need for special configuration/programming of the Fixed Base Radio Frequency Meter Transceiver.
 - h. The Fixed Base Radio Frequency Meter Transceiver shall transmit up to six times per day under normal transmission conditions without impacting the battery life. The Meter Transceiver shall have the ability for time synchronization.
 - i. The Fixed Base Radio Frequency Meter Transceiver shall be capable of interrogating the meter encoder register at least once an hour.
 - j. The Fixed Base Radio Frequency Meter Transceiver shall be capable of interrogating the meter to extract a reading and hourly historical data "on demand".
 - k. The Fixed Base Radio Frequency Meter Transceiver programmer should have the ability to place the Meter Transceiver into the optimum transmission mode during programming.
 - l. In addition, if the Fixed Base Radio Frequency Meter Transceiver is

configured in hourly usage, the Meter Transceiver shall provide the current meter reading and a data packet with hourly historical data.

- m. Each Fixed Base Radio Frequency Meter Transceiver shall provide a unique pre-programmed identification (ID) number. Each Meter Transceiver shall be labeled with the ID number in both numeric and bar code form. The label shall also display FCC approval information, manufacturer's designation, and date of manufacture.
- n. The Fixed Base Radio Frequency Meter Transceiver shall transmit the encoder register reading and a unique Meter Transceiver ID number.
- o. Tamper - If wiring between the Meter Transceiver and encoder register has been disconnected or cut, a "non-reading" shall be transmitted indicating wire tamper. The System shall have the ability to validate that the installation is successful at the installation site. The system shall also provide for the provision to interrogate the Fixed Base Radio Frequency Meter Transceiver to extract a reading that will be displayed on the programmer. The installation tool shall display the Fixed Base Radio Frequency Meter Transceiver ID number and valid meter reading.
- p. The Fixed Base Radio Frequency Meter Transceiver shall have the capability of sending alarms for leak, low battery, reverse flow, and tamper when connected to an encoder-register and reading data from a distribution line leak detection device.
- q. The Fixed Base Radio Frequency Meter Transceiver shall provide local storage of data.

K. Meters and Meter Encoder Registers

1. Meters and Encoder Registers shall conform to the applicable current AWWA C-700 series standards, latest editions.
2. Meters shall be new, first line quality, positive displacement magnetic drive or electromagnetic type for cold water service up to 1-inch size. Either positive displacement, turbo, or compound meter for 1 ½-inch to 2-inch sizes, and turbo or compound type for 3-inch to 6-inch sizes. Positive displacement meters shall be of the oscillating piston or nutating disk type. The meters shall be fully functional when used over the full range of environmental and operational characteristics in meters pits or vaults subjected to water submergence, including as a minimum the following ranges: Temperature -25 to +55 Celsius; Humidity 0 to 100% non-condensing.
3. Meter Housing/Measuring Chambers: Meter main case shall be made of one or two piece frost resistant design. Meter main cases shall be made of thermo plastic (Loudoun Water Preference) or COPPER ALLOY, LOW LEAD COPPER ALLOY, OR NO LEAD/LEAD FREE COPPER ALLOY MEETING NSF/ANSI 372. Meters shall be certified NSF 372 approved. Any meter coatings in contact with potable water shall be certified NSF-61 approved. The measuring chamber(s) shall be separate from the outer casing and so secured in the main case that the accuracy of the meter will be unaffected by any distortion in the case. All motion from the disk, piston, or turbine shall be transferred to the register via magnetic drive.

4. Encoder Registers: Encoder registers shall be permanently sealed and water proof. Meters and Encoder Registers shall operate in submerged condition. Encoder registers shall have manual read capability. Encoder Registers shall be equipped with a lid to protect the lens.
5. Meters shall have a serial number on the meter body or housing.
6. Encoder registers shall have an identification or serial number that is clearly and permanently marked or engraved on the register lid.
7. Rubber connection gaskets (two per meter) shall be furnished by the Meter Manufacturer.
8. Meter Manufacturer, as an option, shall provide expansion connectors that meet ANSI 372. Expansion connectors shall be installed on the customer side of the meter by the Meter Manufacturer. Expansion connectors shall utilize a hard gasket between the connector and the meter body.
9. Meters shall be available in the following types and sizes:
 - a. Residential – 5/8" x 3/4", 3/4", 1"
 - b. Commercial – 5/8" x 3/4", 3/4", 1", 1 1/2", 2", 3", 4", 6", 10", 12"
 - c. Fire Service – 1 1/2", 2"

L. Training and Support

The Offeror must support new and ongoing training sessions and material that relates to the operation and maintenance of the fixed base system. Offeror will provide a detailed schedule of training options and also perform on-site training sessions for various employees of the utility. The Offeror proposal must also include other remote training alternatives for new and existing employees. The Offeror must also support a user's conference/Forum in which users of the fixed base system have the ability to provide feedback for new products and best practices.

M. Support Services

The Offeror shall have a fully trained Technical Support Department. The utility must have access to technical questions thru a telephone based support desk. The trained technicians should be capable of answering and responding to various requests such as, but not limited to:

1. Hardware, operational maintenance questions and problems.
2. Software operational questions and problems.
3. Assisting customer with configuring reports
4. Assisting with software updates
5. Troubleshooting hardware issues
6. Providing on-site training or evaluation as needed.
7. The Help Desk must be available weekdays 24 hours a day.

N. Installation and Training

The Offeror will provide a complete set of installation and operating instructions for all the components of the fixed base system. Onsite training by authorized Offeror personnel or their representatives must be provided. The Offeror must also arrange a pre-deployment meeting to identify the critical path items for installation and training needs.

O. Warranties

In evaluating bid submittals, warranty coverage will be considered. The Offeror shall be required to state its warranty and/or guarantee policy with respect to each item of proposed equipment. The procedure for submitting warranty claims must also be provided. As a minimum, the Meter Transceiver must have a twenty year warranty and the data collection point (Collector) shall be warranted for one year from date of shipment for defects in material and workmanship. The Offeror shall include a listing of Mean Time Between Failure (MTBF) for all equipment proposed.

P. System Maintenance and Support

In addition to warranty periods, Offerors are required to supply information on required or optional maintenance programs beyond the warranty period for both hardware and software. The location of and procedures for obtaining such support shall be stated. A toll-free Help Desk number must be provided for system support.

Q. Offeror Qualifications

1. The selected Offeror shall be thoroughly versed in pulsed and absolute encoder meters, radio frequency AMI technology, and be a major supplier in the marketplace. The proposed system shall be manufactured and maintained by the selected Offeror. A customer reference list shall be enclosed with the proposal.

R. Vehicle Based Reading

1. The Vehicle Basestation (VB) shall consist of a portable radio-based device used for the acquisition of data from consumer utility meters and other field-based diagnostic instruments. The VB shall be compact and portable, allowing it to be used in any vehicle providing 12-volt DC power. The VB shall allow the operator to place the unit in the vehicle cabin, load the desired meter reading route into a laptop computer or other device and drive along the prescribed route with meter data collected as the vehicle travels within proximity to the selected meters. The complete VB package shall include all equipment, accessories, and appurtenances needed to read meters and ancillary (such as acoustic monitoring) devices that are equipped with meter transceivers.
2. Operation
 - a. The VB sends an alert signal to the meter transceiver or ancillary device. Upon receipt of the alert, the transceiver responds by transmitting its most recent reading. Once received, the endpoint returns to a low-power listening mode. The operator has the option of directing the VB to signal all endpoints within range (blind reading mode), or to select endpoints (geographic reading mode).
 - b. The VB shall be compatible with Windows XP and Windows 7.
 - c. The VB shall be capable of accepting the same event information from meter transceivers as do the Data Collection Units summarized herein. The VB shall be capable of interfacing with the Host to transfer event information.
 - d. The VB shall be capable of interfacing with the Host in order to merge route

information.

3. System Reliability
 - a. The AMI system shall utilize radio frequencies to communicate with transceivers. The transceivers shall provide the information summarized herein.
4. Portability
 - a. The radio electronics of the VB shall be contained in a small portable enclosure that is easily installed in a vehicle. With the addition of a laptop computer, connecting cables and antenna, the complete VB package shall be set up in any Field Service vehicle within a few minutes.
5. User Friendly Software
 - a. The VB shall utilize a software program especially designed for operating drive-by meter reading equipment. The software will feature a convenient, user-friendly pull-down menu system for directing the meter reading process. VB shall provide Operators ability to input information, including as route notes, manually via the PC's keyboard. The meter reader/operator must also be able to easily edit route data configurations when necessary. The Host software shall processes the information gathered by the software and provide Loudoun Water's billing software with a simple plug-and-play interface.

S. Handheld Device (HHD) Meter Reading

1. The Hand-Held Device [HHD] shall be primarily designed to collect and store utility meter readings with built-in capability for expanded uses. The HHD shall interface to a personal computer [PC] through a communications/charging stand used for uploading pre-programmed meter reading route information. Offeror shall furnish the communications/charging stand. The HDD shall support date/time stamping of meter reading synchronized with the Host.
2. Programming
 - a. The HHD shall be designed for collecting meter readings as well as programming meter transceivers and meter registers.
3. Construction
 - a. The HHD shall be housed in a weather-resistant, high impact, UV-stabilized plastic. Surface-mounted circuitry in the specially designed, watertight case allows the HHD to be used in rugged field conditions over a wide range of temperatures. The HDD shall be able to withstand a fall of at least 3 ft without impairing operation.
4. Ergonomic Design
 - a. The HHD's shall be designed to offer an easy-to-handle unit. It shall include a graphical display for ease of viewing during both daytime and nighttime operation. The HHD shall provide adequate contrast for use in sunlight. The HHD can be manually carried during operation, or function in an optional HHD carrier if provided.
5. Backlighting
 - a. A backlight feature shall provide illumination to the LCD for convenience in data entry and ease of reading data in areas with insufficient lighting.

6. Flexible Data Entry
 - a. The HHD shall automate the reading process. Reading data from compatible absolute encoder equipped meters shall be obtained and stored in the HHD. Manual entries can also be made using the keypad. Additionally, the HHD shall provide features for reading and programming transceivers.
 7. Automatic, Error-free Data Collection
 - a. The HHD shall collect and store readings automatically from compatible registers. Regardless of the route sequence programmed into memory, the HHD software will identify each meter using the register's internal identification number. The software then searches the route program and automatically stores the meter reading in the correct customer account.
 8. Audible Verification / Warning
 - a. An audible tone shall confirm completed readings or alerts the user to faulty or out-of-limit readings. Tones can also be programmed with notes to alert the meter reader to hazardous situations or to respond to field survey questions.
 9. The HHD shall also provide for free form notes using the alpha and numeric keypad.
 10. Meter readers can identify accounts requiring special attention, or they can note unusual conditions and account survey information.
 11. Replaceable Battery
 - a. The HHDs shall have a rechargeable, self-contained Lithium Ion battery pack that is field-replaceable to minimize downtime. The HHD should also be equipped with a lithium battery backup to maintain date and time.
 12. Productivity Monitoring
 - a. The HHD's built-in clock shall be capable of recording the time and day of each meter reading. The software can note and store the type of reading made: manual, automatic, and/or multiple data entry. These reads provide an overview of time spent reading the route and special problems related to readings or equipment use.
 13. Service and Warranty
 - a. The Offeror shall provide a program to extend the protection of HHDs and related equipment beyond the one [1] year warranty covering materials and workmanship. Published warranty and service policy details must be available from the manufacturer or distributor representative.
- T. FCC Licensing
1. Loudoun Water prefers an AMI System that utilizes an FCC Licensed radio frequency. Systems that operate with unlicensed radio frequencies will also be considered.
 2. If AMI system utilizes an FCC licensed radio frequency, Offeror shall procure FCC license for the AMI System. Offeror shall complete required permit applications and pay all permit application fees.
 3. If Offeror maintains the FCC license, Offeror shall notify Loudoun Water in writing of any changes in the license and when the license has been renewed.

4. Offeror shall provide a statement articulating the turnover of FCC License in the event the Offeror will no longer be in business.

5. SCOPE OF SERVICES AND SCHEDULE

The scope of services shall include all tasks necessary to successfully furnish, install, implement, startup, commission and test the AMI software, AMI hardware, backhaul communications hardware, and if applicable, water meters and/or encoder registers at Loudoun Water to furnish Loudoun Water with a complete and operable Advanced Meter Infrastructure System acceptable to Loudoun Water. The scope of services shall also include training and installation support. It is envisioned that these tasks will include, at a minimum, development of an implementation plan, infrastructure installation, software configuration, testing, training, implementation, and support. The system should be configured in two environments (Development and Production) to support ongoing deployment of an AMI and operating system software updates and enhancements. The Offeror should include any additional subtasks or services within these main tasks that will be necessary to ensure a successful implementation. The Offeror is also encouraged to suggest any improvements to the approach that will aid in accomplishing the goals of the AMI implementation.

Please note that all deliverables will become the property of Loudoun Water (exclusive of typical software licensing terms). If the Offeror wishes to publish any part of their work related to the project, this may only be done upon written approval from the authorized Loudoun Water personnel.

Specific schedule and scope of services requirements are described below.

AMI System Construction/Deployment Schedule

- A. The AMI system shall be deployed, tested, and accepted by Loudoun Water within 1095 Calendar Days from the Notice to Proceed date.
- B. The AMI Construction Schedule shall include a pilot deployment in two metering areas (to be determined by Loudoun Water). Offeror shall startup and test AMI system and demonstrate functionality (including meeting all Validation Indicators) to Loudoun Water prior to installing AMI System infrastructure in the remainder of the system. Offeror's construction schedule shall account for the pilot area approach.

Scope of Services

A. Submittals

1. Submit for review and approval by Loudoun Water Product Data including Manufacturer's descriptive literature, product specifications, performance and capacity rating schedules, published details, completely dimensioned and annotated detail drawings of the products presented and installation instructions for all AMI System Components. Furnish electronic (pdf) copy and three hardcopies of submittals to Loudoun Water.

2. Offeror shall provide a list of recommended spare parts for the proposed AMI System. Recommended Spare Parts cost shall be included in the Offeror's Price Proposal.

B. Implementation Plan

1. The Offeror shall prepare a detailed implementation plan for review and approval by Loudoun Water. The Implementation Plan shall be based on the Offeror's analysis of the specific configuration needs of his AMI infrastructure and software required to provide Loudoun water with a complete AMI system that meets the criteria and requirements included in the RFP. The analysis shall include but not be limited to:
 - a. evaluation of the service area terrain,
 - b. evaluation of potential radio interferences,
 - c. proposed methods to mitigate any identified radio interferences.
2. AMI Radio Survey
3. Comprehensive radio path analysis indicating location, elevation, power requirements, and suggested backhaul communications.
4. Radio Propagation Study based on data obtained from field measurements at proposed Collector Unit locations and elevations.
5. The Offeror's Implementation Plan must include a map showing the location and number of Data Collector Unit (DCU) locations.
6. The Offeror's Implementation Plan must include potential workflows and reporting requirements.
7. The Offeror's Implementation Plan must include the proposed number of Radio Frequency Radio Meter Transceivers to be installed and the method to connect the Radio Frequency Radio Transceivers to existing or new water meters and/or encoder registers.
8. The Offeror's Implementation Plan must include methods and procedures for implementing the AMI System without impacting Loudoun Water billing operations during implementation.
9. The implementation plan must include a description of the required configuration and a detailed project implementation schedule showing key milestones and required resources.
10. This implementation plan shall also include an AMI System Validation as a subcomponent. This validation plan shall include the validation tasks to be performed, validation procedures, and validation results reports. The purpose of this validation is to ensure that the AMI hardware and software performs all the functions specified and represented by the Offeror without compromising data quality and integrity. The AMI must meet or exceed the requirements of the validation plan during the testing phase.
11. Furnish electronic (pdf and MS Project) copy and three color, bound hardcopies of the Implementation Plan to Loudoun Water.
12. In developing the Implementation Plan, Loudoun Water anticipates that the Offeror may need to interview stakeholders from Customer Service, Field Service, and Instrumentation and Controls departments within Loudoun Water.

13. This implementation plan will be used to guide the AMI implementation to a successful conclusion.

C. Software Configuration & Testing

1. The Offeror shall configure the AMI software to meet the requirements as described in the implementation plan. This configuration shall include setting up users, establishing workflows, configuring virtual routes and reporting, and other subtasks as necessary to prepare the system for use.
2. The Offeror shall perform validation testing in accordance with the validation plan using test data to confirm that the AMI software meets the specified requirements.
3. Loudoun Water intends to purchase licenses for ten concurrent users, or ten named users, as part of this implementation. Additional read-only (for the purpose of viewing data and reports) licenses will be purchased for ten concurrent users or ten named users.

D. Infrastructure Installation

1. Develop and maintain an AMI Equipment Installation Database which includes at a minimum
 - a. Meter and Endpoint Account Number
 - b. Meter and Endpoint Address
 - c. Date of Installation
 - d. Serial Number of New Endpoint
 - e. Serial Number of Endpoint Removed (if applicable)
 - f. Size of New Meter (if applicable)
 - g. Serial Number of new Meter (if applicable)
 - h. Meter reading at time of installation

E. Fixed Base Radio Frequency Meter Transceivers

1. Furnish and install Fixed Base Radio Frequency Meter Transceiver, cable, wiring, accessories, and appurtenances in accordance with the Manufacturer's recommendations, Loudoun Water regulations, the Offeror's Implementation Plan, and as specified herein.
2. Applicable Loudoun Water construction standards are included in Appendix B.
3. Replacement meter pit lids will be provided by Loudoun Water and distributed to the Offeror as needed.
4. Field program, startup, and test Fixed Base Radio Frequency Radio Meter Transceiver.
5. If required, remove and dispose of existing radio transmitter and meter pit lid.

F. Data Collection Points

1. Furnish and install Data Collection Points, mounting hardware, cable, wire, structures, accessories and appurtenances in accordance with the Manufacturer's recommendations, Loudoun Water Regulations, the Offeror's Implementation Plan, the National Electric Code, the Federal Aviation Administration regulations, the Federal Communication Commission regulations, and applicable local, state, and federal regulations.

2. Data Collection Points installed in or on facilities owned and operated by Loudoun Water:
 - a. Submit detailed installation drawings to Loudoun Water for review and approval.
 - b. Installation drawings must be signed and sealed by an Engineer Licensed in Virginia.
 - c. Proposed Data Collection Points shall not interfere or impact the intended operation of the Loudoun Water facility or operations of other licensed users of the facilities such as cellular communications carriers.
 - d. Data Collection Points shall be grounded.
 - e. Proposed Collection Points shall not interfere with Loudoun Water access to Loudoun Water Facility.
 - f. Offeror shall procure required power to construct, operate, and maintain the Data Collection Points. Any electric utility accounts initiated by the Offeror will be transferred to Loudoun Water upon Loudoun Water's acceptance of the AMI System.
3. Data Collection Points installed in or on facilities not currently owned and operated by Loudoun Water:
 - a. Offeror shall be responsible for any required property acquisition, rights-of-way, agreements, zoning approvals, variances, special exceptions, etc., and local, state, and federal permits and approvals.
 - b. Offeror shall procure power required to construction, operate, and maintain the Data Collection Points. Any electric utility accounts initiated by the Offeror will be transferred to Loudoun Water upon Loudoun Water's acceptance of the AMI System.
 - c. Data Collection Points shall be grounded.
 - d. Submit detailed installation drawings to Loudoun Water for review.
 - e. Installation drawings must be signed and sealed by an Engineer licensed in Virginia.
 - f. Property, rights-of-way, agreements, zoning approvals, variances, special exceptions, etc. shall be turned over to Loudoun Water upon Loudoun Water's acceptance of the AMI System.
4. All proposed Data Collection Point facilities must be approved by Loudoun Water. Loudoun Water reserves the right to not accept any and all of the Offeror's proposed Collection Point facilities.

G. Water Meters and Encoder Registers

1. Furnish and install optional water meters and/or encoder registers in accordance with Manufacturer's recommendations, Loudoun Water regulations, and as specified herein.
2. Install two new gaskets and optional expansion connector on the customer side at each meter connection if meters are supplied.
3. Prior to installation, thoroughly flush all pipes to remove any foreign matter.
4. Expel air, flush, and refill plumbing system before testing for leakage. Visually test for leakage.

5. Remove and dispose of existing water meter and/or encoder register or remove and deliver water meter and/or encoder register to Loudoun Water. Deliver Water Meters and/or Encoder Registers to a location designated by Loudoun Water. Unload and place water meters and/or encoder registers in storage facility designed by Loudoun Water.

H. Vehicle Based Reading System

1. Furnish one complete Vehicle Based Reading System to Loudoun Water with two vehicle base stations.
2. Furnish two portable radio based meter reading devices.

I. Handheld Device

1. Furnish four Handheld Devices and Charging/Communication Stands to Loudoun Water.
2. Offeror is not permitted to use Loudoun Water's Handheld devices.

J. Offeror Access and Work Restrictions

1. The successful Offeror will be provided with a listing of the addresses of each installation location.
2. Loudoun Water will notify customers at least seven calendar days in advance of anticipated time for Fixed Base Radio Frequency Transmitter installation and/or water outage for meter replacement.
3. Arrange for access to the property, dwellings or establishments, except in the event of vacancy or the refusal of entry by occupant or property owner.
4. In the event of vacancy or refusal of entry by occupant, Loudoun Water will arrange access.
5. Loudoun Water will notify customers of the proposed start date for the AMI System project.
6. Loudoun Water reserves right to designate day and time when existing property owner's service line may be removed from service.
7. Offeror work hours are restricted to 9:00 a.m. to 6:00 p.m. on weekdays. Work on Saturday, Sunday, and Holidays is not permitted.

K. General Installation and Storage Requirements:

1. Carefully plan work ahead in close coordination with Owner, Property Owner, and Engineer. Obtain Owner's approval of installation schedule and procedure before work is started, and procure necessary materials, tools and equipment before work is started.
2. Water service may not be interrupted for more than four hours. However, once service is shut off, work continuously and expeditiously until water service is restored.
3. Make provision for adequate personnel to be available for continuous operations
4. Store AMI components in accordance with the Manufacturer's recommendations. Offeror shall furnish storage space for and accept all deliveries of AMI system components.

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- L. Public Notification – Loudoun Water will notify all water customers of its intent to install the AMI system.
- M. Security
1. Security requirements apply to Offeror's personnel and all sub-consultant personnel (if any).
 2. Employee Background Check
 - a. Conduct a background check on each employee prior to the employee performing any function or activities involving direct customer contact or work at any customer property. "Direct customer contact" includes but is not limited to any activity by the Offeror's employees at or near a customer's property.
 - b. Background check shall consist of a check of at least the following: Previous employers and dates of employment, education, driving record, and criminal history (state and federal), references, and credit history.
 - c. Prior to commencing any work, provide written evidence to Loudoun Water that the background check requirements have been met.
 - d. Make available to Loudoun Water within seven days, upon request, the documentation and results of the employee background checks.
 3. Develop and implement a security plan including, but not limited to the following:
 - a. Identification and monitoring of all Offeror personnel on the project sites.
 - b. Maintenance of a Daily Job Roster including which personnel are working at which project sites.
 - c. Issuance of photo identification cards
 4. Identification and Monitoring of Offeror (and other) Personnel
 - a. Submit the following information in writing to Loudoun Water seven days after the intent to award is issued for any current employee scheduled to enter the work site:
 - i. Name and job title;
 - ii. Address;
 - iii. Telephone number;
 - iv. Gender, date and place of birth and citizenship;
 - v. Driver's License State and Number;
 - vi. A statement attesting to compliance with requirements of 8 USC § 1324a(b) for employment verification on each existing employee who will be working on the project at the job site(s). This information may be used for the purpose of performing background checks to confirm the validity of the above information.
 5. For any employees hired after issuance of the intent to award of contract, the above required information shall be submitted in writing at least one week prior to new employee(s) entering the project site.
 6. Prohibition of Unauthorized Aliens
 - a. No work on site shall be performed by an unauthorized alien, as that term is defined in 8 USC § 1324a (in subsection (h)(3)). Only persons identified as "protected individuals" as that term is defined in 8 USC § 1324a shall be

allowed on the work site.

7. Maintenance of a Daily Job Roster
 - a. Offeror shall establish a Daily Job Roster identifying all employees working at the site each day. All employees on the Daily Job Roster must have attended security orientation prior to entry. The Roster shall include all sub-consultants, material men, delivery personnel, visitors or others who need site access due to the Offerors operations.
8. Photo Identification Card
 - a. The Offeror will issue temporary photo identification cards to all employees. Employees must carry (or display) such identification cards at all times when on the site. Card shall be returned to Offeror when no longer required. Offeror to maintain log related to status of all cards.
9. All Offerors, sub-consultants, delivery companies or vendors who are not pre-approved by Offeror will be denied access to the project site or asked to leave the site until appropriate approvals have been provided. The Offeror may request a non-secure delivery area outside of the project sites at no additional cost to Loudoun Water.
10. Offeror's Employees
 - a. The Offeror, during the performance of this contract, will be considered a representative of Loudoun Water by all customers and in this respect shall be responsible for the proper conduct, dress, and appearance of his employees as a means of promoting good will with all customers. Employees shall wear identification badges with photographs during working hours. Upon responsible complaints from customers, Loudoun Water may demand that the Offeror remove personnel from the work, who do not conduct themselves in the proper manner. Neither the Offeror nor his employees shall enter into any discussion with customers regarding water billings.

N. Customer Disputes / Complaints

1. The Offeror shall be responsible for settling any complaints or claims of damage to property resulting from his operations. The Offeror, when notified of a complaint, either by the property owner or Loudoun Water, shall make up a complaint sheet. The complaint shall indicate the name of the property owner, the nature of his complaint, and the actions taken, or to be taken to resolve the problem. A copy of this sheet shall be submitted to the owner and to Loudoun Water. All complaints shall be looked into immediately and resolved as soon as possible.
2. The Offeror shall maintain a listing of complaints on a daily basis and resolve them expeditiously as outlined above.

O. Care of Piping and Equipment

1. The Offeror shall use due care in installing water meters but will not be responsible for water leaks that are present before the water meter installation.
2. The Offeror will be responsible for leaks at the water meter, and will use due care in handling water meters, and other materials furnished by Loudoun Water or the Offeror.

3. If the Offeror, upon inspection, determines that the plumbing on the premises is in such a state of deterioration that it would not be advisable to disturb the plumbing, Loudoun Water should be notified immediately so that the property owner can be instructed to remedy or renew the piping in order that a meter can be installed.

P. Lead pipe notification

1. The Offeror shall notify Loudoun Water, within 24 hours, of any resident who has lead service lines. Loudoun Water will inform the property owners concerning replacement of those lines.

Q. Utility Owners

1. The Offeror shall not operate, move, relocate, or in any way interfere with the operation of existing utilities at, near, or outside the work area without first contacting a qualified representative of the utility involved and obtaining a written approval from this representative.

R. Maintenance Of State, Local and Private Roads

1. The Offeror shall be responsible during the term of the Contract for the prompt and efficient removal, to the satisfaction of the Engineer and Loudoun Water of roads, of any soil or other debris deposited on roads or adjacent areas as a result of the Offeror's activities associated with the work to be performed under this Contract.
2. Any potholes, ruts or other damage to existing road and adjacent areas which are created by the Offeror's activities shall be immediately repaired to the satisfaction of the owner of the road, using procedures and materials approved by the owner of the road.
3. If the Offeror fails to repair or clean a road surface and adjacent areas in a timely manner or fails to repair or clean the road surface and adjacent areas to the satisfaction of the owner of the road, the owner of the road or Loudoun Water has the right to perform the corrective work and charge the Offeror for the cost incurred. If the Offeror fails to pay the charges, said charges will be deducted by Loudoun Water from the contract bid price.

S. Adjacent Property And Right-Of-Way

1. The Offeror shall not trespass, store material or equipment or in any other manner occupy any property without written permission of the owner of the property. Any damage done by the Offeror to property outside of said work areas shall be restored immediately to the property Loudoun Water's satisfaction at the Offeror's expense.

T. Surplus Materials Removed

1. Upon completion of construction, the Offeror shall remove from the site and dispose of at his own expense all surplus material, rubbish, and refuse resulting from the work, in order that the site and adjacent premises will be left in a condition satisfactory to Loudoun Water. During the progress of the work, the area shall be kept clean and clear of debris and waste material.

2. It shall be the responsibility of the Offeror to locate a satisfactory landfill area for the surplus materials.

U. Training

1. The Offeror shall train the designated Loudoun Water personnel in the use of AMI software and any other software or hardware being proposed. Loudoun Water has a dedicated computer training facility that may be used for this purpose. The Offeror shall provide training manuals and training documentation to support the training exercises. Training will be performed on-site at Loudoun Water's computer training facility. These users should be classed for training as follows:
 - a. Three Customer Service personnel will require full training on the standard use and operation of the AMI software.
 - b. Three Billing personnel will require training on any interface between the AMI and billing software.
 - c. Five additional users (three from Field Services and two from Operations) will also require separate advanced application administration training (training in how to configure the AMI software, manage users, etc.).
 - d. Three users will require system administration training (e.g. any special AMI requirements for SQL Server beyond normal DBA duties, special IIS requirements, installing and uninstalling the software, etc.)
 - e. Up to ten users will require training on how to access basic data, including sample results, and view reports. These users will only use the system to view information, not edit.
 - f. Three users will require full training on the installation, programming, startup, and testing of Fixed Base Radio Frequency Transceivers and Data Collection Points.
 - g. Three users will require training on the use, programming, startup, and testing of the Vehicle Based Reading System and Handheld Devices.

V. Implementation

1. The Offeror shall guide Loudoun Water through the implementation 'go-live' period, in which Loudoun Water adopts the use of the AMI software in full production mode. As part of this implementation, the Offeror shall provide Loudoun Water with three consecutive days of on-site support immediately following the go live, and three additional consecutive days of on-site support two months after the go-live date.

W. Support

1. The Offeror shall provide post installation maintenance and support for the AMI software. This maintenance and support shall include regular releases of software upgrades, and helpdesk support that conforms to a standard Service Level Agreement (SLA). Specific terms of the SLA will be negotiated during the contracting process.

6. ITEMS TO BE INCLUDED IN THE PROPOSAL

A. Contents of Proposals

1. The following information is to be submitted as part of the proposal. No other material may be attached. Tabs shall be used to separate sections of the proposal response. The proposal response is limited to no more than **60 single sided pages (or 30 double sided pages)**, not including a cover letter, tab separators, the Offeror's response to Appendix A, the Offeror's response to Appendix C, or any forms required by Loudoun Water. A cover letter, if included, shall be no more than one page. The proposal is to be organized into the following Sections:
 - a. Offeror Profile – Provide a description of the company and each sub-consultant, including the following information:
 - i. Company Name
 - ii. Location(s) from which services will be provided and location of headquarters
 - iii. Number of full-time employees
 - iv. History of major releases including version number, release date and summary of enhancements
 - v. Number of companies with active maintenance contracts for the proposed core AMI product and the corresponding number of licenses
 - b. Experience of the Offeror – Provide descriptions and references for at least five municipal water/wastewater utility AMI implementations. At least one implementation should be for a utility located in the mid-Atlantic region. Include a discussion of the services provided and how those services align with the services sought in this RFP. Also provide the start and completion dates, contract value, as well as the client contact name, title, address, email, and phone number for each project.
 - c. Financial Information of Offeror – Include an audited financial statement or balance sheet for the most recent fiscal year and a summary of the gross revenue of the firm for the past five years. Indicate if there are any lawsuits or legal action against the Offeror's company within the last two years that could impact the delivery of the AMI systems as proposed. Offeror will include most current financial ratings from Moody and S&P.
 - d. Qualifications of Individuals – Include a project organizational chart and resumes of key team members to be assigned to this project.
 - e. Sub-consultants– Identify when any outside services will be used. Provide the names and lists of services to be provided by each sub-consultant. Indicate the project role of the sub-consultant and sub-consultant experience. Loudoun Water reserves the right to procure services of a sub-consultant directly.
 - f. RFP Attachments – All attachments to the RFP requiring execution by the firm are to be returned with the proposal. Include in this section the References form for the five formal references required by Loudoun Water.
 - g. Signatures – All proposal originals must be signed in ink by the individual or authorized principals of the firm.

- b. Virus Introduction
 - c. Man-in-the-Middle attacks
 - d. Unauthorized Access/Modification to MIU Data
 - e. Unauthorized Access/Modification to DCU Data
 - f. Unauthorized Access/Modifications to MDM Data
 - g. Compliance with basic cyber security measures recommended by the NERC/NIPP Critical Infrastructure Protection standards
4. Offeror shall explain how their proposed solution will read/manage compound meters
 5. Offeror shall provide a list of User adjustable parameters available at the MIU
 6. Offeror shall indicate anticipated range from MIU to DCU
 7. Offeror shall provide a list of User adjustable parameters available at the DCU
 8. Offeror shall describe method of data transmission when meter is located inside buildings
 9. Cost Benefit Analysis and product information if Offeror proposes to furnish and install meters and/or encoder registers.
 10. Offeror shall describe proposed methods and procedures for implementing the AMI System without impacting Loudoun Water billing operations during implementation.
 11. Offeror shall describe methods of installation for DCUs
 12. Offeror shall provide list of all diagnostic capabilities of the MIU
 13. Offeror shall provide list of all diagnostic capabilities of the DCU
 14. Offeror shall provide list of all diagnostic capabilities of the Host application
 15. Offeror shall describe process of how system completes an "On Demand" reading to include all time delays
 16. Offeror shall provide description of reporting software capabilities, specifications
 17. Offeror shall explain anticipated range of Vehicle Base station (VB) to MIU
 18. Offeror shall explain how the proposed solution switches between handheld, mobile, and fixed operations
 19. Offeror shall provide information on the proposed systems' Application Programming Interface (API)
 20. Offeror shall indicate the number of units like those proposed that have been installed
 21. Offeror shall describe available technologies that support in-premise devices and include devices types, capabilities, and methods of communications.
 22. Offeror will provide a "blueprint" that outlines the development of the current product and articulates the future direction of the proposed solution.
 23. Offeror shall provide a Maintenance Plan for future products
 24. Offeror shall provide Mean Time Between Failure (MTBF) information for all proposed hardware and software.
 25. Offeror shall provide a list of optional accessories (e.g. In Home Displays, remote shutoff valves, etc) and indicate price for each.
 26. If the Offeror proposes to provide meters, the Offeror shall provide a price list for all Residential, Commercial, and Fire Service meters sizes and types supplied.

27. Offer shall explain the how the AMI software will be able to eventually integrate and exchange data with these software packages:
- a. ERP – Tyler Technologies’ MUNIS 7.4 software is Loudoun Water’s current ERP software solution. This system is used to manage purchasing, financials, human resources, invoicing for services rendered utility billing, and customer information
 - b. Asset Management – Loudoun Water currently uses Infor’s Hansen 8 software to maintain and manage water and wastewater assets, including inventory and the management of service requests and work orders
 - c. ArcGIS - Loudoun Water uses ESRI’s ArcGIS technology to manage geospatial data. A SQL Server 2005-based ArcSDE 9.3 database supports our ArcGIS Desktop 9.3 and ArcGIS Server 9.3 users. Loudoun Water is currently upgrading ArcGIS Server to version 10.
- B. Offeror shall indicate if his software supports VMWARE vSphere 4 virtualization.
- C. Offeror shall provide a detailed schedule of training options and also perform on-site training sessions for various employees of the utility. The Offeror shall also include other remote training alternatives for new and existing employees. The Offeror shall explain how he plans to meet the requirement of supporting a user’s conference/Forum in which users of the fixed base system have the ability to provide feedback for new products and best practices.

7. PRICE PROPOSAL

A. AMI System Price Proposal

Offer is required to furnish prices for all items. The Total Cost shall include all Offeror’s costs to successfully furnish, install, implement, startup, commission and test the AMI software and AMI hardware to furnish Loudoun Water with a complete and operable Advanced Meter Infrastructure System. The Total shall also include all Offeror’s costs for training and installation support. Offeror shall complete the Ownership Cost Details in Appendix C.

Item	Lump Sum Price
Furnish Implementation Plan	\$
Furnish and Install AMI System Infrastructure to support 62,000 existing Residential and Commercial Meters (excluding water meters and/or encoder registers)	\$
Furnish, Install, Configure, and Test Host Software	\$
Furnish Training Services	\$
Furnish Implementation Services to include new plastic lids provided by Loudoun Water. Existing cast iron lids to be returned to Loudoun Water.	\$
Furnish Support Services	\$
Furnish Recommended Spare Parts	\$
Total	\$

B. Meter and/or Encoder Register Price Proposal

Offeror may furnish price for Water Meters and/or Encoder Registers. Offeror is not required to furnish price for Water Meters and/or Encoder Registers.

Item	Lump Sum Price
Furnish and Install 62,000 Water Meters and/or Encoder Registers. Remove and Dispose of Water Meters and/or Registers and Meter Interface Units	\$
Furnish and Install 62,000 Water Meters and Encoder Registers. Remove and Deliver Water Meters and/or Registers and Meter Interface Units to Loudoun Water.	\$
Furnish 62,000 Water Meters and/or Encoder Registers and Meter Interface Units. No installation services included.	\$
Furnish and Install expansion connectors on supplied 62,000 Water Meters	\$

C. Unit Prices

Offeror is required to furnish unit prices for all items.

Item	Unit Price, Each
Furnish and Install One Fixed Base Radio Frequency Transceiver	\$
Furnish One Fixed Base Radio Transceiver. No installation services included.	\$
Furnish and Install One Data Collection Unit at Facility Owned and Operated by Loudoun Water	\$
Furnish One Data Collection Unit. No installation services included.	\$
Furnish and Install One 5/8" x 3/4" Residential Water Meter.	\$
Furnish One 5/8" x 3/4" Residential Water Meter. No installation services included.	\$

D. Ownership Cost Information

Offeror is required to furnish Ownership Cost Information.

Item	Useful Life (years)
Fixed Base Radio Frequency Meter Transceiver	
Data Collection Point	
Water Meter and/or Encoder Register (if applicable)	

E. Contract Period Water Meter and Fixed Base Radio Frequency Meter Transceiver Prices

1. During the Contract Period (and any contract extensions granted by Loudoun Water), Offeror shall
 - a. Furnish and install Water Meters and Fixed Base Radio Frequency Meter Transceivers at meter locations identified in the meter database prepared for the AMI System project at the unit price each established during the Price Negotiation Phase.
 - b. Furnish and install Water Meters and Fixed Base Radio Frequency Meter Transceivers at new meter locations not previously identified in the meter database prepared for the AMI System project (new accounts) at the fixed unit price each established during the Price Negotiation Phase.
 - c. Furnish, deliver, and unload water meters and Fixed Base Radio Frequency Meter Transceivers to a location designated by Loudoun Water at a fixed unit price each established during the Price Negotiation Phase
- F. Post-Contract Period Water Meter and Fixed Base Radio Frequency Meter Transceiver Prices
 1. Offeror shall agree, as a contract condition, to the following stipulations regarding Water Meter and Fixed Base Radio Frequency Meter Transceiver prices immediately following the Contract Period (including any contract extensions granted by Loudoun Water) or acceptance of the AMI System by Loudoun Water, whichever occurs first.
 2. Offeror shall furnish, deliver, and unload to a location designated by Loudoun Water the Offeror's Water Meters and Fixed Base Radio Frequency Meter Transceivers for a unit price. This pricing shall be based on the Consumer Price Index (CPI) as a maximum allowable adjustment for a period of twenty years.
 3. The Base Price shall be established as the unit price each agreed upon by Loudoun Water and the Offeror during the Price Negotiation phase for the AMI System
 4. Offeror shall furnish, deliver, and unload to a location designated by Loudoun Water the Offeror's Water Meter model and Fixed Base Radio Frequency Meter Transceiver model provided during the AMI System project. If, during the twenty year period, the Offeror discontinues the manufacture of these models, the Offer shall supply the models' direct replacement at a unit price each calculated for the obsolete models.

8. CONTRACT CONDITIONS

A. Procedures

The extent and character of the services to be performed by the Contractor shall be subject to the general control and approval of Loudoun Water's General Manager or his authorized representative. Any change to the contract must be approved in writing by the Manger of Procurement and Risk and the Contractor. The Contractor is prohibited from assigning, transferring, conveying, subletting, or

otherwise disposing of this agreement or its rights, title or interest therein or its power to execute such agreement to any other person, company or corporation without the prior consent and approval in writing by Loudoun Water.

B. Contract Period

This contract will be awarded to one vendor for one (1) year term with three (3) one-year extensions, based on the same terms and conditions as at the expiration of its term by mutual agreement between the parties. Each renewal may be for a period equal to the original contract period (one (1) year).

C. Invoicing and Payment

The Contractor shall submit invoices, in triplicate, for each deliverable (by project), to include a detailed breakdown of all charges. Invoices shall be based upon completion of tasks or deliverables and shall include progress reports.

All such invoices will be paid promptly by Loudoun Water unless any items thereon are questioned, in which event payment will be withheld pending verification of the amount claimed and the validity of the claim. The firm shall provide complete cooperation during any such investigation. All invoices shall reference the Purchase Order and shall be forwarded to the following address:

Loudoun Water
Attn: Accounts Payable
P.O. Box 4000
Ashburn, VA 20146

Individual Contractors shall provide their social security numbers, and proprietorships, partnerships, and corporations shall provide their federal employer identification number on the pricing form.

D. Payments to Subcontractors

1. Within seven days after receipt of amounts paid by Loudoun Water for work performed by a subcontractor under this contract, the Contractor shall either:
 - a. Pay the Subcontractor for the proportionate share of the total payment received from Loudoun Water attributable to the work performed by the Subcontractor under this contract; or
 - b. Notify Loudoun Water and Subcontractor, in writing, of his intention to withhold all or a part of the Subcontractor's payment and the reason for non-payment.
2. The Contractor shall pay interest to the Subcontractor on all amounts owed that remain unpaid beyond the seven day period except for amounts withheld as allowed in item b. above.
3. The Contractor shall include in each of its subcontracts a provision requiring each Subcontractor to include or otherwise be subject to the same payment

and interest requirements as set forth above with respect to each lower-tier subcontractor.

4. The Contractor's obligation to pay an interest charge to a Subcontractor pursuant to this provision may not be construed to be an obligation of Loudoun Water.

E. Ethics in Public Contracting

1. The provisions contained in Sections 2.2-4367 through 2.2-4377 of the Virginia Public Procurement Act as set forth in the 1950 Code of Virginia, as amended, shall be applicable to all contracts solicited or entered into by Loudoun Water.
2. The above-stated provisions supplement, but do not supersede, other provisions of law including, but not limited to, the Virginia State and Local Government Conflict of Interest Act (Section 2.2-3100 et seq.), the Virginia Governmental Frauds Act (Section 18.2-498.1 et seq.) and Articles 2 and 3 of Chapter 10 of Title 18.2. The provisions apply notwithstanding the fact that the conduct described may not constitute a violation of the Virginia State and Local Government Conflict of Interests Act.

F. Delays

If delay is foreseen Contractor shall give thirty (30) days prior written notice to the Division of Procurement. Loudoun Water has the right to extend delivery date if reasons appear, in the sole discretion of Loudoun Water, to be valid. Contractor must keep Loudoun Water advised at all times of status of order. Default in promised delivery (without accepted reasons) or failure to meet specifications, authorizes the Division of Procurement to purchase supplies, equipment or services elsewhere and charge full increase in cost and handling to defaulting Contractor.

G. Notice of Required Disability Legislation Compliance

1. Loudoun Water is required to comply with state and federal disability legislation: The Rehabilitation Act of 1973 Section 504, The Americans with Disabilities Act (ADA) for 1990 Title II and The Virginians with Disabilities Act of 1990.
2. Specifically, Loudoun Water may not, through its contractual and/or financial arrangements, directly or indirectly avoid compliance with Title II of the Americans with Disabilities Act, Public Law 101-336, which prohibits discrimination on the basis of disability by public entities. Subtitle A protects qualified individuals with disability from discrimination on the basis of disability in the services, programs, or activities of all State and local governments. It extends the prohibition of discrimination in federally assisted programs established by the Rehabilitation Act of 1973 Section 504 to all activities of State and local governments, including those that do not receive Federal financial assistance, and incorporates specific prohibitions of discrimination on

the basis of disability in Titles I, III, and V of the Americans with Disabilities Act. The Virginians with Disabilities Act of 1990 follows the Rehabilitation Act of 1973 Section 504.

H. Immigration Reform and Control Act of 1986

By entering this Contract, the Contractor certifies that it does not and will not during the performance of this Contract violate the provisions of the Federal Immigration Reform and Control Act of 1986, which prohibits employment of illegal aliens.

I. Insurance

The Contractor shall procure, maintain, and provide proof of insurance coverages for injuries to persons and/or property damage as may arise from or in conjunction with, the work performed on behalf of Loudoun Water by the Contractor, his agents, representatives, employees or subcontractors. Proof of coverage as contained herein shall be submitted fifteen (15) days prior to the commencement of work and such coverage shall be maintained by the Contractor for the duration of the contract period; for occurrence policies. Claims made policies must be in force or that coverage purchased for three (3) years after contract completion date.

1. General Liability

Coverage shall be as broad as: Comprehensive General Liability endorsed to include Broad Form, Commercial General Liability form including Products/Completed Operations.

a. Minimum Limits

General Liability:

- i. \$1,000,000 General Aggregate Limit
- ii. \$1,000,000 Products & Completed Operations
- iii. \$1,000,000 Personal and Advertising Injury
- iv. \$1,000,000 Each Occurrence Limit
- v. \$50,000 Fire Damage Limit
- vi. \$5,000 Medical Expense Limit

2. Automobile Liability

Coverage sufficient to cover all vehicles owned, used, hired, or non-owned by the Contractor, his agents, representatives, employees or subcontractors.

a. Minimum Limits

Automobile Liability:

- i. \$1,000,000 Combined Single Limit
- ii. Statutory Uninsured Motorist Coverage
- iii. \$1,000,000 Each Occurrence Limit
- iv. \$5,000 Medical Expense Limit

3. Workers' Compensation

- a. Limits as required by the Workers' Compensation Act of Virginia.
- b. Employers Liability, \$1,000,000

- c. Compliance with all Federal Statutes, including U.S. Longshoreman and Harbor Worker's Act, the Jones Act, and Federal Employee Act.
4. Coverage Provisions
- a. All deductibles or self-insured retention shall appear on the certificate(s).
 - b. Loudoun Water, its' officers/ officials, employees, agents and volunteers shall be added as "additional insured" as their interests may appear. This provision does not apply to Professional Liability or Workers' Compensation/Employers' Liability.
 - c. The Contractor's insurance shall be primary over any applicable insurance or self-insurance maintained by Loudoun Water.
 - d. Shall provide 30 days written notice to Loudoun Water before any cancellation, suspension, or void of coverage in whole or part, where such provision is reasonable.
 - e. All coverages for subcontractors of the Contractor shall be subject to all of the requirements stated herein.
 - f. All deductibles or self-insured retention shall appear on the certificate(s) and shall be subject to approval by Loudoun Water. At the option of Loudoun Water, either; the insurer shall reduce or eliminate such deductible or self-insured retention; or the Contractor shall be required to procure a bond guaranteeing payment of losses and related claims expenses.
 - g. Failure to comply with any reporting provisions of the policy(s) shall not affect coverage provided Loudoun Water, its' officers/officials, agents, employees and volunteers.
 - h. The insurer shall agree to waive all rights of subrogation against Loudoun Water, its' officers/officials, agents, employees or volunteers for any act, omission or condition of premises which the parties may be held liable by reason of negligence.
 - i. The Contractor shall furnish Loudoun Water certificates of insurance including endorsements affecting coverage. The certificates are to be signed by a person authorized by the insurance company(s) to bind coverage on its' behalf, if executed by a broker, notarized copy of authorization to bind, or certify coverage must be attached.
 - j. All insurance shall be placed with insurers maintaining an A.M. Best rating of no less than an A:VII. If A.M. Best rating is less than A:VII, approval must be received from Loudoun Water's Manger of Procurement and Manager.
 - k. All coverages designated herein shall be as broad as the Insurance Services Office (ISO) forms filed for use with the Commonwealth of Virginia.
- J. Safety
- All contractors and subcontractors performing services for Loudoun Water are required and shall comply with all Occupational Safety and Health Administration (OSHA), State and County Safety and Occupational Health Standards and any other applicable rules and regulations. Also all contractors and subcontractors shall be held responsible for the safety of their employees and any unsafe acts or

conditions that may cause injury or damage to any persons or property within and around the work site area under this contract.

K. Rider Clause

The Contractor shall, during the term of the contract, extend to any authority, department, agency or institution of the Commonwealth of Virginia the ability to acquire goods and services, other than professional services, at contract prices in accordance with contract terms.

L. Hold Harmless Clause

The Contractor shall, during the term of the contract including any warranty period, indemnify, defend, and hold harmless Loudoun Water, its officials, employees, agents, and representatives thereof from all suits, actions, or claims of any kind, including attorney's fees, brought on account of any personal injuries, damages, or violations of rights, sustained by any person or property in consequence of any neglect in safeguarding contract work or on account of any act or omission by the Contractor or his employees, or from any claims or amounts arising from violation of any law, bylaw, ordinance, regulation or decree. The Contractor agrees that this clause shall include claims involving infringement of patent or copyright.

M. Not To Benefit

As a prerequisite for payment pursuant to the terms of this contract, there shall be furnished to Loudoun Water a statement, that no employee of Loudoun Water, or members of his immediate family, including spouse, parents or children has received or has been promised, directly or indirectly, any financial benefit, by way of fee, commission, finder's fee or in any other manner, remuneration arising from or directly or indirectly related to a contract resulting from this RFP.

N. Exemption from Taxes

Loudoun Water is exempt from State and Federal Taxes. Tax Exemption Certificate indicating Loudoun Water's tax exempt status will be furnished by Loudoun Water on request.

O. Substitutions

NO substitutions, including key personnel, or cancellations permitted after award without written approval by the Manager of Procurement and Risk and Loudoun Water's General Manager.

P. Assignment of Contract

This contract may not be assigned in whole or in part without the written consent of the Manager of Procurement and Risk.

Q. Termination

Subject to the provisions below, the contract may be terminated by Loudoun Water upon thirty (30) days advance written notice to the other party; but if any

work or service hereunder is in progress, but not completed as of the date of termination, then this contract may be extended upon written approval of Loudoun Water until said work or services are completed and accepted.

1. *Termination for Convenience*

In the event that this contract is terminated or canceled upon request and for the convenience of Loudoun Water, without the required thirty (30) days advance written notice, then Loudoun Water shall negotiate reasonable termination costs, if applicable.

2. *Termination for Cause*

Termination by Loudoun Water for cause, default or negligence on the part of the Firm shall be excluded from the foregoing provision; termination costs, if any, shall not apply. The thirty (30) days advance notice requirement is waived in the event of Termination for Cause.

3. *Termination Due to Unavailability of Funds in Succeeding Fiscal Years*

When funds are not appropriated or otherwise made available to support continuation of performance in a subsequent fiscal year, the contract shall be canceled and the contractor shall be reimbursed for the reasonable value of any non-recurring costs incurred but not amortized in the price of the supplies or services delivered under the contract.

R. Contractual Disputes

The Contractor shall give written notice to the Manager of Procurement and Risk of his intent to file a claim for money or other relief at the time of the occurrence or the beginning of the work upon which the claim is to be based.

The written claim shall be submitted to the Manager of Procurement and Risk no later than sixty (60) days after final payment. If the claim is not disposed of by agreement, the Manager of Procurement and Risk shall reduce her decision to writing and mail or otherwise forward a copy thereof to the Contractor within thirty (30) days of receipt of the claim.

The Manager of Procurement and Risk's decision shall be final unless the Contractor appeals within thirty (30) days by submitting a written letter of appeal to the General Manager, or his designee. The General Manager shall render a decision within sixty (60) days of receipt of the appeal.

S. Severability

In the event that any provision shall be adjudged or decreed to be invalid, such ruling shall not invalidate the entire Agreement but shall pertain only to the provision in question and the remaining provisions shall continue to be valid, binding and in full force and effect.

T. Applicable Laws

This contract shall be governed in all respects by the laws of the Commonwealth of Virginia.

U. Employment Discrimination by Contractors Prohibited

Every contract over \$10,000 shall include the following provisions:

During the performance of this contract, the Contractor agrees as follows:

1. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age or disability, or any other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.
2. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, shall state that such Contractor is an equal opportunity employer.
3. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient to meet this requirement.
4. The Contractor will include the provisions of the foregoing paragraphs, 1, 2, and 3 in every subcontract or purchase order over \$10,000 so that the provisions will be binding upon each subcontractor or vendor.

V. Drug-free Workplace

Every contract of over \$10,000 shall include the following provisions:

During the performance of this contract, the Contractor agrees to (i) provide a drug-free workplace for the Contractor's employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance including marijuana is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or behalf of the Contractor that the Contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order over \$10,000 so that the provisions will be binding upon each subcontractor or vendor.

For the purpose of this section, "drug-free workplace" means a site for the performance of work done in connection with a specific contract awarded to an

Contractor in accordance with this chapter, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance including marijuana during the performance of the contract.

9. Contractor Instructions for Preparing and Submitting Proposals

A. Questions and Inquiries

Questions about this RFP should be directed to Bessie Nelson, Purchasing Technician, at 571-291-7948 or bnelson@loudounwater.org.

B. Packaging Of Proposals

1. Proposals are to be returned in a sealed container. Ensure that the proposal container is completely and properly identified. The face of the container shall indicate the RFP number, 2011-002-250, time and date of public acceptance, 3:00 p.m., July 6, 2011 and the title of the RFP, Advanced Metering Infrastructure.

2. Each firm shall submit one (1) original, eight (8) copies and an electronic copy on a CD of their proposal to Loudoun Water's Purchasing Division as indicated on the cover sheet of this RFP. The original proposal shall be clearly marked.

C. Delivery of Proposals

1. Proposals may either be mailed to P.O. Box 4000, Ashburn, Virginia, 20146 or hand delivered or shipped to 44865 Loudoun Water Way, Ashburn, Virginia 20147. They may NOT be emailed.

2. Proposals must be received by Purchasing **BEFORE** July 6, 2011, 3:00 p.m. (Eastern Time) due date deadline. Requests for extensions of this time and date will not be granted. Firms mailing their proposals shall allow for normal mail time to ensure receipt of their proposals by Purchasing prior to the time and date fixed for acceptance of the proposals. Proposals or unsolicited amendments to proposals received by Loudoun Water after the acceptance date will not be considered. Proposals will be publicly accepted and logged in at the time and date specified above.

D. Withdrawal of Proposals

1. Proposals may be withdrawn on written request from the Offeror at the address shown in the solicitation PRIOR to the time of acceptance.

2. Negligence on the part of the Offeror in preparing the proposal confers no right of withdrawal after the time fixed for the acceptance of the proposals.

F. Late Proposals

LATE proposals will be returned to the Offeror UNOPENED, if RFP number, acceptance date and Offeror's return address is shown on the container.

G. Addendum and Supplement to Request

If it becomes necessary to revise any part of this request or if additional information is necessary to enable an exact interpretation of provisions of this request, an addendum will be issued to the same distribution list as the original RFP. It is the responsibility of the Offeror to ensure that he has received all addendums prior to submitting a proposal.

H. Proprietary Information

It is the responsibility of each Offeror to clearly mark any part of his proposal considered to be of PROPRIETARY OR CONFIDENTIAL NATURE. Offerors shall not mark sections of their proposal as PROPRIETARY OR CONFIDENTIAL if they are to be part of the award of the contract and are of a "Material" nature.

I. Authority to Bind Offeror in Contract

Proposals MUST give full legal name and address of Firm. Failure to manually sign proposal may disqualify it. Person signing the proposal should show TITLE or AUTHORITY TO BIND SAID FIRM IN A CONTRACT.

J. Rights of Loudoun Water

Loudoun Water reserves the right to accept or reject all or any part of any proposal, waive informalities and award the contract to best serve the interest of Loudoun Water.

K. Prohibition as Subcontractors

No Offeror who is permitted to withdraw a proposal shall, for compensation, supply any material or labor to or perform any subcontract or other work agreement for the person or firm to whom the contract is awarded or otherwise benefit, directly or indirectly, from the performance of the project for which the withdrawn proposal was submitted.

L. Deviations from Scope of Services

If there is any deviation from that prescribed in the scope of services, the appropriate line in the scope of services shall be ruled out and the substitution clearly indicated. Loudoun Water reserves the right to determine the responsiveness of any deviation.

M. Miscellaneous Requirements

All proposals submitted shall be valid for a minimum period of one hundred and twenty (120) calendar days following the date established for acceptance.

1. Loudoun Water will not be responsible for any expenses incurred by an Offeror in preparing and submitting a proposal. All proposals shall provide a straight-forward, concise delineation of the Offeror's capabilities to satisfy the requirements of this request. Emphasis should be on completeness and clarity of content.

2. The contents of the proposal submitted by the successful Offeror and this RFP will become part of any contract awarded as a result of the Scope of Services contained herein. The successful Offeror will be expected to execute a contract with Loudoun Water.
3. Loudoun Water reserves the right to reject any and all proposals by reason of this request, or to negotiate separately in any manner necessary to serve the best interests of Loudoun Water. Offerors whose proposals are not accepted will be notified in writing.

N. Protest

Offerors may refer to Sections 2.2-4357 through 2.2-4364 of the Code of Virginia to determine their remedies concerning this competitive process.

10. Evaluations of Proposals

Proposals will be evaluated by the AMI Committee of Loudoun Water employees. The proposal process will proceed in three phases:

A. Written Proposal Evaluation

Loudoun Water employees will independently evaluate each of the written proposals in accordance with the scoring criteria below.

1. Approach to Project (20 points)
2. Experience of the Firm and/or Sub-consultants (25 points)
3. Software/Hardware Functionality, Reliability, and Warranty (40 points)
4. Ownership Cost Details in Appendix C (15 points)

Technical portions of the proposal will be evaluated based on the following Weight Value system. Loudoun Water assigned priority for each Category where 3 is most important and 1 is least important.

Category	Weight	Comments
Infrastructure Features, Design, and Implementation	3	
Meter Transceivers Features, Design, and Implementation	3	
Host Software Features and Operation	3	
Mobile (Vehicle-based) Data System	2	
Handheld Data System	1	
Reporting Features	2	
Data Interface Capabilities and API	2	
Metering Technology (If Applicable)	2	
Customer Support	3	

After each member of the AMI Committee has completed an evaluation rating form for each proposal solution, composite ratings will be developed which indicate the committee's collective ranking of the highest rated Written Proposals.

B. Interview/Software Demonstrations

Upon completion of the Written Proposal Evaluation phase, Loudoun Water will invite one or more of the highest rated firms to present to Loudoun Water. This presentation will include a discussion of the firm's approach to the project, the firm's experience, and a demonstration of their software solution. Loudoun Water will provide specific instructions, including a software demonstration script for key business processes, prior to the demonstrations. Loudoun Water will score these interviews using the same criteria and methodology noted above (composite scoring of project approach; firm and/or sub-consultant experience; software/hardware functionality, reliability, and warranty; and ownership cost). One or more of the highest scoring firms may proceed to Price Evaluation/Negotiation phase.

C. Price Negotiation

Upon completion of the Interview/Software Demonstrations, Loudoun Water will negotiate price with one or more of the highest rated firms. Price negotiation will include all software and implementation costs.

Upon completion of the Price Evaluation/Negotiation, the AMI Committee will make a recommendation for the contract award.

References
(Must be completed and returned with Proposal)

Three (3) to five (5) references must be provided for equivalent or better services.

1. Name of Business, City, County or Agency _____

Mailing Address _____

Contact _____ Title _____
Phone No. _____ Fax No. _____
Email Address _____
Contract Amount \$ _____ Contract Dates _____
Description of Work Performed _____

2. Name of Business, City, County or Agency _____

Mailing Address _____

Contact _____ Title _____
Phone No. _____ Fax No. _____
Email Address _____
Contract Amount \$ _____ Contract Dates _____
Description of Work Performed _____

3. Name of Business, City, County or Agency _____

Mailing Address _____

Contact _____ Title _____
Phone No. _____ Fax No. _____
Email Address _____
Contract Amount \$ _____ Contract Dates _____
Description of Work Performed _____

Copy and attach additional sheets if necessary

**Advanced Metering Infrastructure
(RFP No. 2011-002-250)**

SECTION I – OFFEROR IDENTIFICATION AND LOUDOUN WATERSHIP DISCLOSURE

Company _____

Address _____

Contact Person _____ Title _____

Telephone No. _____ Fax No. _____ Email _____

Organized under the laws of State of _____

Principal place of business at _____

Following list includes persons having Loudoun Watership of 3% or more in the company (attach more sheets if necessary):

Name	Address
_____	_____
_____	_____
_____	_____

The Loudoun County Sanitation Authority (Loudoun Water) requests, as a matter of policy, that any consultant or firm receiving a contract of award resulting from an RFP issued by Loudoun Water shall make certification as specified below. Receipt of such certification, shall be a prerequisite to the award of contract and payment thereof.

SECTION II - EMPLOYEES NOT TO BENEFIT

I (we) hereby certify that if the contract is awarded to our firm, partnership, or corporation, that no employee of Loudoun Water, or members of his/her immediate family, including spouse, parents or children has received or been promised, directly or indirectly, any financial benefit, by way of fee, commission, finder's fee, political contribution or any similar form of remuneration on account of the act of awarding and/or executing this contract.

SECTION III – CONFLICTS OF INTEREST

This solicitation is subject to the provisions of VA Code Ann. Section 2.2-3100 et. seq., the State and Local Government Conflict of Interests Act. The Offeror [] is [] is not aware of any information bearing on the existence of any potential organizational conflict of interest.

SECTION IV – COLLUSION

I certify that this offer is made without prior understanding, agreement, or connection with any corporation, firm, or person submitting an offer for the same services, materials, supplies, or equipment and is in all respects fair and without collusion or fraud. I understand collusive bidding is a violation of the State and Federal law and can result in fines, prison sentences, and civil damage awards.

I hereby certify that the responses to the above representations, certifications, and other statements are accurate and complete. I agree to abide by all conditions of this RFP and certify that I am authorized to sign for my firm.

Signature _____ Date _____

Name (Printed) _____ Title _____

OFFEROR MUST RETURN THIS FORM WITH PROPOSAL RIDER CLAUSE

**Use of Contract by Members of the:
Northern Virginia Cooperative Purchasing Council and
Metropolitan Washington Council of Governments**

USE OF CONTRACT(S) BY MEMBERS COMPRISING THE METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS PURCHASING OFFICERS' COMMITTEE.

- A. If authorized by the bidder(s), resultant contract(s) will be extended to any or all of the listed members as designated by the bidder to purchase at contract prices in accordance with contract terms.
B. Any member utilizing such contract(s) will place its own order(s) directly with the successful contractor. There shall be no obligation on the part of any participating member to utilize the contract(s).
C. A negative reply will not adversely affect consideration of your bid/proposal.
D. It is the awarded vendor's responsibility to notify the members shown below of the availability of the Contract(s).
E. Each participating jurisdiction has the option of executing a separate contract with the awardee. Contracts entered into with a participating jurisdiction may contain general terms and conditions unique to that jurisdiction including, by way of illustration and not limitation, clauses covering minority participation, non-discrimination, indemnification, naming the jurisdiction as an additional insured under any required Comprehensive General Liability policies, and venue. If, when preparing such a contract, the general terms and conditions of a jurisdiction are unacceptable to the awardee, the awardee may withdraw its extension of the award to that jurisdiction.
F. The issuing jurisdiction shall not be held liable for any costs or damages incurred by another jurisdiction as a result of any award extended to that jurisdiction by the awardee.

BIDDER'S AUTHORIZATION TO EXTEND CONTRACT:

YES NO JURISDICTION

- ___ Alexandria, Virginia
___ Alexandria Public Schools
___ Alexandria Sanitation Authority
___ Arlington County, Virginia
___ Arlington County Public Schools
___ Bladensburg, Maryland
___ Bowie, Maryland
___ Charles County Public Schools
___ College Park, Maryland
___ Culpeper County, Virginia
___ District of Columbia
___ District of Columbia Courts
___ District of Columbia Public Schools
___ District of Columbia Water & Sewer Auth.
___ Fairfax, Virginia
___ Fairfax County, Virginia
___ Fairfax County Water Authority
___ Falls Church, Virginia
___ Fauquier County Schools & Government, Virginia
___ Frederick, Maryland
___ Frederick County, Maryland
___ Gaithersburg, Maryland
___ Greenbelt, Maryland
___ Herndon, Virginia
___ Leesburg, Virginia
___ Loudoun County, Virginia
___ Loudoun County Public Schools
___ Loudoun Water
___ Manassas, Virginia

YES NO JURISDICTION

- ___ City of Manassas Public Schools
___ Manassas Park, Virginia
___ Maryland-National Capital Park & Planning Comm.
___ Maryland Transit Authority
___ Metropolitan Washington Airports Authority
___ Metropolitan Washington Council of Governments
___ Montgomery College
___ Montgomery County, Maryland
___ Montgomery County Public Schools
___ Northern Virginia Community College
___ OmniRide
___ Potomac & Rappahannock Trans. Commission
___ Prince George's County, Maryland
___ Prince George's Public Schools
___ Prince William County, Virginia
___ Prince William County Public Schools
___ Prince William County Service Authority
___ Rockville, Maryland
___ Spotsylvania County Schools
___ Stafford County, Virginia
___ Takoma Park, Maryland
___ Upper Occoquan Sewage Authority
___ Vienna, Virginia
___ Virginia Railway Express
___ Washington Metropolitan Area Transit Authority
___ Washington Suburban Sanitary Commission
___ Winchester, Virginia
___ Winchester Public Schools

Vendor Name

Date

Appendix A – AMI Product Functions

Vendors: Please edit "Offeror Comments" and "Response" columns only.	
F = Fully Provided "Out-of-the-Box"	TP = Third Party Software Required (Third Party Software is Proposed)
CO = Configuration (no changes to underlying source code)	CB = Custom Development to Underlying Code as Part of Base Code
R = Provided with Reporting Tool	CU = Custom Development to Underlying Code Required
	NA = Not Available.
When F, CO, R, TP, CB or CU is used, vendors MUST list the module used to fulfill functionality.	
When NA is used and if a specific requirement will be available in a future version, specify the expected release date in the Vendor Comments column.	

Functional Areas	System Functions	Offeror Comments	Response
Infrastructure Hardware 1.0			
	Meter Interface Units (MIU) 1.1.0		
1.1.1	MIU shall be available for use in a pit configuration		
1.1.2	MIU shall be available for use in a non-pit configuration		
1.1.3	MIU shall be able to connect to an absolute encoder and/or a pulsed output register		
1.1.4	MIU shall be 100% submersible		
1.1.5	MIU shall be capable of interrogating the meter register at least once an hour		
1.1.6	MIU shall be capable of interrogating the meter register "on demand"		
1.1.7	MIU shall provide local storage of data		
1.1.8	MIU shall have a battery warranty of 20 years		
1.1.9	MIU shall have a field replaceable battery		
1.1.10	MIU shall provide a unique preprogrammed identification number		
1.1.11	MIU shall be labeled with the identification number using both a numeric and barcode format		
1.1.12	MIU shall be capable of transmitting 6 times per day without impacting battery life		
1.1.13	MIU shall include a lid lock for mounting through a Cast Iron, Aluminum, Concrete, Composite or Plastic meter pit lid.		

1.1.14	MIU shall be capable of secure two-way communications with the data collector		
1.1.15	MIU shall have the ability for time synchronization		
1.1.16	MIU shall be configurable "over the air"		
1.1.17	MIU shall support firmware upgrades "over the air"		
1.1.18	MIU shall support local firmware upgrades		
1.1.19	MIU shall include as part of each transmission:		
1.1.19.1	current meter reading		
1.1.19.2	hourly historical data		
1.1.19.3	MIU unique identification number		
1.1.20	MIU shall transmit alarms for		
1.1.20.1	leak detection		
1.1.20.2	low battery		
1.1.20.3	Tamper		
1.1.20.4	Reverse flow		
1.1.21	MIU shall provide a unique preprogrammed identification number		
1.1.22	MIU shall be labeled with the identification number using both a numeric and barcode format		
1.1.23	MIU shall be capable of switching from mobile to fixed network mode automatically		
1.1.24	MIU shall be capable of interfacing with the following types and sizes of meters		
1.1.24.1	Residential 5/8" x 3/4"		
1.1.24.2	Residential 3/4"		
1.1.24.3	Commercial Disc – 1 1/2"		
1.1.24.4	Commercial Disc – 2"		
1.1.24.5	Commercial Compound – 2"		
1.1.24.6	Commercial Compound – 3"		
1.1.24.7	Commercial Compound – 4"		
1.1.24.8	Commercial Turbo – 2"		
1.1.24.9	Commercial Turbo – 3"		
1.1.24.10	Commercial Turbo – 4"		
1.1.24.11	Commercial Turbo – 6"		
1.1.24.12	Commercial Turbo – 10"		
1.1.24.13	Commercial Turbo – 12"		
1.1.24.14	Fire Service Turbo – 1 1/2"		
1.1.24.15	Fire Service Turbo – 2"		

Data Collection Units (DCU) 1.2.0			
1.2.1	DCU shall be AC powered		
1.2.2	DCU shall have a NEMA 3R enclosure		
1.2.3	DCU shall pass the UL50 (Underwriter's Laboratory) rain test		
1.2.4	DCU shall have a battery backup capable of maintaining operation for 8 hours		
1.2.5	DCU shall provide local data backup for 30 days		
1.2.6	DCU shall have an operating humidity of 0 to 95% humidity (non-condensing)		
1.2.7	DCU shall have an operating temperature range of -20 to 140 degrees F		
1.2.8	DCU shall be capable of secure two-way communications to all MIUs		
1.2.9	DCU shall be capable of secure two-way Ethernet TCP/IP communications to the Host using:		
1.2.9.1	Wi-Fi		
1.2.9.2	GPRS		
1.2.9.3	Fiber Optic		
1.2.9.4	DSL		
1.2.9.5	Cable		
1.2.9.6	CDMA		
1.2.10	DCU shall log events for communications failures		
1.2.11	DCU shall be able to be reset by the Host		
1.2.12	DCU shall be able to be reset manually		
1.2.13	DCU shall automatically try to re-establish a link to the Host in the event communications are lost		
1.2.14	DCU shall transfer locally stored data to the Host upon power-up.		
1.2.15	DCU shall meet all FCC regulations for the installed radio technology		
1.2.16	DCU shall be capable of two-way communications with installed MIUs		
1.2.17	DCU shall be capable of remotely initiated firmware updates		
1.2.18	DCU shall be capable of locally initiated firmware updates		
1.2.19	DCU shall be capable of sending MIUs remotely initiated firmware updates		
Vehicle Basestation (VB) 1.3.0			
1.3.1	VB shall be 12 VDC powered		
1.3.2	VB shall be compatible with Windows XP and Windows 7		
1.3.3	VB shall be capable of reading all MIUs within range		
1.3.4	VB shall be capable of reading selected MIUs based on Operator input		
1.3.5	VB shall accept the same event information from MIUs as do the DCUs		

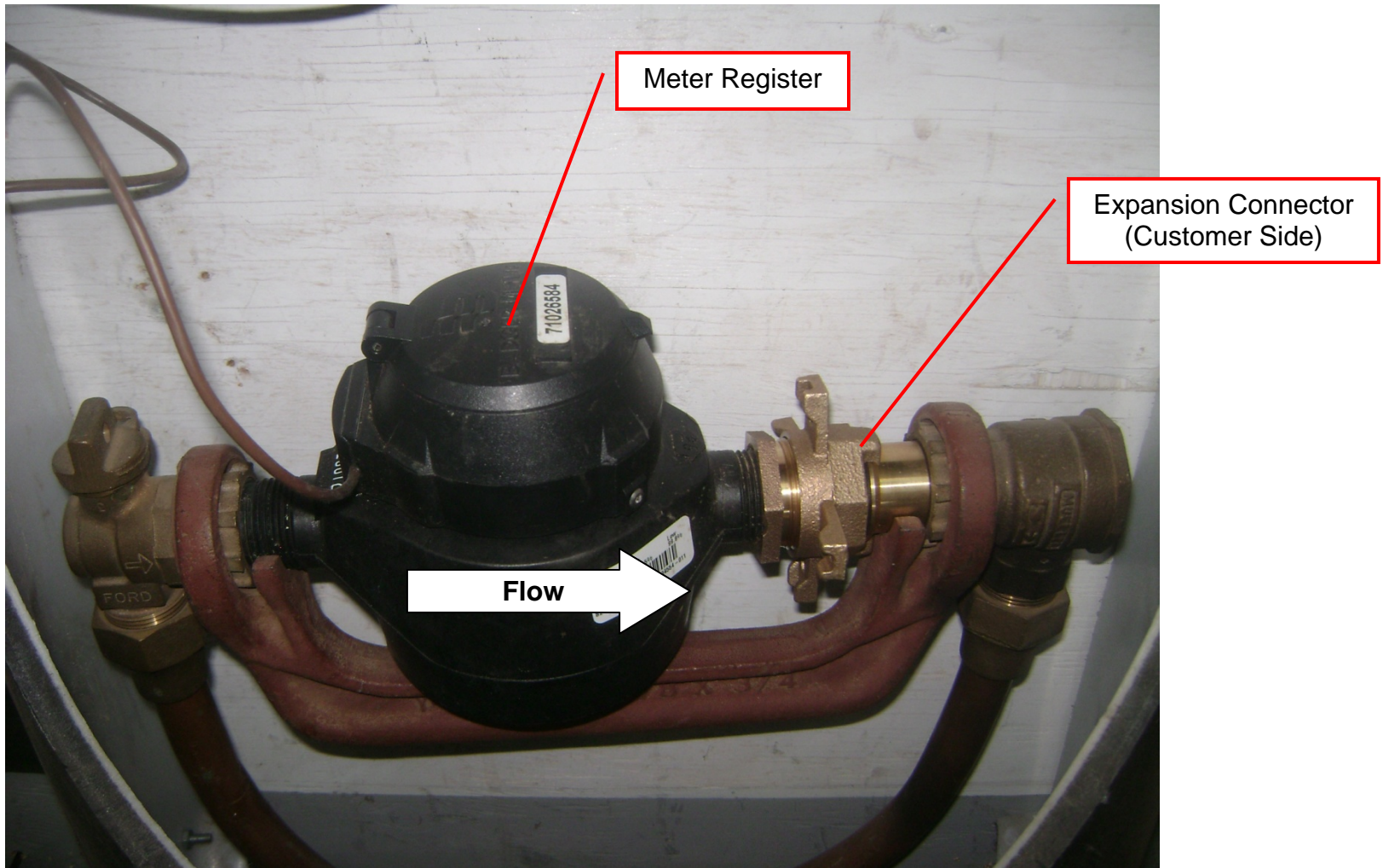
1.3.6	VB shall be capable of interfacing with the Host in order to merge route information		
1.3.7	VB shall be capable of supporting operator entered notes		
	Handheld Device (HHD) 1.4.0		
1.4.1	HHD shall interface with the Host system for uploading meter route information		
1.4.2	HHD shall provide adequate contrast for use in bright sunlight		
1.4.3	HHD shall provide backlighting for use in areas with insufficient lighting		
1.4.4	HHD shall have a rechargeable, operator replaceable battery		
1.4.5	HHD shall have a recharging station included with the device		
1.4.6	HHD shall support Operator entered notes		
1.4.7	HHD shall support date/time stamping of meter reading synchronized with the Host		
1.4.8	HHD shall be able to withstand a fall of 3 feet without impairing operation		
	Information Technology Requirements (IT) 1.5.0		
1.5.1	System shall be compatible with Windows Server 2008		
1.5.2	System shall support a secure file transfer protocol		
1.5.3	System shall store all collected information utilizing the latest version of Microsoft SQL Server		
1.5.4	System shall be capable of supporting a minimum of 20 concurrent users		
1.5.5	System shall be capable of operating when antivirus software is utilized		
1.5.6	System shall be capable of supporting VMWARE vSphere 4 virtualization		
Application Requirements 2.0			
	MDM/Host Requirements (MDM) 2.1.0		
2.1.1.1	Host shall be able to obtain a current meter reading "On Demand" initiated by a User or through the API		
2.1.1.2	Host shall support single and dual register meter information		
2.1.1.3	Host shall support meter readings with a minimum of nine (9) digits		
2.1.1.4	Host shall support MIU identification numbers with a minimum of ten (10) digits		
2.1.1.5	Host shall support alpha-numeric account numbers with a minimum of twenty (20) digits		
2.1.1.6	Host shall be capable of storing all collected data for a minimum of 36 months		
2.1.1.7	Host shall be capable of archiving historical data to an external location		
2.1.1.8	Host shall be capable of retrieving historical data from an external location		

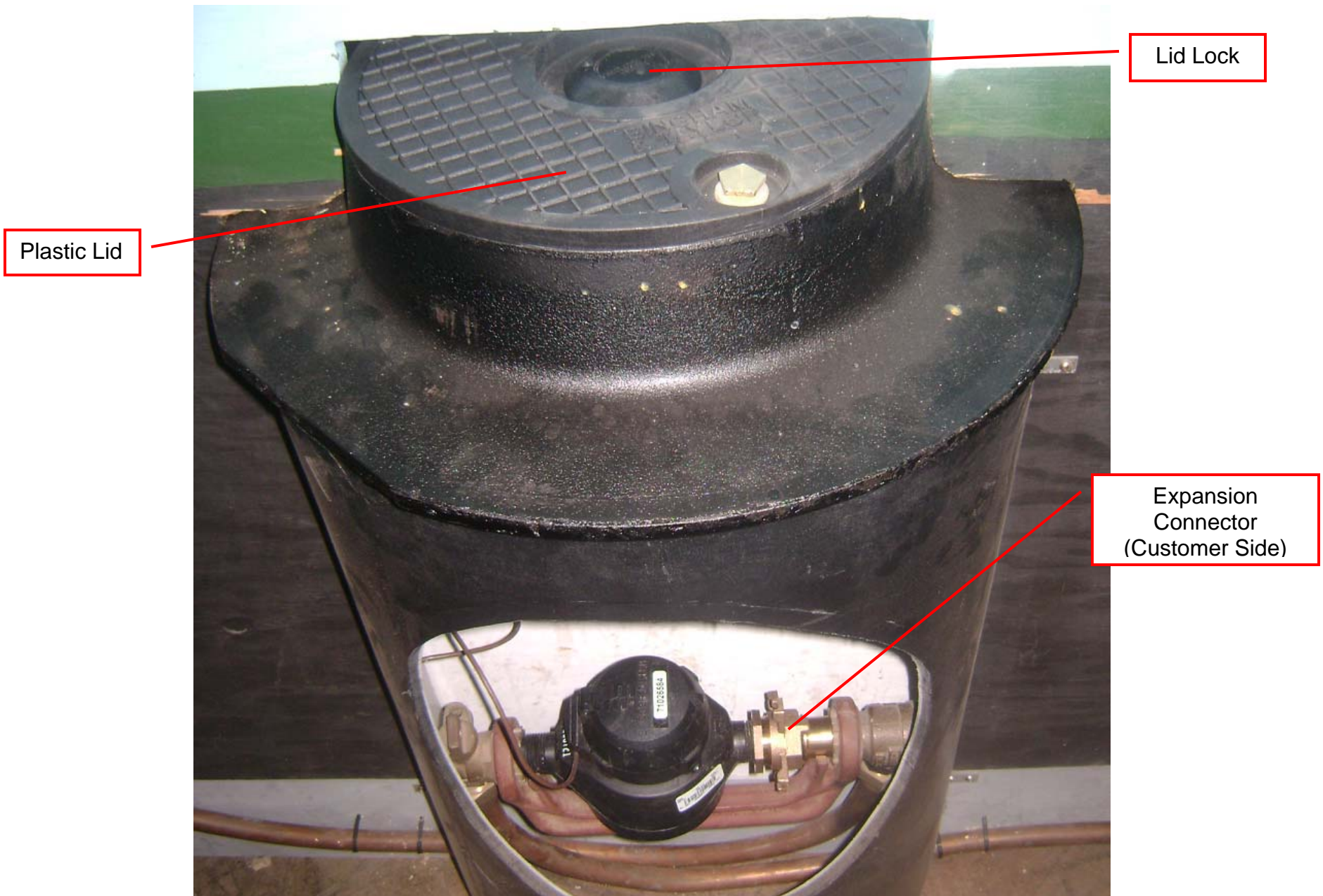
2.1.1.9	In the event of a loss of communications between the Host and the DCU, the Host shall be capable of integrating data stored at the DCU into the main database automatically once communications are restored		
2.1.1.10	Host shall be capable of monitoring MIUs that have successfully transmitted for the first time to identify successful installation and operation		
2.1.1.11	Host shall monitor the DCUs and provide alarm and event notification to the Utility		
2.1.1.12	Host shall monitor the status of the Wide Area Network and alert the user in the event of a problem impacting communications between the Host and the DCUs		
2.1.1.13	Host shall support data collection using a handheld device (HHD)		
2.1.1.14	Host shall support data collection using a vehicle base station (VB)		
2.1.1.15	Host shall be capable of merging routes into existing databases for loading onto a data collection device		
2.1.1.16	Host shall be capable of creating User defined routes utilizing any grouping of installed MIUs		
2.1.1.17	Host shall be capable of assigning 1 MIU to multiple routes if selected by the User		
2.1.1.18	Host shall post readings from data collection devices onto appropriate accounts within the database		
2.1.1.19	Host shall provide for backup copy of routes within the database to include current system configuration files		
2.1.1.20	Host shall support exporting routes from the database to the utility billing software		
2.1.1.21	Host shall have the ability to identify numeric reads (successful reads to be used for billing)		
2.1.1.22	Host shall have the ability to identify non-numeric reads (reads that cannot be used for billing but can indicate a problems with the MIU or register)		
2.1.1.23	Host shall have the ability to identify "no reads" (no transmitted data was received)		
2.1.1.24	Host shall allow the user to review the total number of successful reads, non-numeric reads, and no reads		
2.1.1.25	Host shall provide access to stored data through the use of API (Application Programming Interfaces) or web services		
2.1.1.26	Host shall support the creation and printing of user defined reports		
2.1.1.27	Host shall support printing of standard reports		
2.1.1.28	Host shall provide a network status report that summarizes the total percentage of successful reads, unsuccessful reads, and no reads sorted by day or date range		

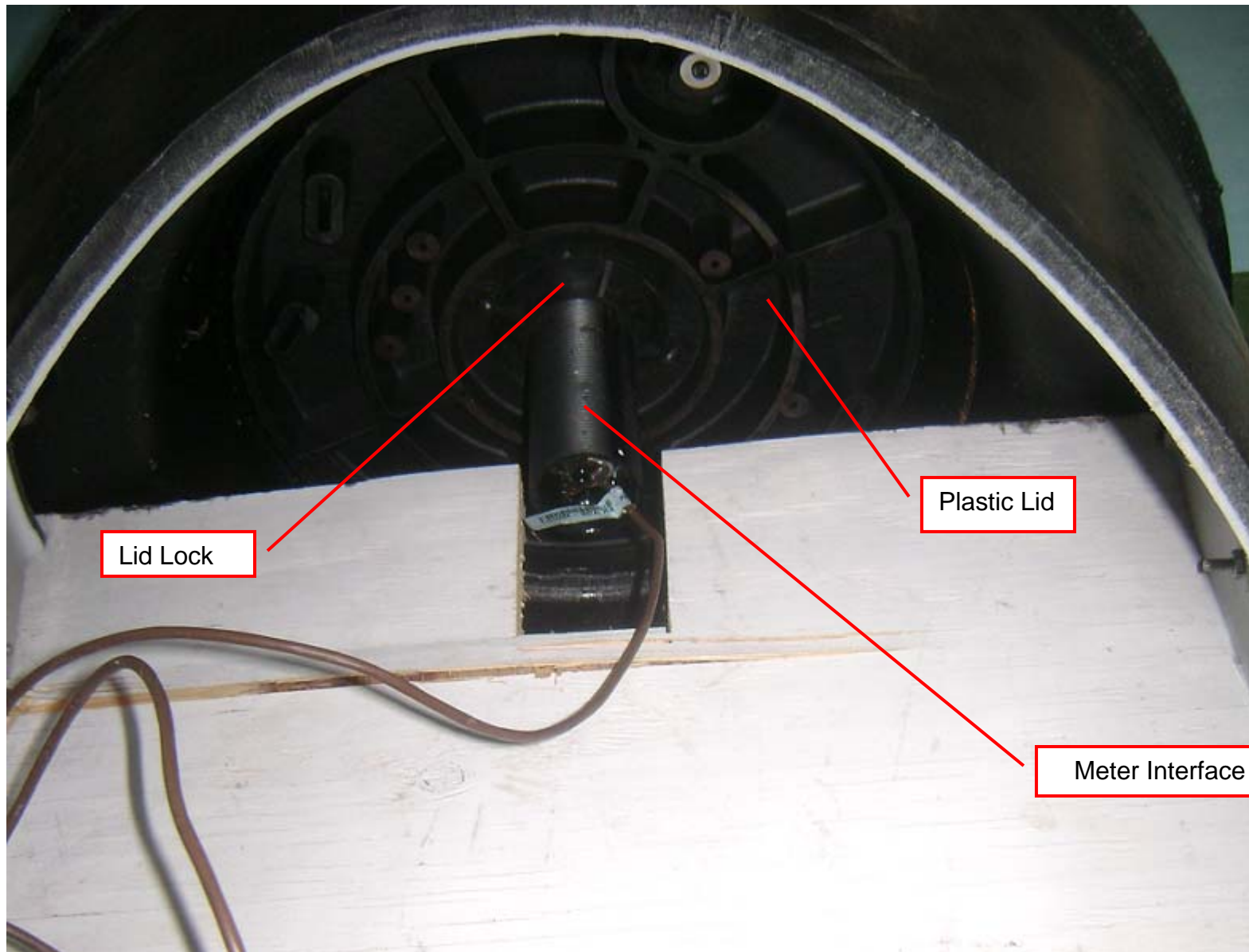
2.1.1.29	Host shall provide a DCU status report summarizing the total number of successful reads, unsuccessful reads, and no reads sorted by day or date range		
2.1.1.30	Host shall provide a standard report for Zero Consumption		
2.1.1.31	Host shall provide a standard report for Unread Meters (no reads)		
2.1.1.32	Host shall provide a standard report for Billing List (read meters)		
2.1.1.33	Host shall provide a standard report for Invalid Reads (non-numeric)		
2.1.1.34	Host shall provide a standard report for All Reads		
2.1.1.35	Host shall provide a standard report for Meter ID Mismatch		
2.1.1.36	Host shall provide a standard report for MIU Mismatch		
2.1.1.37	Host shall provide a standard report for MIU Status		
2.1.1.38	Host shall provide a standard report for Reading Summary (Statistics, Read vs. Unread/Non-numeric)		
2.1.1.39	Host shall provide a standard report for Reverse Flow Events		
2.1.1.40	Host shall provide a standard report for Duplicate Identification Numbers		
2.1.1.41	Host shall provide a standard report for Hi/Low Consumption report		
2.1.1.42	Host shall provide a standard report for Suspected Leaks		
2.1.1.43	Host shall store additional meter reading and status flag information from other monitoring devices (e.g. acoustic leak loggers)		
2.1.1.44	Host shall be capable of limiting access to data based on multiple User defined security profiles		
2.1.1.45	Host shall support initiating firmware updates to all installed MIUs		
2.1.1.46	Host shall support initiating firmware updates to all installed DCUs		
2.1.1.47	Host must support GPS type data to identify locations of accounts geographically		
Other Requirements 3.0			
Training Requirements (TR) 3.1.0			
3.1.1	Offeror shall provide training as it relates to the installation, operation, and maintenance of the proposed solution		
3.1.2	Offeror shall provide training and include all training materials		
Technical Support (TS) 3.2.0			

3.2.1	Offeror shall have a fully trained Technical Support Department via telephone during normal working hours (6am - 5pm EST)		
3.2.2	Offeror shall have a fully trained Technical Support Department via telephone after normal working hours (5pm - 6am EST) as needed		
3.2.3	Offeror's Technical Support Department shall be capable of responding to request concerning:		
3.2.3.1	hardware operation maintenance questions and problems		
3.2.3.2	software operation maintenance questions and problems		
3.2.3.3	report configuration		
3.2.3.4	software updates		
3.2.3.5	hardware troubleshooting		
3.2.3.6	providing onsite training or evaluation as needed		
	Warranty (WAR) 3.3.0		
3.3.1	Offeror shall provide a statement of warranty for all systems/subsystems proposed		
3.3.2	Offeror shall provide a statement articulating the turnover of any FCC licenses to the Utility in the event the Offeror is no longer in business		

Appendix B – Loudoun Water Residential Meter Installation Details







Appendix C – Ownership Cost Details

Description	Total Quantity	Useful Life (Years)	Unit Costs	Unit Installation Costs	Initial Contract Costs for 62,000 Locations	Total Annual Reoccurring Costs	Total 20 Year Costs
Meter Interface Units (MIU)			\$	\$	\$	\$	\$
Meter Registers (if required)			\$	\$	\$	\$	\$
Data Collection Units (DCUs) installed on Loudoun Water Property (Includes Backhaul and Maintenance Costs)			\$	\$	\$	\$	\$
Data Collection Units (DCUs) installed not on Loudoun Water Property (Includes Backhaul, Maintenance, and Location Lease Costs)			\$	\$	\$	\$	\$
Host Software (includes Annual Maintenance Costs)			\$	\$	\$	\$	\$
Vehicle Basestation (Includes Maintenance Costs)			\$	\$	\$	\$	\$
Handheld Device (Includes Maintenance Costs)			\$	\$	\$	\$	\$
Training			\$	\$	\$	\$	\$
Optional Meters			\$	\$	\$	\$	\$
Optional Expansion Connectors			\$	\$	\$	\$	\$
Totals			\$	\$	\$	\$	\$