REQUEST FOR PROPOSALS

The City of Gatlinburg is requesting proposals on the selection of an Advanced Water Metering Infrastructure System for the City of Gatlinburg. Detailed specifications are contained in Technical Specifications of this packet.

Proposals will be received at Gatlinburg City Hall until **2:30 PM, October 17, 2019** at which time they will be publicly opened and read aloud.

All proposals must be enclosed in a sealed opaque envelope with the company name, address, bid opening date and time, and the quotation "**Proposal for Advanced Water Metering Infrastructure System for City of Gatlinburg**" stated clearly on the outside. Please submit one (1) original plus two (2) copies of the proposal.

Technical specification and Scope of Work is included in **Exhibit A** attached and will also be available on the City of Gatlinburg website at www.gatlinburgtn.gov under "Out for Bids" tab. This bid tab is located under Gatlinburg Government, and then choose Purchasing. Results are posted in the same area as shortly after bid opening as possible.

Address proposals and/or inquiries to Delea Patterson, AP/Purchasing, Gatlinburg City Hall, 1230 Parkway East, Suite 2, P.O. Box 5, Gatlinburg, TN 37738, Telephone Number (865) 436-1409. Email: deleap@gatlinburgtn.gov.

Any technical questions regarding the equipment or system specifications should be directed to Dale Phelps with the Utility Department at 865-436-4681 or dphelps@gatlinburgtn.gov.

The City of Gatlinburg reserves the right to waive any informalities in or to reject any and/or all proposals and to accept the proposal deemed most favorable to the interest of the City.

Vendors must possess all of the necessary licenses and insurances necessary for performing this type of project.

GENERAL PROVISIONS

Prices quoted shall not include Federal or State taxes, if any are applicable. The successful bidder shall furnish tax exemption forms, if required, with their invoices. The prices quoted are that for which the materials or services will be delivered F.O.B. Gatlinburg, Tennessee.

For the purposes of this request for proposals, the words bidder, proposer and vendor shall mean the same.

All information requested in the technical specifications and products must be provided as requested. Any additions, deletions, or variations from the following specifications must be noted on the signature page of the bid form provided and described in detail within Section E of the Proposal.

Inspection of the materials or equipment will be made by an agent of the City of Gatlinburg, and if found defective or fails in any way to meet the terms of this agreement, it will be rejected. Rejected materials or equipment will be replaced at the expense of the bidder.

The successful bidder agrees to provide the materials specified at the bid prices for a period of one (1) year from the date of the award. However, it is the intention of he City to enter into agreement as soon as practical following selection of proposal.

The City of Gatlinburg reserves the right to defer payment for thirty (30) days after delivery of applicable invoice.

The bidder agrees to indemnify the City of Gatlinburg from any and all liability and loss or damage the City may suffer as a result of claims, demands, costs, or judgments against it arising from any and all work under this agreement.

The bidder agrees to notify the City, in writing, within thirty (30) days, by registered mail, at the City's address as stated in this agreement, of any claim against the bidder on the obligations indemnified against.

It is the policy of the City of Gatlinburg not to discriminate on the basis of race, color, national origin, age, sex, or disability in its hiring and employment practices, or in admission to, access to, or operation of its programs, services and activities. With regard to all aspects of this contract, contractor certifies and warrants it will comply with this policy.

The estimated quantities and sizes of water meters provided are intended be purchased by the City of Gatlinburg for replacement of existing direct-read meters. Actual replacement of the existing meters will be a combination of successful bidder and City personnel. Additional quantities of same size meters may also be purchased under this bid pricing as needed by the City within the time period specified.

Selection of the proposal by the City of Gatlinburg will not be based on cost alone but based on a value factors provided in the specification section. The City of Gatlinburg also reserves the right to reject any and/or all proposals.

EXHIBIT A
TECHNICAL SPECIFICATIONS & SCOPE OF WORK

ADVANCED WATER METERING INFRASTRUCTURE SYTEM
CITY OF GATLINBURG, SEPTEMBER 2019

Proposals Due: October 17, 2019, 2:30 PM, EST

Proposals for the services specified will be received by the City of Gatlinburg until the date and time as indicated above. Please submit one (1) original proposal, two (2) copies of the proposal in hard copy.

Delivery and Mailing Address: **City of Gatlinburg**
Delea Patterson, A/P Finance
Mail to: PO Box 5
Physical Location: 1230 East Parkway
Gatlinburg, Tennessee 37738

Late submissions will not be considered. All proposals must be enclosed in a sealed opaque envelope with the company name, address, bid opening date and time, and the quotation "**Proposal for Advanced Water Metering Infrastructure System for City of Gatlinburg**" stated clearly on the outside. Additional instructions for preparing a proposal are provided within.

PROPOSERS ARE STRONGLY ENCOURAGED TO CAREFULLY READ THE ENTIRE DOCUMENT PRIOR TO SUBMITTING A RESPONSE.

For questions regarding this RFP contact: **Dale Phelps**
Utilities Manager
865-436-4681
dphelps@gatlinburgtn.gov

Please note that all submissions must be received at the designated location by the deadline shown. Proposals received after the deadline will not be considered for the award of the contract and will be returned unopened.

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INTRODUCTION

General Information

The City of Gatlinburg (City) is issuing a Request for Proposals (RFP's) from vendors who are interested and qualified to provide a turn-key installed Advanced Meter Infrastructure/Automated Water Meter Reading system (AMI/AMR). Scope of work includes, but is not limited to, automated water meter system procurement and installation, hardware, software, and integration with existing systems, testing, and training.

AMI/AMR technology should provide the City with a more efficient method of collecting meter reads at regular intervals. The AMI/AMR system should collect consumption and other data using equipment located on stationary antennas/towers, or some other similar automated collection system(s) that will reduce/eliminate the need for monthly physical direct-reading of each meter. The City will not consider a system consisting of vehicle-mounted collectors as the primary method of obtaining meter readings and related data.

The proposals should include specific information as requested related to pricing for all meters, communication hardware and software, installation, integration and training. The scope of this proposal will only be water metering and related services.

The City strongly desires to contract with a single vendor to provide all equipment including meters, software, and hardware necessary to accomplish all work and/or services outlined in this RFP. The City will, however, install a to-be-determined quantity of new meters in support of this project.

Interested and qualified parties should submit one (1) original plus two (2) copies of their proposal. Response packages will be accepted until 2:00 pm on October 17, 2019. All proposals must be enclosed in a sealed opaque envelope with the company name, address, bid opening date and time, and the quotation "**Proposal for Advanced Water Metering Infrastructure System for City of Gatlinburg**" stated clearly on the outside.

SCHEDULE OF IMPORTANT DATES

The schedule for this RFP is as follows. The City reserves the right to change the schedule of dates as it deems necessary.

Advertise RFP	**September 18, 2019**
Proposal Submission Deadline	**October 17, 2019 2:00 PM EST**
Anticipated Proposal Selection	**October 24, 2019**
Anticipated Award by City	**November/December 2019**

BACKGROUND INFORMATION

Current Environment

Water meter reading activities are currently conducted manually by Utilities Department personnel. The service area is divided into 15 routes with one monthly billing cycle. Meters are read beginning at the 18th of the month (or nearest business day) and continued until completed. The typical timeframe to read all 15 routes is 5 days plus additional days for re-reads and quality control. With minor exception, most meters are located inside the City corporate limits. The City currently reads its meters on a monthly basis. Most meters are read manually with some being Sensus touch-read meters. The meter readings and entered into a hand-held computer and then uploaded by staff to the MuniBilling utility billing software system.

The City currently has approximately 3,732 (total of direct-read and touch read) active water meters in service with sizes ranging from 3/4" to 8" (see size distribution chart below). The existing meters are a mixture of various manufacture but primarily Sensus, with other existing meters being Badger, Neptune, Hersey and others.

The City desires to utilize the existing Sensus SR, Iperl, Omni and Compact Fireline meters with touch-read registers in a new AMI/AMR system without requiring replacement of these meters. Please note in Section I of the proposal if this is not feasible. The breakdown of existing water meters is as follows:

Active Water Meters, 2019, City of Gatlinburg

Meter Size	Manual Read	Touch Read	Total
5/8 x 3/4"	2,575	671	3,246
1"	111	58	169
1.5"	113	14	127
2"	41	110	151
3"	0	7	7
4"	2	8	10
6"	0	20	20
8"	0	2	2
10" or larger	0	0	0
Total	**2,842**	**890**	**3,732**

City of Gatlinburg Water Department

All existing meter counts shown above and included in this RFP are approximate and are subject to deviation at the actual time of purchase. The proposal shall include unit costs for each meter size and compensation will only be provided for actual meters installed or purchased.

SCOPE OF WORK

Objectives

The City seeks to replace the existing water meter reading system including meters with an AMI/AMR system designed to meet the following objectives:

1) Facilitate meter reading activities in the most cost-effective manner possible

2) Ability to perform advanced data analysis of incremental meter readings

3) Maximization of existing investments in current meter assets

4) Provide accurate meter readings and other related information

Hardware and Software System Requirements

To be considered compliant with these requirements as stated, proposals must include "Comply" or "No Comply" for each requirement and/or question, as well as a detailed response to the questions posed herein.

A.1 Communications Method

A.1.1 The Smart Utility Network shall support a 98.5% reading success percentage for the covered meters included in the Radio Frequency (RF) study for the billing window where the billing window represents a four (4) day period commencing one (1) day prior to the relevant billing day for a water meter and ending two (2) days after the billing day.

A.1.2 The Smart Utility Network shall have demonstrated support ten (10) years of deployed endpoints, including electric and water.

A.1.3 The network shall also have the ability to support the following endpoint types: water meters, pressure sensors, turbidity, chlorine analyzers, pH transmitters, conductivity probes, remote shut off valves, temperature sensors and level sensors.

A.1.4 To protect and guarantee frequency interference levels of the life span of the system, FCC Part 24 or Part 90-approved primary use licensed spectrum is required.

A.1.5 To ensure network reliability and resiliency, the endpoint shall be designed to transmit between 0.5 watts and 2 watts.

A.1.6 Describe the RF modulation used by the endpoints (narrow band, spread spectrum, etc.). What are the advantages of this type of modulation? Is this modulation "off the shelf" or is it designed specifically for Utility Network Solution applications? Can the transmissions be easily decoded by commercially available RF equipment?

A.1.7 The communication solution shall be able to transmit on different frequencies and modes and

be reprogrammable.

A.1.8 The endpoint shall support drive-by billing read collection without reprogramming the endpoints to ensure the system can still be read in emergencies and provide capability for a redundant reading method.

A.1.9 To ensure the system meets current and future requirements, the Vendor shall warrant that the endpoints and collection devices are compatible with the communications protocol for 20 years.

A.1.10 As part of the warranty, the Vendor shall provide free replacement units, and all costs removal of the old product, and installation of the new product of any units that are no longer supported by the communication protocol.

A.1.11 A 20-year life battery is required for water meter Smart Utility Network communication based on 2,190 RF messages transmissions per year (6 times per day, 365 days a year).

A.1.12 The Smart Utility Network shall have the capability for integration with future SCADA applications, including over-the-air control of pumps, gates, and motors.

A.1.13 The selected Smart Utility Network shall be a two-way communication network and shall support remote over-the-air shut off and reduced flow of water to service connection up to one (1) inch in size.

A.1.14 The proposed Smart Utility Network system must be field-proven. Provide detailed examples of at least three (3) nearby utilities using the proposed system.

A.2 Data Collection Network

A.2.1 Provide an official RF Propagation Study from an experienced RF engineer that displays the exact location and height of all proposed data collection equipment and coverage patterns.

A.2.1.1 Provide the name and resume of the RF engineer that designed the proposed RF network.

A.2.1.2 The system shall provide 98.5% of the billing reads over a "Billing Window". A "Billing Window" for a meter means the four (4) day period commencing one (1) day prior to the relevant billing day for such meter and ending two (2) days after such billing day. The Billing Window for testing purposes shall be determined during contract negotiations.

A.2.1.3 The study must identify any and all areas that are not covered in the propagation study. The Vendor shall provide and install any additional data collection equipment (receivers, collectors) required after endpoint deployment to achieve the coverage depicted in the RF propagation study.

A.2.1.4 List the provisions the Vendor provides to ensure that we will not have to purchase additional collector infrastructure due to system underperformance.

A.2.2 The system shall be designed to use the least amount of collection infrastructure while still providing redundancy. Describe the ability of the system to provide overlapping RF coverage for a single meter.

A.2.3 The proposed endpoints and solid-state metrology shall have 20-year operational life spans. Detail the full warranties for the proposed endpoints.

A.2.4 The proposed endpoints shall be supported over the life of the system. How are changes that affect compatibility of deployed equipment with future releases addressed?

    A.2.4.1 How is the continuous operation of the Smart Utility Network system ensured for the 20-year life for the proposed network components and endpoints?

A.2.5 To avoid obsolescence and to allow for new technologies to be implemented, the infrastructure must utilize a configurable architecture that is capable of being updated and/or reconfigured over the air. How does the proposed system allow for new technologies?

A.2.6 The proposed system shall include a Fixed Base Support and Extended Maintenance contract.

    A.2.6.1 Outline specifically what is covered by the proposed Fixed Base Support and Extended maintenance contract. Does the contract include extended maintenance on the data collection units and overall network?

    A.2.6.2 Does the contract include labor to repair or replace damaged or defective data collection units?

    A.2.6.3 What is the response time to repair damaged or defective data collection units?

A.2.7 Stocking requirements of the system components shall be minimal.

    A.2.7.1 Are collection devices (collectors, receivers) built specifically for each project, or are these universal?

    A.2.7.2 Are the frequencies on these devices hard-coded or configurable per utility via software-defined radios?

A.2.8 Describe the primary data collection units (receivers, collectors) backhaul communications system (Ethernet, fiber, etc.). What is required to maintain the backhaul system?

A.2.9 Endpoints shall be capable of direct two-way communications with the collector. Describe the communications path to the collector.

A.2.10 Primary data collection units (receivers, collectors) shall be capable of retaining at least 30 days of hourly reading intervals from all meters in their coverage area in the event that backhaul is lost or becomes unavailable for a period of time.

A.2.11 All primary data collection hardware shall have a minimum of eight (8) hours of on-board battery backup in the event of primary power interruption. How long will data collection

devices continue to operate on battery power if primary power is lost? Describe battery backup capabilities for each type of proposed device.

A.2.12 Describe the system redundancy coverage and emergency plans for failed collectors.

A.3   Endpoint Communication Units

A.3.1   For non-pit applications:

A.3.1.1   The endpoint communication electronics must be hermetically sealed in a high-density polyethylene (HDPE) enclosure and provide an operating temperature range of -22 F to 185 F (-30 C to 85 C).

A.3.1.2   The endpoint shall be capable of simultaneously supporting walk by, drive by and fixed base reading modes without configuration changes.

A.3.2   The endpoint shall be an optional ability to support one or two water meters. Endpoints must be available in both single port and dual port configuration. Both single and dual port endpoints must be capable of delivering hourly reading intervals. Describe any limitations on the 20-year battery warranty when operating in dual port configuration and while delivering hourly reading history.

A.3.3   For pit or vault applications:

A.3.3.1   The endpoint communication electronics shall be water submersible, capable of operating in 100% condensing humidity and provides operating temperature range of -22 F to 185 F (-30 C to 85 C).

A.3.3.2   The endpoint antenna shall be designed to be installed through the industry standard 1¾" inch hole in a pit lid with no degradation of transmission range. The antenna will be capable of mounting to various thicknesses of pit lids from ½" to 1 ¾" inch.

A.3.3.3   The endpoint shall be capable of simultaneously supporting walk by, drive by and fixed base reading modes without configuration.

A.3.3.4   The endpoint shall be an optional ability to support one or two water meters while still complying with specified battery life.

A.3.3.5   Unit shall communicate with the meter without any wire terminations.

A.3.4   Preference will be given to systems which can connect to meters without wire cutting or splicing.

A.3.4.1   Describe connection method between endpoint and register.

A.3.5   To avoid obsolescence, the endpoints must utilize a configurable architecture that allows new technologies to be implemented. The endpoint shall be capable of over the air firmware

upgrades.

A.3.5.1 The endpoint shall have the ability to update the meter firmware and configuration, including resolution, sample rate, transmit rate and alarm set points over the air.

A.3.5.2 How does the proposed system allow for new technologies to be implemented using the current hardware?

A.3.5.3 How is the Vendor ensuring that deployed endpoints continue to be supported on the Smart Utility Network system for the expected 20-year system life?

A.3.5.4 The endpoint's RF messages must be capable of being received by either a handheld receiver, mobile receiver or fixed network receiver without special re-configuration or site visit.

A.3.6 The endpoint must transmit the meter readings, a communication ID, and a meter ID to help track potential tamper if the communication module is moved. Endpoints which transmit only the Endpoint ID will not be accepted.

A.3.7 The endpoint must be capable making time synchronized readings.

A.3.8 The endpoint must be capable of providing the actual register read upon request from the head end software and not a previously stored reading.

A.3.9 Endpoints shall transmit prior reading intervals in each transmission for redundancy.

A.3.9.1 What is the ability of the system to prevent data loss in the event transmissions are not received for 24 hours, or the data collection units are not operational for a period of time?

A.3.10 The proposed system shall provide the ability to communicate directly to the endpoint to obtain current information. Customer service personnel require remote access to current meter information within five (5) minutes.

A.3.10.1 Describe how the two-way network functions. Specifically describe timing for accomplishing on demand reads, alarm set point, configuration changes, and firmware upgrades.

A.3.11 The endpoints shall have a user-configurable leak detection alarm. Leak detection must be configurable with a leak flow threshold parameter and leak flow interval parameter (number of continuous intervals required to trigger a leak alert).

A.3.12 The endpoints shall have a user-configurable reverse flow alarm. Reverse flow detection must be configurable with a Reverse flow threshold parameter and a reverse flow interval parameter (number of continuous intervals required to trigger a reverse flow alert).

A.3.13 The endpoints shall have a user-configurable high flow pipe alarm to indicate the endpoint has detected an excessive flow rate.

A.3.14 The endpoints shall have an alarm indicating the endpoint failed to successfully read the water register.

A.3.15 The endpoints shall have an alarm that indicates the endpoint unsuccessful read the water register

A.3.16 The endpoints shall have an alarm that indicates the endpoint has detected that the meter has been swapped.

A.3.17 The endpoints shall have an alarm that indicates the battery is near the end of life.

A.3.18 The endpoints shall be capable of detecting and transmitting a "cut wire" condition between the register and endpoint. Endpoints shall not continue to transmit the last good reading after a "cut wire" condition exists. Describe how the system detects and reports a "cut wire" condition.

A.3.19 The endpoints shall store and transmit their GPS location for system diagnostic purposes. Alternately, the Smart Utility Network system must allow for the GPS location to be stored in the Head-End for diagnostic purposes.

A.3.20 The endpoints shall be capable of transmitting meter resolution as fine as 1 US Gallons for meters up to 1 inch, and as fine as 10 US Gallons for meters up to 6 inches.

A.3.21 The Smart Utility Network shall support AES 256-bit encryption.

A.3.22 The Smart Utility Network shall have achieved the following security certifications:

   A.3.22.1 Achilles Practices Certification (APC)

   A.3.22.2 Achilles Communications Certification (ACC)

A.4 Smart Utility Head-End System and Software

A.4.1 Explain proposed system's scalability; including meter quantity, utility type, and solutions beyond traditional meter reading.

A.4.2 The system must store enough meter data for trouble shooting and diagnostics; explain the methodology for analyzing the stored hourly read data.

A.4.3 The Smart Utility Head-End system must provide data security and reliability; describe.

A.4.4 Describe the Smart Utility Network software's architecture and any provisions for ensuring that data is maintained.

A.4.5 The Smart Utility Network software shall have user-defined queries to analyze consumption patterns and system alerts. Pre-defined analytics are acceptable as long as users can also manually adjust query parameters based on preferred values.

A.4.6 The system diagnostic software shall include a mapping interface to graphically report

endpoint and collection system equipment location and performance. For each endpoint, the mapping interface shall be capable of reporting the following parameters:

A.4.6.1   Signal-to-Noise Ratio average for each endpoint

A.4.6.2   Hourly Read Interval Success percentage over 30 days for each endpoint

A.4.6.3   Raw transmit success percentage over 30 days for each endpoint

A.4.6.4   Transmission latency of each endpoint

A.4.6.5   Alarm conditions

A.4.7   For each endpoint, the system diagnostic software shall be capable of generating reports, and tables which contain the following criteria at a minimum:

A.4.7.1   Endpoint Installation Date

A.4.7.2   Endpoint Signal-To-Noise ratio average over 30 days

A.4.7.3   Endpoint Raw transmit success over 30 days (percentage of transmissions received)

A.4.7.4   Endpoint Read Interval Success (percentage of hourly readings successfully received) average over 30 days

A.4.7.5   Alarm condition

A.4.8   Provide three (3) references of similar sized (or larger) utilities successfully using the system.

A.4.9   Describe the Smart Utility head end system offering. Describe failover and disaster recovery provisions built into the system architecture.

A.5   System Analytics Platform

A.5.1   Core Software Capabilities

A.5.1.1   The Smart Utility Network software shall comply with prevailing industry standard hardware, operating systems, databases, and user interfaces.

A.5.1.2   The Smart Utility Network software must exist as a browser-based (Edge, Internet Explorer 11 or later, Chrome, or Firefox) application that operates on a hosted server.

A.5.1.3   The Smart Utility Network software should provide a customizable file layout structure to interface with the utility's CIS for integrating meter reading data and customer information.

A.5.1.4   The Smart Utility Network software should be capable of on demand read of a meter, or list of meters and return the meter's "dial" reading and not a previously saved reading.

A.5.1.5 The Smart Utility Network software must be scalable to meet the full deployment requirements in a hosted environment without system and performance impacts including additional licensing.

A.5.1.6 Describe how the proposed Smart Utility Network system supports scalability to continue to support current and future needs.

A.5.1.7 The Smart Utility Network software must retain all meter reading data for a minimum of 36 months and provide provisions for additional storage if required; what options beyond 36 months are available?

A.5.1.8 The solution should be available as Software as a Service (SaaS) where the provider manages all head-end hardware and software for the Utility. SaaS should be all inclusive for annual maintenance, 3rd party software licenses, upgrades, and support.

A.5.1.9 The Smart Utility Network solution should provide graphical views to accounts if location data is provided from the Customer Information System (CIS) and/or Head End system.

A.5.1.10 The Smart Utility Network vendor should provide the capability to support the import of data from a walk-by/drive-by system to assist in the roll out program as the new Smart Utility Network system is deployed.

A.5.1.11 The Smart Utility Network head end software should offer a dashboard to report endpoint data on the following water-based anomalies:

A.5.1.11.1 Reverse Flow

A.5.1.11.2 Leak Detected

A.5.1.11.3 Tamper

A.5.1.11.4 Smart Utility Network software shall have a graphical user interface (GUI).

A.5.1.11.5 Smart Utility Network software shall have icon-driven accessibility for ease of navigation and addition of other applications.

A.5.1.11.6 Smart Utility Network software shall have training videos for quick reference and self-guided training.

A.5.1.11.7 The Smart Utility Network software shall have the following administration and system configuration: Role-based privilege management (Access Control) The vendor shall support reviewing data by the following group capabilities:
  i.   Filter by: Communication Unit ID
  ii.   Filter by: Billing Cycle
  iii. Filter by: Commodity Type

A.5.2 Import / Export Capabilities

A.5.2.1 The Smart Utility Network software must be able to export reports to Microsoft Excel, PDF, Common Separated Value (CSV) files, and text files.

A.5.2.2 The Smart Utility Network software must interface to the utility's CIS/billing software.

A.5.2.2.1 Real time alarming conditions should be pushed to the CIS/billing software immediately; explain how this is accomplished.

A.5.2.2.2 Interval reads shall be batched and sent as a collective group; explain how this is accomplished.

A.5.2.2.3 The CIS system must be able to request information from actual meter, move in/out use case, through a standardized interface.

A.5.2.3 The Smart Utility Network software must import and support GPS data to identify and display locations of accounts.

A.5.2.4 Smart Utility Network software must provide a billing export.

A.5.2.5 Smart Utility Network software must have ability to integrate to billing export application without having to develop code to adapt to CIS.

A.5.2.6 Smart Utility Network software must have a customer information data import setup application.

A.5.2.7 Smart Utility Network software must have ability to integrate to billing import file application without having to develop code to adapt to CIS

A.5.2.8 The billing solution should allow entry of valid start and stop times for billing purposes.

A.5.2.9 In addition, should be able to run export file generation of a single route multiple times before finalizing

A.5.2.10 The Smart Utility Network software shall be able to export all reads within a 24-hour period to the CIS.

A.5.3 Meter Data

A.5.3.1 The Smart Utility Network software shall provide the ability to process hourly time-stamped meter readings taken from all meters and verify the percentage of reads received for particular areas and/or selected meter routes. This data must then be exposed to various configurable parameters set (when provided), such as high/low parameters to assure the accuracy of the data.

A.5.3.2   The Smart Utility Network software must be able to provide the following data to the utility on a daily basis for monthly billing applications:

      A.5.3.2.1   Hourly time-stamped meter reading taken from Smart Utility Network meters for monthly billing purposes.

      A.5.3.2.2   Hourly usage/consumption readings for resolution of customer billing disputes and improved customer service.

A.5.4   Data Reporting

A.5.4.1   The Smart Utility Network software must provide Alert capabilities including the following:
- Tamper
- Meter Read Failure
- Empty Pipe
- History Over Flow
- Cut Wire
- Leak Detected
- Meter Communication Failed
- Excess Flow
- Unknown Valve State
- Swapped Meter
- Low Battery

A.5.4.2   The Smart Utility Network software must provide the following reports:
- All Alarms
- Billing Request Mismatch
- Consumption Exception (24 Hours)
- Consumption
- Consumption versus Previous Read
- Endpoint Details
- High Low Exception Report
- Master Route Interval Reads
- Master Route No Readings
- Master Route Register Reads
- Mismatch Report
- Negative Consumption
- Orphaned Meters
- Unit of Measure Comparison

- Zero Consumption for Period

A.5.4.3   The Smart Utility Network software must have the ability to alert appropriate personnel of triggered alarms.

A.5.4.4   Smart Utility Network software must have email notification of alerts.

A.5.4.5   Smart Utility Network software must have text message notification of alerts.

A.5.4.6   The Smart Utility Network software must provide a geo-spatial/map view that includes:

- Display of meters
- View assets with alarms on map.

A.5.5   Analytics Software

A.5.5.1   The Vendor's Smart Utility Network solution shall include an Analytics software package.

A.5.5.2   The Analytics platform must be a current, supported offering.

A.5.5.3   The Smart Utility Network system shall support the ability to add new Analytics applications as new business cases for these data driven solutions are defined and implemented.

A.5.5.4   The Analytics solution must integrate with the Smart Utility Network headend software.

A.5.5.5   The Smart Utility Network software must perform a high low analysis report. The Smart Utility Network software must be able to check meter reading is within a percentage threshold of the historic average for the meter, taking into account seasonal variance (or a set value provided from the Customer Information System).

A.5.5.6   The Smart Utility Network software must allow a standard customizable report on continuous usage, needed for use in leak detection.

A.5.5.7   The Smart Utility Network solution should be able to identify and report tampering.

A.5.6   Customer Web Portal

A.5.6.1   The vendor shall include a utility customer Web Portal as a part of their bid.

A.5.6.2   The portal Wed page shall be accessible using standard web browsers (Internet Explorer 11 or later, Chrome, Edge, Firefox, or Safari)

A.5.6.3   The Customer Web portal software shall allow the utility's customers to initialize a new account using their address, utility billing account number and amount of the last payment received. Initializing a new customer account shall require no involvement

of utility staff.

A.5.6.4   Customer Web portal shall be applicable for water, gas, and electric utilities.

A.5.6.5   The Customer Web portal software shall allow the customer to set up an e-mail, cell phone number, user name, and password.

A.5.6.6   The Customer Web portal software shall allow the customer to retrieve or re-set their forgotten password via the previously established email.

A.5.6.7   Customer Web portal should support customer configurable threshold alerts (like vacation alerts).

A.5.6.8   Customer Web portal must support meteorological data such as temperature and rainfall. The data must be displayed in conjunction with water usage reports.

A.5.7   Hosting or Software as a Service (SaaS)

A.5.7.1   The proposed solution must host the Smart Utility Network software on server hardware at a remote secure data center.

A.5.7.2   The vendor must have a redundant data center for backing up utility data in a separate state from their primary data center.

A.5.7.3   The data centers should be located in the United States.

A.5.7.4   The Vendor will provide upgrades the for the utility Smart Utility Network software to Latest Releases, including all security patches and updates as a standard part of the proposed SaaS offering.

A.5.7.5   The Vendor will maintain a web portal access to the Smart Utility Network software.

A.5.7.6   The Vendor will provide 24x7x365 server and network monitoring using diagnostic software tools.

A.5.7.7   The Vendor will provide secure, off-site vaulting of encrypted backup tapes containing one year of history for auditing purposes.

A.5.7.8   The Vendor will provide a disaster recovery solution via data replication to a fault tolerant data center in no more than 2 business days' recovery time.

A.6   Residential Solid-State Water Meters

A.6.1   The meter shall support Smart Utility Network two-way communication with a variety of meter types using attached communications modules. These modules shall be able to perform their two-way functions without using non-water meters.

A.6.2   To help ensure long product life and accuracy, the meter shall utilize a solid-state design that has no moving parts in the flow path.

A.6.3   The meter shall support accurate time using the Smart Utility Network.

A.6.4   These meters should use the UI 1203 protocol which is a widely accepted industry protocol.

A.6.5   Discuss the proposed meter's technology for measuring water flow. Why is this method the best to use for water measurement for these meters for this project?

A.6.6   The meters shall be able to detect magnetic tamper.

A.6.7   The meters shall support detection of higher than usual water flow for the service.

A.6.8   The meters shall be able to detect continuous consumption based on a customer's configurable settings and alarm when the setting is exceeded.

A.6.9   The meters shall support detection of reverse water flow.

A.6.10   The Smart Utility Network solution shall support notifying the utility and the customer when a continuous flow alarm has occurred.

A.6.11   The settings for the water alarms shall be configurable on-site and remotely over-the-air from the Smart Utility Network head end software.

A.7   Remote Shut Off Water Meter

A.7.1   The meter shall support Smart Utility Network two-way communication with a variety of meter types using attached communications modules. These modules shall be able to perform their two-way functions without using non-water meters.

A.7.2   To help ensure long product life and accuracy, the meter shall utilize a solid-state design that has no moving parts in the flow path.

A.7.3   The meter shall support accurate time using the Smart Utility Network.

A.7.4   These meters should use the UI 1203 protocol which is a widely accepted industry protocol.

A.7.5   Discuss the technology of the proposed meter for measuring water flow. Why is this method the best to use for water measurement for these meters?

A.7.6   The meter shall be able to detect magnetic tamper.

A.7.7   The meter shall support detection of higher than usual water flow for the service.

A.7.8   The meter shall be able to detect continuous consumption based on a customer's configurable settings and alarm when the setting is exceeded.

A.7.9 The meter shall support detection of reverse water flow.

A.7.10 The Smart Utility Network solution shall support notifying the utility and the customer when a continuous flow alarm has occurred.

A.7.11 The settings for the water alarms shall be configurable on-site and remotely over-the-air from the Smart Utility Network head end software.

A.7.12 The vendor shall provide a meter with the ability to remotely shut-off the water flow for 5/8-inch to 1-inch meter sizes at customer. The following capabilities shall be supported:

    A.7.12.1 Water flowing - on position

    A.7.12.2 Water not flowing – off position

    A.7.12.3 Reduced water flow option

A.7.13 The meter shall support remote over-the-air operation of the shut-off valve from the Smart Utility Network head end software, locally via wireless connection, or based on defined events.

A.7.14 The meter shall support an alarm that notifies the utility when the battery voltage is low.

A.7.15 The meter shall come equipped with integral temperature and pressure sensors which will facilitate providing the utility insight into water quality and pressure throughout the water system.

A.8 Turbine Water Meters

A.8.1 The meter shall support Smart Utility Network communication for a variety of meter types using attached communications modules. These modules shall be able to perform their two-way functions without using non-water meters.

A.8.2 The meter shall support accurate measurement at low flow and high flow rates. Explain how the proposed meter supports these capabilities.

A.8.3 Discuss the proposed meter's measurement technology and why it is the best choice for this project.

A.8.4 The meter shall have an integral test port that enables calibration testing.

A.8.5 The meter shall have an electronic register that supports calibration.

A.8.6 The meter shall have a removable measurement chamber that can be replaced without removing the main meter case.

A.8.7 These meters should use the UI 1203 protocol which is a widely accepted industry protocol.

A.8.8 The meter construction shall have only one measuring chamber for high flow and low flow measurement.

A.8.9   Discuss how the proposed meter's design helps lower operation and maintenance spend through reduced long-term meter wear.

A.9   Commercial Magnetic Flow Water Meters

A.9.1   The meter shall support an accurate measurement over a wide range of flow (minimum flow to high flow). Demonstrate how the proposed meter meets this requirement.

A.9.2   This meter shall be available in versions from 1 ½ inches up to 96 inches in diameter.

A.9.3   Meter shall support sending its consumption reading to the Smart Utility Network.

A.9.4   The meter shall support being programmed via mobile application.

A.9.5   The meter shall have no moving parts.

A.9.6   The meter shall be available for potable, reclaimed and raw water applications.

A.9.7   Discuss how the meter supports little accuracy drift over time.

A.9.8   The electronic register shall be available in integral or remote designs with remote register placement up to 300 feet away from the meter.

A.9.9   These meters should use the UI 1203 protocol which is a widely accepted industry protocol.

SPECIAL PROVISIONS

Non-Interference
The vendor must propose an implementation strategy that will allow continued use of the existing meter system while the new system is phased in over the installation period.

Deliverables
The deliverables (data collection system being the communication hardware, software including communication with the installed endpoints) shall be accepted by the City when (1) the deliverables have been installed and made ready for the use of the City's site in accordance with the installation and operating specifications; (2) City has tested the deliverables and the deliverables have passed testing; (3) City agrees that deliverables meet or exceed the specifications and those contained in the scope of work and order concerning performance and capabilities of the deliverables, and (4) training has been completed satisfactorily according to the Utilities Manager.

Acceptance Testing
Once the deliverables are installed in City's premises as specified herein with regard to the Final Installation Date, the vendor shall notify the City in writing that the deliverables as specified have been installed, are in good working order, and are ready for use; that the modifications or

enhancements are completed as defined and specified herein, are in good working order, ready for use, and to the best of the vendor's knowledge is one hundred percent (100%) operational and that the deliverables as installed are ready for testing. At that point, the City shall have thirty (30) working days to perform and complete acceptance testing on-site. If the deliverables pass such testing, the City shall so notify the vendor in writing termed the Certificate of Acceptance. If the deliverables as installed fail to pass such testing, City shall notify the vendor in writing and the vendor shall then have ten (10) working days to correct any failure. The vendor shall then certify to the City that the failure has been corrected and the City shall have ten (10) working days for additional testing, at which time the City shall supply the Certificate of Acceptance if the deliverables pass testing. If the deliverables fail testing twice, at the City's option: (1) the correction period may be extended as agreed by the parties; or (2) City may terminate the Agreement, return the specifications, product and documentation to the vendor and the vendor will refund to the City any payments previously given to the vendor for the deliverables and modifications or enhancement pursuant to the Agreement.

TERMS AND CONDITIONS

Receipt of Proposals
The submitted proposal(s) must be received by the City prior to the time and date specified. The mere fact that the proposal was dispatched will not be considered; the vendor must ensure that the proposal is actually delivered. Proposals submitted via facsimile will not be accepted for any reason.

Questions and Inquiries
Technical questions and inquiries about this RFP should be directed to Dale Phelps, Utilities Manager at (865) 436-4681 or dphelps@gatlinburgtn.gov. Questions submitted in writing by email will be answered in same manner by return email.

Cartage, Freight & Transportation Charges
No charge will be allowed for cartage or packing unless by special agreement. Unit prices shall include freight and delivery charges to locations as specified by the City.

Reservations
The City reserves the right to accept or reject any or all proposals as a result of this request, to negotiate with all qualified sources, or to cancel, in part or in its entirety, this RFP if found to be in the best interest of the City. Additionally, although the City desires to contract with a single vendor for all work/services to be provided, the City reserves the right to split the work/services and deal with multiple vendors if it is deemed to be in the City's best interest. All proposals become the property of the City of Gatlinburg.

Reimbursements
There is no express or implied obligation for the City of Gatlinburg to reimburse responding vendors for any expenses incurred in preparing proposals in response to this RFP and the City will not reimburse responding vendors for these expenses, nor will the City pay any subsequent costs

associated with the provision of any additional information or presentation, or to procure a contract for these services.

Communication

Communication for this proposal and project shall be through the Gatlinburg Utilities Manager. The City shall not be responsible for any verbal communication between any other employee of the City and any potential vendor. Only written requirements and qualifications will be considered.

Insurance

The successful vendor shall procure and maintain throughout the duration of the project at its sole expense insurance against claims for injuries to persons or damage to property which may arise from or in connection with performance of the work. The City of Gatlinburg shall be named as additional insured to all applicable coverage.

Payment Terms

Invoices must be submitted by the vendor in duplicate to the City of Gatlinburg, A/P Finance Dept, PO Box 5; 1230 East Parkway Gatlinburg, Tennessee 37738. All invoices are to be paid in full within 30 days after satisfactory delivery and billing of goods or services.

Pricing

For the purposes of consideration of contract award, all pricing submitted with the proposal must be guaranteed for a minimum of ninety (90) days.

Addenda

Any addenda, including questions and answers and other information issued for the project will be posted to the Gatlinburg website by end of day on October 10, 2019. Vendors must acknowledge any addenda issued in Section H of their submitted proposal.

Negotiations

Negotiations may be conducted with any responsible vendor(s) that submit proposals that are reasonably suitable for selection. Should negotiations with the highest ranked vendor fail to yield a contract or if the vendor is unable to execute said contract, negotiations will be formally ended and then commence with the next ranked vendor, etc.

Award of Contract

Award of the contract shall be made to the responsible vendor(s) whose proposal is determined to be the best evaluated offer resulting from the proposal and negotiation process, taking into consideration the weighted importance of price and other factors set forth in this RFP.

EVALUATION FACTORS

After receipt of proposals, the City of Gatlinburg proposes use the following criteria in the selection process. The City may, at its sole discretion, elect to begin contract negotiations with any of the top-ranked vendors responding to this RFP.

- Total cost of infrastructure and selected meter components
- Project design and methodology including technical approach to the project
- Adherence to the software and hardware specifications provided
- Utilization of existing touch-read meters in new system
- Qualifications and related experience
- Favorable project time-line to completion
- Single vendor overseeing entire project
- References

PROPOSAL FORMAT REQUIREMENTS

All proposals must be enclosed in a sealed opaque envelope with the company name, address, bid opening date and time, and the quotation **"Proposal for Advanced Water Metering Infrastructure System for City of Gatlinburg"** stated clearly on the outside. Provide one (1) original and (2) copies of the completed proposal in the envelope.

To facilitate the review of the responses, proposals shall follow the described format. The intent of the proposal format requirements is to expedite review and evaluation. It is not the intent to constrain vendors with regard to content, but to assure that the specific requirements set forth in this RFP are addressed in a uniform manner amenable to review and evaluation.

Comprehensive responses shall be provided to each section as listed below:

SECTION A: Qualifications and Experience

1) Describe the qualifications and experience of the vendor in the last thirty-six (36) months in performing services in similar size and scope. Particular emphasis will be placed on vendors that have provided similar services for municipalities.
2) Identify the project manager and each individual who will work on this project.

SECTION B: Costs and Expenses (System Infrastructure)

1) Provide a detailed fee schedule for the communications system infrastructure installation. Include all necessary items such as hardware, software, meter reading equipment, communications backhaul and other appurtenances to facilitate the process of automated meter reading.

2) Provide a detailed fee schedule for any and all proposed software costs, management services and/or training fees from year 1 through year 5.
3) Expenses not specifically listed will not be considered reimbursable.

SECTION C: Costs and Expenses (Meters, Endpoints and Other Items)

1) Provide a unit cost per item for the meter sizes and quantities identified.
2) Provide a unit cost per item for the endpoints (radios) required for the meter quantities identified.
3) Provide a separate/alternate cost per item to install the above meters and endpoints.
4) Provide a unit cost per item for miscellaneous but related items available
5) Expenses not specifically listed will not be considered reimbursable.

SECTION D: Project Timeline

1) Provide chronological timeline of each task or event and the estimated time required to complete the described task.
2) Describe how the new system will allow manual reading during the transitional period

SECTION E: Project Design and Methodology

1) Proposals must describe the technical approach used and a clear understanding of the scope of the work, including a detailed project plan for this project outlining major tasks and responsibilities, time frames, and staff assigned for each category of the scope of work identified above.
3) Proposals shall clearly distinguish the vendor's duties and responsibilities and those of the City. Absence of this distinction shall mean the vendor is assuming full responsibility of all tasks.
4) <u>Provide a statement of compliance or no compliance with the hardware and software specifications as provided in the SCOPE OF WORK along with detailed response to the questions in same section.</u>
3) Describe the process of City staff adding meters to the system as new accounts or subdivisions are constructed.

SECTION F: Oversight from Single Vendor

1) The City strongly desires to contract with a single vendor to accomplish all work and/or services outlined in this Request for Proposal.
2) Any proposed subcontractor must be identified in the proposal response.
3) Any work not conducted by the Vendor or his subcontractor must be disclosed.
4) The City may, however, elect to utilize their own subcontractor to install new meters as deemed necessary to complete this project.

SECTION G: References

1) Provide references for similarly successful projects from at least three local government water systems, including the system name, contact name, telephone, fax and email address. Reference listings should also include any relevant project numbers and contract prices.

SECTION H: Addenda

1) Acknowledgement of any addenda issued by date and title of issue.

SECTION I: Bid Form

1) Signed and dated bid form and accompanying Title VI and IX documentation as provided.

Delea Patterson, A/P Purchasing
City of Gatlinburg
1230 East Parkway
P.O. Box 5
Gatlinburg, TN 37738

RE: Request for Proposals – Advanced Water Metering Infrastructure System

We have reviewed the Request for Proposals and provide a complete proposal as attached.

*State and describe in detail any deviations from the Technical Specifications in Section E of the Proposal.

DEVIATIONS:__YES__NO

Signed/_____

_____   _____
Name (Print)   Date

_____   _____
Company Name   Telephone Number

_____   _____
Address   Fax Number

_____   _____
City   State   Zip   Email

EACH BIDDER SHALL SUBMIT THIS STATEMENT OF COMPLIANCE WITH THEIR BID:

For Title VI and IX compliance, we ask for voluntary disclosure of the following information:

Gender: Male_____

           Female _____

Race: Caucasian _____

           African American_____

           Other (please specify)_____

Prospective Bidders List
Advanced Water Metering Infrastructure System
Request For Proposals

(Any qualified vendor may submit a proposal,
regardless of whether being included in this listing or not)

Badger Meter
National Meter & Automation
Don Rader
Nashville, TN
888-358-0815

Master Meter
Scott Bradley
101 Regency Parkway
Mansfield, TX 76063
sbradley@mastermeter.com
859-312-5619

Sensus
Adam Bolling
523 Bertrand Street
Unit 318
Knoxville, TN 37917
Adam.bolling@sensus.com
865-223-8604