



**Town of Clayton, North Carolina
Request for Proposals: Advanced Water and
Electric Metering Replacement Project**

**Issue Date: October 8, 2018
Due Date: November 20, 2018**

**Town of Clayton, North Carolina
Request for Proposal: Public Utility Department Advanced Metering**

Prepared By: The Town of Clayton in Cooperation with





Table of Contents

TOWN OF CLAYTON ADVANCED METERING INFRASTRUCTURE REQUEST FOR PROPOSALS: COMBINED WATER AND ELECTRIC UTILITY ADVANCED METERING.....	1
PROJECT BACKGROUND.....	1
PROJECT DESCRIPTION.....	1
PROJECT OBJECTIVE.....	2
PROFESSIONAL SERVICES REQUIRED.....	3
PROJECT SCOPE.....	3
INSTRUCTIONS TO PROPOSERS.....	4
PROPOSAL REQUIREMENTS.....	5
PROPOSAL CONTENTS.....	5
TERMS AND CONDITIONS OF SUBMITTAL.....	5
EVALUATION OF PROPOSALS.....	6
RANKING/AWARD.....	7
EXCEPTIONS.....	7
TIMELINE SUMMARY.....	8
BONDS.....	8
PROPOSAL SPECIFICATIONS.....	8
SYSTEM REQUIREMENTS.....	9
MINIMUM CRITERIA.....	9
WATER METERS SPECIFICATIONS AND REQUIREMENTS: AMI FUNCTIONALITY (DESIRED).....	10
ADVANCED WATER METERING INFRASTRUCTURE ENDPOINTS.....	11
ELECTRIC METERS SPECIFICATIONS AND REQUIREMENTS: AMI FUNCTIONALITY (DESIRED).....	12
COLLECTORS (GATEWAYS).....	14
INSTALLATION.....	15
FIXED NETWORK AMI SYSTEM.....	18
AMI SOFTWARE AND SYSTEMS INTEGRATION.....	19
AMI SYSTEM SOFTWARE AND METER DATA MANAGEMENT (MDM).....	19
PRIVACY, SECURITY, DISASTER RECOVERY.....	21
CUSTOMER PORTAL.....	21
UTILITY DASHBOARD.....	23
AMI SYSTEM TRAINING.....	24



TECHNICAL SUPPORT REQUIREMENTS AND WARRANTY FOR THE AMI SYSTEM.....	25
PROJECT MANAGEMENT AND SCHEDULE	25
OPTIONAL SERVICES.....	25
GUARANTEE	26
INDEMNIFICATION OF THE TOWN.....	26
PUBLIC CONVENIENCE AND SAFETY	26
DRUG FREE WORKPLACE.....	27
SAFETY AND HEALTH REGULATIONS.....	27
INSURANCE REQUIREMENTS	28
INDEPENDENT CONTRACTOR	29
ASSIGNMENT.....	30
CONTRACTOR USE OF SITE AND PREMISES	30
COMPENSATION AND PAYMENT TERMS.....	30
PRICE PROPOSAL- Supply and Delivery of Water Meters and Advanced Meter Infrastructure System (Attached Spreadsheet)	30
REFERENCE STATEMENT	31
PROPAGATION	32
SIGNATURE SHEET.....	33
ATTACHMENT A: Town of Clayton Electric and Water Meter Quantities	34
ATTACHMENT B: Pricing Table (Separate Excel File)	35
ATTACHMENT C: Town of Clayton Elevated Assets Location	36
ATTACHMENT D: Town of Clayton Owned Properties	37
ATTACHMENT E: Town of Clayton Water Distribution System Map	39

TOWN OF CLAYTON ADVANCED METERING INFRASTRUCTURE REQUEST FOR PROPOSALS: COMBINED WATER AND ELECTRIC UTILITY ADVANCED METERING

The Town of Clayton (“Town” or “Owner”) is seeking proposals from qualified vendors (“Prospective Bidder” or “Vendor”) experienced in the supply and installation of water meters for measuring potable water usage and electric meters for measuring electric energy usage. The Prospective Bidder shall supply and install all the hardware and software that together comprise the proposed Advanced Metering Infrastructure (“AMI”) system, and in the network configuration, and operations training of a fixed base water and electric meter reading system, hereinafter shall be referred to as AMI, which is to be purchased and operated by the Town of Clayton. All constraints/limitations associated thereto will be the responsibility of the selected Vendor to manage and deliver the project scope within the awarded schedule of prices, as well as within the approved installation time frame. It is anticipated that the scope of the work should be completed, and the project closed out within 24 months from receipt of Notice to Proceed from the Town. This document is a technology Request for Proposals (RFPs) consistent with N.C. G.S. 143-135.9 and award shall be made according to statute for best value. Award of the project is subject to approval of funding by the Town Council of the Town of Clayton.

PROJECT BACKGROUND

The Town of Clayton Public Utilities Department operates as a combined electric and water utility, managing approximately 9,800 water meters and 6,700 electric meters to serve about 16,500 customers. The estimated meter quantities listed here are for planning purposes only and are subject to change. Most of the Town’s water meters have been converted to AMR utilizing Badger M25 meters with HR-E registers and Itron 100W ERT, while approximately 2,500 remaining water meters are direct (manual) read. The Town has converted all their residential electric meters to AMR except for a small subset of their larger commercial electric meters, which is still manually read.

The Town has replaced failed and aging water and electric meters through an informal and ongoing change out program. For operations, the Town reads monthly in four billing cycles, and currently, the Town bills in thousands of gallons.

The Town seeks to replace all electric meters including transformer rated meters and convert all water meters to an AMI Water and Electric Meter Reading System with true two-way communication capabilities and expanded functionalities. Upon review of responses to the RFP, the Town anticipates purchasing an AMI system including collectors, transmitters, hardware, software, and all necessary appurtenances to secure water and electric meter readings for the entire Town service area subject to funding approval of the Clayton Town Council.

PROJECT DESCRIPTION

The Town is requesting proposals for the supply and installation of water and electric meters throughout the Town and an AMI water and electric meter reading system according to the desired specifications contained in this document. The Town shall own the entire infrastructure from the collectors to the meters and Meter Interface Units (MIU and referred to as endpoints). Town personnel must be able to access all collected data at any time to perform daily operations, provide customer support, and monitor system performance. The finished AMI solution shall also provide for advanced data analysis through an

effective Meter Data Management System (MDMS) and options for an integrated customer portal. The preferred solution will have verifiable compatibility with the Town's existing Badger M25 meters with High Resolution 8-dial encoded (HR-E) registration.

PROJECT OBJECTIVE

The Town of Clayton is embarking on a direct read/AMR metering system conversion to AMI to support the elimination of increasing costs of maintaining and repairing aging infrastructure (break-fix model), meter reader safety risks, continual data quality concerns due to entry errors, and the resource strain due to a combined drive-by and manual read environment. The design criteria contained within this RFP are based on operational objectives including:

- Establishing standardization for metering infrastructure
- Improving operational efficiencies through read automation and systems interfacing
- Improving customer service through read data access, alerts, and alarms
- Improving meter read and revenue accuracy
- Improving distribution operations and asset management
- Improving water resource management
- Improving business processes through enhanced system data reporting

Preference will be given to those vendors that effectively demonstrate technical abilities to meet Town objectives for metering technology. In addition, preference will be given to Vendors with capability for expanded integration such that Town of Clayton users (e.g. Customer Service performing a remote disconnect/reconnect or Billing personnel identifying malfunctioning meters) will be able to properly manage customer accounts through automated data exchanges between the MDMS and the existing Customer Information System (CIS) through New World Systems that has been recently acquired by Tyler Technologies. The Town possesses the following software systems for consideration of interface with the selected vendor MDMS:

New World Systems Version 2018.1

CityWorks Version 15.2

ArcGIS Version 10.5

It is the intent of the Town to issue a single contract to the selected Vendor to provide all necessary services to install and implement the system according to the specifications contained herein, yet the Town reserves the right to award equipment and installation labor contracts, and software, including customer portal contracts, separately. Therefore, responding vendors shall issue a responsive proposal considering the preferred vendor solution may be awarded as a single-vendor or multi-vendor contract if deemed in the best interest of the Town considering pricing and qualifications. The completed pricing sheet should reflect clear delineation of equipment and labor. The contractor will be responsible for adhering to all requirements of the specifications and for the performance of all sub-contractor(s).

The supplied water meters shall comply with NSF/ANSI Standard 61 Annex F and G and be constructed to provide a minimum of 20 years of read accuracy and performance. The supplied electric meters shall comply with ANSI Standard C12.10 and C12.20 (Accuracy Class 0.2 and 0.5) and be constructed to provide a minimum of 20 years of read accuracy and performance. The AMI network shall be designed

to collect all meter reads at a rate of 98.5% or better with redundancy in the event of network failure. Installation services shall be performed by professionally trained and experienced installers licensed to perform meter installations connected to a public water system by the State of North Carolina. Evidence of licensing must be presented with response to this RFP. Failure to provide proper licensing evidence will result in the determination as a non-responsive bidder.

PROFESSIONAL SERVICES REQUIRED

The selected Vendor must provide all services necessary to meet the objectives of this project. Further information on the services that the Town of Clayton anticipates will be needed for this project is contained in the Scope of Services section. Any work that is to be sub-contracted or performed by others shall be clearly defined. All sub-contractor(s) are subject to the Town's review and approval.

PROJECT SCOPE

The Town of Clayton is seeking to acquire a fully automated, two-way fixed-base AMI system for water and electric meter reading and related business processes. The AMI system design must provide full redundancy across the entire utility network. For purposes of these specifications, redundancy shall mean the ability of the Town to obtain complete interval reading of all customer endpoints should failure of the primary read network occur. The objective of this proposal is to evaluate and select the AMI solution that best meets the functional and business requirements of the Town. Proposal acceptance and award will be based on what the Selection Committee determines is the best value to the Town considering factors including, but not limited to:

- Two-way Endpoint Functionality and Performance
- Design and Functionality of Network
- MDMS and Customer Portal Functionality
- Equipment Specifications Compliance / Warranty Support
- Installation Qualifications
- Similar Projects, Experience, and References
- System Functional Expandability/Future Technologies
- Pricing- Capital and Operational Expenditures
- Leak Detection Options/Functionalities

The Town is seeking a Meter Data Management System with the capability to provide detailed data analytics with an integrated Customer Portal. The Customer Portal should allow for customization of viewing account alerts and information to be disseminated by the Town to their customers.

The Town is seeking a Customer Portal that provides for customer account creation, one log-in capabilities with the Town's online payment processing software, and intuitive design for ease of customer use.

The Town is seeking to expand the capabilities of the AMI network for water and electric distribution and future "smart city" data collection and processing initiatives.

Final terms and conditions of the Scope of Work between the Town and the selected Vendor shall be developed following Vendor selection and not necessarily limited by the specifications criteria herein.

INSTRUCTIONS TO PROPOSERS

Proposal Issue Date: Monday, October 8, 2018

Intent to Propose Notice Due: Monday, October 22, 2018 (Mandatory written notice of intent to propose should be submitted electronically to info@metersys.com by 5pm EST)

Town System Inspection Day (Optional): 10:00am EST on Tuesday, October 30, 2018 (All system inspections will be coordinated through MeterSYS; please email info@metersys.com with your intention to participate)

Proposer Questions Accepted Until: 5:00pm EST on Thursday, November 1, 2018

Proposal Due Date and Time: 3:00pm EST on Tuesday, November 20, 2018

Proposals shall be clearly marked "Town of Clayton Advanced Meter Infrastructure RFP Response" on all envelopes and boxes, along with the company name, date, and time proposal is due. Proposals must be submitted to the Town of Clayton Attn: Radford Thomas via U.S. Mail, UPS, Federal Express, or hand delivery.

Proposals will not be accepted via facsimile or electronic mail. Proposal must be received no later than 3:00pm EST on Tuesday, November 20, 2018. Proposals not submitted by the specified date and time will not be considered and will be returned unopened. The submission shall include four (4) hard copies and two (2) full electronic PDF copies on separate USB flash drives along with the pricing sheet submitted in Excel format with all calculation formulas present. All submission materials should be included in a package marked "Town of Clayton AMI RFP Response" and shall be delivered:

By US Mail, UPS, or FedEx:

Town of Clayton, North Carolina
Attn: Jennifer Proctor
P.O. Box 879
Clayton, NC 27528

Questions regarding any element of this RFP document or the bidder response process shall be directed to: info@metersys.com. Unauthorized contact or communication of Town of Clayton officials during the RFP process is prohibited and would disqualify the vendor from further consideration.

PROPOSAL REQUIREMENTS

PROPOSAL CONTENTS

PROPOSALS shall contain the following in Tab format:

- I. Cover Page: List Proposer's Company Name, RFP Reference Number, Proposer Contact Information
- II. Transmittal Letter (1-page maximum)
- III. Company Overview- Manufacturer and Distributor as Applicable (1-page maximum)
- IV. Executive Summary (maximum of 10 pages): Describes your ability to meet the needs of Town of Clayton AMI project including, but not limited to, the specifications and requirements described in this document and present information that outlines your qualifications as a preferred vendor for this project.
- V. Scope of Work and Technical Specifications (maximum of 20 pages): Describes your acceptance or recommendation of alternatives to the Scope of Work (SOW) and Technical Specifications based on unique elements of your recommended solution. Outline in detail your proposed SOW to include but not limited to delivery, implementation, and testing of new system. The SOW shall also include information on specific employees that will be assigned to this project, the Vendor's management methodology, and all major tasks and/or key milestones. Vendor shall clearly define all roles and responsibilities that are expected for system implementation.
- VI. Description Summary of Similar Projects (maximum of 2 pages)
- VII. Certificate/Proof of Insurance
- VIII. Detailed Pricing Sheet (Attachment B)
- IX. Qualified Reference Statement Sheet: AMI References must be of a comparable size to the Town of Clayton electric and water utility or larger. System must be currently operating, collecting meter reading and other data from installed endpoints. References with integration with Town of Clayton utility billing software is preferred
- X. Exceptions Statement (As Necessary)
- XI. Equipment Specifications and Warranty Details
- XII. MDM Software Specifications and Draft Software Hosting Agreement
- XIII. Draft Vendor Agreement for Equipment and Installation
- XIV. Certified Propagation Analysis
- XV. Technical Sheets (Specifications) of Proposed Equipment and Software
- XVI. Marketing Material (Optional)

TERMS AND CONDITIONS OF SUBMITTAL

- 1) Bids shall be valid for a period of one hundred eighty days (180) from the date of submittal.
- 2) Faxed proposals will not be accepted.
- 3) Meter quantities, locations, and sizes are based on best available information and not guaranteed as accurate.
- 4) QUESTIONS: Inquiries involving procedural or technical matters should be directed in writing by 5:00pm EST on Thursday, November 1, 2018 to info@metersys.com.

- 5) The Town of Clayton reserves the right to waive any informality in all RFP's, or to reject any or all RFP's, if it be in the public interest to do so.
- 6) This RFP is a technology request for proposals consistent with N.C. G.S. 143-135.9 and award shall be made according to statute for best value and based on multiple factors including: total cost of ownership, (cost of acquiring, operating, maintaining, and supporting the product or service over its projected lifetime; the evaluated technical merit of the vendor's proposal; the vendor's past performance; and the evaluated probability of performing the requirements stated in the solicitation on time, with high quality, and in a manner that accomplishes the stated business objectives and maintains industry standards compliance).
- 7) Any proposal may be withdrawn at any time prior to the scheduled closing time for receipt of proposals. Any proposal received after the time and date specified will not be considered.
- 8) The Town of Clayton has provided for entry of the bid for the fixed network AMI system in the Price Proposal Form. The Prospective Bidder shall fill out the Price Proposal Form in its entirety and summary pricing shall be inclusive of all licenses, taxes, and fees. All blank spaces for requested prices within the Bid must be completed and legible. The form must be typewritten or completed in ink.
- 9) In the event of a discrepancy between the unit price and the summary pricing amount, the lesser of the two will govern. Proposal prices shall encompass everything necessary for furnishing the item(s) specified, and in accordance with those specifications, shall include proper packing costs and the cost of delivery.
- 10) Upon notice of award, vendor should have enough quantities of electric and water meters in stock to accommodate new installations.
- 11) By submitting a proposal, the Prospective Bidder agrees to execute the contract and to provide the specified products and services within the agreed upon time.
- 12) All proposals must be complete, factual, and signed by an authorized officer of the Prospective Bidder's organization.
- 13) Any material alterations to the proposal must be explained or noted over the signature of the Prospective Bidder.
- 14) The Prospective Bidder shall meet the standards stipulated by the Iran Divestment Act (IDA) which prohibits state agencies and local governments from contracting with a company that the NC State Treasurer has determined invests more than \$20 million dollars in the Iranian energy sector.
- 15) The Prospective Bidder shall comply with the NCGS G.S. 143-133.3 which sets out the E-Verify contracting prohibition for all local governments and state agencies.

EVALUATION OF PROPOSALS

Each proposal submitted shall be evaluated by the Town of Clayton AMI Selection Committee. The defined evaluation criterion specifies the factors that will be used by the Selection Committee to evaluate responsive, responsible, and qualified proposals. Proposers shall include enough information to allow the Selection Committee to thoroughly evaluate their proposals and present its best value offering in a manner that is clear and concise for the Selection Committee to conduct comparative review. At the sole discretion of the Town, any contract awarded will be based on what the Selection Committee determines is the best value for the Town.

The Town reserves the right to reject, in its sole discretion, all responses, and to waive minor irregularities or minor errors in responses received, if it appears that such irregularities or errors were made through inadvertence. Any such irregularities or errors so waived must be corrected on the proposal prior to acceptance by the Town. The Town also reserves the right to accept or reject any or all the items in the responses, if such action is deemed to be in the best interest of the Town. This RFP includes the determining factors the Town will use to evaluate the proposals. The contract will be awarded using the "best value" procurement method set out in N.C. G.S. 143-135.9. All bidders shall include in their bids documentation that their organization is qualified to design and install the AMI system as outlined in this RFP. This documentation shall include any license, certification, or permits.

This solicitation does not commit the Town of Clayton to award a contract, to pay any costs incurred in the preparation of a proposal, or to procure or contract for the services. The Town may cancel in part, or in its entirety, this request if it is in the best interest of the Town to do so.

RANKING/AWARD

This request for proposals (RFP) is to procure an AMI system capable of meeting the current and future meter needs of the Town. The Prospective Bidder shall furnish all labor, materials, equipment, and incidentals necessary to train and support Owner's personnel in the use of the MDM software system. The Prospective Bidder shall also furnish all materials, equipment, and incidentals necessary to train and support the Owner or their designated representative in the proper installation of the meters, registers, and AMI endpoints. The quality of the bid submission is considered important, along with compliance with the RFP, as both will be graded by the Selection Committee.

The term "AMI system" shall be defined as fixed, two-way meter reading collection network of collectors, repeaters, and endpoints installed throughout the Town with hosted / managed reading data management software for collecting and managing data from endpoints. Programming devices required for the installation of the AMI endpoints, diagnostic, and interim meter reading shall also be included.

Technical proposals explaining the AMI system will be evaluated against individual criteria. From the individual criteria evaluation, the Town Selection Committee will rank the proposals based on a numerical weighting system with criteria defined and approved by the Selection Committee consistent with the stated best-value factors noted in the Scope of Work of this RFP document. The Committee reserves the right to adjust the weighted criteria based on changes in Town goals, financial capacities, technology changes, and other project influences not otherwise identified at the time of RFP issuance. The Committee reserves the right to request additional information from vendors and will likely schedule in-person presentations from vendors that are short listed, and these decisions will be communicated to the necessary parties once determined.

EXCEPTIONS

Prospective Bidders shall furnish a separate statement on Company letterhead titled, "EXCEPTIONS," giving a complete description of all exceptions to the terms, conditions, and specifications outlined within this document. The "EXCEPTIONS" section shall be listed in the Prospective Bidder's Table of

Contents. If a statement is not provided, the Owner will assume that the Proposer is compliant with the bid specifications. Exceptions to requirements or specifications contain herein are not considered disadvantaged if the Proposer outlines clearly and concisely how the presented exception is advantageous over the presented requirements and/or specifications.

TIMELINE SUMMARY

The timing of this project is of the utmost importance for effective management of funding and project resource oversight. The selected Vendor will be required to complete full deployment of the AMI infrastructure no more than 24 months upon the receipt of the notice to proceed. Detailed project timelines will be established with the selected Vendor and will be adjusted as necessary on coordination between the Town and the selected vendor based on resource availability and scheduling requirements. The final agreement with the Vendor may include liquidated damages for project schedule violations. The following milestones are provided for planning purposes only and should not be considered fixed:

Response Evaluation, Scoring, Shortlisting, Vendor/Due Diligence, Weighted Vendor Selection: By Friday, December 20, 2018

Preferred Solution Selection: By Friday, January 11, 2019

LGC Meeting to Approve Financing: By Tuesday, February 5, 2019

Contract Award and Notice to Proceed: By Friday, February 15, 2019

BONDS

The preferred vendor must present a bid bond equal to five percent (5%) of the proposed project cost prior to contract award. The selected Vendor will be required to provide payment and performance bonds equal to one hundred percent (100%) of the project cost. Substitute payment and performance bonds will not be considered acceptable and will be rejected.

A corporate surety legally authorized to do business in the State of North Carolina shall execute the bid bond, as well as the payment and performance bonds required for this project. The corporate surety shall have a rating of B, B+, A-, A or A+, according to the current Best's Insurance Reports for property and casualty insurers.

PROPOSAL SPECIFICATIONS

The Town of Clayton seeks to enter into a contract with a qualified Vendor responsible for supplying and implementing an entire AMI system, including meter reading equipment, related software, maintenance, training, technical support, and installation, but retains the right to issue components therein separately. The Town of Clayton is requesting proposals for the following products and services for furnishing water and electric meters and for the upgrade of its meter reading system:

1. Supply and delivery of certain prescribed electric meters and cold-water meters complete with absolute encoder registers and automatic, two-way meter reading endpoints.
2. Professional and qualified installation of all required system equipment.
3. Supply, delivery, and testing of all equipment and software necessary for a fixed network AMI system capable of obtaining readings from all new meters, including responsibility of the systems, necessary programming, and testing for the interface with the existing billing system.
4. Approved training and technical support services for Town staff.
5. Provide installation project oversight necessary for the successful implementation of the AMI system, including providing software integration, installation oversight, training, and delivery of the solutions that meets or exceeds the performance criteria in cooperation with the Town's designated project manager.

The successful Bidder must demonstrate its ability to deliver an AMI system that adheres to the specifications outlined in this document. The successful bidder will support the fixed network AMI system on an on-going basis as required through contract. Vendors interested in providing component of the RFP can response to that specific section and respective component in pricing sheet. Proposals will be evaluated according to the selection criteria established within this document.

SYSTEM REQUIREMENTS

MINIMUM CRITERIA

Any Prospective Bidder submitting a proposal must satisfy the following minimum criteria. **Check all requirements met under proposal and for any criteria remaining unchecked, please note any requirements variances on the exceptions section of the response.**

- The AMI system must operate as a point to multi-point (star) network system.
- The AMI system must leverage existing Town elevated assets for fixed location of collectors before proposing alternative collector locations on Town-owned properties.
- The AMI system must have clearly defined two-way capabilities.
- The AMI system must have capabilities of being able to communicate with and operate a remote shut-off valve.
- The AMI system must provide for leak detection on the customer side and help support leak detection capabilities on the distribution side.
- The AMI system must provide analytics-based software that informs the utility of utility-defined exception conditions via email, SMS text, or through the system's interface.
- The AMI system must be capable of remotely collecting numeric meter identification, hourly interval readings, premise leaks, and tamper information from all Town water meters.

- The AMI system must automatically provide the Owner with daily metering data at the network control computer at least once per day without having to interrogate the endpoint or data collector.
- The AMI system must support the Town and the billing system provider for proper development of the interface between the AMI system software and the existing billing system. The Owner must be able to run the new AMI system and the existing meter reading and billing system in parallel, until all the meters are converted to the new AMI system. The Owner's customer accounts shall be downloaded to the new AMI system software, providing for a gradual transition from existing reading system to the new meter reading as future AMI endpoints are installed.
- The AMI network must comply with all applicable Federal Communication Commission (FCC) Rules & Regulations.
- All AMI equipment and system components shall be labeled in accordance with the FCC as required.
- The AMI network must successfully obtain reads 100% of the meters in the network for no less than 98.5% of all available daily reads over a three-day window.
- The AMI network must be subject to an extended performance warranty, whereby the Vendor will be required to provide both equipment replacement and associated labor when system performance drops below 98% of the billing reads, to return the system to the required 98.5% performance reporting.
- Vendor shall be responsible for additional network build-out and construction including network infrastructure and elevated structures as required. Vendor shall include sample specifications for preferred tower/pole infrastructure in the response.
- Vendor shall detail system protections related to network privacy and security, including interference/frequency hopping, encryption, data backup/disaster recovery, and Radio Frequency (RF) transmission safety.
- Vendor must have completed at least four (4) successful combined water and electric AMI system implementations using the same equipment and technologies proposed herein.
- The AMI system must support outage detection and restoration, and voltage issue reporting.
- The AMI system shall support kWh, KVARh and KVaH consumption, and daily peak kW, KVAR and KVA demand and Power Factor (PF) readings.
- If installing additional non-tower/non-pole mounted equipment, then this equipment must not visibly degrade or be discordant with the overall appearance of surrounding area and must be approved by Town Planning Department.
- Infrastructure/equipment should match the aesthetic and visual character of the surrounding area.

WATER METERS SPECIFICATIONS AND REQUIREMENTS: AMI FUNCTIONALITY (DESIRED)

- Vendor shall supply water meter quantities according to the quantities noted in this document, although quantities may vary and, therefore, are not guaranteed.

- All water meters shall be new, unused, current year model, with newest available version of firmware loaded.
- Water measurement shall be US Gallons with resolution able to be configured to a minimum of 1/10th of a gallon.
- Rate of flow (low and high) shall be noted for each specified meter size.
- All water meters shall support all AMI functionality with two-way wireless communication.
- All water meters shall be able to communicate directly to the AMI collector.
- All water meters shall wirelessly communicate via an FCC approved regulated spectrum.
- All water meters shall be capable of 1-hour interval usage data.
- All water meters shall be capable of on-demand meter read and status and store consumption data for a minimum of forty (40) days at the endpoint.

Small Water Meters (5/8" x 3/4", 3/4" x 3/4", and 1")

- New water meters shall be mechanical meters with a brass meter body with optional pricing for solid state/electronic technology as noted within pricing sheet.
- The meter register shall be hermetically sealed and with option for LCD display having indicators for leak detection, low battery, and unit of measure.
- Residential water meters shall have a 20-year warranty on register and body.
- Residential water meters shall have a 20-year warranty on battery (last 10 years prorated).
- New meters shall meet or exceed ANSI/AWWA Standard C700, C710, and/or C713 for accuracy and pressure loss.
- New meters shall comply with NSF/ANSI Standard 61 Annex F and G compliant and tested to AWWA standards.
- New meters shall comply with IP67 and IP68 Ratings to prevent water, moisture, and dust from entering the register.
- New meters shall have resolution setting to 1/10th of gallon.
- Recommendations for inventory parts and ordering lead times to be included as available.

Large Commercial Water Meters (1.5" and larger)

- New meter register shall be hermetically sealed and with option for LCD display having indicators for leak detection, low battery, and unit of measure.
- The meter needs to comply with NSF/ANSI Standard 61 Annex F and G compliant and tested to AWWA standards.
- All Fire Service meters will be compliant for all (UL). FM, NSF-61.
- Recommendations for inventory parts and ordering lead times to be included as available.
- A corrosion resistant strainer must be provided for meters that require one, which is easily removed from the meter.
- New meters shall comply with IP68 Rating to prevent water, moisture, and dust from entering the register.

ADVANCED WATER METERING INFRASTRUCTURE ENDPOINTS

- Batteries must have an operational life of 20 years, be Lithium Thionyl Chloride, and must be fully potted and non-replaceable.

- The battery for each AMI endpoint must be fully warranted for a minimum period of ten years, with ten additional years prorated when the system provides a minimum of 24 hourly reads per day. The prorated calculation shall be based on the purchase price. Warranty coverages shall not limit the number of on-demand reads performed by the Town.
- Radio frequency (RF) products must be protected against water or moisture. Proposals shall detail AMI endpoint construction for moisture and water protection.
- All AMI endpoints equipment must be rated to withstand harsh environmental conditions including non-condensing temperatures from minus 22° F to + 149° F and submersion under water for extended periods of time.
- The Proposed system must have advanced metering infrastructure (AMI) modules capable of interpreting encoded meter reading data directly from the new or existing three-wire meter registers without error.
- Prospective Bidders must describe the operation of the AMI endpoint, including an explanation of the AMI endpoint's "broadcast" method and the way the AMI endpoint transmits signals using radio frequency.
- Prospective Bidders must present in detail the field programming steps necessary to completely install and activate AMI endpoints so that they are ready to transmit meter readings.
- Prospective Bidders must provide a description about the AMI endpoint's power source and how the "broadcast" method affects the length of the life of the power source.
- The AMI endpoint shall have capabilities to indicate damage or tampering with the connection between the AMI endpoint and the register.
- The reading from the AMI endpoint must be time-stamped based on synchronized timing of the network.
- If the Vendor has a recommended approach or philosophy on battery preservation, it is an optional request to detail the company's approach to alternative settings or features, such as low-power mode; timed data transmission; self-charging battery; or replaceable battery capabilities.
- Rise of endpoint above meter lid surface shall not exceed ¼" or level required for ADA compliance against creation of a trip hazard, whichever is more stringent.
- All AMI endpoints shall be properly installed and secured by manufactured approved "through-the-lid" mounting bracket.
- AMI Endpoints shall communicate using wireless technology with a minimum power signal of one watt for data transmission. For LoRa communications, 100 mW is acceptable.

ELECTRIC METERS SPECIFICATIONS AND REQUIREMENTS: AMI FUNCTIONALITY (DESIRED)

- Vendor shall supply electric meter quantities according to the quantities noted in this document, although numbers may vary and, therefore, are not guaranteed.
- All electric meters shall be new, unused, current year model, with current version of firmware loaded.
- All electric meters shall support all AMI functionality with two-way wireless communication.
- All electric meters shall be able to communicate directly to the AMI collector.
- All electric meters shall wirelessly communicate via an FCC approved regulated spectrum.

- The Town has a SCADA system. Please detail how the proposed system will interface with the SCADA system and impacts (i.e. EMS, substation switching, etc.).
- All electric meters shall be capable of on-demand meter read and status, including voltage levels.
- Vendor shall provide a list of all meters by product name that they interface and recommend.
- All electric meters shall support in dual function AMR/AMI mode. Vendor should describe system redundancy and data logging capabilities.

Residential Electric Meters

- All electric meters must support kWh consumption, and daily kWh and kW peak demand readings.
- All electric meters shall support load profile storage for 30 days' worth of 15-minute profiles, and support remote reconfiguration to 15, 30, and 60-minute intervals and TOU rate application.
- All electric meters must have operating range of 120V to 480V and voltage range +/- 20% of nominal range.
- All electric meters must display consumption.
- All electric meters must stay in time sync with each other.
- All electric meters shall automatically detect availability and value of voltage to within +/-1%
- All electric meters must have safe remote disconnect/reconnect functionality up to 200-Amp service.
- All electric meters must provide a count of momentary sags and wells. Vendor shall provide specifications of event capture to include time stamp, duration, magnitude, programmability, number of events, and availability of historical data.
- Vendor shall provide specifications for tamper detection/alarm when power is lost, reverse energy, hot socket conditions and when meter is pulled.
- All electric meters must support outage detection and restoration. Vendor shall provide specifications to define an outage event with the ability to customize qualifying events, for event management, and to determine the availability of historical data.
- All electric meters should support net-metering functionality for specified locations, retain/transmit and display separate registers for received and delivered kWh. Meters must provide revenue accurate measurement.
- All electric meters must meet the most recent standards of the American National Standard for Code for Electric Metering ANSI C12 and ANSI C12.1.
- All electric meters must meet the most recent standards of the American National Standard for Physical Aspects of Watt-hour Meters ANSI C12.10 and ANSI C12.20 (Accuracy Class 0.2 and 0.5).
- All electric meters should meet the UL 2735 certification for exceptional safety and reliability.
- All electric meters must comply to the standards of FCC Part 15, Class B.
- Vendor shall have available Forms 1S, 2S, (320A), 3S, 4S, 8S, 12S, 14S, 16S, and 36S
- The AMI communication module must be "under cover" of the meter.
- Vendor must describe all functions that are supported by the meter (i.e. voltage, power quality, etc.).

- Residential electric meters shall have a minimum of 20-year warranty.
- All electric meters must be rated to withstand harsh environmental conditions including temperatures from minus 40°C to + 85°C and 0% to 95% non-condensing inside the meter cover.

Commercial and Industrial Electric Meters

- The polyphase meters must support kWh, KVARh and KVaH consumption, and daily peak kW, KVAR and KVA demand and PF readings.
- Residential electric meters shall have a minimum of 20-year warranty.
- All electric meters shall have a storage capacity for 30 days for 4-channel, 15-minute data, and shall support load profile storage for 15, 30 and 60-minute intervals.
- All electric meters must display consumption and demand to include options for instantaneous demand, billing cycle peak demand or both.
- All electric meters shall support switching or alarming to customers through output relays
- All electric meters must provide a count of momentary sags and wells by phase. Vendor shall provide specifications of event capture to include time stamp, duration, magnitude, programmability, number of events, and availability of history.
- Vendor shall provide specifications for tamper detection/alarm when power is lost, reverse energy, hot socket conditions and when meter is pulled.
- Vendor shall provide specifications for high temperature detection/alarm and/or auto-disconnect.
- Vendor must describe all functions that are supported by the meter (i.e. voltage, PQ, load management, etc.)
- All electric meters must meet the most recent standards of the American National Standard for Physical Aspects of Watt-hour Meters ANSI C12.10 and ANSI C12.20 (Accuracy Class 0.2 and 0.5).
- All electric meters should meet the UL 2735 certification for exceptional safety and reliability.
- All electric meters must comply to the standards of FCC Part 15, Class B.
- The AMI communication module must be "under cover" of the meter.
- All electric meters must be rated to withstand harsh environmental conditions including temperatures from minus 40°C to + 85°C and 0% to 95% non-condensing inside the meter cover.
- All electric meters will be certified for accuracy by Vendor.

COLLECTORS (GATEWAYS)

- All collectors shall wirelessly communicate with endpoints via an FCC approved and regulated spectrum.
- Must be able to communicate directly to all endpoints in a point to multipoint topology.
- Vendor must design collector coverage utilizing existing towers/elevated structures controlled by the Town before proposing alternative collector locations.
- Vendor proposals shall assume all costs for network infrastructure beyond that which supports the proposed network design, and Vendor's proposal shall include a not to exceed price for the complete network infrastructure, including all collectors and any repeaters.
- Vendor will provide the necessary equipment, wiring, enclosures, and attachment hardware associated with the collector.

- Vendor will assist the Town in securing data backhaul if not already provided by the Town at the desired collector location. Backhaul will be owned and maintained by the Town.
- Vendor will provide tower structures for collectors if a Town vertical asset is not available at the desired collector location. Tower structure details/schematics shall be included in the proposal for all Vendor provided structures required to support the network with design approval to be authorized by the Town prior to collector installation.
- Vendor shall install all collectors, mounting hardware, wiring, and associated equipment.
- Vendor will provide an alternative power source (i.e. solar panels) if Town electrical power is not available at the desired collector location.
- Collectors will have a minimum of 1 year warranty with provision for 10 years of Vendor support and maintenance.

INSTALLATION

The Scope of Work and Technical Specifications outlines the expectations for standard meter change out with common meter pit conditions requiring no rehabilitation. In the case of required or desired rehabilitation, the Town will work with the selected vendor through the contractual phase to identify time and materials pricing for repair of meter pits and ancillary system improvements.

The Scope of Work includes scheduling appointments, coordinating with water meter suppliers for delivery, removal of existing water meter, installation of new water meter, installation of transmitter, and proper documentation of installation on Town approved forms. Prices include all labor to perform these functions, plus any wire, gaskets, seals and accessories necessary to successfully install new meter. The cost of installation is identified separately from the unit price for each meter and endpoint on the pricing sheet provided.

- The installation of all water meters is to be performed by a contractor licensed by the State of North Carolina. All site installation personnel employed on this project will be subject to background checks and shall, always, carry a suitable photo ID and/or other identification approved by the Town. All vehicles used by the successful bidder shall, always, display the name and phone number of the company performing the site installation or display a Town provided "Town contractor" decal/magnetic sign.
- Prior to an installation, the installer shall determine if additional plumbing or electrical work is required beyond the specified scope of the contract. If so, the installation shall be rescheduled, and both the property owner and the Town shall be notified. Once the additional plumbing or electrical work has been completed, the installation will be rescheduled.
- Bidder shall conduct installations by route, or group of routes. Route groups should be based on geographic proximity and logistics, and neighborhoods determined by the Town in discussion with the Proposer. The Town retains the right to prioritize neighborhoods, or to reorganize priorities, both before the program begins, and during the program. Unless approved in writing by the Town, the Bidder shall complete at least 90 percent of the installations in one route or group of routes before commencing installation on the next route. Exceptions to the requirement to complete an installation may be granted by the Town.
- Bidder shall be responsible for scheduling all appointments for installation with Town residents and businesses. Approval of the method used must be granted by the Town before contact is

made but will include, at a minimum, door hangers provided at least 48 hours in advance of the meter installation site visit.

- The Town and the Bidder shall establish an overall schedule for installation of the entire project. On the first work day of each week, the Bidder will provide the Town an updated schedule of where work is planned for the next 2 weeks.
- Bidder shall propose normal work hours, which must be approved by the Town but shall, in no case, extend before 7:30am or after 6:30pm Monday through Friday. Installers must be available for evening and Saturday installations, as well as for installations that must be conducted at other times because of special needs. Contractor should expect that some meter replacements will occur in the evenings and on weekends. No additional compensation will be provided for appointments that occur in the evening or on weekends.
- All installations will be documented and digitally photographed by Vendor before and after installation (includes meter reading, meter identification, and other information as may be required from the Utility).
- All electric and water meters' GPS coordinates will be collected by Vendor to map grade during installation. GPS coordinates should be made available for import into WOM software.
- Any non-standard installation, including missing or tampered meter, or flagrant code violations observed by the installers, is to be reported to the Town immediately.
- Vendor is responsible for damage to infrastructure up to 24 inches on either side of the meter box.
- Bidder shall be required to leave the installation site in a clean and neat condition, equal to, or better, than the original condition for the site. The installer shall remove the replaced equipment from the site and will be responsible for its proper organized storage at Town facilities. The old meter shall become the property of the Town. The unit price for the meters should not reflect any salvage value for the old meters. Vendor shall keep photographic record of damage/repair and report it to the Town.
- Vendor shall have at least 10% of the Town's network and meter infrastructure available in stock for replacement.
- The successful bidder will be responsible for providing the Town with weekly status reports detailing the number of installations performed, problems encountered, work remaining and any schedule adjustments.
- Vendor shall submit a preferred or sample billing schedule that details the desired ordering, shipping, installation and invoicing approach of the vendor.
- Vendor shall be responsible for custody of stored material until ready to install.
- If the Vendor has an inventory tracking and billing validation or audit process established, please provide a description of this process and any tools or software used.
- If the Vendor has an installation management software that will be used during the project, please articulate the capabilities for managing the installation progress and the reporting features available, to include training and access that will be provided to the project team prior to commencement of installation.
- Installation management should have capability to track install work in near real-time with daily progress reports shared with Project Manager. Software should have login access to manage installations and ability to perform exception reports. Software should have route planning

capability to allow for coordination with customers to notify anticipate dates of service interruption due to installation.

- Each installation will be accepted by the Town through a Route Acceptance Agreement conditioned upon the requirements listed in the next sheet - Route Acceptance Agreement.
- Recommendations for inventory parts and estimated ordering lead times of equipment should be listed.
- Installation of water and electric meters are not considered complete until units are installed and properly reporting on the AMI network.
- Bid pricing for equipment shall be held for 180 days after project close-out.
- Utility shall maintain custody over scrap meters.
- Vendor shall provide details on route-by-route installation coordination between water and electric utilities.

Water Meter Installation

- All water meters will be calibrated and tested for accuracy by Vendor.
- All water meter registers will be programmed by Vendor.
- All endpoints will be activated by the Vendor.
- Any water meter box or vault modifications will be done by Vendor, including but not limited to adjusting the water service line, meter setter, and meter box.
- Any additional material for the meter box or vault will be supplied by the Vendor at Vendor's expense.
- The installation shall require the installer to test the new equipment to make sure it is functioning properly. The install will be sure that there are no leaks at the site that are related to the installation.
- The successful bidder will be responsible for digging dirt/debris within the meter box to a minimum depth of 3 inches below the meter chamber as part of standard installation requirements.
- The successful bidder must identify local plumbing resources for customer-side issues related to meter change, including response time.
- Vendor shall provide technical specifications for Through-the-Lid bracket mounts.
- Vendor shall reseed and/or repair any damage to service property at its sole expense for water meter installations and shall indemnify and save harmless the Town from any costs for repair of any damage to the service property.
- Vendor is responsible for damage to infrastructure up to 24 inches on either side of the meter box.

Electric Meter Installation

- All endpoints will be activated by the Vendor.
- The installation shall require the installer to validate proper operation of the new meter installed prior to leaving the work site.
- Vendor shall provide manufacturer technical specifications for electric meter installs.

- All work by the installer must be performed safely and under the guidance of the Electric Department. Installer must install meters using all appropriate PPE and industry standards for installation including meter puller, fire retardant clothing, safety glasses, rubber gloves, and additional safety equipment as required by the Utility.
- Installer must identify all potentially hazardous or inaccessible meter bases as a Return to Utility (RTU) condition for remedy by Owner. Installer is responsible for all costs associated with site revisits due to RTU.

Route Acceptance

Each installation will be accepted by the Town through a Route Acceptance Agreement conditioned upon:

- Electronic submission of a list of completed installations containing for that installation the premise identification number, address, old and new meter serial numbers, old and new meter readings, MIU serial number, location of meter and MIU, installer's name, Proposer's inspector's name, and all other information relevant to the installation
- Receipt or access to required digital photographs.
- At its option, satisfactory inspection by the Town.
- Confirmation that MIU ID numbers, meter register numbers, and other information have been correctly captured in the automatic reading system database and/or the Town's project management database for each customer's premises.
- Successful capture of 98.5 percent of the scheduled readings over 3 days for meters reading hourly or more frequently. The readings shall be gathered by the Town operating the system in a normal way.
- If the Town finds discrepancies in the conditions of acceptance for 12 months after the date it was notified of installation, the Town shall remand the work to the Bidder for correction.
- Data logging time slots must be time synchronized and programmable for 15 minutes, 30 minutes, 60 minutes, or daily.

FIXED NETWORK AMI SYSTEM

- The fixed network may utilize one or a series of data collector units (DCU) located strategically throughout the Town's service area for retrieving meter data. It may incorporate repeaters/sub-collectors to assist the fixed network system with meter reading data collection only to the extent that required for full read coverage.
- The Prospective Bidder shall prepare and submit as part of the technical proposal a propagation study for reading all accounts in the system. The Proposer may request from the Engineer an Excel database containing the service addresses for water accounts, along with potential infrastructure locations with approximate latitude and longitude for each property or site. The latitude and longitude are the parcel centroid. Not all services may be on this list and some locations have multiple meters. The Prospective Bidder shall assume there is at least one meter at each property. The Prospective Bidder may install equipment for the fixed network AMI system on public buildings, water reservoirs, and any Town owned light poles.

- Transmissions of data between the utility and DCUs shall be in a proprietary format not easily deciphered by outside sources.
- The following information shall be transferred via RF as a minimum: unique transmitter ID/serial number, meter reading, leak tamper status, wire tamper status, reverse flow status, no usage status, low battery alarm, and encoder error. No sensitive customer information such as name, address, or account number shall be sent in the transmission.
- The Prospective Bidder shall provide disaster recovery by replicating data to a fault tolerant data center with 1 business day or less recovery time.

AMI SOFTWARE AND SYSTEMS INTEGRATION

- Vendor will provide and install any additional software/hardware locally as needed.
- Vendor shall provide a two-way data synchronization and validation that includes but is not limited to meter information, billing data, address location, usage, and full customer account Information between AMI system and utility billing module.
- Vendor shall provide data integration testing with a success rate of 100%.
- Vendor shall provide mass meter import of all meter information to the utility billing module.
- Vendor shall provide standards for software integrations including mass meter change-out and billing interface.
- The software integration shall include the ability to transfer customer consumption history and account billing data for 2 years prior to AMI installation. Integration standards and requirements should be added in the optional Section XIV, Marketing Material or Specification Sheets.
- Preference will be given to Vendors with past integration experience with the Town's utility billing module, New World System. Please identify 3 examples of completed interfaces with New World System, to include the project location, number of accounts, and year(s) of the project, along with any identified similarities or differences as compared to Clayton that are relevant.
- Vendor shall detail the proposed program of work and technical requirements for integration between the MDM and the utility billing software and identify full costs of integration prior to award.
- Vendor to identify if software includes a customer portal so that all utility customers can have access to their usage data.
- Meter Data Management (MDM) module shall be included in bid and operational price shall be clearly presented for a period of no less than 5 years from award.
- Vendor must provide AMI software upgrades to latest releases (versions), including all security updates.
- Vendor shall provide alternative software free of charge if SaaS modules become obsolete or no longer supported by vendor.

AMI SYSTEM SOFTWARE AND METER DATA MANAGEMENT (MDM)

- Vendor shall provide AMI network integration with the existing Town's networking infrastructure.

- Vendor shall provide a two-way data synchronization and validation that includes but is not limited to meter information, billing data, address location, usage, and full customer account Information between AMI system and utility billing module.
- Vendor shall provide data integration testing with a success rate of 100%.
- Vendor will be required for automating meter swap data exchange (electronic transfer of new meter data to the Utility Billing Software). Vendor shall provide standards for the mass meter change-out process and for software integrations.
- Software must interface with the existing billing system, process meter readings, interface with the fixed network, and generate dynamic system informational reports.
- Software package shall be hosted by the Prospective Bidder on server hardware at a remote secure data center, managed by the Prospective Bidder, and be available via the Owner's internet connected network for an unlimited number of users.
- Software shall show and retain a minimum of 2 years of hourly usage history for all utility accounts.
- The software integration shall include the ability to transfer customer consumption history and account billing data for 2 years prior to AMI installation. Integration standards and requirements should be added in the optional Section XIV, Marketing Material or Specification Sheets.
- Preference will be given to Vendors with past integration experience with ICS. Please identify 3 examples of completed interfaces with ICS, to include the project location, number of accounts, and year(s) of the project, along with any identified similarities or differences as compared to Clayton that are relevant.
- The software shall be provided as a perpetual license to use the software with the supplied system, provided the annual maintenance agreement is upheld.
- The software shall provide the ability to generate error reports that identify which endpoints and data collectors have been inactive for a certain period.
- The software must support operator-based security allowing the Owner to define operator users with varying authorization levels and capabilities. Additionally, all aspects of that operator customization must be available (what screens they have access to, what data they can change, etc.)
- The software must submit a daily file to include the following standard water reports: meter reading history, leak detection, non-responding meters, tamper detection; exception reports such as zero consumption reads, water backflow and high consumption.
- The software must submit a daily file to include the following standard electric reports: meter reading history, tamper detection; exception reports such as zero consumption reads, high usage, back feed, and meter voltage.
- The software must provide for proactive exception alarms that can notify utility personnel via email or SMS text of desired exception conditions.
- Prospective Bidders must describe any unique features that their software provides to assist in water conservation efforts.
- Prospective Bidders must describe any unique features that their software provides to assist in Customer Service efforts.
- Prospective Bidders must describe any other unique features that their software provides to Owner to improve overall utility operational efficiency and management of the AMI system.
- Software should include and maintain a customer portal so that all utility customers can have access to their usage data.

- All software shall be compatible with the AMI endpoints and mobile data collection devices for 20 years and greater.
- The Prospective Bidder must provide AMI software upgrades to Latest Releases, including all security updates
- MDM shall identify and present problematic data to operators for resolution before it reaches the Town's billing system.
- MDM shall provide standard reporting to include: meters and associated reads, meter communication failure, zero consumption, continuous consumption, vacant consumption, high usage, reverse flow events, leak events, tamper, electric consumption reports, and outage reports
- MDM shall have the ability to view raw, processed, and validated data.
- MDM shall be able to maintain up to 36-month history of meter data.
- MDM shall display electric and water meter data in the same Graphical User Interface (GUI).
- MDM can manually insert raw register read or perform validation for a given meter.
- MDM dashboard provides an instant snapshot of the entire utility system.
- MDM shall have the ability to remotely disconnect/reconnect meters that have that function built-in.
- Vendor must describe all available electric functionalities/modules (i.e. outage management, virtual metering/meter grouping to analyze meter groups for Transformer Loading or Loss Analysis, Electrical loss analysis, and Blink Count analysis).

PRIVACY, SECURITY, DISASTER RECOVERY

- Software package shall be hosted by the Prospective Bidder on server hardware at a remote secure data center (SaaS), managed by the Prospective Bidder, and be available via the Owner's internet connected network for an unlimited number of users.
- All SaaS shall be accessed using an Internet browser.
- All SaaS shall be accessed using a secure socket layer (SSL) protocol with a trusted certificate from a certification authority (CA).
- SaaS data is secured in Tier IV SSAE 16 certified data centers.
- SaaS data is maintained in (or replicated to) more than one data center.
- SaaS data file backup is properly scheduled and stored in a secure location.
- SaaS data is the property of Town of Clayton and cannot be copied, shared, or sold by the Vendor.
- Vendor shall promptly notify the Town of any unauthorized access of Town data. SaaS database shall be fully retrievable by the Town of Clayton.

CUSTOMER PORTAL

- Customer Portal shall have the capability for customers to see actual billing and consumption detail with proper login credentials; must provide secure registration and login for customer accounts, regardless of meter type or data frequency.
- Portal shall have the capability for utility staff to register and create proper login credentials for customers and customers shall be able to create their own proper login credentials.
- Portal should provide a smart phone app with responsive design so that all utility customers can have access to their usage data on any mobile device, enter and edit information (i.e. contact information and notification preferences) on any mobile device, and set communication

- preferences (i.e. text messaging and email).
- Portal should provide the ability for utility staff to communicate with customers from within the portal through notifications and announcements.
 - Portal should provide water consumption displays in gallons per day, electric energy consumption in kWh, KVARh and KVAh consumption, and daily peak kW, KVAR and KVA demand and Power Factor (PF), and seasonal water use trends.
 - Vendor should provide details and examples of how data can be displayed.
 - Provide actual and aggregate water and electric consumption data.
 - Display consumption data against temperature and precipitation data to inform customers how weather impacts usage.
 - Ability to view consumption by rate and to predict total consumption levels per billing cycle.
 - Ability to display meters with communication issues (i.e. missed meter reads).
 - Ability to view irrigation usage in the consumption graph.
 - Ability for other users to gain access to account with the creation of a secondary login account (i.e. spouse, roommate, tenant).
 - Send relevant and timely utility-specific news, notifications or resources.
 - Portal should provide the ability to export consumption data into multiple formats (i.e. csv or PDF).
 - Portal should provide the ability for customers to securely view their bill and billing history and integrate with Utility's online payment system.
 - Vendor should provide information on security and privacy controls available to the utility and customer.
 - Vendor should provide sample customer and utility-facing portal pictures to show available functionality.
 - Vendor shall provide a utility-only version of the customer portal with dashboard and reporting functionality to view consumption, issues, analyze for troubleshooting,
 - Vendor shall configure and host a utility analytics dashboard with data from all meter classes and types within the utility: residential, multi-family, commercial, industrial, and irrigation accounts.
 - Ability to store and display at least 5 years of AMI data for immediate real-time access to utility and customers in portal.
 - Ability to export data in multiple standard data presentment format (i.e. csv, PDF)
 - Unlimited licenses for Utility staff members and the ability for a Utility administrator to control user permission and access.
 - Consumption analytics and interval read data across all meter types, regardless of meter type, the granularity of meter data, or frequency of meter data collection (allowing for concurrent analysis of manual, AMR, and AMI data)
 - Profiles for each account with the ability to search for a profile by account number, meter serial number, customer name, service address, or other common fields.
 - Portal should have the ability to highlight irregular usage and suspected issues (i.e. leaks, no flow, etc.).
 - Portal should have the ability to generate reports and maps showing top consumers by meter

class and by date range.

- Portal should have the ability to group multiple meters (e.g. irrigation) under one master account.
- Portal should have the ability to generate reports on customer portal use and customer profile statistics, including customer adoption and sign-up rate, frequency of portal use, most popular actions taken by customers, method of visit (mobile vs desktop).
- Portal should have the ability to detect leak events and automatically notify the customer of suspected leaks through alerts and notification. Vendor should provide list of leak alerts with definitions.
- Portal should provide the ability for leak reporting functionality to view leak start date, duration of leak, volume of water lost, any customer notifications and notes.
- Portal should have the ability for utility to configure and set consumption thresholds for accounts.
- Provide staff training on utility dashboard and customer-facing applications.
- Vendor must provide at least three (3) references of similar utility portal requirements and that has been implemented for one year or longer.

UTILITY DASHBOARD

- Vendor shall configure and host a utility analytics dashboard with data from all meter classes and types within the utility: residential, multi-family, commercial, industrial, and irrigation accounts.
- Ability to store and display at least 7 years of AMI data for immediate real-time access to utility and customers in portal.
- Ability to export data in multiple standard data presentment format (i.e. csv)
- Unlimited licenses for Utility staff members and the ability for a Utility administrator to control user permission and access.
- Consumption analytics and interval read data across all meter types, regardless of meter type, the granularity of meter data, or frequency of meter data collection (allowing for concurrent analysis of manual, AMR, and AMI data)
- Profiles for each account with the ability to search for a profile by account number, meter serial number, customer name, service address, or other common fields.
- Ability to send customer specific email with relevant data.
- Portal to highlight irregular usage and suspected issues i.e. leaks, no flow, etc.).
- Vendor to describe ability of portal to show utility users same screen and main features as customer sees for troubleshooting and to include seasonal use analysis, temperature and precipitation information, an interface to view a satellite image of property.
- Reports and maps showing top consumers by meter class and by date range. Ability to export into multiple file formats for further analysis.
- Ability to group multiple meters (e.g. irrigation) under one master account.
- Reports on customer portal use and customer profile statistics, including customer adoption and sign-up rate, frequency of portal use, most popular actions taken by customers, method of visit (mobile vs desktop).

- Portal to detect and define types of water leak events with thresholds that can be configured by the Utility.
- Provide water leak reporting functionality to view leak start date, duration of leak, volume of water lost, any customer notifications and notes.
- Ability to view customer account balance, bill, and billing history.
- Ability to send alerts through multiple communication channels (i.e. email or SMS).
- Ability for utility to configure and set consumption thresholds for accounts.
- Provide list of alerts with definitions.
- Provide staff training on utility dashboard and customer-facing applications.
- Vendor must provide at least five references of similar utility portal requirements and that has been implemented for one year or longer.

AMI SYSTEM TRAINING

- Vendor shall provide training to Town employees (operators and administrators). The price shall include all travel related expenses. Training shall include a minimum of twelve hours, occurring only Monday through Friday, of on-site instruction on the operation procedures for the AMI system. Complying with the minimum period specified above will not relieve the Prospective Bidder of providing enough service to place the AMI system in satisfactory operation.
- At a minimum, the training must cover the use of the fixed network devices (if applicable), error coding, uploading and downloading data from the reading devices from the AMI system software, and AMI system software interfacing with the existing billing system.
- Vendor's training program shall be described, highlighting how it addresses each of the following components:
 - AMI system operation, including obtaining readings, transferring data between the MDMS and compatible CIS, creating reports, diagnosing issues, definitions and recommendations for resolving alerts/alarms, customer account processes, meter change-out, etc.
 - Meter reading database management
 - Field diagnostics and maintenance
- Vendor shall train all appropriate Utility staff to enable staff to effectively operate and maintain the system, and proficiency will be determined according to the Customer Acceptance Plan to be defined prior to contract signing.
- Training must be accompanied by workbooks and training materials, with additional supporting materials composed and provided as requested by Utility staff.
- Successful bidder shall supply the Utility with two copies (hard and electronic) of the operation and service manual at the time of project acceptance.
- The training schedule shall be coordinated with the Town. The training on operation of the AMI system shall not occur until after the software has been installed and the billing interface file has been written, tested, and is working successfully to transfer meter reading data to the billing system.
- Vendor will include follow up training after system has been operational for 6 months.

TECHNICAL SUPPORT REQUIREMENTS AND WARRANTY FOR THE AMI SYSTEM

- Prospective Bidders shall provide manufacturer's terms and conditions of all warranties offered. As a minimum, the AMI system must be warranted for a minimum period of one (1) year from the date of substantial completion.
- Vendor shall provide detailed information and pricing for annual maintenance and support.
- The annual hardware maintenance agreement shall include equipment, materials, and labor to maintain and update all collectors
- Vendor will provide vendorware updates for the life of water meters.
- Annual software maintenance agreement shall include SaaS module licenses, access, updates, hosting, backup, data security, encryption and telephone support.
- The first year (Year 1) hardware and software maintenance listed above shall start at the date the system is accepted as fully operational.
- Vendor will provide ongoing maintenance costs for year 2 and each year thereafter for a period of 5 years.
- A toll-free telephone Help Desk shall be available between the hours of 8:00 AM and 6:00 PM, Eastern Standard Time, with after-hours telephone numbers available as needed. The Help Desk services shall include: fixed network device problems/questions; software operations problems/questions; equipment returns and repairs; loaner equipment processing; evaluation of information for updates or revisions; evaluation of personnel training needs.

PROJECT MANAGEMENT AND SCHEDULE

- Selected Bidder shall provide project management for their Scope of Work as detailed herein. The Project Manager shall be required to coordinate activities with the Owner and Owner's representative.
- Vendor shall provide their proposed statement of work and project management responsibility documentation, which includes system installation, configuration, and testing.
- Vendor shall submit a project schedule that includes: securing an FCC license (if required), network delivery, installation, configuration (including transfer file with billing system), meter and AMI endpoint delivery, system testing, and training.
- Vendor shall work cooperatively with the Town's project managers and project team members and maintain responsiveness to action items and issues resolution tasks assigned through the project management team as part of the implementation plan.

OPTIONAL SERVICES

- Provide pricing and detailed information for integration or ability of the proposed system to accommodate acoustic leak detection sensors that communicate directly to the proposed AMI and MDM system.
- Provide detail on how the proposed system is compatible with fixed and movable distribution system noise loggers for leak detection.
- Detail any pricing and detailed information for a Customer Portal SaaS module that is fully integrated with proposed AMI/MDM system.

- Provide detail on how the robust reporting within MDM system of the proposed solution and what capabilities the Utility will have to modify existing reports or create new reports as desired, and any additional customization costs.
- Please detail how the proposed solution is compatible with other municipal software (i.e. CityWorks WOM), and detail the functionality unique to these integrations, if any, and any additional integration costs.
- Please detail how the proposed solution can provide a method to demarcate and analyze district metered areas (DMAs).
- Please detail how the proposed system and all handheld and data collectors can accommodate for providing “backward compatibility” and be capable of reading all current system endpoints, including past generations from multiple vendors.
- Please detail how the proposed system offers the functionality of prepaid metering. Vendor shall provide details and specifications on the pre-pay solution.

GUARANTEE

The bidder unconditionally guarantees the materials and workmanship on all material and/or services. If, within the guarantee period, any defects occur due to faulty material and/or services, the bidder, at their expense, shall promptly repair or adjust the condition, or replace the material and/or services to the complete satisfaction of the Town. These repairs, replacements, or adjustments shall be made only when will be designated by the Town to ensure the least impact to the operation of Town business.

INDEMNIFICATION OF THE TOWN

All participants shall indemnify and save harmless the Town from all suits, actions, and damages or costs of every name and description to which the Town may be subjected or put to by reason of injury to persons or property resulting from negligence or carelessness on the part of the bidder, his employees or agents, in the delivery of materials and supplies, equipment and apparatus, and installation thereof, or by or on account of any act or omission of the bidder and/or participant, their employees or agents; and the whole, or so much of the monies due or to become due the bidder under the Contract as may be considered necessary by the Town of Clayton, shall be retained by the Town until such suits or claims for damages shall have been settled or otherwise disposed of, and satisfactory evidence to that effect furnished to the Town. Other protections to the Town by the bidder are set forth in other areas of this document.

PUBLIC CONVENIENCE AND SAFETY

All participants involved in this Contract shall, always, conduct the work in such a manner as to insure the least obstruction practicable. The convenience and safety of the public and of the residents along and adjacent to the work sites shall be provided for in an adequate and satisfactory manner. No material or obstruction shall be placed within fifteen (15) feet of any fire hydrant. Footways and portions of highways adjoining the work sites shall not be obstructed more than is necessary.

DRUG FREE WORKPLACE

All participants involved in this Contract shall provide and maintain a drug free workplace, including certification, in accordance with the Federal Drug Free Workplace Act of 1988 (40 CFR Part 32).

SAFETY AND HEALTH REGULATIONS

All participants involved in this Contract shall comply with all applicable safety and health regulations, standards and codes including but not limited to: Occupational Safety Health Administration (OSHA) requirements in the General industry (1910) and Construction (1926) Standards, NC OSHA Guidelines and Regulations, Manual for Uniform Traffic Control Devices (MUTCD), NFPS's Life Safety Code 101, and North Carolina Building codes and other state and local regulations as they apply.

The Town of Clayton, its officers and employees do not propose to administer, implement, or be responsible for any safety and health program. The Town will not provide any legal, insurance, or safety advice and/or counsel to any participant, supplier, or their employees.

The Town shall have access to any worksite, permits, or safety-related documentation upon request. All serious incidents resulting in the injury and/or hospitalization of any persons must be reported to the Town immediately and in writing within eight hours.

Other occurrences with serious accident potential, such as equipment failures and/or damage to any properties, must also be reported to the Town immediately. Investigations, inspections, citations, or work stoppages must be reported immediately.

The Town reserves the right to suspend work and/or terminate the contract if safety procedures are not followed, or if there is a refusal to comply. A contractor selected by the Town will complete unfinished work. The cost of completion and any claims arising from the uncompleted work will be borne by the initial contractor.

Participants involved with this Contract will be responsible for:

1. Erecting and maintaining all necessary safeguards to protect persons and property including, but not limited to barricades, signs, and safety apparatus.
2. Obtaining all necessary permits prior to the beginning of work.
3. Responding to complaints and claims, within a reasonable period not to exceed two working days.
4. Training of employees and subcontractors' employees as required by the OSHA standards and providing the personal protective equipment needed to perform their tasks safely.
5. Writing a safety program covering the work performed and providing a copy of the program to employees. Confined space testing must be performed, and permit must be prepared and presented prior to entry in compliance with OSHA Standard Number 1910.146.
6. Providing the name of an on-site employee who is responsible for safety and an evening phone number so that they may be contacted.
7. Exceeding the minimum safety regulations to protect citizens, Town employees, contractor, and subcontractor employees and/or property from harm related to the work process as necessary or required by the Town.

8. Warning those who may be injured by the contractor or the subcontractors' actions and taking necessary precautions to protect those individuals from injury.
9. All participants shall be responsible to restore any altered property to its original condition. Property so altered shall be approved by the Town Manager or his authorized representative.
10. If any damage occurs to any property, the responsible participant shall be responsible to repair it to its original condition at its sole expense and shall indemnify and save harmless the Town of Clayton from any damage caused herein.
11. Providing a "competent person" on the job at all times when work is being performed.
12. Disposing of all waste generated by the participant such as paints, coolants, oils, and all debris in accordance with Local, State, and Federal regulations at the contractor's expense.

INSURANCE REQUIREMENTS

The successful bidder and/or any participants that are not covered under the successful bidder's insurance policy shall meet the following insurance requirement. Participant, at his own expense, shall always keep in force and maintain during the term of any contract resulting from this request, the insurance requirements as outlined herein and, if amended, in the scope of work language of the contract.

These guidelines are not all inclusive and scopes and limits could change due to the nature of the service provided. However, minimum standards are illustrated below. The winning bidder and any independent participants shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work by the contractor, his agents, representatives, employees or subcontractors, if applicable.

The winning bidder and any subcontractor not covered under the winning bidder's insurance policy shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work by the contractor, his agents, representatives, employees or subcontractors, if applicable. Any participant in this contract that is not covered by the winning bidder's insurance policy or a subcontractor's insurance policy shall provide coverage to the Town as required of the winning bidder.

The Town of Clayton must be advised immediately of any changes in required coverages.

The Contractor shall not commence work until he has obtained all insurance required, and such insurance has been approved by the Town, nor shall the Contractor allow any subcontractor to commence work on his subcontract until all similar insurance required of the subcontractor has been obtained.

- A. The Contractor shall provide and maintain or insure during the life of this contract Worker's Compensation Insurance for all employees employed at the site of the project under his contract or subcontracts in an amount meeting the statutory requirements of the State of North Carolina.
- B. The Contractor shall provide and maintain during the life of this contract Automobile Bodily Injury and Property Damage Liability covering all owned, non-owned and hired automobiles for

limits of not less than \$2,000,000 bodily injury each person, each accident and \$2,000,000 property damage, or \$2,000,000 combined single limit - Bodily injury and property damage combined.

- C. The Contractor shall provide and maintain during the life of this contract Comprehensive General Liability. Bodily Injury and Property Damage Liability shall protect the contractor and any subcontractor performing work under this contract from claims of bodily injury or property damage which arise from operations of this contract whether such operations are performed by the contractor, any subcontractor or anyone directly or indirectly employed by either. The amounts of such insurance shall not be less than \$2,000,000 bodily injury each occurrence/aggregate and \$2,000,000 property damage each occurrence/aggregate or \$2,000,000 bodily injury and property damage combined single limits each occurrence/aggregate and umbrella coverage of \$5,000,000. This insurance shall include coverage for products/completed operations, personal injury liability and contractual liability assumed under the indemnity provision of this contract and broad form property damage, explosion, collapse and underground utility damage; stating if policy is written on a claim made or occurrence basis.
- D. The Contractor shall furnish such additional insurance as may be required by statutory requirements of the State of North Carolina.
- E. Each Certificate of Insurance shall bear the provision that the policy cannot be canceled, reduced in the amount of coverage or coverage eliminated in less than thirty (30) days after mailing written notice to the insured and the Owner of such alteration or cancellation, sent by registered mail.
- F. The Contractor shall furnish the Town with satisfactory proof of coverage of the insurance required before written approval is granted by the Town.
- G. Faxed copy of Certificate of Insurance and Endorsement will be accepted only in emergency situations, but an original copy of both must be received within five (5) working days from the insurer.
- H. Additional Insured shall be listed as the Town of Clayton. Do not list an individual's name in that portion of the certificate. An original copy of the additional insured Endorsement must be included with the Certificate of Insurance.

INDEPENDENT CONTRACTOR

All participants are independent contractors and shall not be deemed an agent or employee of the Town of Clayton for any purpose whatsoever.

Submittals shall follow the guidelines of the original RFP. All bidders shall include, but is not limited to, addresses of all Vendors or persons that would participate in the proposed services. The type of organization of the bidder, whether individual, partnership, corporation, or joint venture among any types of entities shall be stated. Any affiliations, parent-subsidiary relationships, and corporate identities. The Town prefers a single, qualified company or entity to be responsible for providing the services described herein.

ASSIGNMENT

The successful bidder shall not assign in whole or in part any contract resulting from this Request for Proposal without the prior written consent of the Town of Clayton. The successful bidder shall not assign any money due or to become due to him under said contract without the prior written consent of the Town of Clayton.

CONTRACTOR USE OF SITE AND PREMISES

Successful bidder and all participants shall cooperate with and accommodate related work performed by the Town, or any work performed under separate contract by another contractor or subcontractor, on site during the contract period. It shall be the successful bidder and participant's responsibility to coordinate its work on site. Any additions, deletions, modifications, or changes made to the original Contract shall be processed by mutual agreement with the following Town of Clayton Department's (Finance, Public Works and Purchasing).

COMPENSATION AND PAYMENT TERMS

Winning bidder shall be compensated as outlined in the Town's payment terms of net 30 days after the Accounts Payables Department has received approved invoices. All such invoices will be paid within these terms unless any items thereon are questioned, in which event payment will be withheld pending verification of the amount claimed, validity of the claim and verification that work performed meets the Town's requirements. Contractor shall provide complete cooperation during any such investigation.

PRICE PROPOSAL- Supply and Delivery of Water Meters and Advanced Meter Infrastructure System (Attached Spreadsheet)

Quantities are assumed for comparison of bid and are not guarantees.

Proposers may submit on multiple meter types by submitting additional Technical and Price Proposals that include the separate meter options. Each Technical proposal will be evaluated independently. All proposers must specify which commercial/industrial meter type(s) are being proposed on each page of the price proposal. An alternative bid for solid state metering, leak detection, and Customer Portal can be presented by the Vendor as desired. The Town requests that all equipment priced and proposed are currently available; for that equipment that is still under development or not yet available for purchase, the anticipated release date should be provided.

REFERENCE STATEMENT

The Prospective Bidder offers the following information as evidence of held qualifications to perform the work as bid upon according to all requirements of the contract documents:

- A. How long you have been in business under the same business name and owner/management structure: _____ years.
- B. Have you ever been **terminated** on an awarded contract, or has the Prospective Bidder **otherwise failed to complete** any work awarded? _____. If "yes", attach your description of the circumstances on a separate sheet. Include names and telephone numbers of customer(s): The Town will expand the list of references to include these specific customers, if any.
- C. Have you, within the previous five (5) years, performed work for the Town of Clayton like that required by this contract? _____ (yes or no)

List on this form three (3) recent contracts under which you provided combined water and electric meters and AMI systems of the type required by this contract and of the type proposed by the Proposer. Three (3) references must be listed for the AMI System being proposed.

Utility Name	Services Under Contract	Years of Project	Services Installed	Contact Person Name / Title / Phone / Email

PROPAGATION

Each proposer shall provide analysis of network RF propagation and assume responsibility for delivering network design based on the quantity of DCUs, repeaters, and other network equipment to achieve 100% of Town water and electric customers.

Town owned elevated assets are listed in Attachment B of this document. The Town is under contract with Utility Services Group for its tank maintenance program and will establish attachment criteria in consultation with the Town for any use of Town-owned water storage assets for AMI infrastructure.

SIGNATURE SHEET

The signature below certifies that the proposal as submitted complies with all Terms and Conditions as set forth in this RFP.

The signature below also certifies that this firm has no business or personal relationships with any other companies or persons that could be considered as a conflict of interest or potential conflict of interest to the Town of Clayton, North Carolina, and that there are no principals, officers, agents, employees, or representatives of this firm that have any business or personal relationships with any other companies or persons that could be considered as a conflict of interest or a potential conflict of interest to the Town of Clayton, North Carolina, pertaining to any and all work or services to be performed as a result of this request and any resulting contract with the Town of Clayton, North Carolina. Specifically, no Town employee, Town employee’s partner, or any member of the Town employee’s immediate family holds a position with the offeror such as an officer, director, trustee, partner or the like, or is employed in a capacity involving personal and substantial participation in the procurement transaction or owns or controls an interest of more than five percent.

(To receive consideration for award, this signature sheet must be returned to the Town of Clayton, North Carolina as it shall be a part of your response.)

Complete Legal Name of Firm: _____

Address: _____

Federal Tax ID Number: _____

Signature of Authorized Representative: _____

Typed Name and Title: _____

Please provide the primary contact person for questions and concerns relative to this project:

Contact Name and Title: _____

Phone : (____) _____ Fax : (____) _____ Email : _____

ATTACHMENT A: Town of Clayton Electric and Water Meter Quantities**Town of Clayton Electric Meter Information Summary Table**

Meter Form	Form	Rating	Service Type	Account Type	Quantity
120/480v 3W FM12S	FM12s	200A	Self-Contained	Commercial	43
120/480v 4W FM14S	FM14s	200A	Self-Contained	Commercial	3
240V 4W FM15S	FM15s	200A	Self-Contained	Commercial	10
120/480V 4W FM16S	FM16s	200A	Self-Contained	Commercial	132
120V 2W FM1S	FM1s	100A	Self-Contained	Commercial	2
120/480V 3W FM2S	FM2s	200A	Self-Contained	Commercial	364
120/240v 3W FM2S	FM2s	320A	Self-Contained	Commercial	50
120/480V 4W FM36S	FM36s	20A	Transformer Rated	Commercial	2
240v 2W FM3S	FM3s	20A	Transformer Rated	Commercial	5
120/480 3W FM4S	FM4s	20A	Transformer Rated	Commercial	21
120/480V 4W FM6S	FM6s	20A	Transformer Rated	Commercial	6
240V 4W FM8S	FM8s	20A	Transformer Rated	Commercial	4
120/480v 4W FM9S	FM9s	20A	Transformer Rated	Commercial	88
				Commercial Total	730
120/240 3W FM2S	FM2s	200A	Self-Contained	Residential	5976
120/240 3W FM3S	FM3s	20A	Transformer Rated	Residential	9
				Residential Total	5985
				TOTAL	6715

Town of Clayton Water Meter Information Summary Table

Meter Size	Quantity
5/8 x 3/4"	9,493
1"	131
1 1/2"	34
2"	150
3"	5
4"	4
6"	2
10"	2
TOTAL	9821

ATTACHMENT B: Pricing Table (Separate Excel File)

ATTACHMENT C: Town of Clayton Elevated Assets Location

1. Fire Station 2

Address: 800 Highway 42 East, Clayton, NC

GPS Location: 35.641214-78.431595

2. Wilson Street Tank

Address: 18 East Wilson Street, Clayton, NC

GPS Location: 35.65711-78.453991

3. Shotwell Tank

Address: 1141 Shotwell Rd, Clayton, NC

GPS Location: 35.667668-78.476999

ATTACHMENT D: Town of Clayton Owned Properties

The following table contains the additional Town-owned locations that may be considered for network design planning.

Latitude	Longitude	Notes
35.65210066860	-78.45769027940	
35.65189396810	-78.45794298290	
35.64682910890	-78.46630068970	Electric Substation #1
35.65258044060	-78.46173346280	
35.65387842490	-78.46436012840	Fire Station #1
35.64689021660	-78.46872779970	Pole Yard
35.65036172310	-78.45792311070	Police Department
35.64854144990	-78.47200773350	Stream Buffer
35.65984412680	-78.46551409590	Municipal Park
35.65032981480	-78.45402091260	All-Star Park
35.66011015000	-78.46419272460	Municipal Park
35.63681729800	-78.47421721210	
35.65047357890	-78.47278459730	Stream Buffer
35.64906723000	-78.48448411990	Clayton Community Center
35.63387220050	-78.48447686560	Walnut Creek Pump Station
35.62825484030	-78.46030276270	Stream Buffer
35.65427636290	-78.45060282420	
35.66370679170	-78.42976169240	Stream Buffer
35.63755529630	-78.46021861540	Stream Buffer
35.63122840560	-78.46158917360	Stream Buffer
35.63404526500	-78.46135941710	Stream Buffer
35.62423293580	-78.46026584540	Stream Buffer
35.66227777080	-78.45482595120	Legend Park
35.64025823850	-78.45688785680	
35.62679079830	-78.45889030270	Cobblestone Pump Station
35.68840118110	-78.43809249280	River Buffer
35.67374373050	-78.43135198060	Greenway Parking Lot
35.65104100050	-78.45657895270	Horne Square
35.65084684100	-78.45868983650	Old Town Hall / PD / Fire Station
35.63992111150	-78.46131951190	WWTP
35.64996681170	-78.45834690240	Police Department
35.65229526890	-78.45915184560	Library
35.65203213210	-78.46052139070	Town Hall and Clayton Center

35.65096366100	-78.45417750080	All-Star Park
35.65041364410	-78.45837860410	Police Department
35.65547097280	-78.47013000870	
35.64998109730	-78.45915243880	Parking Lot
35.65681132900	-78.45389035320	Elevated Water Tank
35.65209090000	-78.45940982130	Library
35.65075919910	-78.45443536450	All-Star Park
35.65139623340	-78.45006824700	
35.66463683210	-78.45962058340	Legend Park
35.63295146980	-78.46220001610	Stream Buffer
35.64762075590	-78.46994193150	Stream Buffer
35.61765566910	-78.41219219950	
35.63925589120	-78.47482650170	Public Works Operation Center
35.64665787610	-78.48779923930	Clayton Community Park
35.66776164900	-78.47721016490	Elevated Water Tank
35.64455339470	-78.47718086840	
35.63071768850	-78.49185369770	Future YMCA Property?
35.62952691630	-78.46008681570	
35.63856458930	-78.46231920970	WWTP
35.63170457850	-78.46063309990	
35.66205725340	-78.44155297990	Greenway Parking Lot
35.63649690810	-78.46231111660	Brittany Wood Pump Station
35.63098099490	-78.46044749910	
35.64145060620	-78.43179758380	Elevated Water Tank
35.63334322470	-78.44351059870	Peele Pump Station
35.63253178450	-78.46146650680	
35.63206792870	-78.46035460340	
35.64144641220	-78.46249472550	WWTP
35.64144354720	-78.43111743320	Fire Station # 2
35.63996905100	-78.41760135370	East Clayton Community Park
35.62512951870	-78.44488771930	Future Park
35.67681755860	-78.42864371500	
35.65320674610	-78.46055090470	Town Square
35.66465642380	-78.45696425320	Legend Park

ATTACHMENT E: Town of Clayton Water Distribution System Map

