KENT COUNTY WATER AUTHORITY

REQUEST FOR PROPOSALS:

MATERIAL PURCHASE AND SOFTWARE INTEGRATION SERVICES

FOR

WATER METERS AND AUTOMATIC METER READING (AMR) SYSTEM

NOVEMBER 2018

KENT COUNTY WATER AUTHORITY

MATERIAL PURCHASE AND SOFTWARE INTEGRATION SERVICES

FOR

WATER METERS AND AUTOMATIC METER READING SYSTEM

TABLE OF CONTENTS

KENT COUNTY WATER AUTHORITY

MATERIAL PURCHASE AND INTEGRATION SERVICES FOR
WATER METERS AND AUTOMATIC METER READING SYSTEM

REQUEST FOR PROPOSALS

The Kent County Water Authority (KCWA) is seeking proposals for the purchase of water meters, registers, endpoint/transmitters/modules, and a mobile Automatic Meter Reading (AMR) system with hardware and applicable software to upgrade its water meter reading system. Integration Services under this proposal means the installation and integration of all new software and data to the Authority's existing customer information system (CIS) and utility billing system. The mobile AMR system shall be capable of migrating from a mobile to a fixed network Advanced Metering Infrastructure (AMI) system.

Copies of the proposal documents may be obtained in-person at KCWA Administrative Office, 1072 Main Street, West Warwick, RI 02893 on or after **Nov 8, 2018**. Documents may also be retrieved through KCWA website at www.kentcountywater.org. Proposers obtaining a hard copy from the KCWA office will be furnished one set of the Proposal Documents. Additional hard copied sets may be purchased for a fee of $20.00. Proposers requesting Proposal Documents by mail shall forward a non-refundable check (payable to the "Kent County Water Authority") in the amount of $20.00 per set to cover the costs of handling and mailing. Mailing will be First Class U.S. Postal Rate only. KCWA shall not be responsible for delays caused by the mailing process.

Proposers must have originally responded to the REQUEST FOR INFORMATION solicitation ending August 31, 2017 and participated in the interview process to be considered prequalified to respond to this REQUEST FOR PROPOSAL. Written questions relative to this Water Meters and Automatic Meter Reading System RFP shall be sent to David L Simmons, P.E., Water Project Engineer, KCWA Administrative Office, 1072 Main Street, West Warwick, RI 02893. Inquiries presented in writing must be received 7 days prior to **Pre-Proposal Conference** at **10:00 am, prevailing time, on Nov 19, 2018** at the KCWA Administrative Office. Attendance at the Pre-Proposal conference is not mandatory requirement to submit a proposal.

Technical proposals must present evidence of the Proposers technical qualifications and experience to fulfill KCWA's material and software integration service requirements as described in the Specifications. The Questionnaire for Proposers must be fully completed and included as part of the Proposal submitted for opening. The Price Proposal Forms included with the proposal documents are mandatory and must be used so proposals can be impartially evaluated. The General Instructions for Proposers and Specifications detail the proposal submittal requirements.

All material submitted by Proposers becomes the irrevocable and sole property of KCWA unless otherwise specified in this RFP. The Authority shall be under no obligation to return any proposal or material submitted by a Proposer in response to this RFP unless specified in the requirements. KCWA reserves the right to wave any informality and reject any and all Proposals, or parts thereof, if deemed to be not in the best interest of KCWA.

Proposal submissions (as required in the Proposal documents) must be received no later than **10:00 am, prevailing time, on Nov. 29, 2018** at KCWA Administrative Office, 1072 Main Street, West Warwick, RI 02893. No proposer may withdraw their proposal for a period of 90 days excluding Saturdays, Sundays, and legal holidays, after the actual date of the opening.

The offices of KCWA are handicapped accessible. Individuals requesting interpreter services for the hearing impaired must contact the offices of KCWA 72 hours before the meeting at 821-9300 (Telecommunications device for the hearing impaired available).

Kent County Water Authority

KENT COUNTY WATER AUTHORITY

MATERIAL PURCHASE AND SOFTWARE INTEGRATION SERVICES FOR WATER METERS AND AUTOMATIC METER READING SYSTEM

GENERAL INSTRUCTIONS TO PROPOSERS

ARTICLE 1. QUALIFICATIONS OF PROPOSER

1.1 Attention of all Proposers is directed to the fact that all applicable Federal, State and Municipal laws, ordinances, rules and regulations, codes of all authorities having jurisdiction over work in the locality of the project shall apply to the contract throughout and they are deemed to be included herein the same as though herein written out in full. This includes legal issues related to contract disputes which shall be adjudicated within the State of Rhode Island.

1.2 Proposers may be investigated by Kent County Water Authority (KCWA) to determine if they are qualified to perform the Work. All Proposers shall be prepared to submit to Kent County Water Authority upon request, written evidence of such information and data necessary to make this determination.

1.3 The investigation of a Proposer will seek to determine whether the organization is adequate in size, is authorized to do business in the jurisdiction where the project is located, has had previous experience and whether available equipment conforms to the specification requirements, and financial resources are adequate to assure KCWA that the products and service will be delivered in accordance with the terms of the purchase orders and the material purchase documents.

1.4 In evaluating proposals, KCWA will consider the qualifications of only those Proposers who's Proposals are in compliance with the prescribed requirements, Kent County Water Authority Procurement Procedures and the advertisement for Proposals. Proposers must have responded to the REQUEST FOR INFORMATION by August 31, 2017 to submit a proposal. Propagation studies that were submitted must display both the location of the Data Collection Units (DCUs) and/or repeaters and the total number of each summarized in the legend of the map. If this information was not displayed please update the map to include this information.

1.5 KCWA reserves the right to reject any Proposal, or parts thereof, if the evidence submitted by, or the investigation of, such Proposer fails to satisfy KCWA that such Proposer is properly qualified to carry out the obligations of the Material Purchase and Integration Services for Water Meters and Automatic Meter Reading System Documents, and to complete the Work contemplated therein to the satisfaction of the KCWA.

1.6 No Proposer may be considered if they are indebted to KCWA for any unresolved issues regarding unpaid invoices issued by KCWA or any services and materials owed to the KCWA.

1.7 A performance bond in an amount at least equal to the awarded Contract Price will be required of the selected Proposer.

1.8 Proposers must complete the Reference Statement Form provided within and include it as part of the submission documents.

ARTICLE 2. MATERIAL PURCHASE AND INTEGRATION SERVICES FOR WATER METERS AND AUTOMATIC METER READING SYSTEM DOCUMENTS

2.1 Complete sets of the Material Purchase and Integration Services for Water Meters and Automatic Meter Reading System Documents shall be used in preparing Proposals; KCWA assumes no responsibility for errors, omissions, or misinterpretations resulting from the use of incomplete sets of the Documents.

2.2 KCWA, in making copies of the Material Purchase and Integration Services for Water Meters and Automatic Meter Reading System Documents available, do so only for the purpose of obtaining Proposals on the Documents and do not confer a license or grant for any other use.

ARTICLE 3. EXAMINATION OF MATERIAL DOCUMENTS

3.1 Before submitting a Proposal, each Proposer must examine the Material Purchase and Integration Services for Water Meters and Automatic Meter Reading System Documents thoroughly, and familiarize themselves with Federal, State and local laws, and all material specifications of KCWA.

3.2 The submission of a Proposal will constitute incontrovertible representation by the Proposer that they have complied with every requirement of this Article 3 and that the Material Purchase and Integration Services for Water Meters and Automatic Meter Reading System Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Work.

ARTICLE 4. INTERPRETATIONS

4.1 All questions about the meaning or intent of the Material Purchase and Integration Services for Water Meters and Automatic Meter Reading System Documents shall be received in writing by KCWA 7 days prior to the Pre-Proposal conference.

4.2 Written clarifications or interpretations will be issued by Addenda not later than one week before the Proposal opening date. Only questions formally submitted and answered in writing will be binding. Oral and other clarifications or interpretations will be without legal effect. Addenda will be mailed via certified mail and emailed if address is provided, to all parties recorded as having received the Material Purchase and Integration Services Documents.

4.3 Each Proposer shall be responsible for determining that they have received all Addenda issued.

ARTICLE 5. PROPOSAL SUBMISSION AND EVALUATION

5.1 All proposal submissions shall be bound together. Include one (1) original that is completed in ink or typewritten and one (1) copy and place in a single sealed envelope. Each bound proposal submission must be clearly marked "original" and "copy" on the cover of the bound documents. Please also provide the submission as a PDF on a CD or thumb drive.

EACH PROPOSAL PACKAGE MUST CONTAIN:

A. **Technical Proposal.**

- Letter of Transmittal – Addendums must be acknowledged on the first page of the Letter of Transmittal, i.e., ("We acknowledge the following Addendum , ,")
- Table of Contents.
- Response to Questionnaire for Proposers and Supporting Information
- References submitted on the Authority's "Reference Statement" form provided.

B. **Price Proposal Forms.**

- Price Proposal Forms – with Tax Compliance, Certificate of Non- Collusion, and Certificate As To Corporate Proposer must be included, and Addendums acknowledged.

ARTICLE 6. PRE-PROPOSAL CONFERENCE

6.1 A pre-proposal conference will be held as described in the advertisement to proposal to discuss project related concerns of these Material Purchase and Integration Services for Water Meters and Automatic Meter Reading System Documents to KCWA.

6.2 It is strongly recommended Proposers attend but the pre-proposal conference is not mandatory for Proposers to submit a proposal for consideration.

ARTICLE 7. PRICE PROPOSAL FORM

7.1 The Authority plans to complete the meter replacement and endpoint module installation along over a two-year period utilizing a designated installation representative. The installation and integration of all new software and data to the Authority's existing customer information system (CIS) and utility billing system is an integral part of this proposal work.

The Price Proposal Forms include the following:

a) Price Proposal Form
   - PD Nutating Disk Meters less than or equal to 2-inch in size, absolute encoded registers, radio frequency (RF) endpoint modules.
   - Automatic Meter Reading(AMR) Computers, Handhelds, Software Options, and Integration Services.

b) Alternative Price Proposal Form
   - Velocity Multi-Jet, Ultrasonic, or Mag Meters less than or equal to 2-inch in size, absolute encoded or electronic registers, and radio frequency (RF) endpoint modules.
   - Automatic Meter Reading(AMR) Computers, Handhelds, Software Options, and Integration Services.

c) Advanced Metering Infrastructure (AMI) Proposal
   - Data Collection Units and maintenance agreements.
   - Cellular or Low Power Wide Area Network (LPWAN) endpoint modules and subscription cost.
   - Advanced Meter Infrastructure (AMI) Computers, Handhelds, Software Options, and Integration Services.

The scope of services requested herein includes furnishing water meters, registers, an AMR system, and modules but excludes the installation of modules and meters. The Proposer shall fill out the Price Proposal Forms in their entirety. All blank spaces for requested prices must be filled in, in ink or typewritten, a line should be struck through the applicable sheets, or marked "NA" where applicable. The Price Proposals will be independently evaluated for conformance with the contract document requirements relative to providing materials, software, and integration services desired by KCWA and price alone will not be the sole determining factor.

7.2 Price Proposal Forms shall be completed in ink, typewriter, or indelibly printed. The Proposal price of each item on the form shall be stated in words, and figures. If unit prices

are required on the Proposal Form, discrepancies between unit prices and their respective total amounts will be resolved in favor of the unit prices.

7.2.1 Discrepancies between words and figures will be resolved in favor of words. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

7.3 Proposals by corporations shall be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

7.4 Proposals by partnerships shall be executed in the partnership name and signed by a partner, whose title shall appear under the signature. The official address of the partnership shall be shown below the signature.

7.5 All names shall be typed or printed below the signature.

7.6 The Proposal shall contain an acknowledgment of receipt of all Addenda (the numbers of which shall be filled in on the Proposal Form).

7.7 Contact information including phone number, mailing address, and email to which reply communications regarding the Proposal are to be directed shall be shown.

7.8 The quantities listed on the Proposal form are estimated for Proposal evaluation purposes only.

ARTICLE 8. RECEIPT OF PROPOSALS

8.1 Sealed Proposals for Material Purchase and Integration Services for Water Meters and Automatic Meter Reading System will be received at the time and place indicated in the Proposal Invitation.

8.2 KCWA may consider informal any Proposal not prepared and submitted in accordance with the provisions hereof.

8.3 Proposers are cautioned that it is the responsibility of each individual Proposer to assure that their Proposal is in the possession of the responsible official or his designated alternate prior to the stated time and at the place of the Proposal Opening. KCWA shall not be responsible for Proposals delayed by mail and/or delivery services, of any nature.

ARTICLE 9. MODIFICATION AND WITHDRAWAL OF PROPOSALS

9.1 Proposals may not be modified once received for opening.

9.2 Proposals may be withdrawn prior to the scheduled opening. Proposers may request in writing to withdraw a proposal any time prior to the date and time of the opening indicated on the proposal invitation.

9.3 Any Proposal submitted after the time and date specified shall not be considered. No Proposer may withdraw their Proposal for a period of 90 days, excluding Saturdays, Sundays, and legal holidays, after the actual date of the opening of the Proposals.

9.4 Erasures or other changes in the proposal must be explained or noted over the signature of the Proposer.

ARTICLE 10. AWARD OF CONTRACT

10.1 The Proposals will be evaluated on the capital cost and the technical aspects of the metrology, telemetry, and technical integration capabilities of the proposer to provide a fully functioning AMR/AMI system to KCWA.

10.2 Following the evaluation, the contract will be awarded to the, "Successful Proposer," that provides the best overall metering hardware, software, and integration of services as determined by the KCWA. Purchase Order(s) will be awarded to the Successful Proposer. The Successful Proposer shall possess the skill, proper material, ability, and integrity necessary for the faithful performance of the work. The Successful Proposer shall have the technical capacity to meet the requirements of the material specifications as well as provide time of delivery that's in the best interest of KCWA. In accordance with the written Procurement Procedures, KCWA reserves the right to award whole or in part as indicated in each of the subpart totals of the Proposal forms. All items that are found nonconforming to the specifications will be rejected in whole or part as determined by KCWA.

10.3 In the event the Successful Proposer cannot fully and timely perform their contractual obligation, the KCWA reserves the right to award the Proposal to any of the other qualified Proposers.

10.4 KCWA reserves the right to reject any and all Proposals, or parts thereof, to waive any and all informalities if it is in the best interest to do so, and the right to disregard all nonconforming, non-responsive, stipulated and/or conditional Proposals or portions thereof.

10.5 A Proposal which includes for any item a Proposal Price that is abnormally low or high or does not contain materials or services meeting the specification requirements may be rejected as unbalanced or nonconforming.

10.6 KCWA shall not be billed at prices higher than stated in the Price Proposal. The Proposer represents that the price charged for the items or services covered complies with applicable government regulations in effect at time of quotation, sale or delivery. Proposer agrees that any price reduction made in merchandise subsequent to the any placement of order(s) will be applicable.

10.7 KCWA reserves the right to reject the Proposal of any Proposer that KCWA considers to be unqualified relative to the provisions of KCWA Procurement Procedures and Article 1 above.

10.8 Upon approval from the KCWA Board of directors, KCWA will give the Successful Proposer the original Purchase Order within 90 days, excluding Saturdays, Sundays, and legal holidays, after the actual date of the opening of the Proposals. Each Purchase Order will identify the quantity of the materials for each purchase. Multiple purchase orders may be used depending on the product needs and delivery dates. KCWA reserves the right to purchase additional materials over and above the estimated listed quantities and or less than the listed quantities on the Proposal forms at the fixed prices indicated. All Proposals shall remain open for 90 days, excluding Saturdays, Sundays, and legal holidays, after the actual date of the opening of the Proposals. Proposal pricing shall remain in effect for a period of two years from the date of award.

10.9 The Successful Proposal contract may, upon mutual agreement of both parties, be extended for not more than two additional years without any change in Proposal Item prices for the work and materials.

10.10 The Successful Proposer shall furnish a performance bond in an amount at least equal to the price of the Estimated contract amount with a surety company that does business in

Rhode Island acceptable to KCWA as security for the faithful performance of all the Proposer's obligations under the contract. The bond shall remain in effect one year after the final delivery of the equipment and software listed in the Proposal selected by KCWA. The Proposer shall pay the premium for the bond. The bond shall be in the form prescribed by KCWA.

ARTICLE 11. SALES TAX

11.1 The materials and supplies to be used in the Work are tax exempt by R. I. State Law, Section 39.16 of the State Code.

ARTICLE 12. TIME OF COMPLETION/MATERIALAND SERVICES DELIVERY

12.1 Delivery of complete meters with coupled registers and endpoints shall be determined and indicated on the Contract by the KCWA. It is anticipated that this will be a two-year period Meter installation services will be awarded to a designated installation representative and performed under a separate contract. It is the intent to deliver and store all meters as requested in a timely coordinated manner with the Authority's meter installation representatives to facilitate installation within the system over the two-year period unless the installation contract duration is extended as stipulated under section 10.9 herein. All meters with coupled registers and endpoints are to be delivered, in part, to a designated storage site as mutually agreed by the Installer and KCWA. It is fully intended to stipulate on the Purchase Order(s) material for immediate delivery which will occur no later than thirty (30) calendar days from the date of the request by the Installer.

12.2 Proposers shall clearly indicate on the Proposal package if items are not immediately available for delivery within thirty (30) calendar days or the quantity needed is not obtainable within a reasonable time frame for the installer to consistently perform Work as required by the installation schedule.

12.3 Meters with coupled registers and endpoints will be purchased by Purchase Order through the KCWA, single or multiple, and delivered to a designated staging area in truck loads or partial truck loads as determined by the installer schedule in coordination with KCWA and the Proposer. No additional charges will be allowed for these single or partial shipment or services.

12.4 All AMR/AMI computerized equipment and associated appurtenances for reading meters shall be shipped to the offices of KCWA within thirty (30) calendar days of the contract award date.

12.5 All integration services rendered for AMR/AMI computerized equipment, software and associated appurtenances for reading meters shall be completed and fully functioning prior to commencement of the full implementation installation phase of water meters and endpoint modules.

12.6 Materials, services, or equipment purchased are subject to inspection and approval by KCWA. KCWA reserves the right to reject and refuse acceptance of items or integration services rendered which are not in accordance with the instructions, specifications, drawings and data or Proposer's warranty (express or implied). Payment for any material or service shall not be deemed an acceptance thereof.

12.7 All defective material shall be removed from the staging site by the Proposer upon notification by installation company or KCWA and replaced with new material within seven (7) days of notification. Determination of Defective Material shall be made by representatives of KCWA and the decision shall be final. Materials not accepted will be returned to Proposer at Proposer's expense.

12.8 All meters with coupled registers and endpoints to be purchased shall be factory new and shipped as complete directly from the factory or from a local supplier. Meters with coupled registers and endpoints must conform to the approved requirements as specified. Meters with coupled registers and endpoints received that do not meet form and function requirements will be rejected.

ARTICLE 13. GUARANTEE/WARRANTY

13.1 The Successful Proposer shall guarantee the integration services to be furnished hereunder will deliver a fully functioning system including all capabilities and be in full conformity with KCWA's specifications, drawings, technical requirements, and data will be fit for the use intended by KCWA. The Successful Proposer agrees that this warranty shall survive acceptance of the services and provide technical and onsite integration services free of charge for minimum period of two (2) years from the date of Substantial Completion. Said warranties shall be in addition to any warranties of additional scope given to KCWA by the Proposer.

13.2 The Successful Proposer shall guarantee and warrant all materials furnished for a period of two years from the date of installation to be free from all defects and/or faulty material and shall promptly make all replacements of defective material. All manufactures warranties extending beyond two years shall remain in effect for the time line and terms provided by the manufacture. The Proposer further warrants that all material is in full conformance with the Request For Proposal Documents.

ARTICLE 14. NEW EQUIPMENT OR TECHNOLOGY

14.1 If at any time new equipment or new technology is released to replace or upgrade equipment presented in the proposal of the successful Proposer during the duration of the contract, the Proposer shall notify KCWA. Written notification shall include the new equipment along with functional description of new equipment in and/or integrations services the Proposer shall provide to carry out the full requirements of the contract. This shall be at no additional cost to KCWA. The pricing shall prevail through termination of the contract. KCWA shall have the option to acquire the new equipment or new technology and require material previously purchased to be replaced at no cost to KCWA.

ARTICLE 15. DISCONTINUATION OF EQUIPMENT

15.1 If at any time during the duration of this purchase order and the warranty period of the equipment, the equipment is discontinued, the Proposer shall notify KCWA immediately. The Proposer shall also inform KCWA of what equipment will replace the discontinued equipment. The replacement equipment shall meet the requirements of the Contract and be fully integrated at no additional cost to KCWA. The Proposer shall replace all newly installed or warehoused obsolete or discontinued materials

and/or software at no cost to KCWA. All integration services relative to obsolete materials and/or software to provide fully functioning AMR system must also be provided at no additional cost to KCWA.

ARTICLE 16. LIQUIDATED DAMAGES

16.1 Should the Proposer neglect, fail or refuse to complete the installation and integration of all AMR/AMI systems within the time specified in the Specifications, or any proper extension thereof granted by KCWA, then the Proposer does hereby agree, as a part consideration for the awarding of the Contract, to pay to KCWA the sum on one thousand dollars per day, not as a penalty but as liquidated damages for such breach of contract as hereinafter set forth, for each and every calendar day that the Contract shall be in default after the time stipulated in the Contract for completing the work. Such damages may be retained from time to time by KCWA from progress payments or any amounts owing to the Proposer, or otherwise collected.

ARTICLE 17. CONFLICT OF INEREST

17.1 The successful proposer covenants that it presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance under the agreement.

17.2 No employee of the Authority and no public official who exercises any function or responsibilities in the review or approval of the undertaking or carrying out of this agreement shall:

17.2.1 Participate in any decision relating to this agreement which affects his personal interest or the interest of any corporation, partnership, or association in which he is, directly or indirectly interested; or

17.2.2 Have any financial interest, direct or indirect in this agreement or the proceeds thereof.

ARTICLE 18. INSURANCE

18.1 The successful proposer shall maintain during the life of the contract, pursuant to the RFP, the following insurance coverage for not less than the following amounts or greater where required by law. The successful proposer shall also take out and maintain for the term of the contract all coverages required by the statute or regulation. Such insurance shall be from an insurance company authorized to write casualty insurance in the State of Rhode Island. Such insurance shall protect those covered from claims for bodily injury or property damage which may arise from operations under this contract. The proposer shall not commence work under this contract until he has obtained all insurance required and filed the certificate of insurance policy with KCWA. Each insurance policy shall contain a clause providing that it shall not be cancelled or altered by the insurance company without thirty (30) days written notice to KCWA of the intentions to cancel. The Kent County Water Authority office and employees shall be named as an additional insured.

General Liability

Bodily Injury Liability:	$1,000,000 per occurrence $2,000,000 annual
Aggregate Property Damage	$1,000,000 per occurrence $2,000,000 annual aggregate

Automobile Liability

Bodily Injury Liability:	$1,000,000 each person $1,000,000 each
Accident Property Damage Liability	$1,000,000 per occurrence

Excess Liability

Umbrella Liability Policy	$5,000,000 per occurrence

ARTICLE 19. SUBSTANTIAL COMPLETION

19.1 When the PROPOSER considers the entire scope of services and material deliveries are complete, the PROPOSER shall notify the KCWA in writing that the entire scope of services and material deliverables are substantially complete and shall provide a written request that a determination of Substantial Completion be issued. KCWA and the PROPOSER shall make an inspection of the work to determine the status of completion. If KCWA does not consider the work Substantially Complete, the PROPOSER will be notified in writing giving the reasons therefore.

19.2 There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment.

KENT COUNTY WATER AUTHORITY

KENT COUNTY WATER AUTHORITY

MATERIAL PURCHASE AND INTEGRATION SERVICES
WATER METERS AND AUTOMATIC METER READING SYSTEM

REFERENCE STATEMENT FORM

(Fill Out Completely)

A. Organization providing Material Purchase and Integration Services for Water Meters & Automatic Meter Reading System

The undersigned offers the following information as evidence of its qualifications to perform the work as proposed in conformance with all requirements of the RFP contract documents:

1. List on this form three (3) recent contracts under which your firm provided water meters, automatic meter reading systems, and software and data integration services of the type required by this contract and of the type proposed by the Proposer, at least one shall be in Rhode Island. If your firm has performed work for the Kent County Water Authority (the Authority) within the previous five (5) years, the Authority shall be listed as an additional reference. As part of the Proposal Evaluation, the Authority may select one reference to visit; your firm will be provided with the opportunity to attend the visit.

2. Has your firm, within the previous five (5) years, provided an automatic meter reading system to any community that utilizes Conduent, for water billing? If yes, list on this form one (1) recent contract under which your firm worked with this billing service provider.

The Authority utilizes Conduent utility billing software under the Utility Customer Accounting (UCA) division to generate bills for its water customers. Conduent recently sold its municipal constituent government software solutions business to Avenu Insights and Analytics (Avenu) in August 2018. The software and support are remaining the same under the new ownership. The AMR software proposed must be compatible with the Avenu billing software. The successful proposer shall be responsible for developing a transfer file between the AMR software and Avenu billing software. The utility billing system vendor's contact information is as follows:

2025 Leestown Road, Suite A-1
Lexington, KY 40511
Toll Free: 800.800.0181
Rick Finklea, Customer and Technical Service Manager
Rick.Finklea@conduent.com

B. Recent Contracts:

1. Job: _____

   Contract Amount: _____

   Completed Project Cost: _____

   Manufacturer and Number of Meters: _____

   Range of Meter Size and Type: _____

   AMR System: _____

   Number of Endpoint Modules: _____

   Owner's Utility Billing System: _____

   Date Completed: _____

   City/Town/Owner: _____

   Contact Name: _____

   Contact Telephone No.: (____) - _____

2. Job: _____

   Contract Amount: _____

   Completed Project Cost: _____

   Manufacturer and Number of Meters: _____

   Range of Meter Size and Type: _____

   AMR System: _____

   Number of Endpoint Modules: _____

   Owner's Utility Billing System: _____

   Date Completed: _____

   City/Town/Owner: _____

   Contact Name: _____

   Contact Telephone No.: (____) - _____

3. Job:_____

Contract Amount: _____

Completed Project Cost: _____

Manufacturer and Number of Meters: _____

Range of Meter Size and Type: _____

AMR System: _____

Number of Endpoint Modules: _____

Owner's Utility Billing System: _____

Date Completed: _____

City/Town/Owner:_____

Contact Name: _____

Contact Telephone No.: (____) -_____

C. Recent Contracts with Conduent Utility Billing System (if Applicable):

1. Job:_____

Contract Amount: _____

Completed Project Cost: _____

Manufacturer and Number of Meters: _____

Range of Meter Size and Type: _____

AMR System: _____

Number of Endpoint Modules: _____

Owner's Utility Billing System: _____

Date Completed: _____

City/Town/Owner:_____

Contact Name: _____

Contact Telephone No.: (____) -_____

EXACT NAME OF PROPOSING FIRM: _____

(__) a corporation, organized and existing under the laws of the State of _____

(__) a partnership

(__) a joint venture

(__) a limited liability company

(__) an individual doing business as _____

BUSINESS ADDRESS:

_____

CITY/TOWN, STATE AND ZIP:

_____

TELEPHONE, including area code:

_____

EMAIL P.O.C.:

_____

KENT COUNTY WATER AUTHORITY

MATERIAL PURCHASE AND INTEGRATION SERVICES
WATER METERS AND AUTOMATIC METER READING SYSTEM

SPECIFICATION

1. GENERAL

The Kent County Water Authority, herein referred to as "the Owner", solicits proposals for the supply and delivery of water meters, registers, endpoint modules, and an Automatic Meter Reading (AMR) system migratable to an Advanced Metering Infrastructure (AMI) system with hardware and applicable software to upgrade its existing water meter reading system and equipment. The system shall provide timely utility information to share with its customers to help manage utility usage and cost. The Authority is looking for a mobile AMR system with modules that are migratable for use in a two-way fixed network AMI system. The water meters, registers, and RF modules, supplied and delivered by the chosen proposer, herein called "Proposer", **will not** be installed by the Proposer. The Owner and its designated representative, under a separate contract, will install the meters, registers and endpoint modules. The Proposer **shall** be responsible for the providing materials, equipment, software, and integration services along with start-up and installation of an AMR/AMI system, complete, as proposed by the Proposer and as defined in the technical proposal, the price proposal, and the request for proposal.

The term "mobile AMR system" shall include handhelds, a mobile collector drive-by meter reading unit, and all necessary hardware and software either locally installed or hosted/software as a service (SaaS). The mobile collector drive-by meter reading unit shall consist of a military grade ruggedized laptop computer, tablet, or 2-in-1 and the necessary equipment to read water meters via radio frequency. Programming and troubleshooting devices required for the installation of the RF modules shall also be included. The term AMI shall include data collection units (DCUs), fixed network endpoints, and hardware and software either locally installed or hosted/software-as-a service (SaaS).

This request for proposals (RFP) is to procure an AMR/AMI system capable of meeting the current and future meter reading needs of the Owner. The Proposer shall furnish all materials, equipment, and incidentals necessary to train and support Owner's personnel in the use of an AMR/AMI system. The Proposer shall also furnish all materials, equipment, and incidentals necessary to train and support the Owner or its designated representative in the proper installation of the meters, registers, and RF modules.

The Proposer must have responded to the REQUEST FOR INFORMATION on August 31, 2017 and have participated in the interview process to be considered prequalified for submitting a proposal in this REQUEST FOR PROPOSAL solicitation .

All proposals will be opened, and pricing read aloud. The Owner will review the proposals and award the contract (if one is awarded) to a Successful Proposer after a review process. The Successful Proposer will be a firm that, in the Owner's sole discretion meets the project requirements and cost concerns. The provider of the water meters and AMR/AMI system must have demonstrated first-hand experience with the type of system proposed for the Owner.

Payments will be based upon receipt and acceptance by the Owner of each individual item listed in the Price Proposal Form. **There will be no additional compensation paid to the Proposer for items or work not listed in the Price Proposal Form that are necessary or required to make the system fully functional and operable with the KCWA billing and customer information systems.**

2. BACKGROUND

Water Meters

The Owner currently services approximately 27,165 water accounts with meters ranging in size from 5/8 x 3/4-inch to 10-inch located in West Warwick, Coventry, East Greenwich, West Greenwich, and parts of Warwick, Scituate, Cranston, and North Kingstown, Rhode Island. The service area encompasses approximately 50 square miles of varying elevations ranging between 0 to 450 feet above mean sea level in elevation. The current majority of meters are nutating disk style positive displacement (PD) with registers communicating to a Neptune RF mobile radio or Neptune automatic reading box (ARB) walk-by/punch reading systems. There are approximately 6,540 Neptune RF radios and 20,625 ARBs, and ten (10) manual dial read accounts. The Authority's goal is to replace both the meters and reading endpoints for all meters ≤ two inches and endpoints only for large and compound meters (≥ three inches). There are approximately 294 large meters (≥ three inches) of which there are 272 compounds meters that will require dual endpoints or a device that can read both MIUs. There are five (5) compound meters that are two-inch in size (high flow) each with a 5/8 x 3/4-low-flow meters that will require dual endpoints or a device that can read both MIUs. Approximately 630 of the accounts are located in meter pits. The remaining meters are located indoors.

Current Meter Reading/Billing Workflow

Fifty-four (54) meter books are read and billed quarterly based on cycles and routes, with the exception of 40 accounts that are read and billed monthly. On average, 1/3 of the system or roughly 9000 meters are read per month by the KCWA water meter reading staff. At the start of each new billing cycle, meter reading book files are exported from the Conduent utility billing system (now Avenu see below under Utility Billing Information) and imported to the meter reading workstation/desktop computer hosting Neptune N-Sight software. The import file is in the form of a Neptune import file using a standard ASCII file format. Once imported into the host computer, the meter supervisor assigns books into meter reading routes and programs into five (5) Trimble Ranger 3XE handheld RF reading devices networked to the host meter manager computer. The Meter Manager computer is running Neptune N_Sight Ver 5.6.170707 on a Windows 10 desktop machine. The Trimble Ranger reads both the RF readings and ARB punch box readings. However, to read and store the ARB readings in the Trimble Ranger, the meter reading personnel must also carry a Neptune Advantage II punch reader. The Neptune Advantage II Probe provides instant visual reads of the ARB and wirelessly transmits those reads to the Trimble handheld device via Bluetooth. Once the routes are completed, the Trimble handhelds are cradled back to the host computer and the reading files are then exported back to the Conduent (now Avenu) utility billing system server. The customer service staff then reviews the readings for exceptions and potential problems via both printed reports and automatic checks each reading cycle within the quarter. Any issues that are noticed in the review process are evaluated and work orders are generated to fix any meter problems prior to posting to customers' accounts. Off cycle reading, accuracy checks,

datalogging if available, and any other flagged identifier are evaluated either using the Trimble Ranger, punch reader, Neptune application on a smartphone and/or physical readings. Lastly, a spool billing file is created each month for the respective quarterly readings inclusive of current charges and is sent to the bill printing company that mails out the bills to the customers.

Utility Billing Information

The Owner utilizes Conduent utility billing software under the Utility Customer Accounting (UCA) division to generate bills for its water customers. Conduent sold its municipal constituent government software solutions business to Avenu Insights and Analytics (Avenu) in August 2018. The software and support is remaining the same under the new ownership. The AMR software proposed must be compatible with the Avenu billing software. The successful proposer shall be responsible for developing a transfer file between the AMR software and Avenu billing software. The utility billing system vendor's contact information is as follows:

2025 Leestown Road, Suite A-1
Lexington, KY 40511
Toll Free: 800.800.0181
W.Randy Spillman, Customer and Technical Service Manager
Randy.spillman@conduent.com

3. SCOPE OF REQUESTED SERVICES

The Owner is committed to selecting the technology that provides the most efficient, cost effective and flexible solution. Proposed AMR/AMI modules must be of an open architecture design and be compatible for use with water meters manufactured that are capable of utilizing encoder registers. The AMR/AMI data collection computers, servers, handhelds, and associated software shall be fully tested and functional prior to the full installation of meters. The Owner plans to purchase water meters, registers, modules, and an AMR/AMI system under this contract. The installation of the meters and endpoint modules will be completed under a separate contract. The Owner plans to purchase the meter and AMR/AMI equipment over a period of two years. The Proposer shall fill out the Price Proposal Forms in their entirety. All blank spaces for requested prices in proposals being submitted upon must be filled in, in ink or typewritten, and must be legible.

The Owner is requesting proposals for the following products and integration services for furnishing water meters and for the upgrade of its meter reading system:

a. Supply and delivery of positive displacement (PD) nutating-disk 5/8 x 3/4-inch, 5/8-inch straight, 3/4-inch, 1-inch, 1 1/2-inch, and 2-inch cold water meters complete with absolute encoder registers and RF modules. Approximately 630 meters with registers and RF modules shall be located in existing meter pits. Alternative metrology, registers, and endpoints modules will also be reviewed and considered. If alternative technologies are submitted, the benefits must be compared to the PD nutating disk meter with an absolute encoded register and integrated RF endpoint.

b. Supply and delivery of five hundred sixty-six (566) RF, cellular, or LPWAN endpoints for large and compound bypass meters.

c. Supply and integrate with Owner CIS/ billing system all equipment, hardware and software necessary for an AMR/AMI system capable of obtaining data from new water meters and generate analytics for reports and bills within sixty (60) days of the contract start date and prior to the full installation of water meters and endpoint modules. Integration is inclusive of any necessary programming and/or development of the interface between the AMR/AMI software and the existing billing system. Liquidated damages shall be assessed if the testing of the AMR/AMI system is not fully functioning and integrated prior to the installation of meters.

d. Training and technical support services for Owner's staff. Training of Installation Contractor on proper installation procedures.

The Owner seeks to enter into a 2-year contract with a qualified proposer responsible for supplying and implementing an entire system, including AMR/AMI equipment, related software, maintenance, training, technical support and installation coordination assistance. Installation of water meters, registers, and modules will be completed by the Owner's designated representative under separate contract.

The Owner will award this contract and issue a purchase order for water meters, registers, and modules listed in the Price Proposal Form. These meters will need to be held in inventory at a warehouse within the continental United States for a period of no more than 12 months until the Owner begins installation of the water meters and AMR/AMI system.

The Owner prefers a house account relationship to be able to purchase the water meters, registers, modules, and AMR/AMI equipment directly from the manufacturer after the terms of this contract are complete.

The Successful Proposer must demonstrate its ability to deliver an AMR/AMI system that adheres to the specifications outlined in this document, to support the AMR/AMI system on an on-going basis, and to provide, as references, three (3) other water utilities where the AMR/AMI system has been installed and is operating successfully.

If alternative metering AMR/AMI technologies are proposed, the proposer must provide a cost benefit comparison of those alternative technologies to the PD nutating disk meter with an absolute encoded register and integrated RF endpoint. The proposal must discuss how long the proposed system has been manufactured and supported by the Proposer or Original Equipment Manufacturer (OEM). The proposal must also discuss how long the system will continue to be supported. The technical proposal should include a history of the company's complete meter reading system offerings.

4. PROPOSAL SUBMITTAL CRITERIA – See General Instructions for Proposers

5. TECHNICAL PROPOSAL PARAMETERS

The Proposals shall be evaluated at a minimum, but not limited to the following non-exhaustive list of parameters. This list is to serve as a general guide to Proposers in generating the technical aspects of the metrology, telemetry, and integration services for a fully functioning AMR/AMI system for KCWA.

a) AMR/AMI System Hardware and Firmware for mobile and/or fixed network
b) Cost benefit comparative analysis of using alternative metrology and/or endpoints as compared to positive displacement nutating disk meters, absolute encoded registers, and RF endpoint modules.
c) Cost of present and future AMI implementation inclusive of DCUs, LPWAN, or cellular options.
d) Handheld Unit Hardware and Software
e) Radio Frequency (RF) Module (Integrated vs Non-Integrated)
f) AMR/AMI System Software for Owner PC(s) Installed or Hosted Software as-a-Service
g) Project Management and Implementation Plan
h) Support Services and Warranty
i) Meter and AMR/AMI System Training
j) Water Meters (PD Nutating Disk, Velocity Multi-jet, Ultrasonic, and Mag)
k) Registers (Absolute Encoded and Electronic)
l) Experience, Financial Strength, and Stability of Proposer
m) FCC Licensing Requirements
n) Capital Cost/Price Forms
o) Mean time between failures for each component; meter, register, and endpoint.

6. SYSTEM DESCRIPTION

The mobile AMR system shall be capable of collecting time-synchronized alpha-numeric meter identification, readings, leak flags, backflow events, logged flow information, and tamper information during each read event from the proposed meters passing the data through the RF modules wired or integrated to each meter. The mobile AMR system shall be able to read the Owner's entire service area in less than two (2) days, administered by a one (1) person crew. Positive reading information should be displayed on a map on the laptop, preferable an ESRI GIS KCWA specific system map, showing when reads are pulled in to the system. The laptop should be outfitted with onboard GPS that centers the location of the mobile reading truck on the map as reads are being collected. This display should also show other information like positive read, leak detection, no read, backflow, and any other pertinent info. The AMR mobile reading system software should be able to perform datalogging during a reading via a keystroke command enabled by the meter reader. The endpoint modules shall be capable of functioning from outdoors, inside a building, or inside a meter pit. To maximize the transmission signal and for ease of maintenance, the Owner through its approved representative plans to install of the modules on both the inside (attached or integrated with register) and the on the outside of the buildings and meter pits depending on location and need. Inside single unit integrated installations are preferred.

The endpoint modules shall transmit data via signal to the mobile receiver or data collection units (DCU's). Water meter readings must then be easily downloaded into the AMR/AMI system's meter reading collection software, which shall manipulate the data and transfer it to the format required by the Avenu billing software for final processing. The Proposer shall work with Avenu and provide and configure the interface between the AMR system software and existing billing software, soliciting the services of the utility billing system provider, if required. The ability of performing on-the-fly analytics and reporting directly from the meter reading software is highly desirable.

The Owner shall be able to run the new AMR/AMI system and the existing meter reading and billing systems in parallel, until such time as all of the meters are converted to the AMR/AMI system. The conversion will take up to two (2) years. The Owner's water accounts shall be downloaded to the new AMR/AMI system software, providing for a gradual transition from existing reading to new meter reading as future modules are installed. The system shall collect reads with the AMR/AMI data collection system, without requisite fixed network infrastructure, to support the Authority's phased deployment approach. Proposers must discuss the potential impacts of operating a mobile RF AMR system with the current meter reading system on the Owner's existing computer system and interfacing with the billing system. The Owner's existing computer server operating system is IBM i-Series AS/400.

The AMR/AMI system must comply with all applicable Federal Communication Commission (FCC) Rules & Regulations. All AMR/AMI equipment and system components shall be labeled in accordance with the FCC and all product testing and FCC acceptance documents shall be provided with this bid to verify compliance. The AMR/AMI system shall not require licensing from the FCC to operate. It shall operate on an unlicensed frequency. The output power of the AMR/AMI system will be governed by the relevant FCC standards for the operating frequencies used. The Proposer shall address licensing requirements in the Technical Proposal.

System Requirements

- All proposed radio frequency (RF), Cellular, or Low Power Wide Area Network (LPWAN) products and wiring connections must be protected against water or moisture. Proposals shall detail unit construction for moisture and water protection. All manufacturers of these products must have been manufacturing the proposed products for a minimum of three (3) years.

- Batteries and modules must be fully guaranteed for a minimum of ten (10) years with a prorated warranty for an additional ten (10) years. A longer warranty is considered "highly advantageous." In the event the battery or module fails within the first ten (10) year warranty period, the unit will be replaced by the Proposer at no additional cost to the Owner.

- All RF products the Proposer proposes for the AMR/AMI system must have a radio frequency range that is appropriate to make the complete AMR/AMI system work. The RF modules must be capable of transmitting the signal at least 1,000-feet to the mobile collector or handheld reading device. Any applicable unit not readable at these ranges will be considered defective and shall be replaced under product warranty.

- RF modules migratable for use in a two-way fixed network AMI system without requiring on-site reprogramming of RF modules or additional equipment attached to the RF module. Migration from mobile to fixed network shall not impact RF module warranties.

- All equipment must be from qualified manufacturers and suitable for the intended use. Equipment of each type must be from a single manufacturer, unless specified otherwise.

- All hardware and software shall allow for and be compatible with future upgrades of the manufacturers' product.

- All equipment furnished must be "Factory New"; used or re-manufactured equipment is not acceptable. It is preferred that the Proposer is the manufacturer of the proposed system.

- The system shall be configured for reliable reading and billing at up to 30,000 accounts in less than two (2) days by a one (1) person crew.

Fixed Network Migration

The Owner would like the option to migrate from a mobile to a two-way fixed network AMI system in the future. However, if the long-term benefits of a fixed AMI and/or alternative technology, or hybrids of these systems, can be shown up front as more advantageous it may be considered. Once migrated from mobile to fixed, the fixed network AMI system shall have the ability to read 100% of the accounts in the Owner's water distribution system, regardless of whether the water meter was replaced under this contract.

The mobile system shall migrate to a fixed network AMI system by only installing data collection units (DCUs). On-site re-programming of RF modules by an individual or additional equipment attached to the RF module shall not be required to migrate from mobile to fixed network.

The fixed network may utilize two or a series of DCUs located strategically throughout the Owner's water service area for retrieving meter data. It may incorporate a series of repeaters to assist the fixed network system with meter reading data collection. The available DCUs must then transfer the data to a on-premise or remotely hosted control computer accessible at the Owner's home office. The data shall be transferred through the fixed network via unlicensed radio frequencies. The fixed network system shall be capable of providing on-demand readings, hourly interval usage data for use in consumer education applications and hydraulic modeling. The hardware and software systems for the future fixed network system shall be locally owned and operated. Transmissions of data between AMR modules and DCUs shall be in a proprietary format not easily deciphered by outside sources. All retrieved meter readings will be in a format compatible with the Proposer supplied software for the mobile network system. A single software application that can be used for both mobile reading and fixed network reading will be considered highly advantageous in this proposal.

Proposers that responded to the REQUEST FOR INFORMATION by August 31, 2017 had the option to also submit a propagation study given KCWA asset and system extent information. Proposers that submitted a propagation study should ensure the maps display the location and type of the Data Collection Units (DCUs) and/or repeaters and the total number of each summarized in the legend of the map. If this information was not displayed please update the map to include this information. Propagation studies are high desirable.

7. POSITIVE DISPLACEMENT METERS 5/8" THROUGH 2"

The positive displacement (PD) meters shall be of the type known as nutating disc. All meters furnished shall be of new construction and conform to the AWWA's Standard Specifications for Cold Water Meters, C700 latest revision. Meters shall be manufactured in the United States of America. All meters shall carry, at a minimum, the following published guarantees:

- All meters shall be guaranteed for one (1) year on material and workmanship from the date of

installation.

- The meters shall be guaranteed to meet AWWA New Meter Accuracy Standards for a period of five (5) years for the 5/8-inch and 3/4-inch meters, three (3) years for the 1-inch meters and one (1) year for the 1 1/2-inch and 2-inch meters from the date of purchase.
- At the expiration of this period, the meters shall be guaranteed to meet AWWA Repaired Meter Accuracy Standards for fifteen (15) years for 5/8-inch, 3/4-inch and 1-inch meters and for ten (10) years for 1 1/2-inch and 2-inch meters from the date of shipment.

All meters shall consist of high-quality, no-lead bronze, lead free high copper alloy, stainless steel, or composite maincase with raised markings to indicate the direction of flow and size. Composite meters shall conform to AWWA/ANSI C-710-15 standard and have corrosion resistant meter threads made of stainless steel or equivalent. The meter serial number shall be stamped on the outside of the maincase. All wetted materials must be NSF/ANSI 61, shall comply with NSF 61 Annex F, which sets the maximum allowable lead leach limit to 5 ppb, and shall comply with NSF 372, which sets the maximum lead content for a product to be 0.25% (15 ppb) lead for all wetted components. The housing shall be designed so that any distortion occurring at a working pressure of 150 psi and temperature up to 105 degrees F will not affect the accuracy of the meters. The ability of the meter measure temperature and/or pressure with would be advantageous.

The measuring chamber shall be of a 2–piece snap-joint type. The measuring chamber shall be made of non-hydrolyzing synthetic polymer, shall be smoothly and accurately machined and shall contain a removable or fixed molded diaphragm of the same material as that of the chamber. No screws shall be used to secure the chamber together. The control block assembly shall be removable or fixed to facilitate repairs and allow for a greater disc socket wear surface for increased longevity. Control block assemblies shall be designed as not to allow any magnetic slippage that would result in a loss of revenue. The measuring chamber outlet port shall be sealed to the maincase outlet port by means of an ‘o’ ring gasket to eliminate any chamber leak paths.

The bottom closure of the outer casing for 5/8-inch straight, 5/8 x 3/4-inch, and 3/4-inch, and 1-inch meters shall be of such design that the bottom closure will yield or break under normal freezing conditions to minimize damage to any other part of the meter. The bolts for the bottom closure shall have holes for installation for wire seals. Meters that do not have bolts on the bottom plate should have a location to install a tamper wire seal.

All meters shall contain removable strainer screens. The strainer shall be located near the inlet maincase port before the measuring chamber and control block assembly. The strainer shall be designed for minimum pressure loss and shall be of the same manufacturer as the meter. The effective straining area shall be at least double that of the meter main case inlet area.

To ensure accuracy, each meter must be accompanied by a factory test tag certifying the new meter accuracy standards of AWWA C700 (low, intermediate, and full flow).

The 1 1/2-inch and 2-inch PD meters shall be available with flanged and threaded ends.

8. VELOCITY METERS 5/8” THROUGH 2”

The meters shall be of the type known as Multijet (MJ). All meters furnished shall be of new

construction and conform to the AWWA's Standard Specifications for Cold Water Meters, C708 latest revision. Meters shall be manufactured in the United States of America. All meters shall carry, at a minimum, the following published guarantees:

- All meters shall be guaranteed for one (1) year on material and workmanship for the date of installation.
- The meters shall be guaranteed to meet AWWA New Meter Accuracy Standards for a period of five (5) years for the 5/8-inch and 3/4-inch meters, three (3) years for the 1-inch meters and one (1) year for the 1 1/2-inch and 2-inch meters from the date of purchase.
- At the expiration of this period, the meters shall be guaranteed to meet AWWA Repaired Meter Accuracy Standards for fifteen (15) years for 5/8-inch, 3/4-inch and 1-inch meters and for ten (10) years for 1 1/2-inch and 2-inch meters from the date of shipment.

All meters shall consist of high-quality, no-lead bronze, lead free high copper alloy, stainless steel, or composite maincase with raised markings to indicate the direction of flow and size. Composite meters shall conform to AWWA/ANSI C-710-15 standard and have corrosion resistant meter thread connections made of stainless steel or equivalent. The meter serial number shall be stamped on the outside of the maincase. All wetted materials must be NSF/ANSI 61, shall comply with NSF 61 Annex F, which sets the maximum allowable lead leach limit to 5 ppb, and shall comply with NSF 372, which sets the maximum lead content for a product to be 0.25% (15 ppb) lead for all wetted components. . The housing shall be designed so that any distortion occurring at a working pressure of 150 psi and temperature up to 105 degrees F will not affect the accuracy of the meters. The ability of the meter measure temperature and/or pressure with would be advantageous.

The measuring chamber housing and measurement element are constructed of a non-hydrolyzing synthetic polymer and can easily be removed from the main case without removal of the meter from the line. The chamber housing shall be constructed in two parts to allow access to the impeller. Measurement surfaces shall not be wear surfaces thereby providing sustained accuracy despite the presence of entrained solids in the water. A long-life bearing and wear surface is required to minimize bearing wear.

The bottom closure of the outer casing for 5/8-inch straight, 5/8 x 3/4-inch, and 3/4-inch, and 1-inch meters shall be of such design that the bottom closure will yield or break under normal freezing conditions to minimize damage to any other part of the meter. The bolts for the bottom closure shall have holes for installation for wire seals. Meters that do not have bolts on the bottom plate should have a location to install a tamper wire seal.

All meters shall contain removable strainer screens. The strainer shall be located near the inlet maincase port before the measuring chamber and control block assembly. The strainer shall be designed for minimum pressure loss and shall be of the same manufacturer as the meter. The effective straining area shall be at least double that of the meter main case inlet area.

To ensure accuracy, each meter must be accompanied by a factory test tag certifying the new meter accuracy standards of AWWA C700 (low, intermediate, and full flow).

The 1 1/2-inch and 2-inch MJ meters shall be available with flanged and threaded ends.

9. REGISTERS FOR PD OR VELOCITY TYPE METERS

Registers shall conform to the latest revision of AWWA C707. The register shall be a true absolute encoder register that provides direct electronic transfer of Meter data information to the AMI Module. Encoder registers shall be guaranteed for at least ten (10) years from the date of purchase. All guarantees are the responsibility of the manufacturer. Registers shall be straight reading (cubic feet), hermetically sealed with 100 percent moisture protection, magnetic drive type and shall contain a true contactless absolute encoder. Registers shall be guaranteed for 10 years and shall have the size, model and date of manufacture stamped on the register. The register shall contain a mechanical or electronic low flow indicator to provide leak detection. The mechanical low-flow indicator dial shall be of the center sweep pointer type and shall contain 100 equally divided gradations at its periphery with each tenth graduation numbered. A manual read of the register shall be possible at all times and a final manual read of the register shall be possible if the register fails for any reason. The registers shall provide a minimum of eight (8)-digit meter reading. The unit shall encode the eight (8) most significant digits of the meter reading and have the ability to transmit only the whole number readings that are to the left of the decimal place to the RF module. Verification of the actual transmission of only values to the left of the decimal is required to prevent over billing issues from transmission numbers to the billing system that are less than one.

The minimum digital output of the encoder shall be as shown in the following Table.

Meter Size	**Decimal Indication on Dial or LCD (Cubic Feet)**
5/8-inch & 5/8x3/4	000000.01
3/4-inch	000000.01
1-inch	000000.01
1 1/2-inch	0000000.1
2-inch	0000000.1

The absolute encoded register assembly should be able to transmit a signal through properly shielded (grounded) transmission wire to an RF module. The register shall provide digitally formatted data to the RF module representing accurate meter information. Registers shall be secured to the main case by means of a tamperproof seal pin to allow for in-line replacement. Sacrificial tamper pins are more favorable than pins that can be removed and re-added with standard tools. The encoder register shall be removable from the meter without disassembling the meter body and shall permit field installation and/or removal without taking the meter out of service.

Registers shall be compatible with meters supplied. Registers to be installed in pits shall be podded to protect against pit environments and shall be waterproof, capable of operating in a submerged environment, with the associated RF module. The register serial number shall match the meter serial number for all new meters and shall be imprinted on the register lid.

Terminal screws, if applicable, must be easily accessible on the absolute encoder register for making connections to the RF module. A suitable port cover shall be provided to cover the terminals after they have been wired. Water proof coax connection port, or equivalent, must be

provided for easy connection to remotely placed modules.

10. SOLID STATE (SS) METERS AND REGISTERS

The meters shall be of the type known as electromagnetic or ultrasonic. All meters furnished shall be solid state, of new construction, and conform to all applicable AWWA's Standard Specifications for Cold Water Meters, C700 and C750 latest revision. Meters shall be manufactured in the United States of America. All meters shall carry, at a minimum, the following published guarantees:

- All meters shall be guaranteed for one (1) year on material and workmanship from the date of installation.
- The meters shall be guaranteed to meet AWWA New Meter Accuracy Standards for a period of five (5) years for the 5/8-inch and 3/4-inch meters, three (3) years for the 1-inch meters and one (1) year for the 1 1/2-inch and 2-inch meters from the date of purchase.
- At the expiration of this period, the meters shall be guaranteed to meet AWWA Repaired Meter Accuracy Standards for fifteen (15) years for 5/8-inch, 3/4-inch and 1-inch meters and for ten (10) years for 1 1/2-inch and 2-inch meters from the date of shipment.
- All SS meters that exceed the AWWA accuracy standards based on time in service and/or totalized flow shall be presented within the Proposal Evaluation Criteria for comparison to mechanical meters.

All meters shall consist of high-quality, no-lead bronze, lead free high copper alloy, stainless steel, or composite maincase with raised markings to indicate the direction of flow and size. Composite meters shall conform to AWWA/ANSI C-710-15 standard and have corrosion resistant meter thread connections made of stainless steel or equivalent. The meter serial number shall be stamped on the outside of the maincase. All wetted materials must be NSF/ANSI 61, shall comply with NSF 61 Annex F, which sets the maximum allowable lead leach limit to 5 ppb, and shall comply with NSF 372, which sets the maximum lead content for a product to be 0.25% (15 ppb) lead for all wetted components. The housing shall be designed so that any distortion occurring at a working pressure of 150 psi and temperature up to 105 degrees F will not affect the accuracy of the meters. The ability of the meter measure and transmit temperature and/or pressure data would be advantageous.

Wetted elements within the measuring chamber including but not limited to the pressure vessel, metering insert, and/or measuring transducer or electrodes shall conform to the same AWWA, NSF, and ANSI standards as stated above. The electronic components shall be housed and fully potted within a molded engineered polymer enclosure permanently attached to the meter housing. All transducers and/or electrodes that extend through the housing must be NSF/ANSI 61 and be sealed. All polymers exposed to water shall be non-hydrolyzing.

To ensure accuracy, each meter must be accompanied by a factory test tag certifying the new meter accuracy standards of AWWA C700 (low, intermediate, and full flow).

The 1 1/2-inch and 2-inch meters shall be available with flanged and threaded ends.

Solid State Meter Registers

The registers shall be a tamper proof hermetically-sealed electronic register with LCD display showing rate of flow, measure in cubic feet, display alarms such as leak detection, low battery, and tamper, display consumption of a minimum of 8 digits, and have data logging capabilities if associated RF module does not provide such capabilities. Registers shall be guaranteed for 10 years and shall have the size, model and date of manufacture stamped on the register. For meters to be located indoors, it is advantageous to have RF module attach or be integrated to the register. The register should have the ability to be wired to the RF module outdoors with waterproof connections. A manual read of the register shall be possible at all times and a final manual read of the register shall be possible if the register fails for any reason. The meter reading transmission should only push whole numbers readings left of the decimal place digits through the RF module. Verification of the actual transmission of values to the left of the decimal is required to prevent overbilling issues from transmitting numbers to the billing system that are less than one.

11. ENDPOINT MODULES

Radio Frequency (RF)

The radio frequency (RF) endpoint module shall be capable of interpreting encoded meter reading data directly from the existing and the new meters without error. The Proposers endpoints that are attached to large meters and large compound meters must be able to send reading data from existing Neptune registers. The RF module shall then transmit relevant information, including reading, identification number and tamper information via RF signal, to the mobile receiving devices. RF modules that are integrated into the register are highly favorable.

RF modules shall be easily configured by field technicians, including limited or no programming and clear notice to field technicians of successful installation. It is more advantageous if the meter does not have to register usage or log into AMR system software to confirm successful installation by the installer. RF modules shall be integrated or firmly attached to the encoded register. The module should also be able to be extended for outdoor installation with the shielded wiring to the meter and encoded register indoors. Water meters with RF modules will be primarily located inside buildings but shall be capable of easily mounting on the outside of buildings where the signal needs to be boosted, meter and register are located inside meter pits, or other reason for separating the RF transmitter away from the meter. The RF module shall have a NEMA 4 water-resistant enclosure capable of exposure to spray and splash. The Proposer must provide two (2) field-programming and troubleshooting devices, to achieve fully operational RF modules.

Each RF module shall have a unique, pre-programmed, identification number of a minimum of eight (8) characters. The identification number will be permanent and shall not be altered. Each RF module shall be labeled on the exterior with the identification number, manufacturer, and FCC approval information.

The RF module shall be capable of operating without any loss of accuracy with wire lengths of at least two hundred (200) feet from the absolute encoder register. The device shall be capable of operating at temperatures of -4^{o}F to +149^{o}F, with a humidity factor of 5- to 95-percent

(condensing). The RF module shall be protected against static discharge without loss of data. The RF module shall provide typical line of sight range of 200 to 1,000 feet, depending on installation location, terrain, building construction material, etc.

The RF module shall be clearly labeled and installed so that the module identification number is readily visible. The RF module must have the module identification presented in standard barcode format fixed to the body. A second barcode sticker shall be provided for removal from the unit and fixing to an installation service form. The RF module must be labeled with manufacturer and shall also include the date of manufacture of the unit. The RF module shall be provided with a tamper deterrent seal. Tampering with the RF module functions or connections shall not be possible without causing visible damage to the RF module exterior or to the seal.

The RF module shall be powered by a long-lasting battery. The battery shall be designed and warranted for a period of at least twenty (20) years, ten (10) years full and the following ten (10) years prorated, from the date of shipment plus 6 months. Battery warranty shall not be impacted by migration from mobile to fixed.

Connecting wiring between the absolute encoder and the RF module shall be coax or color coded three-wire conductor type in an abrasion and moisture resistant vinyl covered shielded cable. In the case where coax cable is used and connectors need to be added a RG6 F-Type compression connectors will be used. The materials used for all electrical contacts and connectors shall be suitable for normal water meter environment and meter pit environment and shall be corrosion resistant. A minimum of twenty-five (25) feet of wiring shall be provided for each RF module, either regular or pit. In accordance with the AMR system manufacturer's installation procedure, the Proposer shall supply the recommended wiring, mounting kits, screws and gel caps to connect the RF module to the absolute encoder when the run exceeds twenty-five (25) feet.

The RF modules shall have all mobile functionalities described herein and shall be considered migratable to operate in a two-way fixed network AMR system without requiring on-site re-programming. The RF module shall be capable of performance equal to the RF modules designed expressly for the associated two-way fixed network AMR system.

RF modules for meter pit installations shall be suitable for us in meter pits and mounted outside of the meter pit or in pit mount assemblies through the pit lids in non-traffic areas. Pit mount assemblies for RF modules mounted through the pit lids shall be furnished as necessary for use during installation.

The system shall collect no less than 35-days of hourly interval data through RF transmission, upon query at each individual RF module.

Cellular and Low Power Wide Area Network Modules

All cellular and LPWAN modules shall meet or exceed the same standards as the RF modules.

12. MOBILE AMR SYSTEM

Mobile Collector, Drive-By AMR System

The portable mobile collector, drive-by AMR system shall consist of all necessary components

and software needed to provide full meter-reading function and safe operation by the staff without requisite fixed network infrastructure. It shall interface with the route-manager software through disk or other electronic media device as well as network connection for data transfer. **The AMR mobile collection system must be installed, tested, and fully functioning prior to the full installation of meters.**

It is in the best interest of the Authority to minimize metering infrastructure cost and maintenance while providing its customers access to an amount of reliable information at a frequency that can mitigate problems like leaks, tampers, and zero use readings that arise between quarterly reading cycles. To this end, the Authority would like to maintain quarterly billing but would like to have the data analytics available on a monthly or as needed basis by our meter reading and customer service staff at a minimum. AMR/AMI Systems that function in a drive-by mode and that can push information to a host server accessible by our customer service staff on a frequency that meets the aforementioned minimum is highly desirable. Full control of the data acquisition in a demand mode by the Authority is also desirable.

The price for power/battery chargers, cables, signal receivers, laptops and/or tablets, and any other appurtenances necessary for a fully functional system for meter reading and data transfer with the portable, drive-by system, shall be included in the lump sum price in the Price Proposal Form for the mobile collector drive-by meter reading unit. If a magnetic vehicle roof antenna is offered, this must be noted and included in the proposal. Power/battery chargers, cables, signal receivers, and any other appurtenances necessary for a fully functional system for meter reading and data transfer with portable, drive-by system are part of this proposal and should be described in the Proposer's technical proposal.

The mobile collector drive-by AMR system unit shall have the capacity to store a minimum of 30,000 accounts. The mobile collector shall receive meter reading data from all RF modules within a 1,000-foot (minimum) range.

The ruggedized laptop computer/tablet or 2-in-1 with power/batter chargers for the mobile collector drive-by system will be provided to the Owner and will meet the following minimum standard requirements:

- Operate on a replaceable battery and Proposer-provided 12 VDC power converter through a single cigarette lighter socket or car adapter.
- 89-key keyboard.
- Windows® 10 Pro 64-bit – Intel® Core™ i5-7300U vPro™ processor 2.6GHz with Turbo Boost up to 3.5GHz, 3MB cache.
- Factory installed 8GB SDRAM.
- 256 GB Solid State hard disk drive.
- .Net Framework 4.5 or higher.
- 12" WUXGA 1200 nit multi touch + digitizer display.
- Sealed and spill resistant magnesium LCD case, keyboard & touch pad.
- On Tablet: USB, MicroSDXC, HDMI, Ethernet, Serial (True), Audio In/Out, Nano-SIM, Docking connector.
- On Premium Keyboard: USB x 3, SDXC, HDMI, VGA, Ethernet, Serial (USB), Docking connector, Serial-port.
- Wi-Fi 802.11a/b/g/n/ac, Bluetooth® V4.0+EDR and integrated 4G LTE multi carrier mobile broadband with satellite GPS.

- 1-year limited warranty including parts, labor, 24-hour turnaround including air freight.
- Touch screen with anti-glare.

The Proposer shall supply an in-vehicle mounting system that is easily transferable from vehicle to vehicle and universally usable with laptops of multiple manufacturers. The mounting system shall securely support a laptop and receiver in a passenger seating area. The drive-by unit shall be easily installed and removed from the Owner's existing vehicles, so the system can be used in virtually any vehicle.

Software in the mobile collector drive-by system shall automatically accept and insert the readings into the correct account records once the reading is taken. Software in the drive-by system must be able to interface with the route-manager software to provide an ASCII file format or demonstrable compatible equivalent output file in the appropriate format for import to/export from the Avenu billing software. The Proposer's system shall be configured to exchange customer information, reading, data, and event incident notification for import to/export from the Avenu billing/customer information software. Software in the drive-by system shall flag all problem codes such as tamper detection, leak, no-reads, backflow, etc. for reporting at the host computer terminal (PC). Mobile reading software that is capable of wirelessly syncing the data to a host server in an offline synced workflow would be favorable.

The mobile unit shall be provided with mapping software to present a visual representation of the location of the vehicle and the RF modules and show RF modules that have been read, RF modules that have not been read, and shall display all problem codes and alarms, such as tamper and leak detection. Mapping software that is capable of displaying Owner provided ESRI-GIS maps on the reading screen and routing optimization is highly favorable.

Handheld

The handheld unit, shall have the capability to collect and store meter readings either manually through the use of an alpha numeric keypad, touchpad induction coupling, or via radio transmission. The unit shall be able to obtain all types of readings without reprogramming the handheld unit, physical changes of software within the unit and access through special software menus contained within a given route/program. The units must be capable of reading meters simultaneously. Any software required to enable RF reading by the handheld unit is required as part of this proposal.

The price for power/battery chargers, cables, signal receivers, and any other appurtenances necessary for meter reading and data transfer with the handheld units shall be included in the unit price in the Price Proposal Form for handheld units. Power/battery chargers, cables, signal receivers, and any other appurtenances necessary for meter reading and data transfer with the handheld units are part of this proposal and must be described in the Proposer's technical proposal. The proposal shall include information on the vehicle speed and distance between RF module and handheld in which the system can reliably operate.

The handheld unit hardware and software shall meet the following specifications:

- Handheld unit shall receive meter-reading data from all RF modules within a 200-foot (minimum) range.

- Handheld unit shall have the capacity to store a minimum of 5,000 accounts.

- The handheld device must have the capability to automatically receive radio-transmitted meter readings and manual entry of meter readings.

- Handheld unit must be PC compatible and capable of direct download and shall operate on a Windows platform.

- Handheld screen displays must use Liquid Crystal Display (LCD) technology and include, at a minimum, notes, account, address and RF module location information.

- Handheld unit can weigh no more than a total of three (3) pounds per unit.

- Handheld unit's battery must be long-lasting rechargeable lithium-ion and capable of at least twelve (12) hours of meter reading.

- Handheld unit must be dust resistant, water resistant, including unlimited exposure to spray, splash, or rain, and capable of withstanding a 3-foot drop to concrete and a 30-second immersion period in 1-foot of water. The unit shall be capable of operating with ambient temperatures ranging from minus 20°F to plus 122°F without the use of cases, plastic coverings, etc.

- Handheld unit must be comfortable and easily handled for meter reading. Meter-reading staff will review this during field demonstration. Handheld unit must be provided with an acceptable carrying method, such as an adjustable hand strap or detachable, heavy-duty belt loop.

Handheld Charging and Communication Equipment

- The Owner shall be provided with charging units for each handheld unit, as well as one spare for use at alternate locations, included in the unit price for the handheld units.
- The charging and communication equipment shall provide a communication port connection compatible with the Owner's existing personal computer and billing software system and the laptop PC included with the mobile collector drive-by meter reading unit.
- The charging units shall carry the Underwriters Laboratory (UL) seal of approval.
- Charging units shall use a constant-current trickle charge for battery packs contained in the handheld.
- The charging unit must accommodate complete handheld units with all adapters installed and with the main batteries installed.
- The charging device must allow for the indication of, at a minimum, power and status of the handheld battery pack.
- The charging device shall be suitable for tabletop use, with wall mounting as an option.
- The Proposer shall furnish and install any cable (up to 20 feet in length) required to connect the handheld with the Owner's PC and/or the laptop PC included with the portable mobile collector drive-by meter reading unit.
- Proposer must specify the handheld communication rate with the Owner's PC and/or laptop PC included with the portable mobile collector drive-by meter reading unit.
- The following basic features shall be included with the communications/charging equipment:

1. Extensive software error checking shall be provided to assure data integrity during communications between the collection device and the PC.
2. Up to 5,000 accounts can be loaded or unloaded in less than one minute.
3. Routes/books can be split at the PC level.
4. Additional communication/charging units can be added without software changes.

- Software shall automatically insert the readings into the correct account records once the reading is taken.
- Software shall allow the user to input comments on any account within the current route.
- Software shall allow the operator to manually enter or override any of the RF reads.
- Software must be able to provide on ASCII file format or demonstrable compatible equivalent output file in the appropriate format for import to the Avenu billing software.
- Software shall flag all problem codes such as tamper detection, no-reads, manual reads, leaks, etc. for reporting at the host computer terminal (PC) during each read event.

AMR/AMI SYSTEM HOST SOFTWARE

All software and integrated PC, DCU, or server systems must be installed, tested, and fully functioning prior to installation of meters. Liquidated damages shall be assessed if the testing of the AMR/AMI software systems are not fully functioning and integrated within 60 days of the contract start date.

A software package, hosted subscription Software-as-a-Service (SaaS) or on-site deployment via perpetual license, referred to herein as "Software" will be provided/connected to and/or installed on the Owner's existing networked PC, located at Authority's Administrative Office. The Software shall be Windows 10 Pro 64-bit compatible and/or interface with the most current web browsers or be a true cloud-based solution. For perpetual license solutions that require a server, the Proposer shall provide to the Utility a Windows based Microsoft SQL server and integrate the system with the Authorities network. The Authority would prefer a system that can work or communicate within the existing Windows 10 64-bit networked computers.

The Software shall be used to interface with the existing billing system, store and process meter reading information, interface with the mobile collection units, and generate custom reports. Installation includes set-up, programming and de-bugging the Software system along with providing staff training and technical support. The Owner will not accept the reading system until the software package has been fully functional and operating trouble free for a period of one full year after the start full meter installation without any problem**.**

The complete Software package shall provide at a minimum the specified capabilities. The software shall also provide a means to take the captured readings, leak detection, no read/zero consumption, backflow, and any other pertinent data gathered by the mobile collection devices and prepare them to be transferred to the existing billing system.

Proposers may be asked to conduct a demonstration of their product's Software load and download procedures, menu availability, and report generation. The Owner's staff will evaluate the Software's features for transferring data to the existing billing system. The Owner will prefer that Software demonstrations be conducted at its central operating facility. However, if viewing

an installed operating system would be more beneficial and informative, arrangements can be proposed to visit another site within a one-hour drive from West Warwick, Rhode Island. The Proposer must identify any suggested site visit as part of the technical proposal.

The Owner will evaluate each Proposer's software package based on the features presented in the technical proposals and during the demonstrations. However, at a minimum, each potential AMR/AMI system software package must provide the following:

- Compatibility with Windows 10 Pro 64-bit compatible and/or interface with the most current web browser as a thin client or be a true cloud-based solution. The Owner will evaluate each proposer's AMR/AMI system software. Any DOS based software content is UNACCEPTABLE.
- For Managed Hosting Solutions, the Host Server shall be an Intel and Windows based Microsoft SQL server managed by the Proposer, or vendor, in a secure location and monitored by the system provider. The Vendor shall own and manage the server hardware and software including monitoring to ensure the server continues to work effectively, provides backup services, installation of security patches and various levels of technical support. The Vendor hosted solution shall utilizes a secure web-based application.
- The Host Server shall be accessible with a secure utility log in and password to view the system data from any web enabled device.
- For Perpetual License Solutions, the Vendor shall provide to the Owner a Windows based Microsoft SQL server fully integrated to existing network.
- "User friendly" features including, speed of system as a whole, drop down menus, use of icons, data base structure and report format flexibility, ease of loading and downloading route data from mobile collection reading equipment, and information displays available for meter-reading staff in the field. Additionally, ease of importing/exporting data from existing billing software.
- Ability to produce ASCII file format or demonstrable compatible equivalent interface with the existing AVENU billing software. The Proposer's system shall be configured to exchange customer information, reading, data, and event incident notification and able to export data in the appropriate file format for import to the AVENU billing/customer information software.
- Ability to generate error reports displaying, at a minimum, account number, location (address), message AVENU's identifying "unread," "high consumption," "leak," and "other," the date of reading, and the meter reading, diagnostic reports for all parts of the system, user defined reports listing variations from historical records, listing of hardware problem, listing of operator activities, etc. "Other" error messages would include "bad wiring," "zero consumption," "tamper," "backflow," etc.
- Software must have data management flexibility to use installed software to select and/or structure customized reports.
- The software must support operator-based security allowing the Owner to define operator users with varying authorization levels and capabilities. The system shall log all operator changes and all operator activities so that the exact determinations or specific actions and responsibilities can be made.
- Provide for automatic, routine operation of the system, including diagnostic procedures on all hardware, logging of all alerts and alarms and recording operating statistics.
- Should the Proposer's business unit providing and supporting the software be sold or otherwise reconstituted, the Proposer shall provide the Owner with the software's uncompiled code and documentation. Such action shall not relieve the Proposer of its

obligation to maintain and support the software for the specified time period.

- Three manuals, both in hard copy and on-line formats, shall be provided for several levels of operators including:

  - Basic Operation manuals that provide fundamental level instructions for basic operations procedures.
  - System manuals geared for expert operators shall detail all capabilities of the system.
  - Reference manuals shall detail system maintenance and programming activities.

The Authority is looking to minimize metering infrastructure cost and maintenance while providing the meter reading and customer service staff an amount of reliable information at a frequency that can mitigate problems like leaks, tampers, and zero use readings that arise between quarterly reading cycles. The Authority would like to maintain quarterly billing but would like to have the data analytics available on a monthly or as needed basis at a minimum. AMR/AMI Systems that function in a drive-by mode and that can push information to a host server accessible by the meter reading and customer service staff on a frequency that meets the aforementioned minimum is highly desirable. Software that is cross functional across both AMR and AMI systems where a hybrid configuration of AMI collectors, endpoints, and mobile reading systems can be used in parallel is also highly desired.

13. ADVANCED METERING INFRASTRUCTURE (AMI)

Data Collection Units (DCUs)

- DCUs shall be an AC or solar powered unit with optional battery backup, which communicates in a licensed or unlicensed 900 MHz range or other with all the AMI Modules in its assigned area.
- DCUs that can obtain larger numbers of meter readings with fewest stations and setup cost is highly advantageous.
- The DCU shall communicate via a universal wide area network (WAN) connection, such as cellular, ethernet or fiber to allow communication with the Host Server Software.
- The DCUs shall collect and aggregate the stored meter data from all the AMI Modules in its zones a minimum of once per day and upload the information to the Host server a minimum of once per day providing interval reads from each AMI module as programmed.
- The DCUs shall communicate on demand to AMI Modules meters/service and other related endpoint devices via Mesh, Star, or hybrid configuration.
- The DCU Software shall allow self-diagnosis of any problems associated with the back haul of the communication system and the ability to automatically seek an alternate communication path if initial daily or real-time upload is unsuccessful.
- The DCU shall use RC4 state-of-art data security techniques to prevent unauthorized access to the data.
- The ability to time synchronize all devices once per day and allow daily upload of meter data and system health checks is required.
- The DCU shall allow remote firmware and software upgrades and should be able to remotely push similar updates to the modules.
- The DCU shall utilize an outdoor NEMA4 enclosure, rated for -40C to +85C, with remote antenna capability, which can be pole or wall mounted.

- The AMI system health and performance should be presented via a user interface on the host system.

14. RF AMR SYSTEM TRAINING

Training programs for approximately eight (8) staff:

- A minimum of eight (8), four (4) hour days of on-site instruction on the installation, operation, and maintenance of the AMR/AMI system. Training shall be as scheduled between the Proposer and the Owner, and at the convenience of the Owner. Complying with the minimum period of time specified above will not relieve the Proposer from providing sufficient service to place the AMR/AMI system in satisfactory operation. The Owner reserves the right to videotape all training sessions for use in training its personnel.
- Training must cover, at a minimum:
  - **Field** – training shall be provided on the field installation, diagnostics and maintenance for all water meters, RF modules, mobile collection devices and related equipment.
  - **Office** – training shall be provided on obtaining readings and consumption data from the system, transferring data to and from the billing software, creating reports, diagnosing system component problems, changing/adding customer accounts, and managing logs.
  - **Management** – training shall be provided on database management, installation management, software management, network management and system troubleshooting.
- Additional training, consisting of a minimum of four, 4-hour days of on-site instruction shall be provided on these same topics after the first year that the system has been up and running.

Documentation shall include three (3) complete hard-copy sets as well as three (3) copies on CD-ROM or flash drive in PDF or MS Word format, of complete operation and maintenance documentation for each item of equipment and for the systems as a whole. The operation and maintenance documentation shall include detailed operations instructions for all software and software interface with existing applications.

The Proposer shall provide manuals with customized written procedures sufficient for complete operation and maintenance, including diagnostics and repair of the system, its software and its components. The Proposer shall provide replacement pages and CD_ROMS or flash drives whenever there are any revisions or additions to the manuals.

The training shall occur at the Owner's Administration Office in the Town of West Warwick, and the schedule shall be coordinated with the Owner. Information for all of the Proposer's staff proposed to be involved in the implementation, installation, training, and support, shall be included in the technical proposal. This information should include their training, length of employment with proposer, and experience. These staff representatives whom are ultimately responsible for the aforementioned should be available and on-hand during the Proposer interview process if the Proposer is selected for an interview.

15. TESTING FOR THE AMR/AMI SYSTEM

The complete AMR/AMI meter-reading hardware and software system shall undergo startup testing following the set- up and configuration of the AMR/AMI system software on the Owner's existing system or vendor provided server system, the configuration of the mobile system, and the training of the Owner's personnel. All software and integrated PC, DCU, or server systems must be installed, tested, and fully functioning prior to installation of meters. The startup testing will be conducted by reading a test batch of newly installed meters at locations determined by the Owner using the AMR/AMI reading system, downloading or syncing the reading data into the Owner's PC system via the new AMR/AMI system software, and manipulating the data (for example, generating reports, exporting data to the existing billing system, etc.). The testing of the AMR/AMI system shall require two (2) consecutive weekly reads of the meters/registers/ modules to provide the data needed to demonstrate to the Owner a fully functioning system prior to the installation of meters.

Once the startup testing is completed to the satisfaction of the Owner, additional testing shall be conducted on an ongoing basis during the installation of the meters, registers and endpoint modules, provided by the Owner or its designated representative. The Proposer shall assist the Owner with the additional testing. All AMR/AMI system hardware and software components shall operate and function to the satisfaction of the Owner and as described herein. In the event that a meter is unreadable, errors are received, or the reading is in question, the Proposer shall work with the Owner and/or its designated representative to determine the cause. If it is determined that equipment furnished and installed by the Proposer is faulty, then the Proposer shall replace and install the equipment at no cost to the Owner. The Proposer shall be responsible for the additional costs associated with the installation of the new units. If it is determined that the meter installation was faulty, then the Owner or its designated representative shall replace and install the equipment. Following repair and/or correction of the AMR/AMI system components, the AMR/AMI system shall be re-tested as described above.

Liquidated damages shall be assessed if the testing of the AMR/AMI software systems are not fully functioning and integrated within 60 days of the contract start date.

16. TECHNICAL SUPPORT REQUIREMENTS AND WARRANTY FOR THE AMR/AMI SYSTEM

Proposer shall provide to the Owner on-call assistance services and warranty services for a period of two (2) years following Substantial Completion of the project, except longer where the specifications require extended warranties.

- A toll-free telephone Help Desk shall be available between the hours of 8 AM and 8 PM, Eastern Time, with after-hours telephone numbers available as needed. The Help Desk services shall include: AMR/AMI system 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.
- The help desk must maintain a four (4) hour acknowledgement of issue, with a twenty-four (24) hour maximum resolution time on all issues. Latitude for programming issues will be given on an issue-by-issue basis (as determined by the Owner), and shall be resolved within a reasonable time period not to exceed one (1) week. However, the Proposer must present a reasonable alternative to utilize within the twenty-four (24) hour time period, during the

extended resolution period. This requirement is for contract period and future maintenance agreements.

- Proposers shall provide published terms and conditions of all warranties offered. As a minimum the AMR/AMI system must be warranted for a minimum period of two (2) years from the date of Substantial Completion.
- The endpoint module and its battery must be fully warranted for a minimum period of ten (10) years from delivery date, plus 6 months, and pro-rated for an additional ten (10) years. An eleven (11) year or greater full warranty is more advantageous.
- The warranty services shall include, at no additional cost to the Owner, all parts and labor (including travel costs and expenses) necessary for normal operation of the system as well as for any warranty repairs that may be needed. The coverage shall include, but not be limited to, all hardware and software furnished, including module batteries, battery packs, power cables, and serial cables. In the event of a non-functioning item, the telephone Help Desk shall assist with any troubleshooting and promptly (within 24-hours) respond to emergency calls. **For warranty-related problems, loaner equipment shall be provided to the Owner while the failed equipment is repaired or replaced by the Proposer. Loaner equipment must be delivered overnight, at no cost to the Owner.** Any hardware or software upgrades shall be provided free of charge during a two-year-long period after system acceptance.
- Proposers must describe their intent in the Technical Proposal with respect to technical support during the contract period and renewable maintenance agreement options including costs.
- A maintenance agreement on all hardware and software must be immediately available for purchase after the expiration of the included warranty/maintenance agreement. Proposers must describe their available maintenance agreement. This maintenance agreement must be available for purchase in a minimum of one (1), three (3), or five (5) year durations.

17. PRICING

Proposers shall indicate all costs associated with all items listed on the attached Price Proposal Form, including, but not limited to, equipment, software, programming, set-up, training, shipping, insurance, annual maintenance, and any other costs required to provide a complete and operational system. The ability to program the proposed system must be provided in the total system cost. All terms and conditions shall be included, and no subsequent alterations will be permitted unless mutually accepted in writing.

18. DELIVERY

- All products must be transferred and handled in accordance with the manufacturer's instructions.
- Shipment of products shall be promptly inspected to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- All products shall be delivered to a location determined by the Owner and unloaded into a designated storage area.

- Meters, registers and RF modules purchased shall be held in inventory until the Owner begins installation of the water meters and AMR system.
- Warranty starts upon installation of water meters.
- Delivery schedule and shipping methods are to be appropriate for quantities and time frame of the project. Delivery of meters, registers, and modules shall be within 30 calendar days of issuing a purchase order. Proposers must provide an estimate of shipping schedule based on the System Description provided in this document.
- All manufacturer warranties for the products must be transferred to the Owner upon final acceptance by the Owner. In addition, the Proposer shall supply all software licenses, naming the Owner as the holder.
- All work on the project, including set-up and training, shall be satisfactorily completed within the contract duration fixed in the Purchase Order Agreement.
- At the completion of the project, the Owner shall set up a direct account with the manufacturer for future purchase and delivery of the meters, registers, and modules.

19. PROJECT MANAGEMENT AND IMPLEMENTATION PLAN

The selected Proposer shall provide continuous project management for their scope of work as detailed below. The Project Manager shall be required to coordinate activities with the Owner and its designated representative. The Proposer shall provide as part of the technical proposal its proposed statement of work and project management responsibility documentation which includes system installation, configuration, and testing. On-site project management and technical services shall include, but are not limited to the following:

- Arrange and oversee the installation of the mobile collector drive-by meter reading unit. Supply water meters and RF modules to the Owner and coordinate with the Owner and its designated representative on delivery schedule and quantities.
- Arrange and oversee installation of hardware, software and billing integration transfer file.
- Analyze the AMR/AMI system performance during implementation to ensure testing and acceptance criteria are met.
- Arrange and conduct training for the Owner and its designated representatives.
- Attend and arrange 12 meetings at a minimum with the Owner and its designated representatives during project implementation.
- Provide assistance to the Owner and its designated representative on the implementation of the mass meter data transfer file and testing the mass data transfer to the billing system.
- Ensure all AMR/AMI computers, meter reading devices, servers, and software are fully tested and integrated using a test batch of installed meters prior to the full installation of the meters.

The Proposer shall submit a project implementation plan and schedule including, but not limited to, the following:

- Mobile collector drive-by or fixed network meter reading unit installation and start-up
- AMR/AMI software installation and configuration.
- Transfer file between the AMR/AMI system software and the Owner’s utility billing software.
- Billing system integration and testing.
- Training.
- Equipment manufacturing/product lead times.

The Proposer's project implementation plan shall identify the work completed by the Proposer, Owner, or other contractors/vendors.

20. AMI AND ALTERNATIVE TECHNOLOGY COST BENEFIT ANALYSIS

AMR vs AMI

As part of the proposal, the Proposer must submit a cost benefit comparison between the drive-by AMR system and a fixed AMI system. The Owner would like to evaluate the current and/or future cost of implementing an AMI system. Submitters can show the benefits of implementing an AMI system up front if it can be shown the benefits of such systems outweigh the long-term costs.

Alternative Technologies

If the proposer is submitting on alternative technologies, it is required that a comparative cost benefit analysis be completed on those technologies. Alternative technologies are meters, registers, and endpoint modules that are not positive displacement nutating disk water meters, absolute encoded registers, and RF endpoints. The proposer must provide both qualitative and quantitative information to support the alternative proposal. This cost benefit shall contain a narrative along with supporting financial calculations describing and enumerating the differences of the technologies as compared to the traditional nutating disk, absolute encoded register, and RF endpoint.

Hybrid systems

If it is cost effective to have a hybrid utilizing both AMI and AMR hardware systems either with or without alternative metering and endpoint technologies to achieve the most benefit to the customers, it will also be reviewed provided it communicates to the same software platform.

KENT COUNTY WATER AUTHORITY

MATERIAL PURCHASE AND INTEGRATION SERVICES
WATER METERS AND AUTOMATIC METER READING SYSTEM

QUESTIONNAIRE FOR PROPOSERS

The proposer is expected to provide answers to all questions completely and in its entirety.

1. Did your company provide responses to the August 2017 Request for Information?

2. In which State is your company based, and how long has your company been in business?

3. Describe the function of the subcontractors on your team for this project and state how long have they have been in business.

4. Has your company, or any proposed subcontractor company, ever failed to complete any project, ever been removed from any project, or ever filed for bankruptcy? If so, describe the circumstances in full.

   The company or any proposed subcontractor shall not have failed to complete any project, ever been removed from any project, or ever filed for bankruptcy within the last five (5) years.

5. The proposer must provide evidence of the company's and subcontractor's financial capacity to undertake this project (such as the most recent annual report).

6. Have you, within the previous five (5) years, performed work for the Kent County Water Authority similar to that required by this contract?

7. Name the individual who will be the authorized representative for receiving notices and for day-to-day project administration. Provide the name, address and phone number of the nearest manufacturer's representative of the meters being provided and of the AMR/AMI system(s).

8. Key personnel working on the project must have a minimum of five years of experience in managing meter installation programs and in installing and/or operating the AMR/AMI systems. List the names and qualifications of the key personnel to be assigned to this project for implementation, installation, training, and support, and detail their experience in managing meter installation programs, and in installing and/or operating the AMR system(s),and in training. Information should include their training, length of employment with proposer, and experience.

9. Provide a brief description of your system including network diagrams and all proposed AMR/AMI technologies. Power/battery chargers, cables, signal receivers, and any other appurtenances necessary for meter reading and data transfer with the handheld units should be described. Include information on the vehicle speed and distance between RF module and handheld in which the system can reliably operate. Is a magnetic vehicle roof antenna required for proper operation of the AMR system? Is it offered? Provide additional information, not included in the RFI response, as necessary. Keep summary to less than 3 pages.

10. Provide a detailed description of the start-up process including:

- New meter and RF module installations
- New data collection units
- Required field programming
- Coordination between the billing software and AMR system software
- Coordination with manual read meter data and meter read data obtained through the mobile AMR system

11. Does the mobile meter reading software require a continuous live internet connection to function properly?

12. Are copies of the warranties and guarantees that will be provided with the equipment and system, including all terms and conditions, provided in the technical proposal? Warranty certificates and guarantees must be provided for all equipment and must meet the minimum criteria in the specifications. A copy of the written warranty on the battery life and RF module for full replacement and/or prorated replacement. The proposal must include the current cost of a replacement RF module and battery.

13. Will the warranties and guarantees be affected by mobile to fixed migration? If so, please describe how.

14. Provide a description of the RF module's power source and how the interrogation method affects the length of the life of the power source?

15. Can the proposed system be operated in parallel with the existing reading system? Describe your transition plan for how these systems will work together while the meters are being installed.

16. What was the mean failure rate of each newly installed meters, registers, and endpoints in the water systems that are referenced? What part of the meter assembly caused the majority of issues and has that been improved?

17. How many RF modules are supported in the mobile collector and handheld meter reading units?

18. Provide a brief description of additional devices or changes that are planned for the system within the next three years.

19. Describe the procedure by which a meter/RF module installer would test a newly installed RF module for successful operation. State in your response any field programming necessary to completely install and activate RF modules so that they are ready to transmit meter readings and how long the installer must wait between the time when the RF module is installed and the time when the installer knows it is functioning successfully.

20. Describe the method for using a handheld unit, tablet, or smartphone for performing off cycle reading, datalogging capabilities, or any other performance metric that can be shared with a customer or used to troubleshoot both technical and non- technical problems.

21. Describe your available maintenance agreement, technical support during the contract period, and renewable maintenance agreement options including costs. Maintenance agreements must be available for purchase in one (1) year durations.

22. The Authority currently has a house account whereby the meters, registers, and integrated endpoints are purchased directly from the meter manufacturer. Can the Authority set up a house account with the manufacturer of the water meters, registers, RF modules, and AMR equipment? Please describe the process.

23. Describe procedure for manufacturing equipment listed in Price Proposal Form as specified and storing it in a warehouse located within the continental United States, as specified. How long can the meters be stored at this location?

24. Describe system migration from a mobile to a fixed network AMI system and please include answers the following questions:

    a. How many DCUs are needed to provide 100% of the reading within the service area?
    b. What is involved to mobilize and install DCUs?
    c. Are hard power and communications lines required? If so, what are the power and communication line requirements?
    d. Is DCU O&M included in the price of the unit? Are there additional costs to consider?
    e. What is the Life Expectancy of a DCU before replacement ? Can the units be leased?
    f. Can the software used for the drive-by AMR be used for your AMI offering? If not, describe the advantages of AMI Software cost as a subscription cloud-based cost vs a one-time on-site hosted solution?
    g. Does the software require a continuous live internet connection to function properly?

h. Can the system be run in an offline mode and then synced to a hosted cloud-based server?

i. Describe the differences in the meter reading workflow between drive-by AMR system and the fixed AMI system?

j. Can the same RF endpoint be used for both the mobile AMR and fixed AMI without changing any hardware, firmware, or software?

25 Describe your integration services inclusive of how historical data is preserved and how parallel reading systems are operated during conversions.

26 There are 294 large >2 inch and 272 bypass meters that require module endpoints only to be read by the new system. Can the proposed module endpoints for the large meters be installed on existing Neptune registers? Please describe the type of endpoint is being proposed, the installation process, how the reading software retrieves the data, and what data is being provided for billing and analytics.

27. Below is a list of Neptune R900i meters with absolute encoded registers and integrated RF endpoints that are brand new in the Owner's stockroom or were installed within the last three years . Also listed are the software and hardware systems used to read and analyze the meter. This equipment is valued at approximately $500,000 not taking into consideration installation cost.

a) Can the proposed system read Neptune meters with integrated RF? If so, what other information carries over with the read?
b) Can the proposed endpoints read be installed on Neptune meters?

Meter Size and Type	QTY
5/8" x 3/4"	2024
5/8" Straight	81
3/4"	17
1"	263
1 1/2"	14
2"	20

Meter Reading Equipment	QTY
Trimble Ranger 3XE Handheld Collector	5
R900 Belt Clip Transceiver	1
N-Sight Software	1

KENT COUNTY WATER AUTHORITY

MATERIAL PURCHASE AND INTEGRATION SERVICES FOR
WATER METERS AND AUTOMATIC METER READING SYSTEM

PRICE PROPOSAL FORM

The undersigned declares that the only persons or parties interested in this Proposal as principals are as stated; that the Proposal is made without any collusion with other persons, firms, or corporations; that they have carefully examined all the Material Purchase and Integration Services for Water Meters and Automatic Reading System Documents and that he has informed themselves in regard to all conditions pertaining to the Work and from them the undersigned makes this Proposal. These prices shall cover all expenses incurred in performing the Work required under the Documents of which this Price Proposal Form is a part.

The undersigned hereby agrees to all items listed in the instructions to Proposers and technical specifications and will provide all material as accepted by the KCWA in the Purchase Order(s) to be provided to the Proposer.

The "quantities " listed in the Price Proposal Form are approximate and are given for use in comparing proposals and to indicate approximately the total amount of the contract; and the OWNER does not expressly or by implication represent that the actual amounts of Work will even correspond therewith but does call attention to uncertainty of the quantities of work involved. An increase or decrease in the quantity for any item shall not be regarded as grounds for an increase or decrease in the unit proposal price. The Owner reserves the right to increase or decrease the approximate quantities, or to omit entirely, any item listed in the proposal. The items listed in the Proposal shall be furnished by in quantities and time intervals to be determined by the Authority over a two-year period. To best evaluate alternatives including AMI solutions, the Proposer may submit additional Price Proposal Forms labeled as Alternative Proposal and Advanced Metering Infrastructure Proposal as provided herein. Alternative technologies must clearly be identified and quantified in spaces provided and shall meet the specification where applicable.

Where indicated in the proposed item the Proposer shall supply manufacture and model number referencing the proposed material for that proposed price.

The award proposal contract may, upon mutual agreement of both parties, be extended for not more than two additional years without any change in Proposal Item prices for the work.

The undersigned acknowledges receipt of addenda numbered:

_____

The undersigned acknowledges that all blank spaces for proposal prices must be filled in with the unit price, extended price and/or lump sum for each item. A total for all proposed items shall be annotated on the appropriate lines. In accordance with the above understanding, the undersigned proposes to furnish all materials, in its entirety in the manner and under the conditions required at the prices listed as follows:

The Proposer agrees to perform the work described in the specifications for the following lump sum and unit prices.

The Proposal includes supply of positive displacement nutating disk water meters, absolute encoded registers, RF endpoint modules, Automatic Meter Reading (AMR) system software training and integration. The items listed in the Proposal shall be furnished by in quantities and time intervals to be determined by the Authority. After receiving individual equipment orders by the Authority, the Proposer shall meet delivery requirements set forth in the Specifications. Installation of AMR computer system hardware and software shall be included in this contract. The installation of the meters, registers and RF modules are not included in this contract.

Item No.	Estimated Quantity*	Brief Description Unit or Lump Sum Price Bid in Both Words and Figures	Total in Figures
A-1		**WATER METERS AND REGISTERS:**	
A-1.1	**22,247 units**	5/8 x 3/4-inch water meter with encoder register, furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____
A-1.2	**117 units**	5/8 x 3/4-inch PIT water meter with encoder register, furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____

*Quantity Assumed for comparison of Proposals.

Item No.	Estimated Quantity*	Brief Description Unit or Lump Sum Price Bid in Both Words and Figures	Total in Figures
A-1.3	**59 units**	5/8-inch straight water meter with encoder register, furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____
A-1.4	**122 units**	3/4-inch water meter with encoder register, furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____
A-1.5	**4 units**	3/4-inch PIT water meter with encoder register, furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____
A-1.6	**3245 units**	1-inch water meter with encoder register, furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____

*Quantity Assumed for comparison of Proposals.

Item No.	Estimated Quantity*	Brief Description Unit or Lump Sum Price Bid in Both Words and Figures	Total in Figures
A-1.7	**373 units**	1-inch PIT water meter with encoder register, furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____
A-1.8	**76 units**	1-1/2 inch water meter with encoder register, furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____
A-1.9	**49 units**	1-1/2 inch PIT water meter with encoder register, furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____
A-1.10	**125 units**	1-1/2 inch flanged PIT water meter with encoder register, furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____

*Quantity Assumed for comparison of Proposals.

Item No.	Estimated Quantity*	Brief Description Unit or Lump Sum Price Bid in Both Words and Figures	Total in Figures
A-1.11	**148 units**	2-inch water meter with encoder register, furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____
A-1.12	**83 units**	2-inch PIT water meter with encoder register, furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____
A-1.13	**226 units**	2-inch flanged PIT water meter with encoder register, furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____

*Quantity Assumed for comparison of Proposals.

Item No.	Estimated Quantity*	Brief Description Unit or Lump Sum Price Bid in Both Words and Figures	Total in Figures
A-2		**Automatic Meter Reading Endpoints/ MIU Transmitters:**	
A-2.1	**294 units**	RF Endpoints/Transmitters for large meters (>2 inch) furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____
A-2.2	**272 units**	RF Endpoints/Transmitters for large meter bypass meters furnished, per unit _____ (dollars) AND _____ (cents) ($) _____	$_____
A-2.3	**626 units**	RF Endpoints/Transmitters for pit meters furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____
A-2.4	**26247 units**	RF Endpoints/Transmitters for all meters ≤ 2-inch furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____

*Quantity Assumed for comparison of Proposals.

Item No.	Estimated Quantity*	Brief Description Unit or Lump Sum Price Bid in Both Words and Figures	Total in Figures

A-3 **Automatic Meter Reading**
Hardware, Software, Integration, and Training

A-3.1 **Lump Sum** Mobile collection drive-by meter reading laptop/tablet, mobile transceiver/receiver communication equipment, vehicle mount system with integrated charging, furnished and installed with AMR software, lump sum

$_____

_____
(dollars)
AND
_____
(cents)
($)/unit

A-3.2 **2 units** Hand-held AMR system for off cycle reading and datalogging mobile transceiver/receiver communication equipment, furnished and installed with AMR software, per unit

$_____

_____
(dollars)
AND
_____
(cents)
($)/unit

A-3.3 **Lump Sum** Annual maintenance cost for all AMR hardware including handhelds, receivers, or any other required equipment, lump sum. $_____

_____
(dollars)
AND
_____
(cents)
($)/unit

*Quantity Assumed for comparison of Proposals.

Item No.	Estimated Quantity*	Brief Description Unit or Lump Sum Price Bid in Both Words and Figures	Total in Figures

A-3.4 **Lump Sum** Route management software licensed, furnished, and installed onsite on a KCWA network computer If Microsoft SQL server required, include hardware in price $_____

_____
(dollars)
AND
_____
(cents)
($)

A-3.5 **Lump Sum** Annual maintenance, technical service, and support fees for route management software (local network computer or SQL server installed) lump sum.

$_____

_____
(dollars)
AND
_____
(cents)
($)

A-3.6 **Lump Sum** Route Management Software-as-a-Service (SaaS) hosted license, lump sum

$_____

_____
(dollars)
AND
_____
(cents)
($)

A-3.7 **Lump Sum** Annual maintenance, technical service, and support fees, Route Management Software-as-a-Service (SaaS) hosted license annual fee

$_____

_____
(dollars)
AND
_____
(cents)
($)

*Quantity Assumed for comparison of Proposals.

Item No.	Estimated Quantity*	Brief Description Unit or Lump Sum Price Bid in Both Words and Figures	Total in Figures
A-3.8	**Lump Sum**	Furnish all required staff for software integration with utility billing system, and training on mobile AMR system hardware and software, lump sum.	$_____

_____
(dollars)
AND
_____
(cents)
($)
_____

TOTAL PROPOSAL FOR A-1 THROUGH A-3

_____
(dollars)
AND
_____
(cents)
($)
_____
TOTAL

It is required that all **blank spaces** are completed. The blank spaces in the Brief Description Unit must filled out with the **type** of alternative metrology, register and endpoint type. The Proposer agrees to perform the work described in the specifications for the following lump sum and unit prices:

Alternative Proposal:

The Alternative Proposal includes supply of _____(type)water meters, _____(type) registers, _____(type)endpoint modules, Automatic Meter Reading (AMR) system software and integration. The items listed in the Alternative Proposal shall be furnished by in quantities and time intervals to be determined by the Authority. After receiving individual equipment orders by the Authority, the Proposer shall meet delivery requirements set forth in the Specifications. Installation of AMR computer system hardware and software shall be included in this contract. The installation of the meters, registers and modules are not included in this contract.

Item No.	Estimated Quantity*	Brief Description Unit or Lump Sum Price Bid in Both Words and Figures	Total in Figures
ALT-A-1		**WATER METERS AND REGISTERS:**	
Alt-A-1.1	**22,247 units**	5/8 x 3/4-inch _____water meter with _____ register, furnished, per unit. _____ (dollars) AND _____ (cents) ($)/unit	$_____
Alt-A-1.2	**117 units**	5/8 x 3/4-inch PIT _____water meter with _____register, furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____

*Quantity Assumed for comparison of Proposals.

Item No.	Estimated Quantity*	Brief Description Unit or Lump Sum Price Bid in Both Words and Figures	Total in Figures
Alt-A-1.3	**59 units**	5/8-inch straight _____water meter with _____register, furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____
Alt -A-1.4	**122 units**	3/4-inch _____water meter with _____register, furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____
Alt -A-1.5	**4 units**	3/4-inch PIT _____water meter with _____register, furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____
Alt-A-1.6	**3245 units**	1-inch _____water meter with _____register, furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____

*Quantity Assumed for comparison of Proposals.

Item No.	Estimated Quantity*	Brief Description Unit or Lump Sum Price Bid in Both Words and Figures	Total in Figures
Alt-A-1.7	**373 units**	1-inch PIT _____water meter with _____register, furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____
Alt-A-1.8	**76 units**	1-1/2 inch _____water meter with _____register, furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____
Alt-A-1.9	**49 units**	1-1/2 inch PIT _____water meter with _____register, furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____
Alt-A-1.10	**125 units**	1-1/2 inch flanged PIT _____water meter with _____register, furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____

*Quantity Assumed for comparison of Proposals.

Item No.	Estimated Quantity*	Brief Description Unit or Lump Sum Price Bid in Both Words and Figures	Total in Figures
Alt-A-1.11	**148 units**	2-inch _____water meter with _____register, furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____
Alt-A-1.12	**83 units**	2-inch PIT _____water meter with _____register, furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____
Alt-A-1.13	**226 units**	2-inch flanged PIT _____water meter with _____register, furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____

*Quantity Assumed for comparison of Proposals.

Item No.	Estimated Quantity*	Brief Description Unit or Lump Sum Price Bid in Both Words and Figures	Total in Figures

ALT-A-2 **Automatic Meter Reading Endpoints/ MIU Transmitters:**

Alt-A-2.1 **294 units** RF Endpoints/Transmitters (>2 inch) furnished, per unit $_____

_____
(dollars)
AND
_____
(cents)
($)/unit

Alt-A-2.2 **272 units** RF Endpoints/Transmitters for large meter bypass meters furnished, per unit $_____

_____
(dollars)
AND
_____
(cents)
($)

Alt-A-2.3 **626 units** RF Endpoints/Transmitters for pit meters furnished, per unit $_____

_____
(dollars)
AND
_____
(cents)
($)/unit

Alt-A-2.4 **26,247 units** RF Endpoints/Transmitters for all meters ≤ 2-inch furnished, per unit $_____

_____
(dollars)
AND
_____
(cents)
($)/unit

*Quantity Assumed for comparison of Proposals.

Item No.	Estimated Quantity*	Brief Description Bid in Both Words and Figures	Unit or Lump Sum Price Total in Figures

ALT-A-3 **Automatic Meter Reading**
Hardware, Software, Integration, and Training

Alt-A-3.1 **Lump Sum** Mobile collection drive-by meter reading laptop/tablet, mobile transceiver/receiver communication equipment, vehicle mount system with integrated charging, furnished and installed with AMR software, lump sum

$_____

_____
(dollars)
AND
_____
(cents)
($)/unit
_____

Alt-A-3.2 **3 units** Hand-held AMR system for off cycle reading and datalogging mobile transceiver/receiver communication equipment, furnished and installed with AMR software, per unit

$_____

_____
(dollars)
AND
_____
(cents)
($)/unit
_____

Alt-A-3.3 **Lump Sum** Annual maintenance cost for all AMR hardware including handhelds, receivers, or any other required equipment, lump sum. $_____

_____
(dollars)
AND
_____
(cents)
($)/unit
_____

*Quantity Assumed for comparison of Proposals.

Item No.	Estimated Quantity*	Brief Description Unit or Lump Sum Price Bid in Both Words and Figures	Total in Figures

Alt-A-3.4 **Lump Sum** Route management software licensed, furnished, and installed onsite on a KCWA network computer Include cost of Microsoft SQL Server if required $_____

_____
(dollars)
AND
_____
(cents)
($)

Alt-A-3.5 **Lump Sum** Annual maintenance, technical service, and support fees for route management software (local network computer or SQL server installed) lump sum

_____ $_____
(dollars)
AND
_____
(cents)
($)

Alt-A-3.6 **Lump Sum** Route Management Software-as-a-Service (SaaS) hosted license, lump sum

$_____

_____
(dollars)
AND
_____
(cents)
($)

Alt-A-3.7 **Lump Sum** Annual maintenance, technical service, and support fees, Route Management Software-as-a-Service (SaaS) hosted license annual fee. $_____

_____
(dollars)
AND
_____
(cents)
($)

*Quantity Assumed for comparison of Proposals.

Alt-A-3.8 **<u>Lump Sum</u>** Furnish all required staff for software integration with utility billing system, and training on mobile AMR system hardware and software, lump sum. $_____

_____
(dollars)
AND
_____
(cents)
($)
_____

TOTAL PROPOSAL FOR ALT-A-1 THROUGH ALT-A-3

_____
(dollars)
AND
_____
(cents)
($)
_____

TOTAL

Advanced Metering Infrastructure Proposal

The Advanced Metering Infrastructure (AMI) Proposal includes supply of Data Collection Units (DCU), AMI Software, cellular or other endpoint modules that are not RF, and the maintenance of the AMI software and hardware, as described herein. The items listed in the "Advanced Metering Infrastructure Proposal" shall be evaluated on pricing and technology available at the time of this RFP. Please list number of DCUs in the space provided that will provide 100 % meter reading coverage. If it is found that AMI utilizing DCU infrastructure is more advantageous and cost effective than mobile AMR it may be considered, awarded, and DCUs would be furnished prior to the installation of meters. If cellular or other endpoint technology deployed as part of an AMI solution and is more advantageous to mobile AMR it may also be considered, and quantities delivered in accordance to the Specifications. The installation of the meters, registers and modules are not included in this contract.

Item No.	Estimated Quantity*	Brief Description Unit or Lump Sum Price Bid in Both Words and Figures	Total in Figures
C-1		**Advanced Meter Infrastructure (AMI) DCUs/ Software/Endpoints/ Maintenance**	
C-1.1	**_____units**	Data Collection Units (DCUs) for Meter reading furnished, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____
C-1.2	**Lump Sum**	Data Collection Units(DCUs) annual Maintenance cost, per unit _____ (dollars) AND _____ (cents) ($)/unit	$_____

*Quantity Assumed for comparison of Proposals.

Item No.	Estimated Quantity*	Brief Description Unit or Lump Sum Price Bid in Both Words and Figures	Total in Figures

C-1.3 **Lump Sum** AMI Hosted Software License $_____

_____
(dollars)
AND
_____
(cents)
($)/unit

C-1.4 **Lump Sum** AMI Hosted Software License Annual Subscription Cost for _____years then increasing by _____% annually $_____

_____
(dollars)
AND
_____
(cents)
($)/unit

C-1.5 **27439 Units** Cellular Endpoints $_____

_____
(dollars)
AND
_____
(cents)
($)/unit

*Quantity Assumed for comparison of Proposals.

Item No.	Estimated Quantity*	Brief Description Unit or Lump Sum Price Bid in Both Words and Figures	Total in Figures
C-1.6	**27439 Units**	Cellular Endpoint Monthly Subscription Cost for _____years _____ (dollars) AND _____ (cents) ($)/unit	$_____
C-1.7	**27439 Units**	_____Other Endpoint. _____ (dollars) AND _____ (cents) ($)/unit	$_____
C-1.8	**27439 Units**	_____Other Endpoint Monthly Subscription Cost for _____years _____ (dollars) AND _____ (cents) ($)/unit	$_____

*Quantity Assumed for comparison of Proposals.

If no price applies for a part of the proposal, please state "No Price Provided" on the corresponding item listed above. Proposer shall indicate all items for delivery in seven days after receipt of Purchase Order. If a portion of any item is available for delivery in seven days, list the item number and the amount available. Provide all responses printed or typewritten below or on separate sheets of paper.

_____
_____
_____
_____
_____
_____
_____
_____

Amounts shall be shown in both words and figures, where indicated. In case of discrepancy, the amount shown in words will govern.

The above prices shall include all labor for delivery and where applicable unloading of materials, materials, overhead, profit, insurance and incidentals required to provide all materials to the staging site.

The names and residences of all persons and parties interested in the foregoing Proposal and principals are as follows:

(Give first and last names in full. In the case of a corporation, or partnership, see Article 7 of the Instructions to Proposer.

_____
_____
_____
_____

Notice of acceptance should be mailed, telegraphed, or delivered to the undersigned Proposer at the following address:

_____
(Name)

By:_____
(Title)

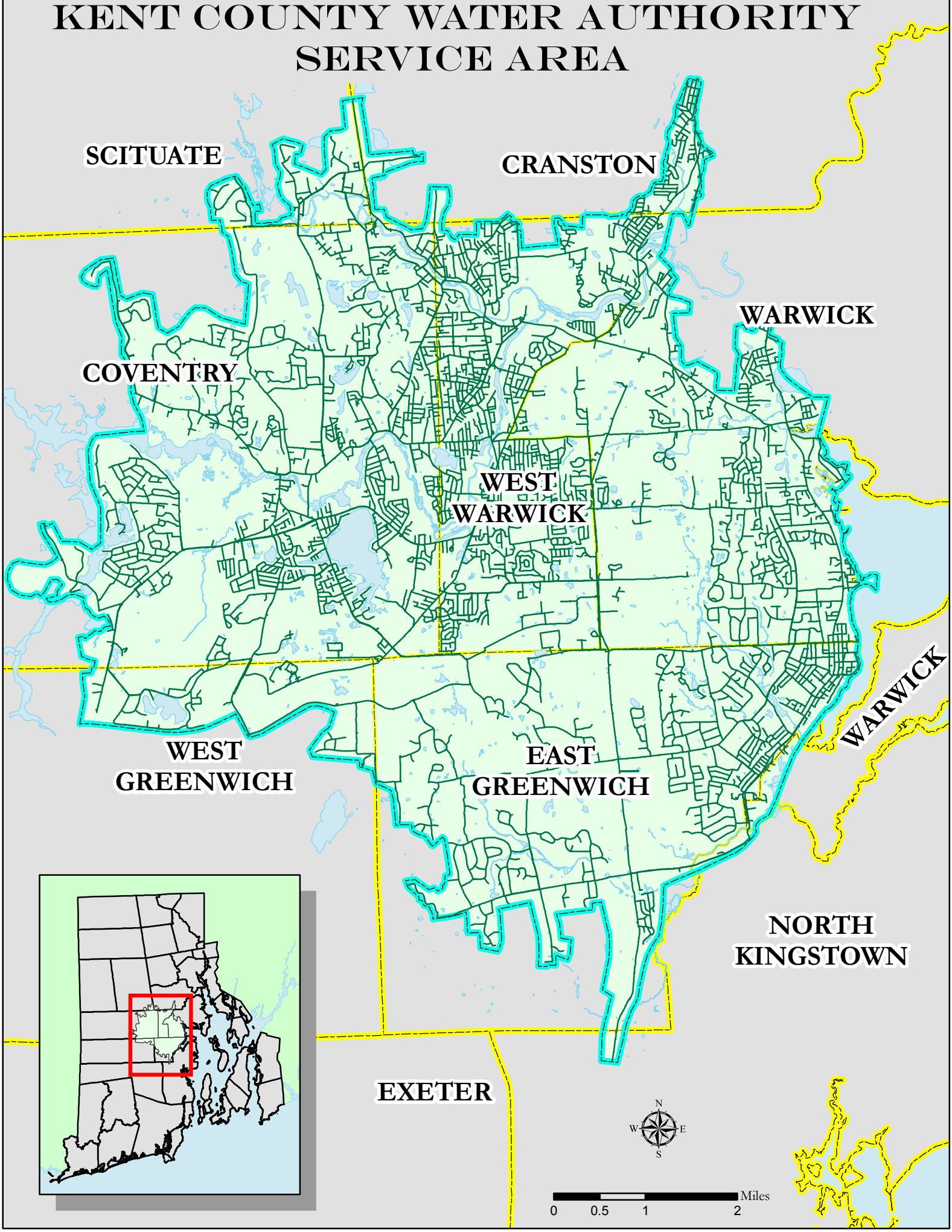
_____
(Business Address)

_____
(City and State)

Date_____

Note: If the Proposer is a corporation, indicate State of incorporation under signature, and affix corporate seal; if a partnership, give full names and residential addresses, if different from business address.

KENT COUNTY WATER AUTHORITY SERVICE AREA



KENT COUNTY WATER AUTHORITY

MATERIAL PURCHASE AND INTEGRATION SERVICES FOR
WATER METERS AND AUTOMATIC METER READING SYSTEM

APPENDIX B

Water Meter and Endpoint Module Change out Program	
Meter Size and Type	**QTY***
5/8" x 3/4"	22247
5/8" x 3/4" Pit	117
5/8" Straight	59
3/4"	122
3/4" Pit	4
1"	3245
1" Pit	373
1 1/2"	76
1 1/2" Pit	49
1 1/2" Flanged	125
2"	148
2" Pit	83
2" Flanged	226
TOTALS	**26863**
Endpoint Modules	**QTY***
Endpoint Modules 5/8" thru 2"	26247
Endpoint Modules 5/8" thru 2" PIT	626
Endpoint Modules for Large Meter ≥ 3"	294
Endpoint Modules Large Meter Bypass	272

*Quantity assumed for comparison of Proposals.