



# Request for Proposals Water Meter Purchase FY 2020

**Closing Date for Proposal Submittal:**

2:00 PM Central  
May 22, 2020

**Submit Proposals to:**

Town of Pecos City  
Attn: Syra Nichols, City Secretary  
115 W. 3<sup>rd</sup> Street  
Pecos, TX 79772

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## Bid Advertisement

SEALED PROPOSALS addressed to the City Secretary, City of Pecos, Texas will be received until 2:00 p.m., Friday, May 22, 2020, at Pecos City Hall, 115 W. 3<sup>rd</sup> Street, Pecos, Texas 79772, to furnish and deliver **New Automated Water Meters**, at which time bids will be opened and publicly read at the same location.

SPECIFICATIONS may be obtained free of charge at [www.ciplist.com](http://www.ciplist.com) . Bid forms, plans, specifications and contract documents may be examined free of charge at Pecos City Hall or at [www.pecostx.gov](http://www.pecostx.gov) .

A Bidder's Bond, Certified or Cashier's Check in an amount of not less than five percent (5%) of the total bid shall accompany each bid as a guarantee that, if awarded the contract, the bidder will promptly enter into contract with the City of Pecos, Texas. The successful bidder or bidders will be required to furnish a Payment Bond.

The Town of Pecos City reserves the right to: reject any or all bids, waive any or all informalities, and to award the contract to the bidder or bidders who, in the opinion of the Owner, is in the best interest of the City.

Bids may be held by the City for a period not to exceed sixty (60) days from the date of the bid opening for the purpose of reviewing the bids and investigating the bidders' qualifications prior to the contract award.

City of Pecos

Syra Nichols, City Secretary

Advertise Local Paper of Record:

Thursday, May 7, 2020

Thursday, May 14, 2020

## Bid Requirements

### Scope of Work

The Town of Pecos City, Texas is soliciting Proposal response(s) to provide Mobile Automated Metering System and Services pursuant to the included specifications.

The period of performance of any contract awarded as a result of this *Request for Proposal* is tentatively scheduled to begin on or about June 2020 and be in force through completion of any awarded Material and Services the Town of Pecos City may select. All prices submitted shall be valid for a period of 60 days from the date of submittal.

It is anticipated that any contract awarded under this solicitation shall be to the most advantageous Proposal meeting all required material and service specifications. The Town of Pecos City may increase the winning Proposer's scope of products and/or services if deemed in the best interest of the City. Such an amendment, if any, to increase or decrease the scope of products and/or services, and extend the period of performance shall be at the sole discretion of the City.

### Requirements to Qualify to Submit

The Proposal is open to individuals or organizations that meet the following minimum criteria:

- Proposer must be an exclusive reseller of its Metering Equipment and Metrology.
- Proposer must have a minimum of two dedicated individuals for the exclusive sale and support of any Proposal product(s) relating to this Request for Proposal.
- Proposer must be insured with a minimum coverage equal to:
  - General Liability Coverage with an Aggregate Limit of at least \$ 2,000,000.000
  - Automotive Combined Liability Limit of at least: \$ 1,000,000.000
  - Workers Compensation Liability Limit of at least: \$ 1,000,000.00

Proposers who do not meet these minimum qualifications shall be deemed to be non-responsive and will not be considered.

In submitting a Proposal in response to this Request for Proposal, the Proposer agrees to accept the terms set forth in this Request for Proposal. The successful proposer will be expected to provide sufficient payment bonds to the City within ten (10) working days of receiving the notice of award.

### Deadline and Submission

Proposal(s) will be evaluated by the Town of Pecos City based on the response to the information requested above and adherence to the required specifications. Deadline for submission of Proposal is 2:00 p.m., Friday, May 22, 2020, at Pecos City Hall, 115 W. 3<sup>rd</sup> Street, Pecos, Texas 79772. **LATE PROPOSALS WILL NOT BE ACCEPTED AND WILL BE AUTOMATICALLY DISQUALIFIED FROM FURTHER CONSIDERATION.**

Proposals may be mailed or hand-delivered to:

Town of Pecos City  
Re: Mobile Automated Metering System  
Attn: Syra Nichols, City Secretary  
432-445-2421  
115 W. 3<sup>rd</sup> Street  
Pecos, TX 79772

Proposers assume the risk for the method of delivery chosen. City assumes no responsibility for delays caused by Proposer's choice of delivery.

### Selection and Reservation of Rights

The City reserves the right at its sole discretion to reject any or all Proposals prior to the execution of a contract. This Request for Proposal does not obligate the City to contract for the products and/or services specified herein. The final selection, if any, will be the Proposal that in the opinion of the City best meets the requirements set forth in the Request for Proposal and is in the best interest of the City. The City is not obligated to select the lowest price Proposal. The Town of Pecos City shall not be responsible for any costs associated with a Proposer's preparation of a Proposal in response to this Request for Proposal. City reserves the right to individually select from the various price schedules below those meters which best suit the needs of the city. City reserves the right to accept bids, in part or in its entirety, from multiple vendors. The City reserves the right to reject any and all bids.

The **Town of Pecos City** supports cooperative purchasing and shall allow any purchases to qualify for cooperative purchasing as per Texas Local Government Code 271.

### Purpose

The City is preparing to implement an AMR system with an AMI compatible end point in conjunction with replacing water meters throughout the City. The purpose of this bid is to invite qualified firms to provide quoted prices to provide **new water meters**. The City will be working as the prime contractor for this project to coordinate the installation of the water meters under a separate contract.

The purpose of this RFP is to enter into contract with a vendor that can best meet the needs of the City. The City reserves the right to accept or reject any or all bids received as a result of this request, or to negotiate separately with competing vendors, and to waive any informalities, defects, or irregularities in any proposal.

The City reserves the right to accept the bid of a vendor other than that of the lowest bidder.

### Instructions for Preparing and Submitting Bids

Complete all bid forms included in this packet.

Submitted proposals and quoted bid prices must remain valid for at sixty (60) days from the date of submittal.

Contract Documents and all addenda will be available at <https://cplist.com/plans/?Pecos/city> or [www.pecostx.gov](http://www.pecostx.gov).

A **Pre-Proposal Meeting** will not be held for this request. Any requested addendums must be received by the City no later than 5:00 PM on Monday May 18, 2020.

Proposals will be accepted by the City Clerk until, 2:00 pm on Friday, May 22, 2020 at which time bids will be opened and publicly read at Pecos City Hall Lobby.

**Items to be included in the Bid**

- Complete all attached forms or provide otherwise requested information
- Bid Surety in the amount of 5% of the total bid amount.
- Product specifications and information demonstrating compliance with the specifications provided herein.

**Anticipated Bid Process**

Advertisement	May 7, May 14 2020
Pre-submission Meeting	N/A
Requests for Information Due	May 18, 2020
Bid Submission Due	May 22, 2020
Recommendation to Council	May 28, 2020

**Criteria for Selection**

All proposals received from vendors will be reviewed and evaluated the [Utility Name]. Selection of vendor will be based on the proposal which meets the requirements of the RFP. The following criteria will be the matrix for making the selection:

1. System and equipment capabilities, adherence to the required specifications--20 points
2. Experience/Qualifications/References--20 points
3. Ability to provide Technical & Service/support--15 points
4. System expandability/ Long Range Considerations--15 points
5. Costs, including future costs and nature of vendor relationship--20 points
6. Length of Warranty--10 points

The City reserves the right to award in whole or in part, whatever is deemed to be in its best interest. The City reserves the right to accept or reject any or all proposals received as a result of this RFP, or to negotiate separately with competing contractors, and to waive any informalities, defects, or irregularities in any proposal.

The City reserves the right to accept the proposal of a vendor other than that of the lowest proposer. Proposals should be simple and economical, providing a straight-forward, concise description of the vendor's ability to meet the requirements of this RFP.

### Delivery

Delivery shall be made FOB to:

Pecos Public Works Yard  
200 W. Walthall  
Pecos, Texas 79772

No added freight or handling charges will be allowed.

### Schedule

Materials specified in this bid shall be delivered within 45 calendar days as outlined in the Notice to Proceed, or as agreed upon in writing between the supplier and the City. The successful bidder shall work with the City to provide materials in a timely manner as possible when requested.

### Vendor Responsibility

The selected vendor will be required to assume responsibility for all materials and services offered in this proposal, regardless of whether or not the vendor provides that service directly. It is the responsibility of each bidder to carefully examine these specifications and the bid documents and become familiar with the requirements set forth herein. In addition, it is the responsibility of each bidder to submit all necessary information concerning their product to the City. Failure to do so could result in your bid being declared as non-responsive.

### Project Award

All prices submitted shall be valid for a period of 60 days from the date of submittal.

City reserves the right to individually select from the various price schedules below those meters which best suit the needs of the city. City reserves the right to accept bids, in part or in its entirety, from multiple vendors. The City reserves the right to reject any and all bids.

The successful proposer will be expected to provide sufficient payment bonds to the City within ten (10) working days of receiving the notice of award.

### Inquiries and Interpretation

Questions regarding this RFP should be directed to Seth Sorensen, City Manager, at (432)445-2421.

Addendums will be issued only in the case of severe oversights in this RFP.

## SPECIFICATIONS

**Town of Pecos City Texas** meter specifications are as follows:

### **ACCEPTABLE METERS AND BIDDER’S RESPONSIBILITY TO THESE SPECIFICATIONS**

In the interest of standardization, the following meter lines are acceptable to the [Town of Pecos City](#) provided they fully comply with the above specifications and meet all requirements in the bid package:

1. MASTER METER MULTIJET
2. MASTER METER OCTAVE

-OR-

3. APPROVED EQUALS

- a. In order to pre-qualify, the manufacturer shall send necessary drawings and technical data to the [Town of Pecos City](#) and complete a minimum of six-months in field testing.
- b. Any exceptions to the specifications shall be pre-qualified by the above method.
- c. Approved Equals are subject at a minimum to the following:

- Operating Parameters: Operating specifications and performance shall meet or exceed applicable American Water Works Association (AWWA) C-700, C-702, C-708, C-707, and C-706, C-750 requirements or latest revision thereof. Any modifications to the provisions, definitions, or terminology of the above mentioned standards must be provided
- Meters shall be of “Multijet” type 5/8” to 2”.
- Meters Larger than 2” shall be turbine, dual-body compound or ultrasonic.
- All registers shall record and transmit in US Gallons
- Ability to register low water flows
- Meter models, registers and AMR/AMI endpoints shall be from manufacturers in business for ten or more years
- Meters shall be furnished with an affidavit of conformance from the manufacturer that the meters, registers, etc. meet the specifications of this bid.
- Registers shall have an expected life span of no less than twenty (20) years.
- Meters shall be warrantied for full replacement for at least two years (24 months).
- Suppliers shall provide all written warranty information to the City.
- Standard Direct Read in addition to AMR/AMI encoder/register
- Read to 2 place digits

It is the responsibility of each bidder to carefully examine these specifications and the bid documents and become familiar with the requirements set forth herein. In addition, it is the responsibility of each bidder to submit all necessary information concerning their product to the [Town of Pecos City](#). Failure to do so could result in your bid being declared as non-responsive.

<p style="text-align: center;"><b>AUTOMATED METER READING SYSTEM SPECIFICATIONS</b></p>
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## 1. AMR System - General

1.1. The AMR system is understood to consist of:

- 1.1.1. Meters with direct read registers and integrated Meter Interface Units (MIUs) capable of output that can be captured by RF mobile reading devices and/or fixed network equipment;
- 1.1.2. Mobile and/or fixed location data collection units (DCUs) capable of capturing the radio signals from the MIUs;
- 1.1.3. A communication system or data transfer system capable of transferring the data from the data collection units to the meter reading system control computer;
- 1.1.4. The Route Management Software necessary to operate the system and interface to the customer information and billing system;
- 1.1.5. Installation, training and documentation sufficient to enable the personnel to adequately operate and maintain the system.

1.2. **Communication channels.** Must support two-way communications over an FCC Part 90-licensed frequency with the MIU and provide such functionality as priority alarms, over-the-air programming, and remote firmware upgrades. Transceiver must utilize the 450 – 470 MHz FCC Part 90-licensed frequency.

1.3. **Accuracy and Security.** The system shall include provisions to ensure data accuracy (for example, error checking) and security to prevent accidental loss of data.

1.4. **System integrity.** The system must ensure data integrity, accuracy (so that the reading on the meter, ID numbers, and other data are always correct) and data security (e.g., so transmissions of meter reading and customer data cannot be intercepted or accessed by unauthorized parties). The MIUs must ensure against loss of data.

1.5. **Environmental tolerances.** All electronic system components must operate within a temperature range of 4° F to +140° F, and a humidity range of 0% to 100% non-condensing.

## 2. METER INTERFACE UNIT (MIU)

### 2.1. Operation Specifications.

2.1.1. The MIU must operate on an FCC-licensed frequency within the 450 MHz to 470 MHz licensed band and operate within FCC Part 90 regulations for this band. The output power of the device will be no less than 20mw and will be governed by their conformance to these relevant FCC standards.

2.1.2. No programming of the MIU must be necessary during field installation. The MIU must be shipped pre-programmed to the customer and must be able to be initialized via flow or magnetic reboot.

2.1.3. MIU's must be capable of operating in either AMR (Drive-By) mode or Fixed (AMI) mode without requiring exchange of MIU hardware.

2.1.4. The MIU:

**2.1.4.1.** Must utilize two-way communications with the Mobile Data Collector Unit to allow for over-the-air communications for reprogramming, time synchronization, firmware upgrades, alarm notifications, and mode migration to fixed network mode.

**2.1.4.2.** Must utilize data logging to deliver usage data in 15 minute intervals.

**2.2. Physical Characteristics – Integrated Unit.**

**2.2.1.** Meter Interface Units (MIUs) must be integrated and permanently sealed within the meter register using a stainless steel register base, wrap around gasket and tempered glass lens. The unit must be battery operated using two 3.6volt Lithium Thionyl Chloride batteries for long operational life greater than 10 years.

**2.2.2.** The MIU must transmit the meter reading and other information via a 450-470 MHz FCC Part 90 licensed frequency to a Mobile Data Collector Unit.

**2.2.3.** The MIU must be capable of being configured to transmit priority alarms for leak, reverse flow events, low battery, and magnetic tamper.

**2.2.4.** The MIU must be capable of two-way communication for field programming of a user selected ID number or for resetting specific alarm codes.

**2.2.5.** Unit must be able to be programmed remotely and programming must be accomplished without removing the MIU from a pit, basement or wall application.

**2.2.6.** The MIU:

**2.2.6.1.** Must be capable of operating at temperatures of (-4°F to +149°F) and operating humidity of 0 to 95% condensing.

**2.2.6.2.** Must incorporate a dual band antenna capable of providing consistent and reliable connections while the pit environment is flooded or dry.

**2.2.6.3.** Range will not be affected substantially when the pit is partially flooded.

**2.2.6.4.** Must have an integrated unit option where the power source, RF circuitry, meter register, and antenna are fully enclosed in a single IP-68 rated ruggedized enclosure.

**2.2.6.5.** Must have an integrated unit option where the power source, RF circuitry, and meter register are connected to an external antenna in an IP-68 rated ruggedized solution.

**2.2.6.6.** The MIU must be compatible with use on multiple brands of water meters. These units must have programmable gear ratios and available with LCD displays. LCDs must permanently display consumption status and alarms: Totalization, Rate of flow, Unit of Measure, Billable Units, Low Battery Alarm, Direction of flow.

**2.2.6.7.** Each unit must be supplied with an appropriate register housing and adapter to retrofit the current make and model of 5/8” through 2” meters of the following meter manufacturers: Master Meter.

**2.3. Physical Characteristics – Non-Integrated (external) Unit.**

**2.3.1.** Non-integrated or wired MIUs are acceptable for commercial meters or to provide connectivity to meter brands other than the brand proposed.

**2.3.2.** The MIUs must be housed within a high density ABS plastic enclosure.

**2.3.3.** The unit must be battery operated using two 3.6volt Lithium Thionyl Chloride batteries for long operational life greater than 10 years.

**2.3.4.** The MIU must transmit the meter reading and other information via a 450-470 MHz FCC Part 90 licensed frequency to a Mobile Data Collector Unit.

- 2.3.5. The MIU must be capable of being configured to transmit priority alarms for leak, reverse flow events, and low battery.
- 2.3.6. The MIU must be capable of two-way communication for field programming and for resetting specific alarm codes.
- 2.3.7. Unit must be able to be programmed remotely and programming must be accomplished without removing the MIU from a basement or wall application.
- 2.3.8. The MIU:
  - 2.3.8.1. Must be capable of operating at temperatures of (-22°F to 176°F) with operating humidity of 0 to 95% condensing.
  - 2.3.8.2. Circuit board and the battery will be fully enclosed and permanently sealed in a weatherproof enclosure.
  - 2.3.8.3. Unit must be able to retrofit to existing meter installations.
  - 2.3.8.4. The non-integrated MIU must be able to interface the Mobile Data Collector Unit with multiple brands of water meters via a 2-wire or 3-wire connection to the register.

### 3. Mobile Data Collection Unit (MDCU)

- 3.1. **Mounting and power.** The MDCU must be a portable interrogator designed to operate from within a vehicle. The unit must be capable of transfer between vehicles without difficulty. The mobile interrogator should be powered from the vehicle battery. There must be a back-up battery to preserve internal memory.
- 3.2. **System Operation.** The MDCU will provide signals such as audible tones to the driver during the reading of a route so that the driver will not have to take his or her eyes off the road. The reading software shall process all incoming RF data within range of the Receiver. Readings shall be automatically inserted into the correct account records based upon a MIU/Meter ID search. Once started, the reading software shall not require user intervention.
- 3.3. **Reading System Software.** System will have the ability to stream meter reading data, work orders, meter pictures, location pictures, and GPS coordinates in real time with Wi-Fi or Cellular data connection back to the route management software. Route data and incoming reading data shall be optionally displayed in a text format or, graphically displayed on maps showing water utility streets and roads. The reading system software shall provide a function to determine meter latitude & longitude based on meter service address. Read and unread meters shall be displayed at the same time. The reading system software shall flag all problem codes such as tamper detection, no-reads, etc.
- 3.4. **Route Management Software.** The route management software will be web based. The route management software will have the ability to send and receive meter reading data, work orders, meter pictures, location pictures, and GPS coordinates in real time to and from the reading systems while they are in the field. The route management software will have the ability to track the reading systems in real time and show their current locations on a map.
- 3.5. **System Reports.** The reading system software must provide the ability to create and modify system reports with a third party report writer such as Crystal reports. Standard reports shall include but not be limited to the following:

- 3.5.1. Reading Master Report.** Master list showing Customer Name, Service Address, Meter ID, Previous Reading and High Read Limit.
- 3.5.2. Reading Exception Report.** A list showing all readings that failed the high/low limit test, zero usage test or unread meter.
- 3.5.3. Meter Alert Report.** A report designed to list problem meters. Problems reported should include Leak Alarms, Back Flow or Tamper.
- 3.5.4. Orphan Read Report.** A listing of radio readings received but not found in reading route.
- 3.6. Control Computer.** The system should operate using a standard laptop computer with an RS-232 serial port, USB Port, or Bluetooth connection. The MDCU shall include the Intel® Core i5™ 2.60 GHz Processor, 4 GB of RAM, 320 GB Hard Disk - DVD-Writer - Intel HD 4000 Graphics, 14” 1366 x 768 Display, Bluetooth and a 3-Year manufactures warranty. Additional interfaces should include a wired and wireless network interface, USB and serial ports. The system should include Windows 7 or higher.
- 3.7. Transceiver.** The MDCU shall utilize a transceiver that must operate in a 450-470 MHz FCC Part 90 licensed frequency. The transceiver shall connect to the control computer through the use of either a standard serial or USB port. It shall be powered by the vehicle’s 12volt cigarette lighter adapter with a reserve battery life of approximately 3 hours. The transceiver shall be furnished with all cables and suitable magnetic mount antenna. The transceiver shall be capable of communicating with the control computer using Bluetooth.
- 3.8. Field Programming and Testing.** The MDCU should include software for field programming and testing of the MIUs. The system must allow for single unit or batch programming. Please indicate if additional equipment is required for programming and testing MIUs.
- 3.9. Manual entry.** The system must permit manual entry of meter readings and comments.
- 3.10. Software documentation.** Documentation shall be and shall include at a minimum: system overview description, record layouts, description of program function and logic, operating procedures, screen layouts, data entry procedures, report descriptions and descriptions of all user options.
- 3.11. Software license and support.** All software must be supplied with a perpetual license indicating the software’s designer, owner and licensor, and detailing the manufacturers terms and conditions, including annual cost of maintenance by the Vendor.
- 3.12. Mobile Interrogator Warranty.** The control computer and data collection unit shall be covered by a manufactures warranty for a period of no less than one year.

#### **4. Support Services**

- 4.1.** The vendor must have an in-house customer support department. The customer support department is required to maintain a telephone help desk and must have the capability of continuing the support through the use of a service agreement. A list of required services to be provided by the help desk includes but is not limited to the following:
  - 4.1.1.** Answer and resolve hardware/operation/maintenance questions and problems.
  - 4.1.2.** Answer and resolve software operation questions and problems.

- 4.1.3. Evaluate information for updates or revisions.
- 4.1.4. Evaluate personnel for training needs.
- 4.1.5. Perform additional on-site training or evaluation as needed.
- 4.2. The help desk must be available weekdays between 8:00 a.m. and 7:00 p.m. EST with after-hours numbers available as needed.
- 4.3. The customer support department of the vendor must provide metrics demonstrating that it routinely meets or exceeds the following minimum support performance metrics:
  - 4.3.1. 95% Same Call Resolution
  - 4.3.2. 95% Same Day Resolution

## **5. Installation and Training**

- 5.1. Complete installation and operating instructions will be included for all of the supplied hardware and software equipment. The training must be supplied by the system manufacturer or approved distributor.
- 5.2. Proposal must include any additional costs for training and assistance to install and begin operation of the system. The vendor will also inform the customer of any pre-installation activities that are to be completed and the support material that will be needed for the initial installation.

## **6. WARRANTIES**

- 6.1. In evaluating bid submittals, warranty coverage will be considered. The vendor must be required to state its warranty and/or guarantee policy with respect to each item of proposed equipment. The procedure for submitting warranty claims must also be provided. The terms and conditions of the warranty coverage for: all MIUs, register integrated or non-integrated, supplied in connection with this proposal are covered under the Allegro Hardware Warranty Document.

## **7. SYSTEM MAINTENANCE AND SUPPORT**

- 7.1. In addition to warranty periods, vendors are required to supply information on required or optional maintenance programs beyond the warranty period for both hardware and software. Vendor must offer multiple-year maintenance contracts so utility can take advantage of multi-year discounts. The location of, and procedures for, obtaining such support must be stated.

## **8. VENDOR QUALIFICATIONS**

- 8.1. The qualified vendor will have a minimum of fifteen (15) years of experience with meter reading systems. The selected vendor must be thoroughly versed in meter and RF AMR/AMI technology and have been a major supplier in the US marketplace. The proposed system must be of a single brand, purchased through a single vendor and maintained by the selected vendor to ensure compatibility among system components.
- 8.2. All vendors must document which water meter manufacturers and models they are capable of interrogating with the proposed meter reading equipment. A customer reference list must be enclosed with the proposal.

**COLD WATER METER - MULTIJET  
SPECIFICATIONS**

1. **GENERAL**

**Category: Cold Water Meter**

**Type: Multi-jet**

**Sizes: 5/8" -2"**

**Applicable AWWA Standard: C708**

Except as otherwise modified or supplemented herein, the latest revision of AWWA Standard C-708 for Cold Water Meters - Multi-jet Type shall govern the materials, design, manufacture and testing of all meters furnished under this specification as approved by the Director or his appointed agent.

AWWA Standard C708 is considered by the **Town of Pecos City** to be minimum requirements and shall be supplemented herein to ensure the quality required by the utilities department.

Meters shall be manufactured by a company with a minimum of ten (30) years' experience in manufacturing of water meters. All water meters and meter components shall be assembled and tested within the Continental United States of America.

Proposals will be accepted only from those companies who are actively engaged in the manufacturer and/or official resell of a complete line of water meters of various types, (i.e. multi-jet type, turbine, ultrasonic and compound).

Meters shall be proposed *without* connections. Cold water meters 2" and smaller shall be magnetically driven, multi-jet, velocity type.

The water utilities department reserves the right to request a sample meter to study prior to awarding Proposals.

2. **METER MAIN CASE**

The main case shall be a solid case with removable bottom, cover ring or cover plate and will be manufactured of cast bronze so constructed that the main case (including meter spuds) will withstand internal pressure and external stress to eliminate distortion, cracking and breaking, which will cause leakage, damage to other components or interfere with the proper operation of the meter in general. Bronze bottom, if applicable or cover shall be attached to the main case with stainless steel or bronze bolts.

All external bolts, nuts and washers shall be of bronze, stainless steel or other non-corrosive metal.

Main case connection for 5/8x3/4-inch, 3/4 inch and 1-inch meters shall be spuds having external water meter threads with dimension as indicated by AWWA Standards. One and one-half inch (1-1/2") meters and two inch (2") meters shall have elliptical flanges.

The meter serial number shall be imprinted permanently on the main case as well as clearly on the register top lid and run consecutively per size, per order.

The register housing and lid shall be made of bronze or a suitable synthetic polymer.

The size, model number of the meter and direction of the flow through the meter shall be imprinted permanently on the outer case of all meters.

All meter cases shall be machine finished, with no sharp edges. All meter cases shall be of a full Bronze body of copper alloy meeting NSF 61 / NSF 372 requirements.

All meters' cases shall include a calibration port located under the register shroud or externally if protected by an acceptable tamper device.

### 3. **METER REGISTERS-**

#### **See Sec 2.2 Physical Characteristics- Integrated Unit under AMR System General**

The register shall be secured to the main case with a tamper proof seal pin design.

### 4. **MEASURING CHAMBER**

The measuring chamber shall be made of a suitable synthetic polymer material, which equals or exceeds AWWA Standards. It shall be secured in a position in the main case in such a manner that slight distortion of the main case will not affect sensitivity or registration of the meter.

The measuring chamber shall be of the velocity type and designed as to allow the flow of water to pass through precision, converging orifices causing the impeller to rotate providing a synchronous relationship between the velocity of the water passing through the chamber and registration.

The measuring chamber shall be constructed in such a manner as to facilitate easy removal from the main case.

To ensure longevity of service, the performance of the measuring chamber shall be guaranteed to meet required meter standards of AWWA manual M-6 as follows:

5/8 x 3/4"	20 years or 2,500,000 gallons
3/4 x 3/4	20 years or 2,500,000 gallons
1"	20 years or 3,250,000 gallons
1.5"	20 years or 5,600,000 gallons
2"	20 years or 10,400,000 gallons

The measuring chamber shall be covered for this period by written warranty as required or mentioned elsewhere in these specifications.

### 5. **MAGNETIC COUPLINGS**

There shall be no stuffing box. The motion of the multi-vaned rotor shall be transmitted to the sealed register through the use of a direct magnetic coupling. Magnets shall be of ceramic or approved equal.

### 6. **STRAINERS**

All meters must be provided with a corrosion resistant strainer, which is easily removed from the meter

7. **CHANGE GEARS**

Change gears are not acceptable. All register of particular registration and meter size shall be identical and completely interchangeable.

8. **ACCURACY AND HEAD LOSS TESTS**

Meters shall conform to current AWWA test flow, head loss and accuracy standards.

9. **PRESSURE CAPABILITY**

Meters shall operate up to a working pressure of one hundred fifty (150) pounds per square inch and to a temperature of 120 degrees Fahrenheit, without leakage or damage to any parts. The accuracy shall not be affected when operating at this pressure to possible distortion.

10. **WARRANTY REQUIREMENTS**

The manufacturer's meter guarantee will be required with this Proposal and shall cover the meter main case for a period not less than twenty-five (25) years according to the meter serial number.

The guarantee shall at a minimum encompass the meters meeting AWWA New meter accuracy for a period of (5) years and an additionally AWWA Repaired meter accuracy for a period of fifteen (15) years. This provides for an accuracy guarantee of (20) years.

11. **PROPOSERS RESPONSIBILITY TO THIS SPECIFICATION**

It is the responsibility of each Proposer to carefully examine these specifications and the Proposal documents and become familiar with the requirements set forth herein. In addition, it is the responsibility of each Proposer to submit all necessary information concerning their product to the Town of Pecos City. Failure to do so could result in your Proposal being declared as non-responsive.

**ACCEPTABLE METERS**

In the interest of standardization, the following meter lines are acceptable to the [Town of Pecos City](#) provided they fully comply with the above specifications and meet all requirements in the bid package:

1. MASTER METER MULTIJET
2. APPROVED EQUAL

**COLD WATER METER – ULTRASONIC TRANSIT-TIME  
SPECIFICATIONS**

**1. GENERAL**

**Category: Cold Water Meter**

**Type: Ultrasonic Transit-Time**

**Sizes 2”-8” Floating Flange**

**10”-12” Fixed Flange**

**Applicable AWWA Standard: C715**

Except as otherwise modified or supplemented herein, the latest revision of AWWA Standard C715 Electromagnetic and Ultrasonic Type for Revenue Generation, shall provide theory and operation specifics on the basic ultrasonic concept. This document will govern the materials, design, manufacture and testing of all meters furnished under this specification or equal as approved by the Director or his appointed agent.

AWWA Standard C715 is considered by the [Town of Pecos City](#) to be only the minimum requirements and shall be supplemented herein to ensure the quality required by the utilities department.

Meters shall be manufactured by a company with a minimum of thirty (30) years of experience in manufacturing *various types* of cold water meters such as Multi-jet, Positive Displacement, Compound and Turbine Type water meters. The Manufacturer's corporate home office shall be in the United States.

Meters shall be bid without strainers and without companion flanges.

**2. METER MAIN CASE**

Outer cases shall provide full compliance with ANSI/NSF 372 (AB1953 or NSF61 G), and be made of Stainless Steel SAE Grade 316 equaling or exceeding AWWA Standards such as those listed in ASTM A269 (2”-8”) or Cast ductile iron alloy equaling or exceeding AWWA Standards such as those listed in ASTM A536 or ASTM A126 (10” – 12”).

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

The main case shall withstand a working pressure of 175 PSI without leakage, seepage in the castings, or distortion affecting the free and accurate operation of the measuring unit.

The size of the meter and the direction of flow shall be case in raised letters on the outer surface of the case.

**3. CASING FLANGES**

Casing flanges shall be made of a cast ductile iron alloy equaling or exceeding ANSI/AWWA Standards such as those listed in ASTM A536 or ASTM A126. The casing flanges shall be protected by a complete fusion-bonded coating conforming to ANSI/AWWA C550.

Flanges for the 2” meters shall be of oval type and the bolt holes will be double drilled in order to fit 1-1/2” or 2” oval flanges. Flanges for 3” meters and larger shall be of round type. The number of bolt holes and diameter of bolt holes shall follow the AWWA C700 series for cold water meter companion flanges.

Casing flanges for 2” through 8” meters shall be cast separate from the METER MAIN CASE and of the “floating flange” design. The floating flange shall be a two piece design able to be removed from the meter case for maintenance or replacement. Casing flanges for 10” and 12” will be integral to the METER MAIN CASE.

#### **4. REGISTER COVER**

The register box shall be made of an engineering plastic with the manufacturer’s serial number inside the register lid. Serial number of the meter shall also be permanently programmed in the electronic register.

Register cover box shall be attached to main case in a tamper resistant manner. The register cover box shall be equipped with a hinged lid that will overlap the register to protect the reading area.

#### **5. REGISTER**

The factory sealed register shall be electronically driven only and shall be furnished with a low flow leak detection symbol and with a reverse flow notification symbol. The register shall be identical within a given size or model subject to the programming of appropriate flow factors for the particular meter. An effectively tamper proof meter with a displayed tamper indication symbol, is required. The register shall be programmed initially to read in [US Gallons](#) as ordered by the [Town of Pecos City](#). The transparent LCD register glass lens shall be made of molded heat-treated 0.25” glass to ensure against scratching and breakage. Serial number shall be permanently programmed in the electronic register.

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

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

The register shall have a multi-line display with a minimum of 12 digits on the totalizer with a stationary decimal separating single billable units from fractional billing units. The register shall have a 4 digit rate of flow indicator with a floating decimal to allow high resolution flow measurement. The register shall have the ability to display 1/1000<sup>th</sup> of a measurement unit to allow high resolution for low flow meter testing or on-site inspections. The LCD shall indicate reverse flow, rate of flow, low battery indication, leak alert, water temperature, as well as no flow condition. When the meter is providing an encoder output (as described in Section 7A), the LCD shall clearly distinguish the digits for the encoder output reading by displaying lines above the encoder reading.

#### **6. MEASURING SECTION**

The measuring section shall be a unitized unit, completely integral to the meter body. The measuring section shall not include any moving parts and the measuring section shall have an unobstructed flow

passage area at least equal to 50% of the nominal Schedule 40 pipe size corresponding to the meter's size.

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

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

To ensure longevity of service, the performance of the measuring chamber shall be guaranteed to meet required Compound meter accuracy standards of AWWA M6 Manual for a period of two years from date of manufacturer's shipment.

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

## **7. SIGNAL PROCESSING**

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

Multiple measurements are sampled at a minimum of 1 second intervals of these transit time loops that are made to significantly improve accuracy over a single pass transit time measurements as employed in typical AWWA C750 ultrasonic meters to achieve low flow rate measuring accuracy.

When the meter is in storage or in transportation, the meter shall go into SLEEP mode to preserve the battery. Normal sampling and flow measurement shall be automatic and shall not require special software or tools to turn the meter on.

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

### **7A. SIGNAL OUTPUTS**

The meter shall have 4 optional outputs – Analog (4-20), Digital pulse output (open drain or dry contact), Modbus, or encoder output.

The Analog Output is a 4 – 20 mA current loop (the end user must supply power to the unit). The 4 mA parameter is set to 0 GPM and the 20 mA parameter shall be scaled to the user's requirements, as long as it does not exceed the meter's maximum flow rate.

The Digital pulse output is to be either an open drain transistor output, or a dry contact relay, that provides pulse per quantity, configurable to the following options:

1. Net flow pulses
2. Forward flow pulses
3. Reverse flow pulses

The Modbus output is a Master-Slave protocol for monitoring the following alarms and system values:

1. Leak
2. Pipe Burst
3. Reverse Flow
4. Tamper
5. Low Battery
6. Flow Rate
7. Volume

The Encoder Output is to be serial communication collector utilizing UI1203 or UI1204 communication protocol. The Town of Pecos City shall designate at the time of order if single or dual output is required and shall designate the type of wired output that is desired. Available options are 1) bare colored wires, 2) Nicor compatible connector, 3) Itron compatible connector, or 4) magnetic coupled TouchPad. Encoder output provides the following data through the output cable.

- 1) Encoder Single output provides the following
  - Meter ID
  - Meter Totalizer Reading (up to 8 digits maximum)
- 2) Encoder Dual output provides
  - One encoder reading with the following
    - i. Meter ID
    - ii. Meter Totalizer Reading (up to 8 digits maximum)
  - One scalable open drain pulse output with the following option
    - i. Net flow pulse
    - ii. Forward flow pulse
    - iii. Reverse flow pulse

The [Town of Pecos City](#) shall choose one of these four basic output choices.

## **8. INSTALLATION REQUIREMENTS**

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

-CONTINUED-

**9. ACCURACY AND PRESSURE LOSS TESTS**

Meters shall EXCEED current AWWA C-715 test flow, head loss and accuracy standards as follows.

<b>SIZE</b>	<b>SAFE MAXIMUM FLOW RATE</b>	<b>NORMAL FLOW RANGE ACCURACY ± 1.5 %</b>	<b>EXTENDED LOW FLOW RANGE ACCURACY ± 5 %</b>	<b>PRESSURE LOSS  @ 15 ft/ sec  (Schedule 40 pipe)</b>
1.5” / 2”	250 GPM	1/2 GPM - 250 GPM	0.25 GPM	2.44 PSI
3”	500 GPM	1 GPM - 500 GPM	0.50 GPM	2.42 PSI
4”	1,000 GPM	1 1/2 GPM - 1,000 GPM	0.75 GPM	3.31 PSI
6”	1,600 GPM	3 GPM - 1,600 GPM	2 GPM	6.95 PSI (sculpted ports)
8”	2,800 GPM	5 GPM – 2,800 GPM	4 GPM	4.55 PSI
10”	5,500 GPM	14 – 5,500 GPM	8 GPM	2.5 PSI
12”	5,500 GPM	14 – 5,500 GPM	8 GPM	2.5 PSI

**9. REAL TIME CLOCK**

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

1. Data logging direct from the meter, without the requirement of an RF endpoint. The data logger shall provide two data loggings; one data log in minute readings with a minimum of 2,700 data points, and the second data log in hourly readings with a minimum of 1,400 data points. Each log shall be configurable by the City. The meter shall be able to log at a minimum of one minute resolution on the first log and a minimum resolution of one hour on the second log. Data logger shall also log system events, tamper, low battery, and reverse flow measurement.
2. Meter shall have the *option* to be Sabbath compliant by turning off the visual LCD during Sabbath and other high holidays. During this time, the meter shall still measure flow but does not display the reading on the LCD until the designated time period has ended.

## **10. PRESSURE CAPABILITY**

Meters shall operate up to a working pressure of one hundred seventy five (175) pounds per square inch (PSI) and to a temperature of 122 degrees Fahrenheit, without leakage or damage to any parts. The accuracy shall not be affected when operating at this pressure to possible distortion.

## **11. ACCEPTABLE METERS**

In the interest of standardization, the following meter lines are acceptable to the [Town of Pecos City](#) provided they fully comply with the above specifications and meet all requirements in the bid package:

1. MASTER METER OCTAVE
- OR-
2. APPROVED EQUALS

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

## **BID SUBMISSION**

### **Proposer Information**

Provide the following information as part of your bid submission:

*Company Name:*  
*Address:*  
*Primary Contact:*  
*Phone:*  
*Secondary Contact:*  
*Phone:*  
*Fax:*  
*Email:*  
*Website:*

### **Qualifications – Company Information**

Provide a company narrative stating your firm's history and organizational structure, as well as providing a description of your firm's background and experience in providing, installing, servicing and supporting AMR systems.

### **References**

Provide (5) five references using your proposed AMR system. Include reference name, contact person, phone number, and address.

### **Statement of Compliance**

Submit a statement, similar to that shown below or in paragraph form, attesting to compliance with the specifications of this proposal.

<b>Description</b>	<b>Meets Proposal Specifications</b>
5/8 x 3/4 Radio Read Meter per required specifications	Yes / No
1" Radio Read Meter per required Specifications	Yes / No
1 1/2" Radio Read Meter per required specifications	Yes / No
2" Radio Read Meter per required specifications	Yes / No
3" Radio Read Meter per required specifications	Yes / No
4" Radio Read Meter per required specifications	Yes / No
6" Radio Read Meter per required specifications	Yes / No
Reading Equipment, Software, Training per required specifications	Yes / No

### **Warranty and Product Sheets**

Provide all applicable warranty as well as product information sheets for proposed equipment.

## Summary of Quantities

### Register Replacement

ITEM	UNIT	QUANTITY
AMR/AMI Replacement Register	EA	250

### Multi-Jet Meters

ITEM	UNIT	QUANTITY
Multi-Jet Meter, 5/8" X 3/4"	EA	3250
Multi-Jet Meter, 1"	EA	80
Multi-Jet Meter, 1.5"	EA	10
Multi-Jet Meter, 2"	EA	400

### Ultrasonic Meters

ITEM	UNIT	QUANTITY
Ultrasonic Meter, 3"	EA	13
Ultrasonic Meter, 4"	EA	29
Ultrasonic Meter, 6"	EA	7

**Pricing Proposal**

**BID PROPOSAL  
TOWN OF PECOS CITY  
Water Meter Purchase FY 2020**

The contractor shall furnish all labor, equipment, materials, disposal and superintendence required to perform all work in connection with the

**Water Meter Purchase FY 2020**

project, complete in place in accordance with the Plans and Specifications, including but not limited to the following:

ITEM	QTY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
1	1	EA	Reading Equipment, Software, Training per required specifications		
				Dollars	
				Cents	
		Per Each		\$ _____	\$ _____
				<i>(figure)</i>	<i>(figure)</i>

ITEM	QTY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
2	250	EA	AMR/AMI Replacement Register		
				<u>Dollars</u>	
				<u>Cents</u>	
			per Each	\$ _____	\$ _____
				<i>(figure)</i>	<i>(figure)</i>
3	3250	EA	Multi-Jet Meter, 5/8" X 3/4"		
				<u>Dollars</u>	
				<u>Cents</u>	
			per Each	\$ _____	\$ _____
				<i>(figure)</i>	<i>(figure)</i>
4	80	EA	Multi-Jet Meter, 1"		
				<u>Dollars</u>	
				<u>Cents</u>	
			per Each	\$ _____	\$ _____
				<i>(figure)</i>	<i>(figure)</i>

ITEM	QTY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
5	10	EA	Multi-Jet Meter, 1.5”		
				<u>Dollars</u>	
				<u>Cents</u>	
			per Each	\$ _____	\$ _____
				<i>(figure)</i>	<i>(figure)</i>
6	400	EA	Multi-Jet Meter, 2”		
				<u>Dollars</u>	
				<u>Cents</u>	
			per Each	\$ _____	\$ _____
				<i>(figure)</i>	<i>(figure)</i>
7	13	EA	Ultrasonic Meter, 3”		
				<u>Dollars</u>	
				<u>Cents</u>	
			per Each	\$ _____	\$ _____
				<i>(figure)</i>	<i>(figure)</i>

ITEM	QTY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
------	-----	------	-------------	------------	-------------

8      29      EA                      Ultrasonic Meter, 4”

\_\_\_\_\_ Dollars

\_\_\_\_\_ Cents

per Each

\$ \_\_\_\_\_

\$ \_\_\_\_\_

*(figure)*

*(figure)*

9      7      EA                      Ultrasonic Meter, 6”

\_\_\_\_\_ Dollars

\_\_\_\_\_ Cents

per Each

\$ \_\_\_\_\_

\$ \_\_\_\_\_

*(figure)*

*(figure)*

**TOTAL BID**

\$ \_\_\_\_\_

Dollars & Cents (WORDS)

\$ \_\_\_\_\_

Dollars & Cents (FIGURE)

**SIGNATURE**

\_\_\_\_\_

**DATE**

\_\_\_\_\_