SCOPE OF WORK

BACKGROUND

The City of Pleasanton is seeking bids from qualified proponents to update/replace its existing AMI system and most water meters. The successful proponent will supply and install an AMI data collection network with City-wide coverage including AMI radio transmitters for all City accounts, fully-functional AMI meter data collection, analysis and meter data management software, associated training, and ongoing maintenance and support services including field services for data collectors. The City requires that the water meters and AMI radio transmitters be manufactured by the same vendor. The successful proponent will also replace or retrofit water meters as specified. The work shall be completed across the City's water service territory. The AMI meter reading system requires functionality to support the City's goals and objectives.

City Description:

Located at the "tri-valley" junction of the I-580 and I-680 freeway interchange and incorporated in 1894, Pleasanton is a community with a population of about 80,000 people in 24.2 square miles near the major business markets of Silicon Valley, San Francisco, and the Central Valley. Pleasanton supports a thriving business community ranging from software to biotechnology to professional services. Many businesses make their home in the nationally recognized Hacienda Business Park. In addition to these global leaders, there are nearly 600 downtown businesses and more than 29,000 households utilizing Pleasanton city services. The City of Pleasanton is organized into numerous departments and divisions, such as the Public Works Department, which is comprised of three divisions: Operations & Maintenance, Utilities & Environmental Services, and Engineering. Public Works is responsible for the operations and maintenance of the City's infrastructure (Water, Sewer, Storm, Streets, Parks, and Plazas), Fleet / Mobile Equipment, and Facilities.

Water System:

The City owns and operates a potable water system under a permit from the State Water Resources Control Board's Division of Drinking Water (DDW). The City serves potable water to approximately 22,000 customers through a water distribution system comprising approximately 330 miles of piping, 19 storage tanks, and 14 booster stations.

Existing Meters and Meter Reading Technology

The City of Pleasanton currently has approximately 22,500 water meters ranging in size from 3/4" to 8". In 2016, the City of Pleasanton replaced the majority of its meters and installed an Aclara AMI system. Aclara MTUs are mounted using a bracket under composite meter box lids. Approximately 21,000 of the City's water meters will be replaced as part of this project whereas the remaining meters will only require a new AMI radio transmitter. The City's meters are read hourly by the Aclara MTUs, and data is retrieved from Aclara data collectors twice per day. The City expects to continue to receive hourly data from all its meters at least daily. City employees use the AclaraOne software interface to view customer usage for up to 3 years, down to hourly usage, and regularly review data for potential customer-side leaks.

Customer Information System and Customer Portal

The City currently reads meters on an hourly basis and bills customers bi-monthly. The City splits billing into eight (8) billing groups, processing one group each week. Groups range in size from 2,200 to 3,400 accounts. The City currently uses a Tyler Munis Enterprise ERP Customer Information System and a customer portal provided by Smart Energy Water (SEW).

Using the SEW portal, water customers can view their hourly, daily, monthly and bi-monthly water usage for the past two years.

Planned Work

As a part of this project, the Contractor will be responsible for meter exchanges for meters sized 5/8” x 3/4" to 1” and for radio transmitter retrofits on meters sized 5/8” x 3/4" to 2”. The City will be responsible for meter changes 1.5” and larger and retrofits of meters that are 3” and larger.

Contractor work is summarized in the table below.

Meter Size	Replace Meter	Retrofit Meter	Total
5/8” x 3/4"	17,679		**17,679**
3/4”	18		**18**
1”	3,277	85	**3,362**
1.5”		728	**728**
2”		551	**551**
	20,974	**1,364**	**22,338**

Table 1 - Work Type Quantities

The vast majority of meters to be removed from the field are manufactured by Diehl or Zenner. Meter services listed as 5/8” x 3/4" are currently supplied with 3/4" short meters. These replacements will be considered “like for like” as lay lengths will be the same.

Meters slated for retrofit include Elster EvoQ4, Kamstrup FlowIQ, and Sensus OMNI.

Note that all quantities provided in this RFP are estimates based on the City's meter population as of September 2025. The City makes no guarantees on the actual quantities that will be required in the project.

Kilkare Woods

Kilkare Woods is a small, residential community located southeast of downtown Pleasanton, accessible primarily via Kilkare Road from Sunol. The area lies at the base of a narrow canyon surrounded by steep, heavily wooded hills within the Pleasanton Ridge foothills. The community includes approximately 262 service connections within a concentrated, topographically constrained valley floor. Due to its terrain and vegetation, Kilkare Woods experiences limited cellular coverage and presents radio frequency (RF) propagation challenges for AMI network communication. Kilkare Woods is not a part of the incorporated City of Pleasanton; street lighting and other municipal infrastructure is not available in this area. Meters in Kilkare Woods are located in meter boxes, mostly under polymer concrete lids. Note that accounts in Kilkare Woods are in routes 121 and 123 in RFP-4b Metered Addresses.

As part of this project the Contractor shall be responsible for providing a meter reading solution for Kilkare Woods. The City’s preference is for the Contractor to provide an AMI solution for Kilkare Woods. However, the City will consider AMR as an alternative if AMI is not practical in this area.

Project Timeline

The City has an aggressive timeline to complete this meter and AMI replacement project. The City’s goal is have a contract related to this RFP signed by March 2026. Startup is anticipated to begin in April, 2026 and will run for five months. After a successful Proof-Of-Concept, the City will notify the Contractor to move into Installation and Deployment, with Total Performance by December 31, 2027.

Time is of the essence in the performance of this Contract. If the Contractor fails to deliver, install, and fully commission the meters and AMI equipment within the time specified in the Contract or any written extension

authorized by the City, the actual damages sustained by the City as a result of such delay will be substantial. The City may assess liquidated damages in the amount of Three Thousand Dollars ($3,000.00) per calendar day for each day of delay beyond the specified completion date. The City may deduct such amounts from any monies otherwise due or becoming due to the Contractor.

The assessment or payment of liquidated damages shall not relieve the Contractor of its obligation to complete all work under the Contract, nor shall it preclude the City from pursuing other contractual remedies for non-performance, except that these liquidated damages shall constitute full and complete compensation for delays in achieving timely delivery, installation, and commissioning of the AMI system and associated equipment.

TECHNICAL DEFINITIONS

In this document, where the following words appear with initial uppercase letters, they shall have the following meanings:

"**AMI Network**" includes data collection equipment (collectors connected to backhaul and repeaters if applicable) that is installed across the City of Pleasanton service territory or uses and existing data collection network from a third-party service provider.

"**AMI Radio transmitter**" includes the RF or cellular radio transmitter including terminal screws, wire, and backplates and mounting hardware.

"**AMI Software**" includes the software application that includes functionality related to a headend, meter data management, data lake, and meter reading applications as required to achieve the desired functionality.

"**AMI System**" includes the AMI Software, MDM Software, AMI Network and AMI Radio Transmitter.

"**Area**" is a group of work orders within a large geographic location that aligns with the City's meter reading cycles. The Proof-of-Concept area will also be considered an Area.

"**Completion Milestone**" refers to point of time where the Contractor meets a specific set is performance criteria as defined in this document.

"**Contractor**" refers to the collection of entities including the Contractor, subcontractors, suppliers, manufacturers, software providers, installation companies that comprise the submitted proposal.

"**Customer**" means the property owner, property manager, homeowner or tenant of a property that owns or resides in a property that has a City water meter.

"**Hosted Software**" is AMI Software that is licensed and dedicated to the City, is accessible through a web browser and is hosted in an American based data center.

"**Meter as a Service" (MaaS)** is an AMI model where the Contractor takes full responsibility of network performance over the life of the system from meter to data collection software including installation, meter, radio transmitter and network equipment ownership in exchange for a monthly fee and no upfront fees.

"**MDM Software**" the meter data management software application that allows long term hourly consumption to be stored, viewed, queried from that is a stand-alone application or a module of the AMI Software.

"**Meter Installation System**" is the Contractor's installation software application that allows for digital work order, account and work tracking, Customer contact tracking, appointments, quality assurance and City web access to reports and City data.

"**Network as a Service (NaaS)**". Turns the responsibility of data collector performance, uptime and data backhaul over to the Contractor while delivering AMI Software through a SaaS.

"**Payment Milestone**" refers to the point of time where the Contractor may request City acceptance that allows the Contractor to invoice for a percentage of software, implementation, and mobilization services.

"**Production Schedule**" refers to the forecasted and actual installation by water meter size, reported and updated weekly for the duration of the project.

"**Project**" means and includes all services, software and products associated with the implementation of the AMI System.

"**Project Manager**" means the Contractor's local and on-site main point of contact for all project related matters.

"**Read Success Rate**" means the performance measure for a group of radio transmitters to achieve Installation Complete.

"Service Level Agreement (SLA)" defines the Contractor's obligation to maintain continuous operation of the AMI network infrastructure (including collectors and AMI Software) and to ensure agreed-upon uptime for the AMI network, AMI Software and the associated interfaces.

"**Software as a Service (SaaS)**" is software that is provided to the City through a subscription, is accessible through a web browser and is hosted in an American-based data center.

"**Substantial Performance**" marks Completion Milestone 4, as defined in 1.6.4 of this Scope of Work.

"**Solution**" includes all services, software and products that are included in the Meter Installation System, AMI Network, AMI Software, AMI radio transmitter and water meter products.

"Standard Specifications and Details" refers to the published City engineering standards available at https://www.cityofpleasantonca.gov/assets/ourgovernment/public-works/engineering/standardspecifications-and-details-July 2024.pdf.

"**Time**" all references of Time in the products, services and software shall observe Pacific Time.

"Total Performance" marks Completion Milestone 5, as defined in 1.6.4 of this Scope of Work.

"**Use Case**" refers to a specific situation in which a product or software application could potentially be used.

"**Work Order**" refers to the digital reference number associated with the water meter location where the installation Contractor will perform work at.

Acronyms

Acronym	Definition
AISI	American Iron and Steel Institute
AMI	Advanced Metering Infrastructure
AMR	Automatic Meter Reading
ANSI	American National Standards Institute
API	Application Programming Interface
AWWA	American Water Works Association
CIS	Customer Information System
CO	Change-Out
CPI	Consumer Price Index
CSV	Comma Separated Value
DCU	Data Collection Unit (aka: Data Collector)
DDP	Delivery Duty Paid
DMA	District Metered Area

EJCDC	Engineers Joint Contract Documents Committee
EULA	End User License Agreement
FCC	Federal Communications Commission
FDD	Functional Design Document
FOB	Freight on Board Destination, Freight Prepaid and Allowed
FTP	File Transfer Protocol
FUAT	Final User Acceptance Testing
ICI	Industrial, Commercial & Institutional (3” and greater) (aka: Large Meters)
ID	Identification
IM	Intermediate Meter (1.5” – 2”) (aka: Small Commercial Meters)
IUAT	Initial User Acceptance Testing
LL	Lay Length
LM	Large Meter (3” and greater) (aka: Industrial, Commercial & Institutional Meters)
LOS	Level Of Service
LOV	List Of Values
MDM	Meter Data Management
MIS	Meter Installation System
NaaS	Network as a Service (includes the capital and operation cost of an AMI network).
NSF	National Sanitation Foundation
PCRC	Police Criminal Records Check
PM	Project Manager
POC	Proof Of Concept
QA	Quality Assurance
RF	Radio Frequency
RFP	Request For Proposals
RMA	Return Material Authorization
RSR	Read Success Rate
SaaS	Software as a Service
SLA	Service Level Agreement
SM	Small Meter (5/8” to 1”) (aka: Residential Meters)
SME	Subject Matter Expert
T&C	Terms and Conditions
UAT	User Acceptance Testing which will include both IUAT and FUAT
WCB	Worker’s Compensation Board
WO	Work Order
WT	Work Type
XML	Extensible Markup Language

Table 2 - Acronyms and Definitions

DESCRIPTION OF DELIVERABLES

1. PROJECT OVERVIEW

1.1. High Level Overview

The City is seeking proposals that include the following components:

- **A.** Project Management
  - Overall project management services
  - Including project scheduling
- **B.** AMI Components and Meters from the same manufacturer including:
- **C.** Advanced Metering infrastructure AMI System including:
  - AMI radio transmitters
  - Headend software
  - Meter data analytics MDM Software
  - Supply and installation of data collection equipment (as necessary)
  - Interface development and software implementation service
  - System wide training
  - Ongoing Maintenance and Support for software and network
- **D.** Supply of water meters
  - Supply of non-mechanical water meters for project requirements
  - Note: AMI Systems and Meters proposed in response to this RFP will not be considered.
- **E.** Installation services including:
  - Field supervision
  - Water meter and AMI radio transmitter installations
  - AMI data collection equipment installation (as necessary)
  - Customer service
  - Public outreach implementation
  - Data management
  - Quality management

Priorities for the project include completion of a rigorous Proof of Concept; timeliness to minimize disruption to City Customers; and support for a smooth and manageable transition from existing City data collection processes to new processes.

1.2. AMI Business Drivers

The City completed a comprehensive business case to help guide the scope of this project. As part of this process, the City identified AMI business drivers that it wants to address with this project. The table below provides a summary of these AMI business drivers that were deemed important or critical to the success of the project.

ID	Revenue Protection (RP)	Score
RP1a	Unauthorized Use of Water	Important
RP1b	Unauthorized Use of Private Hydrants	Important
RP2	Stopped Meter	Important
RP4	High Bill Complaints	Critical
RP4a	Suspension of Service Monitoring for Non-Payment	Critical
RP4b	Support for Leak Forgiveness Program	Important
	Operational Efficiency (OE)	
OE1	Collecting Meter Readings	Critical
OE3	Meter Reading Reliability / Elimination of Estimates	Critical
OE4	Detect Register and Cut Wiring Problems	Important
	Enhanced Customer Service (CS)	
CS1c	Customer Engagement – Progressive	Critical
CS2	Leak Detection - Small	Important
CS3	Leak Detection - Broken pipe	Important
CS5	High Consumption Monitoring	Important
	Smart Cities / Smart Utility	
SC1	Wastewater Monitoring	Important
	Water Conservation / Societal Benefits (SB)	
SB1	Water Conservation Program Support	Critical
SB3	Greenhouse Gas Reduction	Important
SB4	Lead Service Line (LSL) Identification	Critical
	Improved Distribution System Management	
DS3	Acoustic Leak Detection (ALD)	Important
DS4	Detect Backflow Events	Important

Table 3 - Business Drivers Deemed Important or Critical

1.3. Project Phases

This project shall be delivered in three phases: the Start-Up Phase, Proof-of-Concept (POC) Phase, and Production Phase. The Start-Up and POC phases will proceed after the City issues the Initial Notice to Proceed. The Production Phase will proceed after the City issues the Second Notice to Proceed.

1.3.1. All Phases

All project phases shall include some general project activities including:

- **A.** Project management and coordination with City staff on an on-going basis.
- **B.** Project progress, SME and other meetings as required by the City.
- **C.** Project plan updates to be performed weekly or as required by the City.
- **D.** Achievement of the Completion Milestones within the agreed timeline.

1.3.2. Phase 1 – Startup

During the Startup phase of the project, the Contractor's deliverables shall include, at a minimum, the following activities:

- **A.** Setup of the local project office and warehouse to support project Phase 2 and 3.
- **B.** Support the City's public outreach program.
- **C.** The Contractor and City's integration development between the various new and existing systems.
- **D.** The Contractor's development and internal testing of the Meter Installation System (MIS) that will manage the City provided work orders.
- **E.** Configuration and training on all proposed software applications.
- **F.** Inspection, planning, deployment, and configuration (as required) of the AMI collector network.
- **G.** Development of installer training policies, procedures, and training materials.
- **H.** The Contractor's material planning, approval and forecasting of all water meter, radio transmitter and other required installation materials.
- **I.** Perform Initial User Acceptance Testing (IUAT) to ensure all systems are ready for installation and continued water billing.
- **J.** The City's IUAT shall be successfully passed prior to moving from the Phase 1 Start Up into Phase 2 Proof of Concept (POC).

1.3.3. Phase 2 - Proof of Concept (POC)

During the Proof-of-Concept phase of the project the Contractor's deliverables shall include, at a minimum, the following activities:

- **A.** The Contractor will complete the deployment and configuration (as required) of the AMI collector network for the entire service territory.
- **B.** The Contractor will perform water meter replacement and retrofit activities within the pre-defined POC area.
- **C.** The Contractor will perform quality assurance on installations performed.
- **D.** The City will perform quality inspections on the Contractor's installation work.
- **E.** Implementation of the public outreach program.
- **F.** The Contractor will operate a project call center to receive Customer enquiries, appointment requests, and receive and manage any Customer complaints.
- **G.** Planning and implementation of the Final User Acceptance Testing (FUAT) to ensure all identified AMI business drivers and Contractor committed functionality is being achieved. Approval of the FUAT is the milestone to allow the Contractor to move into Phase 3 - Installation and Deployment.
- **H.** The City will review the results of the POC and FUAT prior to issuing a Notice to Proceed to the Contractor, to allow moving from Phase 2 Proof of Concept (POC) into Phase 3 Installation and Deployment. The City reserves the right to terminate the contract at the end of Phase 2.

1.3.4. Phase 3 – Installation and Deployment

Following completion of the Proof of Concept and issuance by the City of a Notice to Proceed, the Installation and Deployment phase of the project will commence. During the installation and deployment phase of the project, the Contractor's deliverables shall include, at a minimum, the following activities:

- **A.** Perform water meter removal, replacement and retrofit activities on an area-by-area basis.
- **B.** The Contractor will perform quality assurance on installations performed.
- **C.** The City will perform quality inspections on the Contractor's installation work.

D. Implementation of the public outreach program.

E. The Contractor will operate a project call center to receive Customer enquiries, appointment requests, and receive and manage any Customer complaints.

1.3.5. Phase 4 – Project Closeout

During the close out phase of the project, the Contractor's deliverables shall include, at a minimum, the following activities:

A. Complete a final system assessment and updated propagation study.

B. Close out of the final list of items identified during the project for following up or deficiency.

C. Perform any final training or manual updates.

1.4. Project Plan

1.4.1. Project Gantt Chart

Within ten (10) days following the kick-off meeting, the Contractor shall update (from the Gantt chart submitted with the proposal) and submit (PDF and electronic) for approval a detailed project plan (Microsoft Project Gantt chart). The Project Gantt Chart shall be an important communication tool throughout the project. The project plan shall detail all tasks, key milestones, Contractor resources, City resources required for support and the relevant dependencies. This Gantt chart shall be updated weekly, or as the City requires.

The Gantt chart shall allow a reasonable realistic timeframe for the City to develop, review and implement the tasks that are identified. The Contractor shall conform to the system and interface requirements and User Acceptance Testing described in this RFP.

1.4.2. Completion Milestones

The Contractor shall include the dates when each of the Completion Milestones shall be achieved. Project milestones 4 and 5 shall be shown to be complete on or before the dates specified in Project Completion.

1.4.3. Production Schedule

Prior to 60 days from the start of POC, the Contractor shall submit a weekly production forecast (Excel) for the project. Once approved, this forecast shall become the baseline production schedule. In the event the Contractor seeks to change the baseline production schedule such changes shall only occur through a formal change order. Under no circumstances shall installations begin prior to a final Project Plan and Production Schedule being approved by the City.

1.5. Project Management

1.5.1. Project Manager

The Contractor shall assign a dedicated onsite full-time Project Manager (PM), who is experienced with this type of work, to oversee all aspects of this Program. The Project Manager shall have the authority to make decisions on behalf of the Contractor. The Project Manager shall be the main point of contact for the City's management team.

The Project Manager shall be available, as required, in person to attend meetings with the City or their Customers. The Project Manager shall respond to all phone or email communication within 24 hours. Where an issue is deemed an emergency, the Project Manager is expected to respond to phone calls or email within an hour.

While the Project Manager is unavailable (vacation or illness) a suitable and competent backup shall be assigned to fill this position. Contact information for each person will be provided to the City and the Consultant.

1.5.2. Project Management Performance Evaluation

The Contractor's overall performance will be subject to quarterly evaluation based on criteria which will be reviewed and approved during the project startup phase. The results of the quarterly evaluations will be reviewed by the project management team, and any risks and issues identified will require that the Contractor's Project Manager provide mitigation and resolution plans which will be tracked until the risks or issues are closed.

1.5.3. Personnel Changes

The City shall approve all field and management personnel that are working under this Contract. Where personnel changes are required, the Contractor shall submit the resume of the proposed replacement personnel to the City for review and approval a minimum of four (4) weeks prior to the change. It is expected that the Contractor shall replace personnel with candidates who have similar experience and expertise in accordance with the work requirements outlined in the specifications. The City reserves the right to remove any personnel at its discretion. The Contractor shall bear all costs associated with the removal and replacement of the Contractor's field and project personnel. Project Office and Warehouse

The Contractor shall establish and maintain a local office and warehouse for all project activities for the duration of the project. The local office shall be within the City service territory.

1.5.4. Project Office and Warehouse

The Contractor shall establish a local office and warehouse for all project activities. The warehouse facilities will be adequate to store all the new and removed products that are required for the project. As an option, the City of Pleasanton can provide space within the utility yard for the Contractor to place a temporary trailer to be used as office space. In addition, the City can provide storage space for project materials within its existing facilities. Should the Contractor wish to use City facilities, it must be reflected in the responses provided in WB-B Technical Questionnaire and Tab C8 Optional of WB-C Financial Workbook.

1.5.5. Project Meetings

The Contractor shall attend regular onsite meetings. Regular onsite meetings, unless otherwise approved by the City, shall take place at the City's Operation Services Center at 3333 Busch Rd, Pleasanton, CA 94551. Alternatively, the City may wish to conduct meetings virtually. The Contractor shall be prepared for either scenario.

The City will develop and distribute meeting agendas at least two (2) business days in advance of a meeting. The agenda shall include the name of the meeting, date and time, location, requested attendees, topics to be discussed, and follow up actions from previous meetings.

The Contractor will record and distribute the meeting minutes of each meeting no more than five (5) business days after the meeting. The meeting minutes shall address the agenda items, include the details of the topics discussed, record the agreed-to actions with assignments and expected completion dates. Where a conference number or internet meeting is required the City's will supply one with the meeting agenda. The Contractor agrees that meetings may be recorded for minute taking purposes and future reference.

The Contractor shall come prepared to all meetings with the appropriate personnel (SMEs), presentations, materials, and data to ensure the meetings will be efficient and productive.

1.5.5.1 Start Up Meetings

Within ten (10) business days after the City's award of the Contract, the Contractor, including at minimum the Project Manager, is required to attend a kickoff meeting with all project stakeholders. It is anticipated that additional startup meetings will be required to review specific components of the work including project schedule, public outreach, integration business requirements, testing meetings, data management, and small and large meter operational procedures. The Contractor shall submit a list of meetings, topics, and suggested City personnel who are required to attend the meeting within ten (10) business days of the award. The City will use this information to schedule and prepare agendas for the suggested meetings.

1.5.5.2 Progress Meetings

The City requires the Contractor to attend weekly or as-needed progress meetings. The Project Manager shall attend in person if conducted on-site or virtually if conducted on-line. The Contractor should be prepared to discuss: production (planned work vs. completed work for the previous week and project to date by work type), completion by area, number of outstanding work orders by work type and their respective status in terms of contact attempts, complaints, task summary and details, timing of new areas, status of follow-up on previous actions, and any other topic requests. The Contractor should provide details of upcoming work (3-4 weeks) and be prepared to update the project Gantt chart prior to the Progress Meeting if there are known changes.

The Contractor is required to come to this meeting prepared to discuss any approval for extra work including the list of addresses, digital pictures, and recommended resolutions to support the discussion and decision-making process.

1.5.5.3 On-going Subject-Specific Meetings

The Contractor shall attend weekly or biweekly (as the subject and project phase requires) subject-specific project meetings. The City and the Contractor must come prepared with the appropriate Subject Matter Expert(s) (SME) and materials to ensure the meetings are efficient and productive. These meetings shall be held as long as the City feels it is necessary. The subjects where subject-specific meetings may be required include (but are not limited to): small and large meter installations, work approval, network coordination, integration development, UAT, data management, public outreach, and executive leadership meetings.

1.5.5.4 Other Meetings

The City or the Contractor may request meetings that are related to a specific topic, as required.

1.6. Completion Definitions

Completion refers to a milestone the Contractor shall achieve in supplying and installing various products and services under this Contract.

1.6.1. AMI Network Deployment Tracking

The Contractor is responsible for tracking all work associated with each AMI Network location where a Data Collector Unit (DCU) is planned to be installed.

1.6.1.1 DCU Installation States

The Contractor shall track all work at DCU installation sites including the following states:

- **A.** DCU Installation Complete: The Contractor has completed the work required for the specified location, passed accurate DCU installation information to the City and has validated that the DCU has heard an AMI Radio Transmitter and is able to pass data to the AMI Software.
- **B.** DCU Location Approved: A DCU location that has the appropriate permits and City approvals to proceed with an installation.
- **C.** DCU Pending Approval: the proposed DCU location has had a survey and site assessment performed and is waiting permits or City approval.
- **D.** DCU to be surveyed and a site assessment: the location has been approved by the City to proceed to survey and perform a site assessment.
- **E.** DCU Location Rejected: Where the Contractor or the City has deemed a location is no longer an approved location for a DCU to be installed.

1.6.2. Work Order Completion

Each Work Order is identified by a unique number which represents the requested work, at a specific water meter location, for a specific work type. Work Order Completion occurs when the work requested on a specific Work Order has been completed to the satisfaction of the City.

1.6.2.1 Work Order States

The Contractor shall track each work order through their MIS including the following states:

- **A.** Installation Complete: The Contractor has completed the work required for the specified work type, passed accurate installation information back to the City so that it can be successfully processed into the billing system and has validated that the radio transmitter has been read through the AMI system.
- **B.** Customer Refusals: A Work Order is deemed a Hard Refusal when the Contractor has received an explicit refusal to comply with the project from the Customer.
- **C.** Task – City of Pleasanton: A Work Order is deemed to be a City Task when the work required to complete the installation is deemed a City task. The City will accept this state once the task category and comments have been reviewed by the Contractor's Supervisor and the appropriate documentation has been provided and accepted by the City.
- **D.** Open Work Order: A Work Order is deemed Open when the City has approved work to be performed at a specific location and the Contractor has received and loaded the work order into MIS.
- **E.** Cancelled: A Work Order is deemed Cancelled when the City sends a work order cancellation to the Contractor's MIS, or the City informs the Contractor to not perform work at the property. There will be additional charges for work not performed.

The Contractor shall report other work order states outside the Area Completion Formula (defined below) to the City on a weekly basis.

- **A.** Pending: A Work order is deemed to be in a Pending state when it has been provided to the Contractor and the Contractor is in the process of performing the required contacts to obtain an appointment.
- **B.** Contractor Task: A Work Order is deemed as a Contractor Task when the Contractor was unable to complete the specified work type during the initial appointment for a specific reason and an appropriate Task Category was created.

C. Installed Accepted: A Work Order is deemed “Installation Accepted” once it has achieved Installation Complete and the City has successfully uploaded the information into the billing system.

D. Installation Rejected: A Work Order is deemed "Installation Rejected" once it has achieved Installation Complete, and the City identifies issues with the data or workmanship provided to the City.

E. Installation Invoiced: A Work Order is deemed "Installation Invoiced" once it has achieved Installation Accepted and the Installation Contractor has invoiced for the work performed related to the Work Order.

1.6.2.2 Work Order Complete

A Work Order will be deemed complete once the Contractor has performed the required work to move the Work Order into the following states: “Installation Complete”, “Customer Refusal” or “Task – City”.

1.6.3. Area Completion

The City’s territory will be divided into 8 areas for implementation management. Areas are defined by billing groups and are outlined in the map below. Areas will be made up of geographically grouped water accounts as much as possible; a limited number of City accounts, in a 9th group, are scattered throughout the city.

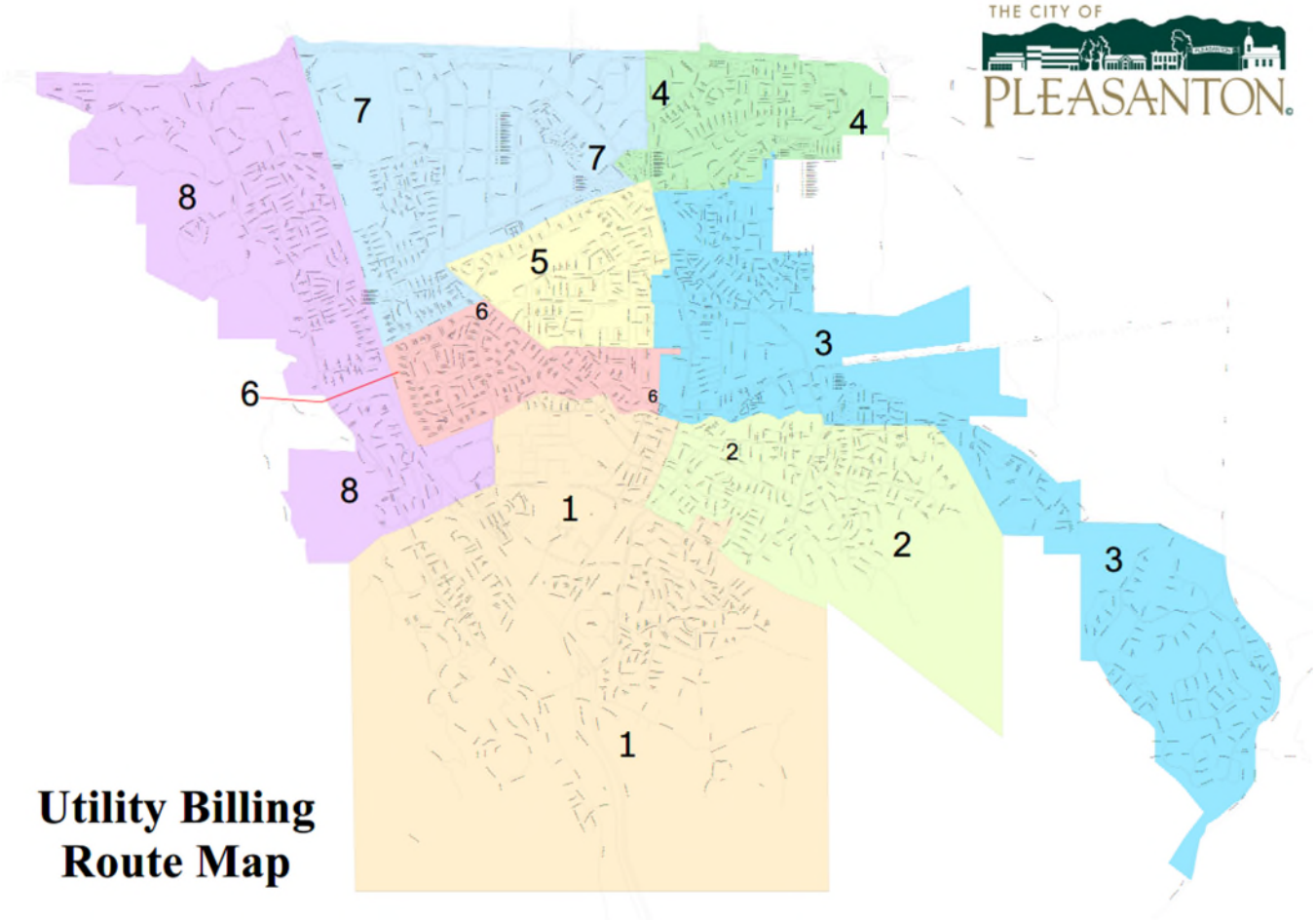


Figure 1 - Map of Billing Groups to be used for Area Management

Area completion is the calculated formula summarizing the status of each Area by Work Order states.

1.6.3.1 Proof Of Concept Area

Work will begin with a Proof of Concept (POC) in Area 1, as identified on the map above. The POC contains approximately accounts. Successful completion of the Proof of Concept, including the Final User Acceptance Test (FUAT) will be required before work is released in additional Areas.

1.6.3.2 Area Status

1.6.3.2.1 Open Area

The Contractor shall achieve this status once the City approves the Contractor to perform work in the Area. This status includes Area Near Complete and Area Complete status.

1.6.3.2.2 Area Near Complete

The Contractor shall achieve this status once the Contractor has ensured that 60% of the work orders have achieved Installation Complete within an Area and 80% work orders have achieved Work Order Complete status within an Area.

1.6.3.2.3 Area Complete

The Contractor shall achieve this status once the Contractor has achieved Installation Complete on 95% of the work orders within an Area and 98.5% work orders have achieved Work Order Complete status within an Area.

The City shall implement compliance efforts on the remaining 5% of work orders not in an Installation Complete status. The City's compliance efforts may include relevant efforts allowed under the City's internal policy, including the imposition of increased service charges.

For all Customers who want to book an appointment as a result of the compliance effort, the Contractor shall still be responsible for installations, although the City may choose to perform work with other means.

1.6.3.2.4 Area Closed

The Contractor shall achieve this status once the City has completed all compliance efforts and the Contractor has completed the appointments and completed any outstanding Contractor Tasks.

1.6.3.3 Area Completion Formula

Area completion shall be calculated as follows:

A – Installations Complete

B – Customer Refusals

C – Tasks – City

D – Total Work Orders Provided to the Contractor

E – Cancelled

Area Complete formula = (A+B+C) / (D-E)

1.6.3.4 Area Management Criteria

The Contractor shall adhere to specific Area Management criteria to progress into new areas. The area release criteria are as follows:

A. Perform installations by area, following a sequence agreed to during the project startup.

B. Initial installations must begin in the POC area once the Initial User Acceptance Test (IUAT) has been passed.

C. Once the City approves the Contractor to move out of the POC, the City may open two (2) additional areas. The City may approve the Contractor to move into an additional area once the oldest Open Area has met Area Complete and the next oldest Open Area has met Area Near Complete.

D. The Contractor shall not operate in more areas at any time unless otherwise approved by the City.

Once the Contractor meets a "Completion Milestone" (defined below), then the Contractor shall adhere to the following process in requesting movement into a new area.

E. When an Area Near Complete, Area Complete or Area Closed designation is achieved the Contractor shall submit a written request to the City for acknowledgment.

F. Any time the Contractor submits a written request with regards to completion, the Contractor shall provide a full breakdown of the status of all accounts in an Area. At a minimum, the Contractor's report shall include summaries on an address-by-address basis of the following information:

a. Number of installed accounts.

b. Number of accounts not installed and requiring the City resolution (broken down by Task Category).

c. Number of accounts provided to Contractor in respective Area.

d. Number of accounts removed from Contractor list by the City.

e. Number of accounts installed by the City.

G. The City will review and provide a response to the submittal according to the approval process.

1.6.4. Project Completion

The project includes all areas and work orders that were assigned to the Contractor throughout the project. Project Completion will be governed by key Completion Milestones. The Contractor shall achieve the following milestones in the time and manner identified below.

1.6.4.1 Completion Milestone 1 – 25% Installation Complete

The project will meet this milestone once the Contractor has achieved Installation Complete on 25% of all water meters and radio transmitters where work will be required to be performed on this project.

1.6.4.2 Completion Milestone 2 – 50% Installation Complete

The Contractor will meet this milestone once the Contractor has achieved Installation Complete on 50% of all water meters and radio transmitters where work will be required to be performed on this project and 98.5% of the meters and radio transmitters associated with Completion Milestone 1 have met Read Success Rate.

1.6.4.3 Completion Milestone 3 – 75% Installation Complete

The Contractor will meet this milestone once the Contractor has achieved Installation Complete on 75% of all water meters and radio transmitters where work will be required to be performed on this project and 98.5% of the water meters and radio transmitters associated with Completion Milestone 1 & 2 have met Read Success Rate.

1.6.4.4 Completion Milestone 4 - Project Substantial Performance

The Contractor shall achieve Substantial Performance once all of the following conditions have been met:

- **A.** All Areas have achieved Area Complete
- **B.** 98.5% of work orders have achieved Work Order Complete
- **C.** 98.5% of all meters have met Read Success Rate
- **D.** All issues identified in the IUAT and FUAT have been resolved to the City's satisfaction.
- **E.** Received approval of all deliverables defined in the Close out section of the specifications.

The Contractor will achieve Substantial Performance on or before October 31,2027.

1.6.4.5 Completion Milestone 5 – Project Total Performance

The Contractor shall achieve Final Completion once all of the following conditions have been met:

- **A.** All Areas have been Closed.
- **B.** 100% of work orders have achieved Work Order Complete.
- **C.** 98.5% of work orders have achieved Installation Complete.
- **D.** 98.5% of all meters have met Read Success Rate (defined below).
- **E.** The Contractor has resolved all installation and warranty issues identified during and up to the end of the installation warranty period.

The Contractor shall achieve Project Total Performance on or before December 31, 2027.

1.6.5. Read Success Rate

The Contractor will calculate Read Success Rate (RSR) as the key performance indicator to measure the overall system performance that includes all components of the solution. An installation will be considered passing the RSR once the Contractor validates that a radio transmitter has:

- Confirmed that each individual radio transmitter has been heard through the network and its reading is visible through the headend software.
- Confirmed within the headend software to have received at least 98.5% of hourly readings over a 30-day (calendar) period for each installation; and
- The installation information has been transferred, accepted, and successfully uploaded into the City's CIS system.

1.6.6. Acceptance

Acceptance is defined as the City's written acknowledgment that a component of the Work has been completed and ready to be invoiced. The Contractor shall invoice the City for products, software, and services once the City has accepted them in writing in accordance with the Acceptance Categories as defined in section 1.7.5.1 and as identified in Attachment C – Price Form Workbook column Acceptance Category within each tab.

1.6.6.1 Acceptance Categories

The following Acceptance Categories reference specific line items within the Financial Workbook.

- **A. Supply and Install Equipment** – the City shall deem the Supplied and Installed Equipment as accepted once the Contractor provides evidence of the Work Order associated with the equipment having achieved the Installation Complete (refer to section 1.6.2.1.A) state. Acceptance shall be given by the group of installations performed monthly.

a. For meter and radio installations, the Contractor shall provide documentation that verifies the work performed can be inspected (via digital image) and the radio transmitter has collected a valid numeric meter reading through the AMI network.
b. For Data Collection Equipment, the Contractor shall have tested to verify that the radio transmitter readings can be collected, confirm the backhaul is operating, and that readings can be transferred to the AMI Software.

B. Software - Software acceptance will be achieved once the City confirms the Contractor has achieved the following Payment Milestones:

Where a percentage is listed in the chart below, the payment to be made by the City will be that percentage of the Extended amount in the line item where the City has acknowledged that the Acceptance criteria in the line item has been achieved.

Software Acceptance	% of Item #
Initial User Acceptance within the provider's QA environment Items # C4.1 to C4.14	50%
Final User Acceptance within the provider's Production environment Items # C4.1 to C4.14	50%

Table 4 - Payment Milestones for Software Acceptance

C. Mobilization – Mobilization Acceptance will be achieved once the City confirms the Contractor has achieved the following Payment Milestones:

Mobilization Payment Acceptance	Release Criteria	Percentage to release
Mobilization, Item C2.1: Start Up Phase	Contract Signed and Executed	20%
	Staff assignment, Kickoff Meeting Conducted	20%
	Project Plan Submitted and Approved	15%
	Local office and lease setup	10%
	Receipt of POC meter and Radio transmitter inventory in local office	5%
	IUAT Approval	15%
	FUAT Approval	15%
Mobilization, Item C2.3 Performance Bond	Supply of confirmation of the Labor and Materials & Performance bonds have been issued	100%

Table 5 - Payment Milestones for Mobilization Fees

D. Support, Maintenance & Subscription - Hosted software, Software as a Service (SaaS), and AMI Network Services will be considered accepted by the City once the Contractor provides required access to the software or service and requests acceptance from the City at the beginning of the subscription period starting January 1 of the calendar year. Where the annual software subscription, license or service is based on the number of meters read through the network, the calculation shall be performed at the beginning of the subscription period.

E. Supplied Equipment - shall be deemed accepted once the Contractor supplies the equipment and the City acknowledges receipt and inspection of the equipment.

1.6.6.2 Approval Request Form

The Contractor shall supply the City with an Approval Request ("AR") Form along with all documentation that allows the City to properly evaluate whether a component or group of components supplied and/or installed has been completed. An AR shall be provided to the City for the following items, at minimum:

- **A.** Invoices.
- **B.** Completion of Areas.
- **C.** Substantial and Total Performance.
- **D.** User Acceptance Tests (IUAT and FUAT).
- **E.** Approvals for work.
- **F.** Change orders.

Each AR Form shall include at a minimum the following:

- **G.** Unique identifying number for document reference.
- **H.** Date of submission, previous submission history and date of approval.
- **I.** Project name and reference number.
- **J.** Name and signature of the Contractor's Project Manager.
- **K.** Description of work the Contractor is requesting Acceptance on.
- **L.** Supporting documents as may be required by the City.
- **M.** Description of approval / corrective action required.

The City shall review all submitted AR Forms within fifteen (15) business days of receipt and provide one of the following responses:

- **N.** Acceptance Approval: The City accepts the Work detailed.
- **O.** Conditional Approval: The City accepts the Work detailed, but the City has provided some additional actions the Contractor shall perform to complete the Work. Conditional Approval may or may not hold up payment.
- **P.** Acceptance Not Approved. The City rejects the Contractor's request for acceptance. This will not allow the Contractor to proceed to invoice for the work detailed on the AR Form.

1.7. Integration and Testing Process

1.7.1. System Architecture Diagram

The Contractor shall develop a system architecture diagram that includes all proposed systems and interfaces that connect to the existing City systems.

1.7.2. Interface Development Steps

The Contractor and the City shall work together through the following steps for each proposed interface:

- **A.** Business Requirement Gathering Meetings: The Contractor shall develop and lead a series of business requirements gathering sessions that will identify the required scope and any functional alternatives that may be available. The Contractor shall document the outcomes and decisions that will allow the development of the Functional Design Document.
- **B.** Functional Design Document (FDD): The Contractor and the City shall document all fields of data that will be passed between systems, how data will be passed, the frequency with which it will be passed, detail the list of acceptable values of each system, detail any data validations performed prior to or during data transfer, and define any conditions and triggers that will initiate an action through the interface. The FDD must include field-level mapping, data validation rules, error handling procedures,

and security requirements (e.g. encryption standards for data in transit and at rest). The FDD document for each interface shall be signed off on by all parties (including City IT), agreeing that the documents represent the required functionality for the specific business function. It is expected that the FDD process will go through numerous reviews and a minimum of three (3) weeks of testing.

C. Interface Development: The Contractor and the City shall develop their respective sides of all interfaces based on the required details in the approved FDD document. It is expected the interface development step shall take six (6) weeks from the approved FDD document.

D. Integration Testing: The Contractor and the City shall perform integration testing which shall be completed once the City and the Contractor have completed the initial development of both sides of the interface. This testing shall validate the files can be exchanged and consumed using the layouts and formats described in the FDD. Testing shall also include performance under load, error recovery capabilities, and security (e.g., unauthorized access attempts). Test plans shall include simulated failure scenarios. Integration testing is expected to take approximately three (3) weeks. Any defects found shall be documented and resolved. Where required the FDD document shall be updated and reissued.

E. Initial User Acceptance testing: With the support of the Contractor, the City will perform the Initial User Acceptance Testing (IUAT) on the City's test systems and will have as many Use Cases as required to test and validate all functionality of the systems and interfaces. The City will be responsible for coordinating and documenting the results and any deficiencies identified with the Use Cases. The Contractor and the City shall be responsible for redevelopment and adjustments based on the results of the Use cases. The IUAT is expected to take three (3) weeks. Any defects found shall be documented and where required the FDD document shall be updated and reissued.

F. End to End Test: With the support of the Contractor, the City will perform an end-to-end test that will validate all interfaces are working as intended and the City is able to properly bill for water for all sizes of water meters. End-to-end testing will include Tyler Munis billing cycle processing, customer portal updates, and any other downstream systems that rely on AMI data to confirm true operational readiness. The end-to-end test is expected to take three (3) weeks.

Development of all the interfaces may not start at the same time. Documentation, development, or testing work may overlap with each other. The Contractor shall allow two (2) to four (4) weeks of redevelopment in addition to the timelines laid out above.

1.7.3. System and Interface Requirements

At a minimum, the Contractor shall perform and support the interface development steps of the following interfaces with the detailed functionality. All integration work is included in scope and cost, including the joint end-to-end testing of billing processes prior to go-live. Where the solution includes additional required interfaces or function0ality not detailed, the Contractor shall include it within the base proposal. All integrations should support secure authentication between systems (e.g., certificate-based or tokenized access).

1.7.3.1 MUNIS to Meter Installation System (MIS)

The Contractor shall ensure that the data interface from Tyler Munis to the MIS shall include the following types of files:

a. New Record File: this file shall include all records where new work is being requested by the City. These records may be sent in bulk (at the beginning of an Area) or individually where new installations are requested in Areas already released. Work types shall include replacement (meter and radio transmitter), reprogram, and retrofit.

b. Modify Record File: this file shall include all records previously sent to the Contractor's MIS and where key information has changed. Changes may include work type, Customer information, meter

information. The final list of fields where changes are allowed shall be mutually agreed during the startup phase.

c. Cancel Record File: this file shall include all records where work is no longer required by the Contractor.
d. Confirmation Records File: this file shall include records where completed work has been accepted by Tyler Munis to be incorporated into MIS.

1.7.3.2 Meter Installation System (MIS) to MUNIS

The Contractor shall ensure that the data interface from the MIS to Tyler Munis shall include the following types of files:

a. Complete Work Records File: this file shall include all records where installations have been completed.
b. Warranty Record File: The Contractor has already sent a completed work order and new information is sent to update the account.

The Contractor shall be responsible for sending and receiving data files across the interface daily. The Contractor shall provide all required installation information within five (5) business days of the work being performed.

1.7.3.3 MUNIS to AMI Software

The Contractor shall establish a file transfer that is acceptable to the City. The data interface shall include the following types of functionalities:

a. On-cycle meter reading requests: where all locations within a billing cycle will be scheduled to be read.
b. Off-cycle meter reading request: that will request a single location will be scheduled to be read.
c. Configuration files that will install a new meter and radio transmitter or make changes to an existing meter and radio transmitter ensuring the consumption is associated with the correct property.

1.7.3.4 AMI Software to MUNIS

a. On-cycle meter reading response: the response to the on-cycle read request. The system can provide a reading based on the last X (City defined) days reading.
b. Off-cycle meter reading response: the response to the off-cycle read request. The system can provide a reading based on the last X (City defined) days reading.

1.7.3.5 AMI Software to Smart Energy Water (SEW) Customer Portal

The Contractor shall establish a real-time API interface between the AMI software and the City's SEW customer portal. The Contractor shall work with the City's selected CEP application provider to develop a data Interface between the AMI Software and the SEW portal. This shall include business requirements meetings, development of the Interface and support of the Interface testing. The interface must support regular updates of hourly consumption data.

1.7.4. Type of Data Transfer

The Contractor shall support both secure file and API data transfers, with preference for the use of APIs, where feasible. File format will be defined during the project start-up phase. All file transfers shall meet a minimum encryption standards (e.g., SFTP with AES-256, TLS 1.2+).

1.7.5. User Acceptance Testing

1.7.5.1 Testing Plan

The Contractor shall develop and submit a testing plan for Integration Testing, Initial User Acceptance Test (IUAT), end-to-end testing, and Final User Acceptance Test (FUAT) for the City's review and approval by City team members from IT and Utilities. The testing plans shall include roles/responsibilities for defect resolution, retest procedures, acceptance criteria for functional and security testing, and timelines of all development steps discussed above. Test plans shall establish documentation and communication protocols, define a detailed list of Use Cases for each scenario that will need to be tested and what the expected result should be. A Use Case shall be deemed passed if the actual results match the expected result. Test plans shall include security, role-based access control, logging/audit functions, in additional to functional correctness. City team members will review the submitted testing plan and add any Use Cases that are missing or require more detail. The test plan will be submitted for initial review two (2) weeks after FDD approval and will be approved prior to Integration testing to begin.

1.7.5.2 Types of User Acceptance Testing

The UATs will be conducted by City personnel and with the Contractor personnel in support of the testing process.

The City shall perform the Initial User Acceptance Test (IUAT) on meters and devices installed at a Contractor provided facility. The Contractor shall only meet the requirements of the Contract if the testing performed by the City validates that the software and interfaces are setup correctly and there are no major deficiencies that will result in incorrect information being passed to the billing system or Customers.

The Final User Acceptance Test (FUAT) shall be performed by the City on the POC installed meters with a production software environment. It shall ensure all components of the proposed solution are accepted by the City including meter reading, AMI Software and meter data management application(s), customer portal (if applicable), and the Solution meets the City's project goals.

All User Acceptance Testing (IUAT, FUAT) shall be performed for the AMI Software, the MDM Software, interface between the AMI Software and the customer portal (if applicable), and the interface between the MIS and CIS software (Tyler Munis).

The Contractor shall perform their internal IUAT testing on the MIS and the AMI Software and provide the City with the results.

1.7.5.3 General User Acceptance Test Requirements

The test shall be performed by the City and the Contractor in both the City's Test system and the Contractor's QA (MIS Only). The Contractor is responsible for logging and reporting all user / system actions during testing to support auditability. These logs are subject to review by City IT prior to UAT sign-off. The Contractor is required to submit the documented results of UAT for the City's review and approval. The City may accept the UAT and approve the Contractor to move forward, may reject the UAT and require the Contractor to redo the test, or may provide the Contractor with a conditional approval that details what the Contractor must complete to move forward.

1.7.5.4 User Acceptance Test Responsibilities

The City shall provide the following to support the UAT:

A. The billing test system for testing purposes.

B. The City's IT personnel process the Use Cases from the Contractor MIS, retrieve readings through the meter reading software, and calculate water billing.

C. Program any City side interface that connects to CIS system.

The Contractor shall:

A. Provide facility to install the test meters, radio transmitters, data collectors, etc. and coordinate any tests that will simulate flags or consumption patterns that need to be tested.

B. Plan and schedule all the actions required for the UAT through the UAT plan.

C. Coordinate and communicate with Contractor and City personnel about the progress and results of the UAT.

D. Document the UAT plan and proposed UAT Use Cases.

E. Setup the test systems (MIS, AMI headend software, and MDM) that will allow a fully functioning system for the tests.

F. Set up and test (prior to the UAT) the digital handheld workflows to allow a fully functioning system for installation information collection.

G. Perform meter and radio transmitter, data collector installations at the City's meter operations.

H. Document the Use Cases, the expected results, and the actual results from the UAT related to MIS.

I. Keep a running numbered list of all software defects including date detected, date fixed, retest dates, causes, and resolution description.

1.7.5.5 User Acceptance Test Documentation

The Contactor shall submit an IUAT Use Case document:

A. The Contractor shall submit IUAT Use Case documents for the City to review twenty (20) business days before the UAT is to begin.

B. The IUAT Use Case document shall include a unique reference number to each Use Case, description of the Use Case, expected results, designated person to perform the test, person who will validate the test, the test accounts, test meters, and test AMI communication numbers to be used for each test.

C. The Contractor or the City may add Use Cases that were not included in the UAT plan as the City deems necessary.

The Contactor shall submit a FUAT Use Case document:

D. The Contactor shall submit the FUAT Use Case document for the City to review within twenty (20) business days following the completion of the FUAT. During the testing period, the Contractor shall communicate the results of the Use Case tests on a weekly basis.

E. At a minimum, the FUAT Use Case documentation shall include:

a. IUAT Use Case document.

b. The FUAT Use Case documentation shall include the final results of each Use Case and include any details relating to any revisions or retests that were performed.

c. The FUAT documentation shall list the results of the test and where a Use Case did not pass list the deficiency.

1.7.5.6 Use Case Results and Deficiencies

The Contractor shall track the results of Use Case testing through a defect tracking log that is accessible to the City throughout the process.. The anticipated Use Case statuses include:

A. Not Started: where the Use Case test has not yet begun.

B. In Progress: where the Use Case in has been started but the results are not in.

C. Passed: where the Use Case actual results match the expected result.

D. Passed with Note: where the Use Case actual result may not match the expected result, but it has been deemed acceptable by the City.

E. Failed: where the Use Case actual results do not match the expected result and the Contractor is investigating.

F. Not Applicable: where the City has deemed the Use Case to no longer be required.

Where a Use Case has Failed, the Contractor shall resolve the fault using the resolution process detailed in this section. It is expected the Contractor shall work with the City to ensure the results meet the expected results.

G. A minor fault is a Use Case that fails to produce the expected result or the functionality to achieve the result is labor intensive, but the fault does not impact on the City's ability to bill their Customers or the Customer viewing their consumption.

H. A major fault is a Use Case that fails to produce the expected result or the functionality to achieve the result is very labor intensive, requiring eight (8) or more hours of effort each month and it affects the City's ability to bill their Customers or the Customer viewing their consumption.

The Contractor shall resolve a minor fault in the following manner:

I. The Contractor shall develop and test a resolution to a minor fault within ten (10) business days of identifying the fault.

J. If the proposed resolution still fails, the Contractor shall develop and test a second resolution within ten (10) business days of the second failure.

K. If the Use Case fails a third time, the City may consider this a major fault.

L. A minor fault will allow the UAT to continue moving forward.

M. The Contractor may request additional time to resolve a minor fault; the City will review and may approve any such request if they determine it will not have a major impact on the project as a whole.

The Contractor shall resolve a major fault in the following manner:

N. The Contractor shall develop and test a resolution to major faults within five (5) business days of identifying the fault.

O. If the proposed resolution still fails, the Contractor shall develop and test a second resolution within five (5) business days of the second failure.

P. If the Use Case fails a third time, the City may stop the UAT until the fault can be resolved and may request the entire UAT be redone once the fault has been resolved.

Q. A major fault shall not allow the UAT to continue moving forward and can be considered a Major Deficiency.

R. The Contractor may request additional time to resolve a major fault, the City will review and may approve any such request and may put work restrictions on the Contractor up to and including a full stop on part or all of the project tasks.

1.7.5.7 Specific User Acceptance Test Requirements

The UAT shall test each type of radio transmitter, data collector and meter encoder, all interfaces, handheld workflows, and the AMI Software.

The UAT shall include the following components:

A. Test all interfaces that transfer data from the different software.

B. Test each water meter manufacturer, type, and size with the different models of radio transmitters (if applicable).

C. Test that all billing multipliers are set up and producing the correct consumption from the MIS (completed installations start readings) and the AMI Software. All should display the full eight-digit resolution.

D. Test individual request reads, and on-cycle request reads.

E. Test all standard and custom reports.

F. Test the handheld workflows for all types of meters and radio transmitters.

G. Test all data collection equipment, software monitoring capabilities, and redundancy reports.

H. Test maintenance issues including cut wire, incorrectly programmed radio transmitter, backward meter, continuous leak flags, etc.

I. RSR verification and reporting.

J. Simulated failover test (e.g., loss of connection to Tyler Munis, AMI head-end, or MIS system) and recovery process to ensure no data is lost or corrupted.

1.8. Training

1.8.1. Training for Billing and Customer Service Personnel

The Contractor shall provide the City staff with on-site product and software training at no additional cost to the City's billing and customer services personnel. The Contractor shall provide at least two full business days of integrated hardware and software training per year, until Completion Milestone 5 is achieved, and it shall include both in-class and hands-on sessions. The training shall be conducted on-site at a City provided boardroom unless remote training is approved by the City. The Contractor shall provide initial training for the software and be prepared to offer refresher training. The Contractor shall provide a detailed agenda at least 2 weeks prior to the training and come prepared with full color training materials for all City attendees. Trainers shall come prepared with adequate product and software access, knowledge, and expertise.

The Contractor shall provide City billing and customer service staff with the appropriate training on the AMI Software, focused on using the software for their particular work. The training shall be conducted for 2 cohorts to keep the class size small and still allow adequate job coverage.

1.8.2. Training for City Metering Staff

The Contractor shall provide hands-on training to the City's metering staff (internal or external). The Contractor shall bring products that can be disassembled and reassembled. The training shall include a complete understanding of the products, how to install the product, how to disassemble and assemble the products, how to program the encoder registers, and how to troubleshoot problems found in the field with the product. The City and its representative will work with the Contractor to establish the training agenda.

1.9. Deficiency Process

The City will follow a formal documentation process for deficiency of the services provided under this contract. The Contractor will adhere to and support the City as deficiencies are found.

1.9.1. Deficiency Categories

The City defines a “deficiency” as a Contractor-supplied product or service that does not meet the project specifications and/or the inability of the City to bill for water at an address within the warranty period. Deficiencies will be categorized based on the severity of the issue. The severity categories are defined as follows:

- **A.** One-off Deficiency: A one-off deficiency is one that has occurred at 0.25% or less of all installations at the time of discovering the problem or at 2.5% or less of installations that occur on a weekly basis or the Contractor's actual accumulated weekly production is less than 90% of the forecasted accumulated weekly Production Schedule.
- **B.** Minor Deficiency: A minor deficiency is one that has occurred at less than 0.5% of all installations at the time of discovering the problem or at less than 5% of installations that occur on a weekly basis or the Contractor's actual accumulated weekly production is less than 80% of the forecasted accumulated weekly Production Schedule
- **C.** Major Deficiency: A major deficiency is one that affects at or more than 0.5% of all installations at the time of discovering the problem or more than 5% of installations that occur on a weekly basis. This also includes any issue relating to software, people, or processes that create a significant safety risk, inaccurate water billing, or poor customer service or the Contractor's actual accumulated weekly production is less than 70% of the forecasted accumulated weekly Production Schedule.
- **D.** Defined Subset of Work: If a deficiency can be clearly identified as the result of a subset of the work being performed, then the City may calculate deficiency rates only on the subset of the work. Depending on the critical nature of the deficiency the City may apply Deficiency Resolution protocols (see below) to all installations, or just the subset.

1.9.2. Deficiency Resolution

The Contractor is expected to work to resolve the deficiency according to the severity of the deficiency.

1.9.2.1 One-off Deficiency Resolution

The following steps will be taken to resolve one-off deficiencies:

- **A.** Upon discovering a one-off deficiency, the Contractor will propose and implement a resolution acceptable to the City within five (5) business days. If a resolution cannot be completed within the five business (5) days, the Contractor will provide the City with a date by which the deficiency will be resolved.
- **B.** If the resolution date is not accepted by the City and the deficiency is not resolved within twenty (20) business days, the City may choose to resolve the deficiency using other resources. All costs associated with the resolution will be recovered from the Contractor by invoicing the Contractor or drawing down on the retainage.

1.9.2.2 Minor Deficiency Resolution

The following steps will be taken to resolve minor deficiencies:

- **A.** Upon discovering a minor deficiency, the Contractor will investigate and provide to the City, within five (5) business days, a written plan to resolve the deficiencies within twenty (20) business days.
- **B.** If the issue cannot be resolved within twenty (20) business days, the Contractor will provide a full written report and attend an onsite meeting regarding the status of the deficiency. The report will include a commitment to provide additional and appropriate resources to resolve the issue within an additional twenty (20) business days.

C. If the deficiencies are not resolved within forty (40) business days of initial discovery the issue will be considered a Major deficiency.

1.9.2.3 Major Deficiency Resolution

The following steps will be taken to resolve major deficiencies:

A. The City may issue a stop-work order on a subset or all work, at any time during this resolution process.

B. Upon discovering a major deficiency, the Contractor will investigate and provide the City, within two (2) business days, a written plan to resolve the deficiencies within ten (10) business days.

C. If the issue cannot be resolved within ten (10) business days then the Contractor's management team shall provide a full written report and attend an onsite meeting regarding the status of the deficiency, including commitment to provide additional and appropriate resources to resolve the issue within an additional ten (10) business days.

D. If a major deficiency is not resolved within twenty (20) business days of its initial discovery and the City has not accepted the Contractor's proposal for more time, the City will issue a Notice to Comply, giving the Contractor a final ten (10) business days to resolve the issue.

E. If the deficiency is not resolved within ten (10) business days after the Notice to Comply, the City may cancel or revise the contract and/or resolve the issue using other resources. All costs associated with the resolution will be recovered by the City from the Contractor by invoicing the Contractor or drawing down on the retainage.

1.9.3. Deficiency Communication

1.9.3.1 City Communication

A. For one-off deficiencies, the City will provide the Contractor with a verbal or written notification of an issue.

B. For minor or major deficiencies, the City will provide the Contractor with written notification of an issue.

1.9.3.2 Contractor Communication

A. For one-off deficiencies the Contractor shall provide the City with a written (emailed) notification upon resolution of the deficiency.

B. For minor deficiencies the Contractor shall provide the City with a written status report on a weekly basis (or as the City deems necessary).

C. For major deficiencies the Contractor shall provide the City with a written status report on a daily basis (or as the City deems necessary).

1.9.3.3 Additional Information

For any type of deficiency, the City may request additional information. The Contractor shall detail what the deficiency is, the personnel involved, the action taken to resolve the deficiency, the dates the issue occurred and was resolved, including all contact attempts (where applicable), and pictures showing the deficiency and resolution of the deficiency.

1.10. Project Close Out

Prior to submitting its written application for Substantial Performance of the Work, the Contractor shall submit to the City all:

- **A.** guarantees;
- **B.** warranties;
- **C.** certificates;
- **D.** testing and balancing reports;
- **E.** distribution system diagrams;
- **F.** maintenance manuals;
- **G.** samples;
- **H.** existing reports and correspondence from authorities having jurisdiction in the Place of the Work;
- **I.** other materials or documentation required to be submitted under the Contract, together with written proof acceptable to the City that the Work has been substantially performed in conformance with the requirements of municipal, governmental, and utility authorities having jurisdiction in the Place of the Work.

1.11. Product Support Requirements

This section pertains to the products and services that will be supplied to the City both during the project and after it is complete. The City intends on using the product support requirements to establish a service level agreement related to product support for the life of the system.

1.11.1. Project Support

The Contractor shall provide a high level of support to the City during the project, including the following support: a sales representative, ordering support, product expertise, product training, warranty returns, on-time product shipment, on-site problem investigation (when and as required), and teleconference and on-site meeting attendance.

1.11.2. Product Representative

The City requires the Contractor to provide a high level of customer service during and after the project. The Contractor shall assign a single product representative who will be the main point of contact for all product and order-related questions. This person shall be very knowledgeable about the products being delivered. The Product Representative shall be available during normal business hours (8:00am to 4:00pm local time). The Contractor shall return calls or e-mails from the City within 24-hours of receipt. The Contractor shall assign a backup person when their Product Representative is not available (e.g., vacation).

1.11.3. Product Ordering

After project completion, when additional product is required, the City shall issue a purchase order. Upon receipt of the purchase order, the Contractor shall e-mail confirmation that the order has been received and confirm the promised delivery date within 48 hours of receipt of the purchase order through email.

1.11.4. Product Delivery Duration

The Contractor shall ensure that all products will be received within twelve (12) weeks of receipt of the City's order. Where a particular product requires a longer lead time, the Contractor shall clearly indicate the lead time for the products. All products are to be DDP Destination.

1.11.5. Product Delivery

The Contractor shall ensure that all products supplied to the City (for the City's purpose) are shipped to a location of choice as directed by the City. The Contractor shall ensure all deliveries are delivered by a company that will call ahead before delivery, as well as always have the necessary equipment to deliver the product to ground level.

1.11.6. Partial Shipments

The Contractor shall deliver all products and quantities detailed on the purchase order. No partial shipments will be allowed without prior written consent of the City. Any partial shipment received without prior approval will be returned to the Contractor at their cost.

The Contractor shall only invoice for products delivered and accepted by the City.

1.11.7. Late Shipment Damages

The Contractor shall deliver acceptable products in the quantity requested on-time. The Contractor shall be responsible for all actual and reasonable costs associated with any delays in delivery. Rejection of shipments due to product acceptance or partial shipment are still the cause for late shipment damages.

The City will be the main point of contact and will have the final decision on any delay claims.

1.11.8. Digital Meter File

With every product delivery, the Contractor shall provide an electronic file (in a format approved by the City) that should include the following information about the delivery:

- **A.** Purchase order
- **B.** Manufacture date
- **C.** Ship date
- **D.** Expected End of Life / Warranty date
- **E.** Product Details including:
    a. Water meter type
    b. Water meter size
    c. Water meter serial numbers
    d. Water meter test results (at minimum: high medium & low flows)
    e. Water meter register type
    f. Water meter register ID number
    g. Water meter register visual digits
    h. Water meter register transmitted digits
    i. Water meter register decimal location in remote transmission

j. Manufacturer test results - including high, medium, and low flow
k. Radio transmitter model
l. Radio transmitter ID number
m. Radio transmitter type/configuration (e.g., wall, pit)

F. Product ID numbers (product serial number, register number)

G. Product reference number as determined by the City

1.11.9. Product Investigating and Testing

The Contractor shall ensure end-to-end compatibility of meter and AMI technology. Where there are issues with reading the water meter encoder protocols, the City may request the Contractor provide on-site or factory testing of all products. The Contractor shall at its own cost, provide expert on-site product support within one week of the City's request. The Contractor shall provide field investigations where the City determines that these are necessary to resolve the product issues or compatibility between products. The Contractor shall be responsible for all costs associated with compatibility concerns between the proposed radio transmitters and the proposed water meter encoder register.

1.11.10. Return Merchandise Authorization (RMA)

The Contractor shall provide the City with a documented RMA process that will allow the City to return products for warranty purposes. The RMA process shall include an on-line tracking process by serial number of the product being evaluated. The Contractor shall evaluate the returned products as qualifying for warranty within eight 8 weeks. If the product is not assessed within this period, the City reserves the right to reduce payment against a future invoice in the amount of the product returned.

1.11.11. Post Project Support

The Contractor shall continue to provide sales, ordering support, product expertise, annual product training, warranty returns, on-time product shipment, and problem investigation after completion of the project.

The City and the Contractor will negotiate a reasonable product support service level agreement based on the provisions within this agreement. The Product Support Service Level Agreement (SLA) shall ensure the City is supplied with products and software for the 20-year life of the system so that the City can continue to operate the AMI solution for the 20-year life of the system. All prices negotiated shall be in American dollars. This SLA shall be renewed annually and will begin after Completion Milestone 5 is achieved.

2. AMI SYSTEM SPECIFICATIONS

2.1. AMI System

The AMI System includes all products, software, implementation, and training services to effectively stand up the AMI System. Optionally, the AMI System may consist of a Network as a Service which may leverage an existing third-party network such as cellular. The AMI System includes (as applicable) the AMI radio transmitters, data collection equipment, AMI Software (headend and MDM), handhelds, programming equipment, interfacing, configuration, training services and security of the AMI network including the LAN, WAN, and network servers.

2.2. AMI Radio Transmitter Specifications

2.2.1. Federal Communications Commission (FCC) Approvals

All components of the meter reading system shall be FCC approved, where appropriate. The Contractor shall obtain licenses on behalf of the City for all components of the AMI system which require a licensed frequency. The Contractor shall disclose all costs associated with obtaining the appropriate FCC licenses to operate the AMI system. The Contractor shall be responsible for any non-disclosed costs. The City will pay the costs of the licenses; however, these costs shall be included in the Proposal when required and appropriate. The City will not be responsible for any delays associated with obtaining the license or working in conjunction with the FCC.

2.2.2. General

Each radio transmitter shall include all materials and equipment to ensure the product can be installed appropriately. This includes but is not limited to a minimum of 5 feet of 19-gauge 3-conductor wire, wiring connectors, back plates, mounting equipment, screws, and radio transmitter seals.

For each AMI radio transmitter, the Contractor shall include all materials and equipment to ensure the product can be installed appropriately. This includes but is not limited to minimum of 5 feet of 22-gauge 3-conductor wire, wiring connectors, back plates, mounting equipment, screws, and radio transmitter seals. The Contractor shall ensure that the pit set radio transmitters shall either be potted directly to the water meter encoder register or a wire connector (Nicor, or approved equivalent). Integrally mounted radio transmitters are accepted assuming they meet the RSR requirement.

2.2.3. Environmental Requirements

The radio transmitters shall be capable of operating in harsh environments, with an operating temperature range of -22°F to 150°F and relative humidity of 0% to 100%. The radio transmitters shall be manufactured with an Ultraviolet (UV) protective material, fully submersible version of the radio transmitter.

2.2.4. Encoder Compatibility

The Contractor is required to provide radio transmitters that can read, transmit and display (in the AMI Software) all eight (8) digits of reading resolution for the proposed meters on an hourly basis. The City intends to test compatibility of meters during the IUAT.

The radio transmitter shall also be approved to read the following meter manufacturer encoder register products as programmed and currently in use at the City:

- **A.** Elster EvoQ4
- **B.** Kamstrup FlowIQ
- **C.** Sensus OMNI

These meters are already equipped with factory-potted Nicor Series III connectors.

2.2.5. Enhanced Encoder Features

The Contractor shall provide radio transmitters able to read and transmit all enhanced water meter encoder flags available on the proposed meter (low battery, empty pipe, pressure, temperature, etc.). The Contractor shall test and validate the radio transmitter can read this data during the startup phase.

2.2.6. Radio Transmitter Mounting options

Nearly all the City's meter box lids are RF-friendly Armorcast polymer concrete lids. Please see Appendix A of this Scope of Work for meter box lid specifications.

The City's preference is to maintain its existing meter box lids and not change them as part of this project. The Contractor should plan to mount Radio transmitters below the existing meter box lids. If this is not possible for RF propagation or incompatible mounting reasons, the Contractor should propose the appropriate lid replacements or modifications to best suit the proposed AMI solution and meet the RSR requirements established herein. All lid replacements or modifications must be included in WB-C Financial Workbook. The City will accept AMI solutions where the radio transmitter is mounted integrally to the meter register provided it meets the RSR established herein.

The Contractor's radio transmitter mounting solution shall conform to the following:

- No locking mechanism is allowed, the weight of the lid shall be sufficient to keep the lid in place
- Any "through-the-lid" antenna shall be installed to comply with the Americans with Disabilities Act (ADA) Accessibility Standards, Section 303 for vertical changes in level. Changes in level of 1/4 inch (6.4 mm) high maximum shall be permitted to be vertical. Changes in level between 1/4 inch (6.4 mm) high minimum and 1/2 inch (13 mm) high maximum shall be beveled with a slope not steeper than 1:2.
- The submittal document for the proposed lid model(s) should include the coefficient of friction value, confirmation of AASHTO H20 vertical loading, and the anti-slip rating.
- The Radio Transmitter shall be secured to the lid to avoid damage to the device when removing the lid
- If drilling an existing lid is proposed, the Contractor shall provide an engineering stamped confirmation that the integrity of the lid will not be impacted.
- All AMI Radio Transmitter mounting equipment shall be provided by the Contractor

2.2.7. Radio Transmitter Labelling

The Contractor shall ensure radio transmitters include a weatherproof label on the side of the device that includes the name of the manufacturer, model, version, firmware references, the date of manufacture, the part number, appropriate FCC certifications, and a unique Identification (ID) number that is both numeric and barcoded (Code 39 or approved equivalent) that allows the ID number to be read by a digital work order system. The label shall be able to remain attached to and readable in a submerged environment.

Where there is an outside cover, the Contractor shall ensure this information is included on the outside cover and inside device itself.

2.2.8. Wire and Connectors

The Contractor shall ensure radio transmitters have 22-gauge 3-conductor solid wire potted lead with a wire connector device installed at the time of manufacture. Between the AMI Radio Transmitters and the water meter register there should be a minimum of 5 feet of wire to allow for the meter box lid to be removed.

The Contractor shall supply a wiring connector device that is a certified IP68 connection, tamper proof and can be connected and disconnected without having to cut the wire or break the connector device. There shall be no manual connections (e.g. gel caps) and there must be consistency among connectors across all meter brands. Wiring connectors must be fully compatible with the Nicor Series III connectors present on existing Elster EvoQ4, Kamstrup FlowIQ, and Sensus OMNI meters that will remain in the field as identified in 2.2.4, above.

2.2.9. Read and Transmission Frequency

At a minimum, the Contractor shall provide radio transmitters that read the water meter encoder register at least every 60 minutes. The Contractor shall ensure that the radio transmitter transmits all readings at least once every 24 hours.

2.2.10. External Antenna

Where the AMI Radio transmitter uses an external antenna, the Contractor shall ensure that any portion of the antenna exposed when mounted is durable, is capable of being driven over, and cannot pose a tripping hazard.

2.2.11. Alerts and Flags

The Contractor should ensure the AMI radio transmitter is capable of monitoring, detecting, and transmitting the following value-added information at a minimum:

- **A.** Cut-wire
- **B.** Meter low battery warning
- **C.** AMI radio transmitter low battery warning
- **D.** Dry Pipe alarm
- **E.** Water Temperature reading / flag (for the questions…is a temperature reading sent in with the meter read or a flag if temperature is outside the set flags?)
- **F.** Water Pressure Read / flag (same as temperature)
- **G.** Reverse Flow
- **H.** Flow Rate

2.2.12. Radio Transmitter Life Expectancy

The Contractor shall ensure that the radio transmitters provided have a minimum of a 20-year life.

2.2.13. Cellular Radio Transmitters

Where cellular radio transmitters are proposed, the Contractor shall ensure that on-going cellular costs are billed annually and not included in the product cost.

2.2.14. Radio Transmitter Warranty

The Contractor shall supply Radio transmitters that have a long-lasting battery with a 20-year warranty from its date of installation. At a minimum, the Contractor is required to provide a warranty on each radio transmitter that shall make provision for the full replacement of the radio transmitter should the transmitter fail for any reason within ten (10) years from its date of installation. Following the unlimited warranty period, the Contractor shall provide a radio transmitter warranty at minimum that may be prorated and has an upset limit of the price provided under contract, at the time of contract signing, or the market price, whichever is lower.

Where a solution includes some or all cellular radio transmitters, the Contractor shall ensure that the radio transmitters shall be compatible with 4G (LTE) and 5G cellular technology. The AMI radio transmitter warranty shall include compatibility with the cellular network for the full 20-year product life.

The obligations contained in this section shall survive the termination or expiry of the Contract.

2.3. AMI Network Specifications

2.3.1. Type of Network

The Contractor should propose a standalone or Third-Party AMI Network (e.g., cellular network). For all types of networks, the Contractor shall include all costs associated with the initialization, deployment, future replacement equipment costs, and any on-going license, maintenance, and monitoring services costs in the proposal for the proposed life of the system.

2.3.2. Compliance with Federal Communications Commission and Local Height Restrictions

The Contractor shall ensure the proposed AMI network and all its components comply with the FCC's regulations on antenna systems. The Contractor shall be responsible for a formal application and public consultation process as required by the FCC where any component of the proposed AMI network does not meet the FCC regulations.

The Contractor shall ensure the following local guidance is considered as a part of network design:

- Antennas erected on facilities within the City shall be no more than 15 feet above the roof of the structure.
- Approval of antenna placement may be based on a visual analysis demonstrating that views of the antenna(s) are minimized or are substantially screened from residential land uses, the I-580 and/or I-680 rights-of-way, or other sensitive land uses such as parks, schools, or major streets.

2.3.3. Availability of Mounting Infrastructure

City facilities may be used for mounting data collection equipment. Details of the available infrastructure can be found in the attached document, RFP-4a Background Information (City Facilities). The use of City facilities will be subject to review by the City's Planning Department during the Start-Up phase of the project

2.3.4. Coverage of the Kilkare Woods Service Territory

Proposed solutions must include coverage of the City's entire service territory, including Kilkare Woods. If an AMI solution is proposed, the Contractor shall guarantee the Read Success Rate as defined in Section 1.6.5, above. Performance shall be verified during the Proof-Of-Concept and documented in accordance with the project's acceptance test plan.

AMR coverage of the Kilkare Woods territory is acceptable, though not preferred by the City.

2.3.5. Network Propagation

2.3.5.1 Initial Propagation Study

The Contractor shall conduct an initial propagation study for the City with the information provided within the RFP (see RFP-4a and RFP-4b City Facilities and Metered Addresses). The Contractor should build a system that best utilizes the City-identified facilities and shall clearly indicate which locations the Contractor plans to use to mount its Data Collection Equipment within the propagation study. The propagation study shall clearly identify any additional locations that will be required other than those identified on the City's Facility List, including whether new poles or other installation equipment is necessary.

Data Collection Equipment that is necessary to support meter reading in an area shall be installed ahead of the meters and transmitters to allow the Contractor and the City to properly assess Read Success Rates (RSR) on an ongoing basis.

The Contractor shall assume a worst-case scenario in terms of propagation and state its assumptions in the proposal, so the AMI network proposed is more than adequate to meet or exceed the RSR requirements. Any additional infrastructure required over the quantity proposed and necessary to meet the RSR requirements, shall be the responsibility of the Contractor including data collection equipment, repeaters, installation, and poles where required.

2.3.5.2 Changes to Propagation Study

During the project startup the Contractor shall inspect each proposed site, and if either party determines the proposed site is not suitable a new site will be selected. Where the new site is more than .3 miles from the proposed site, or more than 25% reduction in height, the Contractor may request additional equipment within the area. The City will review such requests on a site-by-site basis.

The Contractor shall ensure that any change from the proposed propagation is reflected in an updated version of the propagation and that the overall performance of the system is maintained. At any point throughout the implementation of the network, the City may request an updated propagation to occur. The Contractor shall provide the necessary tools and resources to deliver an updated propagation to the City within four (4) weeks of the request.

The Contractor should assume an updated propagation study for the full-service area will be requested twice in addition to the Initial Propagation study. Costs to complete this propagation shall be the Contractor's responsibility.

2.3.5.3 Final Propagation Study

In addition to the updated propagation request, the Contractor shall deliver a final propagation that is reflective of the implemented system as part of the required project close out activities. The propagation shall clearly indicate the type, location, and installed parameters of the Data Collection Equipment.

The Contractor shall provide the City with an ESRI GIS layer with all the critical information associated with the data collectors.

2.3.5.4 Data Collector Locations

Where the Contractor proposes to deploy an AMI network, the Contractor shall plan to install Data Collection Equipment based on the priorities identified in RFP-4a Background Information (City Facilities) and local guidance described in 2.3.2, above.

- **A.** First priority – Fire Stations
- **B.** Second priority - Water tanks, some City buildings (as identified in RFP-4a), City streetlights.
- **C.** Third priority –City buildings or facilities identified in RFP-4a as priority 3.
- **D.** Fourth priority - Supply and installation of new poles on City-owned property or in the right-of-way; additionally, some City facilities have been identified in RFP-4a as priority 4.
- **E.** Fifth priority - Agreements with other public or private agencies

2.3.6. Data Collection Equipment

2.3.6.1 Environmental

The Contractor shall ensure that the Data Collection Equipment (collectors and/or repeaters) can operate in harsh environments with an operating temperature range of -22oF to 150oF and relative humidity of 0% to 100%. Where temperature may affect a Data Collection Equipment's operation, Contractors shall have clearly detailed what is required to return that Data Collection Equipment to normal operating effectiveness.

The Contractor shall ensure that the Data Collection Equipment meets the following requirements:

- The equipment shall have a NEMA 4X or better enclosure that passes the UL (Underwriters' Laboratory) rain test.
- Where the enclosure is metallic it must be rust-resistant, otherwise it shall be UV protected to prevent damage and fading in direct sunlight.
- The access door shall provide a locking mechanism with a single universal key access.
- The Data Collection Equipment shall have built-in protection for lightning strikes and power surges.
- The enclosure shall be large enough to include all elements of the data collection equipment as well as any external cellular or LAN routers required to connect to the backhaul connection.

2.3.6.2 Power Requirements

The Contractor shall ensure that the Data Collection Equipment has a power source of either 120V AC wired to a building or electrical pole or from a solar panel and battery as required. The Data Collection Equipment should have an automatically rechargeable battery that can supply backup power.

2.3.6.3 Mounting Options

At a minimum, the Contractor shall provide Data Collection Equipment (unit, antenna, and solar panel) that is able to be mounted on the following:

A. Building wall

B. Standalone Roof Mount that does not require penetrating the roof membrane

C. Utility pole

D. Water tank

The Contractor shall include all equipment and materials required for the different types of mounts in the price of the equipment. All mounts shall allow the equipment to be secured in place, to prevent any equipment from being easily removed.

2.3.6.4 Backhaul

The Contractor shall provide a solution that will allow meter readings to be transferred from the data collection system to the AMI headend software. The Contractor shall be responsible for all initial and on-going costs associated with backhaul through the Network as a Service agreement.

The Contractor is responsible to work with the backhaul provider to ensure the Data Collection Equipment is compatible. The Contractor shall supply all equipment and labor and pay any approval fees from the backhaul provided to obtain the device certification.

2.3.6.5 Data Collection Equipment Warranty

The Contractor shall provide a warranty for the Data Collection Equipment (including any batteries) for a minimum period of one (1) year from the date of acceptance Technical Specifications of this contract and of the RFP.

The obligations contained in this section shall survive the termination or expiry of the Contract.

2.3.7. Data Collector Installation

2.3.7.1 Survey and Site Assessments

The Contractor shall perform an onsite assessment of collector locations prior to the installation of any Data Collection Equipment. During this assessment, the Contractor shall:

- **A.** Work with the building or location Supervisor to gain approval for the exact location of the Data Collection Equipment installation.
- **B.** Collect onsite contact information (name and phone number).
- **C.** Estimate the distances between the proposed Data Collection Equipment location and AC power/Ethernet access, including details regarding where the connections will be made.
    a. Where an electrical panel does not have enough room to allow another circuit, the City will arrange for a new panel to be installed or may approve a solar unit (where applicable).
- **D.** Where cellular is the chosen backhaul, the Contractor shall work with the backhaul cellular provider to ensure each location has ample coverage to meet the needs of the WAN.
- **E.** Where a site does not meet all the requirements for Data Collection Equipment to be installed, the Contractor and the City will work together to determine the best alternative.
- **F.** The Contractor shall identify any permits and regulatory implications of using the site. All permit costs are the responsibility of the Contractor.
- **G.** The Contractor shall provide a detailed site plan document for each proposed site. The Contractor shall assemble and submit this document to the City for review and approval. The Site Assessment document shall include location address and specifics, the detailed spot within the facility where the data collection equipment is proposed to be installed, the type of collection equipment (collector, repeater) including specifications, GPS coordinates, pictures of all parts of the site that will be impacted by the installation, drawings of the proposed AC and antenna wiring.
- **H.** P. Eng. Stamped Design drawing with the proposed installation for each data collector installation site.
- **I.** Provide a detailed description and breakdown of proposed cost. The Contractor shall clearly identify all work included with the base installation and any required work that is not detailed in the Data Collector Installation Requirements sections below. All work outside the expected rate will propose an upset limit on hours and an hourly rate. Any materials outside the scope will be at cost plus 15%.
- **J.** The Contractor shall assume that 25% of the site surveys will result in the site not being approved; additional site surveys are the Contractor's responsibility.
- **K.** Contractor to note limitations on Customer's preferred times to allow on-site visits including hours & days of operation and any known scheduling challenges.

2.3.7.2 Data Collector Installation Form

The Contractor shall provide the City an installation form for each piece of Data Collection Equipment installed, and at a minimum this shall include the following information:

- **A.** Site address and name of building
- **B.** Date of installation / certification
- **C.** Reference to the proposed Propagation study
- **D.** Contact information for Site Supervisor (name and phone number)
- **E.** Access information (how to access the Data Collection Equipment and antenna)
- **F.** GPS coordinates of the Data Collection Equipment (Phone grade accuracy)

G. Type of installation (roof mount, pole mount, wall mount)

H. Type of power of Data Collection Equipment

I. Unique ID number, Data Collection Equipment make/model and the firmware specs at the time of installation.

J. Site cabling information, backhaul type, including IP address, Route ID serial number, cellular phone number

K. Digital pictures of the Data Collection Equipment and antenna as well as a picture of the building at street level

L. A final as-built data collection installation drawing for data collector installation including data collector equipment, antenna, and wiring.

2.3.7.3 General Data Collector Installation Requirements

The Contractor shall assume the Data Collector Installation Requirements for all sites will include all labor (general, electrical, rigging, etc.), materials and equipment required to install the data collector, including but not limited to the following requirements:

A. The Contractor shall submit all planned installations to be approved by the City; where the City does not approve the Contractor shall revise the Site Survey Assessment and resubmit to the City for review.

B. The Contractor shall ensure that any transmission from the proposed Data Collectors will not interfere with existing antenna signals or equipment users at the sites.

C. The Contractor shall ensure that any area disturbed during the installation of the Data Collectors is restored back to its original condition.

D. The Contractor shall include all labor associated with rigging, electrical and mounting the Data Collection Equipment in the base installation.

E. The Contractor shall include all hand and motorized lift, or platform equipment required to transport or lift the data collector equipment, antenna, or accessories to the mounting location in the installation cost.

F. The Contractor shall include the coordination and payment of all building and electrical inspections in the installation cost of the equipment.

G. The Contractor shall include all labor and material associated with installing the AC, LAN and antenna wiring and conduit as required.

H. The Contractor shall include any required AC switch as required by code, internal or external cellular or GPS antenna equipment.

I. The Contractor shall submit the final proposed surveys and site assessment to the City for approval a minimum of 40 business days prior to the proposed install date.

2.3.7.4 Building / Roof Mounted Data Collector Installation Requirements

A. The Contractor shall supply and install the data collector equipment on the roofs of approved buildings. Where required, the equipment shall be mounted on a self-supporting roof mount that does not require penetration of the roof membrane and does not damage the roof membrane.

B. The Contractor may have access to the building's existing AC power (when and where available). In these circumstances, the Contractor shall be required to install the conduit and wire necessary to support the data collector location on the roof. Where this is not feasible, the Contractor may use a solar panel.

C. Where there is a location inside a facility where the collection equipment can be mounted the Contractor shall install as directed by the City, wall penetration (and resealing) to run any antenna or GPS wire shall be installed in the installation.

2.3.7.5 Communication / Water Tank Mounts

A. The Contractor shall supply all equipment, tools, and mounting brackets necessary to properly fasten the data collector, solar panels (if applicable), antenna, and wiring to the existing tower or pole.

B. The Contractor shall meet the following requirements for Data Collection Equipment and conduits that are to be mounted on water tanks:

a. Antennas must be mounted on dedicated mounting platforms on the balcony portion of the tank or on the top of the tank, if available, or with the use of magnetic supports. Any other form of mounting must be approved by the City.

b. All conduits mounted on pedestal tanks must be done on the interior of the tank except for the exterior roof area.

c. All exposed conduits, piping, or wiring on the exterior of the tank must be painted close to the existing color on the tank.

d. No drilling is permitted into or on the tank structure.

e. The 165 foot limit of antenna wire and conduit will not apply to this type of installation.

2.3.7.6 New and Existing Pole-Mounted Data Collector Installation Requirements

A. Prior to installing new poles or utilizing existing power poles to support the installation of a data collector, the Contractor shall obtain any required permits and locates. The installation of a pole shall be in accordance with FCC's Antenna Structure Registration (or approved equivalent). Alternatively, the Contractor shall submit the proposed installation specification to the City for approval.

B. The Contractor shall assume the maximum height for new poles will be 65 feet when completing the propagation study. Any proposed pole higher than 65 feet shall be reviewed and approved by the City on a case-by-case basis and the cost of the longer pole shall be the responsibility of the Contractor.

C. Where Data Collection Equipment is installed on a new or existing pole, the Contractor shall include the cost of connecting a new electric service to support the power requirements of the Data Collection Equipment.

D. The Contractor shall include all crane, drilling, or excavating equipment required to install a new pole or tower in the installation cost.

2.3.8. AMI Network Service

The City shall pay for the initial roll-out of the network equipment and shall own the network with a life expectancy of 20 years. The Contractor shall be responsible for monitoring, field investigation and repair or replacement of the data collection network equipment for the life of the system. The Contractor shall be responsible for all data collection and backhaul equipment replacement related to warranty, obsolescence, or acts of god, and network equipment shall remain current with manufacturer supported versions of hardware and software. The Contractor shall ensure that it meets the following requirements related to the AMI Network Services:

A. Once the network has been installed and the Contractor has met Milestone 4, the Contractor AMI network shall continue to collect hourly interval data and will be responsible for maintaining the 98.5% Read Success Rate for all meters covered under the AMI network.

B. Daily monitoring of the data collection network for normal operations.

C. Where a data collector is not operating normally, the Contractor shall remotely investigate and provide written notice to the City within 24 hours of the equipment going down.

D. As required, the Contractor shall perform field investigation and repair or replace the data collector equipment within five (5) business days of the equipment going down. All data collector parts (or the entire data collector), labor and equipment costs to investigate and replacement equipment shall be included in the AMI Network Services.

E. Perform all firmware and software maintenance, support, and updates (remote or field visits) required for the data collection and backhaul equipment. The Contractor shall provide 20 business days notification of all firmware updates unless the update is considered critical the Contractor shall provide 24 hours' notice of the update.

F. The Contractor shall cover the cost of any site visits required to meet the performance requirements described in the maintenance agreement. This could be for planned or unplanned maintenance. If site visits are a result of a situation outside the Contractor's control (power turned off, building/pole removed, vandalism, etc.), additional field costs can be passed back to the City.

G. Where part or all of the network is down, and it is preventing readings from being collected on a daily basis, the Contractor shall credit back the AMI Network Services costs that have been affected for each day after the five-day, response period readings could not be collected.

H. Where a third-party network is proposed AMI, the Contractor is responsible for ensuring network coverage during the installation phase of the project. The Contractor shall include all costs to monitor and maintain the AMI network for the full 20-year period. The City reserves the right to negotiate directly with the third-party AMI Network provider for long-term AMI Network Services after Total Performance.

2.4. Software

2.4.1. General Software Requirements

2.4.1.1 Software Overview

All references to “software” or “application” will refer to Contractor supplied hosted or Software-as-a-Service (SaaS) application(s) required to operate the AMI System and meet the specifications as detailed. Any SaaS or hosted system data and backup data must be stored exclusively on servers located within the United States. No City data can be stored outside of the United States.

2.4.1.2 Application Licenses

The Contractor shall supply the City with license(s) for access to the software by the City’s customer service, billing, maintenance, IT personnel and external supporting organizations that may require remote access to the system from time to time. The application license shall cover read-only, read-write (where applicable), mapping, and reporting activities.

2.4.1.3 Identity & Single Sign-On (SSO)

All Contractor-supplied applications shall include login and password protection for City Users ensuring the software is only accessed by authorized personnel. The application shall support enterprise SSO using **SAML 2.0 or OpenID Connect (OIDC)** integrated with the City’s Microsoft Entra ID. **City-enforced MFA** must be honored for **all roles (including administrators)**, and the system shall not allow local passwords to bypass SSO. Authentication and authorization events (success, failure, elevation) must be logged and **exportable.**

All Contractor-supplied applications shall include login and password protection for City Users ensuring the software is only accessed by authorized personnel. Costs for integrating Single Sign On functionality shall be included in the Contract prices with no additional license or integration fees required.

2.4.1.4 System Responsiveness

The Contractor shall provide a system designed with capacity such that a minimum of 20 concurrent users shall experience a reasonable response time when connected directly to the system. The Contractor shall, at its own cost, maintain its infrastructure and internet bandwidth to assure satisfactory performance through the life of the agreement.

2.4.1.5 Software Support and Maintenance

The Contractor shall include ongoing support and maintenance for the installed software and system for one year following the Initial User Acceptance Test. After the first year, the City will pay annual software support and maintenance (Hosted) or SaaS charges as detailed in the Pricing Form. As a part of the maintenance and support or SaaS offering, the Contractor shall provide:

- **A.** Phone Support from 7:00AM to 7:00PM (Pacific Time).
- **B.** Remote system access service: coverage between 7:00 AM to 7:00 PM (Pacific Time) with four-hour response time.
- **C.** Software upgrades, fixes, and patches, at no additional cost.
- **D.** The City shall require the Contractor to provide ongoing support for the software for the life of the AMI Software solution as long as the City is current on maintenance and support or SaaS payments.

2.4.1.6 Support Term

The Contractor shall support the software solution(s) for a minimum of twenty (20) years. Where new software application(s) are introduced that would render obsolete one of the applications proposed in the Contractor solution, the new software shall have the same or improved functionality for the same or lower cost. The Contractor shall provide a minimum of twelve (12) months' notice to move to a new software application.

2.4.1.7 Right to Terminate Software Agreement

The City shall have the right to terminate the software agreement with 90 days' written notice.

2.4.1.8 Data Ownership

The City retains ownership of all data that is provided to the software or Contractor through manual or interface exchange of data or is generated by the AMI System. The Contractor is not allowed to use the City's data without de-identifying it and aggregating it as appropriate.

2.4.1.9 Backup

The Contractor shall ensure all Software as a Service or hosted system environments meet the following requirements:

- **A.** Backups are dedicated instances and are not accessible by other clients;
- **B.** Databases are backed up every 4 hours to off-site locations geographically separated within the United States. Additionally, databases are to be backed up to a secondary database server in near real-time providing a warm-backup system in the event the primary database fails;
- **C.** Backups of runtime files are taken with each update;

D. All stored documents are backed up offsite weekly or more often if required;

E. Data is shipped offsite over secure FTP;

F. Recovery from a backup of basic system functionality is achieved within 90 minutes with a full recovery point objective within 24-48;

G. The Contractor will notify the City of any changes to providers or storage locations and associated potential operational impacts within ten (10) Business Days: and

H. All data containing Personal Information is encrypted in transit and at rest.

I. The Contractor shall provide documentation and participate in City's AWIA Risk & Resilience Assessment updates post-implementation.

J. Contractor shall notify City IT of any confirmed cybersecurity breach or incident within 24 hours and shall cooperate in incident response with continuous updates until containment.

2.4.1.10 Existing IT Standards

The Contractor should conform to the IT standards described below. The Contractor shall remain current within the existing operating system environment to within two (2) years.

Category	Description
Server operating system	Windows Server 2019/2022
Virtual infrastructure	VMware vSphere 8 (current GA: 8.0 Update 3)
Databases supported	Microsoft SQL Server 2019/2022
Desktop operating system	Windows 11 and macOS 26.1 ("Tahoe")
Office productivity software	Office 2016 through O365
Email system	Microsoft 365
Supported browsers for internal staff	Current versions of Edge (Chromium), Chrome, Firefox, Safari
Supported browsers for external facing systems	Current versions of Edge (Chromium), Chrome, Firefox
Monitoring and Logging	Contractor shall provide audit logs of user and admin activity, with City access for review. Logs should be retained for at least 3 years and be exportable to City's SIEM. Continuous performance and security monitoring are required, with immediate notification to City IT of outages or suspicious activity. accepted formats (syslog/CEF/JSON), log delivery method (push/pull), log scope (app, admin, API, integration, and infrastructure components), and access method (API/portal) for City review.
Vulnerability and Penetration Testing	Quarterly vulnerability scans and annual third-party penetration testing, with summary results shared with City IT. Critical vulnerabilities to be patched within defined timeframes. Explicit patch SLAs (e.g., Critical ≤15 days, High ≤30, Medium ≤60), scanning coverage (app, OS, containers, cloud), proof of remediation, and that third-party pen test executive summaries + mitigation plans will be shared
Uptime monitoring	24×7 synthetic and real-user monitoring with alerting to City contacts, aligned with the Software-as-a-Service service levels defined in 2.4.2.1, below.

Category	Description
Server Patching Schedule	Monthly - also require emergency out-of-band patching for zero-days and advance coordination with City
Systems Management Tools	Who does what (Contractor vs. City) for any on-prem components (e.g., collectors, gateways). Specify configuration management (e.g., Intune/SCCM/Ansible), baseline hardening, and access controls
Server Management	The Contractor shall manage all AMI application servers and required gateways/collectors (cloud, on-prem VMware vSphere, or IaaS), including CIS-level hardening, monthly patching with out-of-band zero-day updates, AV/EDR, backups meeting City RPO/RTO, and 24×7 health monitoring with alerting. A clear RACI and change management aligned to City maintenance windows are required, with remediation of Critical/High vulnerabilities within City-defined SLAs

Table 6 - IT Environment Standards

2.4.2. Software-as-a-Service Applications

Final terms, conditions and specifications of the SaaS agreement will be negotiated with the Proponent. The following will be the basis for what is included in the agreement.

2.4.2.1 Service Level

2.4.2.1.1 Software Availability

Contractor will use commercially reasonable efforts to provide at least 99.9% uptime availability of the SaaS application per month. Contractor shall be responsible to proactively report any service level breaches and apply credits automatically.

2.4.2.1.2 Change Management.

The Contractor shall align all patching and maintenance with the City's defined maintenance windows and notice periods, maintain a shared change calendar, and provide documented backout/rollback plans. Planned and emergency activities must use City-approved communication templates (audience, timeline, impact, and status updates), with real-time updates during execution and a post-change summary within one business day.

2.4.2.1.3 Functional Availability

A. The Contractor shall prioritize the correction of any Billing Impediment and shall endeavor to correct such problems within 72 hours after issue identification. Other issues are considered a bug and fixes will be implemented upon an assigned software major or minor release schedule. The contractor will provide accurate and timely meter reading data through the established interface to City systems, including but not limited to, that with an accurate and timely billable read within 48 hours of the readings of the water meter.

B. The Contractor will provide the City with a software user interface that displays (data, graph, tabular) accurate data including meter readings (raw reading and adjusted to proper unit of measure), temperature (when available), weather (when available), pressure (when available) and other data that is stored in the AMI Software.

C. The Contractor will provide software functionality including continuous leak detection, zero consumption, high consumption alerts, etc.

D. The Contractor will provide meter data (interval/consumption data or other available meter data) to the City's CIS and Customer Portal through API(s) or flat file interface(s).

2.4.2.1.4 Maintenance Window and Notice

A. All upgrades, maintenance and patches are performed after hours (i.e. from 8:00 PM Pacific Time and 11:59 PM Pacific Time) and/or on weekends to avoid downtime situations during normal business hours.

B. Major Releases: 7-to-14-calendar days' advance notification is provided to utility users who have credentials to access the platform. The notice will advise users of the scheduled downtime which is normally scheduled to occur between 8:00 PM Pacific Time and 11:59 PM Pacific Time.

C. Minor Releases: may include bug fixes and security patches, shall be provided with 5-calendar days' advance notification; these updates shall be scheduled to occur between 8:00 PM Pacific Time and 11:59 PM Pacific Time. Upgrades or patches that require longer implementation time shall be conducted over a weekend.

2.4.2.1.5 Service Level Fault

A service level fault shall be calculated based on the formulas for software available and functionality availability below.

2.4.2.1.5.1. Software Availability Formula

Availability shall be measured and communicated by the Contractor. Availability is calculated as the percentage of uptime in the applicable calendar month, excluding scheduled downtime:

$$1 - \frac{\text{Total Unavailability Minutes}}{\text{Total Minutes of Service Month - Total Minues of Approved Downtime}}$$

Where:

"**Total Unavailability Minutes**" shall be the cumulative unavailability time in minutes in the applicable month where the Portal or Service are not available due to unplanned outages or from systematic errors on the part of the Contractor,

"Total Minutes of Service per Month" shall be the cumulative time in minutes in the month in question, calculated by taking the number of calendar days in month x 24 hours/day x 60 minutes/hour, and

"**Total Minutes of Approved Downtime**" shall be the cumulative time in minutes in the applicable month where the Contractor applications are not available due to scheduled downtime; other planned scheduled outages, or approved exclusion conditions as negotiated.

The Contractor shall report or display software availability (based on the above formula) at a minimum monthly.

2.4.2.1.5.2. Functional Availability Formula

Functional availability is considered a fault if more than 5% of the available meters are impacted by the loss of functionality for features deployed in the system greater than 30 business days or if a file interface is unavailable for more than 48 hours.

2.4.2.2 Service Level Response

When a service level fault occurs, the Contractor is responsible for the following responses.

2.4.2.2.1 Software Service Level Response

The Contractor shall communicate the status of the response on a regular basis or as requested by the City.

2.4.2.2.2 Billing Impediment Service Level Response

The urgency and time to correct will be dependent upon the issue itself and its impact on the City's ability to use the software. The Contractor shall prioritize the correction of any Billing Impediment and shall endeavor to correct such problems within 72 hours after issue identification.

2.4.2.2.3 Functional Service Level Response

Where loss in functionality impacts more than 5% of Available Meters, the City shall consider this a Service Level Fault, and the Contractor shall prioritize the resolution. Other issues are considered bugs, and fixes will be implemented upon an assigned software major or minor release schedule.

2.4.2.2.4 Service Level Fault Remedies

When a service level fault occurs, the following remedies will be applicable.

2.4.2.2.4.1. Credit for Software Downtime

A credit will be applied for downtime according to the following schedule for the duration of the service level fault:

Service Level	Credit
>99%	0%
>98% to <99%	5%
>95% to <98%	25%
<95%	50%

Table 7 - Credit Percentage for Downtime

2.4.2.2.4.2. Credit for Billing Impediment Fault Remedy

Service Failures: If at any time during each monthly period a Billing Impediment that goes unresolved within the Billing Impediment Service Level Response window above, PWD's exclusive remedies include, at PWD's election, a credit for one (1) month of Service for the period the fault exists or termination of this Agreement with repayment of any prepaid fees on a prorated basis.

2.4.2.2.4.3. Credit for Functional Fault Remedy

Where a loss in functionality fault impacts more than 5% of Available Meters, a credit of 5% will be applied for the period of time the loss of functionality exists.

2.4.2.2.5 Credit Application

All credits will be applied to the SaaS fees for the subsequent annual contract. The City may choose only a single remedy Credit to be applied per incident.

2.4.2.3 QA Test System

The Contractor's software shall include a QA Test system. The City shall provide four weeks' notice of when a QA test environment shall be configured and available to the City. The Contractor shall provide a QA Test system until IUAT and FUAT are approved by the City.

2.4.2.4 Security

The Contractor shall ensure the security of the application and shall prevent unauthorized access to the City's information. The application shall support enterprise SSO as described in 2.4.1.3 Identity and Single Sign-on, above. Authentication and authorization events (success, failure, elevation) must be logged and **exportable.**

2.5. AMI Software

2.5.1. General Requirements

2.5.1.1 AMI Software Definition

The Contractor shall ensure that the AMI Software is configured by the Contractor to meet the required functionality. At a minimum, the Contractor shall ensure that the application(s) will include both AMI headend and Meter Data Management software.

2.5.1.2 User Definition

The Contractor shall ensure that the AMI Software solution allows for different types of Users with varying levels of system access. At a minimum, the Contractor shall ensure the software allows access to the following types of Users:

- **A.** City Administrator: City employee(s) who have administrative access to the AMI Software solution with the authority to set up Users and make system-wide changes.
- **B.** City User: City or project consultant personnel who access the AMI Software solutions for the purpose of monitoring various AMI radio transmitters, data collectors, and running various consumption reports.

2.5.1.3 Tyler Munis Customer Information System (CIS) Data

The Contractor shall ensure that the AMI Software solution shall store and display key CIS data associated with the service address, AMI radio transmitter, and meter. At a minimum, the Contractor shall ensure that the following CIS data is incorporated into the AMI Software solution:

- **A.** Account number
- **B.** Service address (including GPS coordinates)
- **C.** Location number
- **D.** Key AMI radio transmitter
- **E.** Key Meter(s) information
- **F.** Maintenance history associated with the AMI radio transmitter(s) and meter(s)
- **G.** Meter reading area, cycle, book, and sequence data
- **H.** Group associations

The Contractor will work with the City project team during the startup phase of the project to finalize the exact fields of data that will be used.

2.5.1.4 Mapping

The Contractor shall ensure that the AMI Software solution can display the AMI equipment including AMI radio transmitters, meters, and collection devices on an ESRI ArcGIS compatible map. The map should allow key data to be displayed by toggling on the map locations and clearly showing the status of the equipment. The City currently has ESRI mapping licenses for City users; if the application relies on ESRI maps then the Contractor

does not need to include the cost of mapping in the solution. If the application requires a mapping license other than ESRI license, the cost proposal shall include licenses for up to ten (10) concurrent users.

2.5.1.5 Weather Data

The Contractor should ensure that the AMI Software solution shall be able to incorporate weather data (temperature, precipitation, etc.) to display in conjunction with consumption graphs to assist the User in understanding how weather patterns affect consumption patterns. All licenses and fees associated with a weather service will be included in the annual support and maintenance costs.

2.5.1.6 Storage

The Contractor shall ensure that the AMI Software solution and hardware shall be designed to hold a minimum of three (3) years of data in the system (with an option for 5 years). Such data storage capability is included in, and not in addition to, the Contract price. The historical data shall include meter readings, consumption, meter maintenance, meter events, flags, and data collector performance information. The system shall allow all data to be archived and transferred (through an API) as required by the City.

2.5.2. Utility User Functionality

2.5.2.1 Meter Reading Retrieval

The Contractor shall ensure that the AMI Software is interfaced to the City's CIS system, Munis, to allow meter readings to be requested and retrieved by cycle, book, route, or individual account. The Contractor shall ensure that the AMI Software allows for a configurable number of days where a valid numeric meter reading could be retrieved. This can apply to an individual account or a group of accounts.

2.5.2.2 Utility User Module

The Contractor shall ensure that the AMI Software solution has a Utility User Module that gives Users the ability to access data related to service address, meter, AMI radio transmitter, and the data collection network. The Utility User Module shall allow an administrator to restrict access to the data an individual user is allowed to view, add, delete, and modify based on that user's job responsibilities.

2.5.2.3 Display Account / Premise Data

The Contractor shall ensure that the Utility User Module allows the User to view account and premise data for one or more meters. Searching for accounts, premises, and meters shall be retrievable by querying using at least the following fields:

- **A.** Current account number at premise,
- **B.** Prior account number at premise,
- **C.** Account status,
- **D.** Account start/stop dates,
- **E.** Premise location,
- **F.** Premise cycle number,
- **G.** Premise meter route number,
- **H.** Premise address, and
- **I.** Premise status.

2.5.2.4 Display Unit of Measure

The Contractor shall ensure that the Utility User Module shows meter readings and consumption in the proper Unit of Measure (UOM) and billing multiplier. All consumption shall be displayed in cubic feet.

2.5.2.5 Time

All software applications shall display time in Pacific Time (ET) and automatically adjust for daylight saving time as appropriate.

2.5.2.6 Display Consumption

The Contractor shall ensure that the Utility User Module displays consumption and meter readings for historical periods of the User's choosing. Consumption shall be displayed in a tabular or graphical format and should allow the User to drill down into small time intervals, down to the hourly intervals. The Contractor shall ensure that the Utility User Module can display consumption in comparison to other Customers or meters or group averages over the same period. The Utility User Module should allow the User to compare consumption for the same Customer across different time periods (e.g., July 2024 to July 2025). The Contractor shall ensure that the Utility User Module allows the User to view historical meter events, flags, and maintenance activities that have been performed on the meter or AMI radio transmitter.

2.5.2.7 Average Consumption

The Contractor shall ensure that the Utility User Module displays average consumption over the period of time being viewed including daily average, weekly average, current and past billing period averages.

2.5.2.8 Display of Status Codes

The Contractor shall ensure that the Utility User Module displays status codes of the AMI radio transmitters. These status codes shall include:

- **A.** Location codes,
- **B.** Hazard codes,
- **C.** Meter condition codes,
- **D.** No read codes,
- **E.** Meter read codes, and
- **F.** Read codes.

The Contractor shall ensure that the AMI Software allows the Utility User to review and close or resolve the status codes such that a resolved code does not continue to show up in the display or report.

2.5.2.9 AMI Network Monitoring

The Contractor shall ensure that the AMI Software solution allows City Users to view details of the Data Collection Equipment and their current and historical status. It should provide a summary of the Data Collection Equipment performance (battery, communication to headend software, devices being heard, etc.).

2.5.2.10 Event Management

The Contractor shall ensure that the AMI Software solution allows for tracking and prioritizing different types of meter and AMI events either at the software level or using the radio transmitter. Events may include various types of maintenance, high consumption, cut wire, zero consumption, non-numeric readings, continuous consumption, non-zero consumption on fire line meters, and conservation initiatives (consumption restrictions,

letters, low flow device installations, meter replacements, etc.). The City should be able to prioritize events that allow more serious events to be resolved sooner.

The Contractor shall ensure that the meter event handler will allow the City to:

- **A.** Filter all meter events by multiple criteria including the type of event, severity of the event, event type, or status of a device.
- **B.** Create event groups.
- **C.** Create roles for Users.
- **D.** Send events to a person of a specified group.

2.5.2.11 Property Side Leak Detection

The Contractor shall ensure that the system or software allows for User-defined continuous or high consumption leaks to be flagged. Both the size of the hourly consumption and the duration of the continuous consumption should be User definable.

2.5.3. Data Interfaces

The Contractor shall define all data interfaces that will be required for all software and systems. The Contractor shall be responsible for planning, developing, documenting, and testing the proposed AMI Software (AMI headend software, MDM) side of the data interface. The City will be responsible for the existing system side of the data interface. Testing of the interface will be performed jointly.

The Contractor shall work within the City's interface and testing approach as described in Project Overview section 1.7 Integration and Testing Process.

2.5.3.1 Data Transfer File Type

The AMI Software may use flat file interfaces for billing purposes.

The AMI headend and Meter Data Management software shall be either a flat file, a Real-time Application Programming Interface (API) or a REST API of a format agreed to during the start up to transfer data between systems. Costs for the API shall be included in the support and maintenance or SaaS fees. If an API is not available, the Contractor should specify when an API will be made available.

2.5.4. Reporting

2.5.4.1 Standard Reports

The Contractor shall ensure that the AMI Software solution includes a simple, flexible reporting tool that allows utility user to query data for specific Customers or groups of Customers consumption data. The tool shall allow the Users to add or remove fields, filter, or adjust the criteria of the report based on User's requirements.

The Contractor shall ensure that the modified or standard reports shall be able to be saved by the User, so they can re-use the reports in the future.

The Contractor shall ensure that the AMI Software can produce standard reports that can be downloaded as a PDF file or in Excel format for further analysis and action.

The Contractor shall ensure that the downloaded PDF, CSV, XLSX, and HTML reports are able to filter, sort, and modify without having to manipulate the data due to formatting limitations (merged cells).

2.5.4.2 Customizable Reports

The Contractor shall ensure that the AMI headend software shall have a robust reporting tool that allows Utility User customizable queries to be built. The reporting tools should allow for fields to be added or sequenced differently; filters to be applied; or criteria and ranges to be added to the query.

2.5.4.3 Special Reports

Where the standard or customized report is deemed inadequate, the Contractor shall develop special reports that can be run efficiently from the AMI Software and support the City's operational needs. Special reports will be defined through a business requirement document and quoted by the Contractor on a report-by-report basis.

2.5.4.4 Scheduling Reports

The Contractor shall ensure that the reports to be run on both ad hoc and scheduled times and support both static (specific meter groups that do not change) and dynamic reporting groups (allows for several conditions to be set) are able to be created.

The Contractor shall ensure that the AMI Software notifies the User of real time alerts via e-mail or text message for specific City-specified events.

2.5.4.5 Meter Management Reporting

The Contractor shall ensure that the AMI Software solution has the ability for the User to define, track, and allow reporting on specific events that occur with the system.

2.5.4.6 On Demand Readings

The Contractor shall ensure that the AMI System can perform on-demand readings for all AMI meters on an individual or global basis. The AMI shall have the ability to obtain all interval data for a specific date range and register values at the time of the reading.

2.5.4.7 Performance Metrics

The Contractor shall ensure that the AMI Software solution can provide performance or diagnostics information with respect to the AMI meters and network equipment.

2.5.5. Meter Groups

The Contractor shall ensure that the AMI Software solution allows meters to be grouped or associated with other meters based on various meter attributes and User defined criteria. This grouping functionality shall be able to be used within both the Utility User Module and reporting module.

2.5.5.1 Dynamic and Static Groups

The Contractor shall ensure that the AMI Software solution allows both static and dynamic groups to be created by a Utility User. The groups should be available to all Users or associated with just a single User. The groups can be temporary or permanent that require approval to be changed. All meters shall be able to be included in both static and dynamic groups.

- A static group is a list of meters created by enumerating the AMI meter identifiers.
- A dynamic group allows for a set of criteria to be established so every time the group is used, meters meeting the criteria are included in the group.

2.5.5.2 CIS Defined Meter Groups

The Contractor shall ensure that the CIS defined meter groups can be defined through the CIS interface that may include Customer, property, or meter attributes. These groups should not be able to be adjusted unless adjustments are made in the CIS system.

2.5.5.3 User Defined Meter Groups

The Contractor shall ensure that the User defined meter groups can be created, modified, or adjusted by the User and may be available to all Users or just a subset of Users.

2.5.5.4 Parent and Child Meter Associations

The Contractor shall ensure that the AMI Software solution allows for meters to be set up as either standalone meter, a child meter, or parent meter. The Contractor shall ensure that both parent and child meters can be grouped and associated with each other. These associations can be set up within the software itself.

These associations shall be available in both the User and the reporting modules.

2.5.5.5 Deductive Meters

The Contractor should ensure that AMI Software solution allows parent and child water meters to be set up as deductive to one another where the consumption from the child meter can be deducted from the parent meter.

3. WATER METER SPECIFICATIONS

3.1. General Requirements

All water metering products shall be submitted for the City's review and approval. Any changes to products throughout the project must be requested and approved by the City.

3.1.1. Complete Assembly

All water meters shall be supplied with a complete assembly including water meter main case, measuring chamber, and encoder register complying with the specification within this RFP.

All components used to construct the water meter shall be made of corrosive resistant material. Components include meter body, wiring connections, register, bolts, bottom plates, etc.

3.1.2. Acceptable Water Meter Standards

All water meters and components of meters shall meet or exceed the following applicable ANSI/AWWA standards:

- C715-18 Cold-Water Meters – Electromagnetic and Ultrasonic Type for Revenue Applications (Non-mechanical).

All proposed water meters performance documentation shall be supported by a data specifications publication that is to be included in an appendix of the Contractor's proposal.

3.1.3. Manufacturer Facilities

All water meters shall be manufactured by a registered ISO 9001 quality standard facility.

3.1.4. NSF 372 Compliant Products

All proposed water meters and parts that come in contact with potable water shall comply with NSF/ANSI 372 and NSF/ANSI 61 Annex G specifications. All products shall be stamped with an NSF symbol confirming it meets this standard.

3.1.5. Water Meter Main Case Composition

The City will accept both metallic main case water meters and composite main case water meters.

3.1.6. Water Meter Serial Number

The serial number stamped on the main case of the water meter should be the same as the encoder register serial number.

3.1.7. Meter Bolts

All meter bolts used in the construction of the water meter shall be stainless steel (AISI 316 Stainless).

3.1.8. Protection of Materials

All meters and meter components shall be shipped and delivered in a manner to prevent damage. Items damaged due to inadequate packaging and/or mishandling during shipment and delivery will not be accepted and will be returned to the supplier at the supplier's expense.

Meters shall be pre-cleaned and sealed to prevent contamination during shipping and storage and shall be ready for use upon receipt.

3.1.9. Operating Conditions

Meters shall be designed to withstand operating pressures up to 150 psi. Meters shall be designed for use with potable water at temperatures up to 80°F.

3.1.10. Test Certificate

All water meters shall be shipped with a certificate that confirms that each water meter was tested and meets AWWA accuracy requirements for all flows. The certificate tag shall include the meter serial number, the meter size and the test results.

3.1.11. Digital File

All water meter and components shall be shipped with a digital file in a format acceptable to the City. The file will include at a minimum the PO number, date of shipment, date of warranty expiry, meter model, size, serial number, register ID number (if applicable) and the test results of the various test flow ranges.

3.1.12. Manufacturing Defects

The Contractor shall ensure that all water meters and all other appurtenances are free from manufacturing defects, imperfections and design deficiencies that may affect their operation, appearance, or serviceability. For all particulars not covered by this specification and/or the Proposal documents, manufacturing quality shall be in accordance with good commercial practice. Materials not defined here shall be of the best commercial quality, suitable for their intended purpose and subject to the approval of the City. For all defective products supplied and installed under this contract, the Contractor is responsible for field investigation and resolution during the Supply and Installation Warranty Period.

3.2. Residential and Small Commercial Meters

Residential water meters shall include various sizes ranging from 5/8” to 1”. The residential meters shall be threaded with meter coupling nuts. Small commercial water meters include meters sized 1”, 1.5” and 2” and shall have oval flanges for connection to the water pipe per City Standard Drawing 301.

3.2.1. Meter Size and lay Length

All proposed water meter size, capacity and lay length shall conform to AWWA standards (latest revision).

3.2.2. Residential and Small Commercial Meter Warranty

All water meters shall have a full unlimited warranty for a minimum of 10 years and a total warranty of 20 years. Following the unlimited warranty period, the water meter warranty may be prorated and shall have an upset limit of the price provided under contract, at the time of contract signing, or the market price, whichever is lower. This warranty shall cover the entire water meter including but not limited to the register and encoded output, battery or batteries, main case and measuring elements with nothing exempt. The meter warranty shall include the meter’s stated accuracy for the total warranty period of the meter.

3.2.3. Meter Connections

All meter connections 1.5” to 2” shall be a two-bolt oval meter connection.

3.3. Commercial and Industrial Meters (Large Meters)

Large meters shall include all meters 3” and greater. These meters shall connect to the water pipe using round flanges.

3.3.1. Meter Size and Lay Length

All proposed water meter size, capacity and lay length shall conform to AWWA standards (latest revision).

3.3.2. Meter Connections

All meters 3” and greater shall have a standard round meter flange in compliance with C702.

3.3.3. Testing

All non-mechanical water meters 3” and greater shall provide an ability for the meter accuracy to be tested/confirmed in situ either electronically or using a test port with the existing standard lay length.

3.3.4. Large Water Meter Warranty

All large water meters shall have a full unlimited warranty for a minimum of 5 years and a total warranty of 10 years. Following the unlimited warranty period, the water meter warranty may be prorated and shall have an upset limit of the price provided under contract, at the time of contract signing, or the market price, whichever is lower. This warranty shall cover the entire water meter including but not limited to the register and encoded output, battery or batteries, main case and measuring elements with nothing exempt. The meter warranty shall include the meter’s stated accuracy for the total warranty period of the meter.

3.4. Encoder Registers

3.4.1. Unit of Measure

The Contractor shall supply an encoder water meter register that records consumption in submultiples of a cubic foot.

3.4.2. Acceptable Encoder Protocols

Acceptable meter reading encoder protocols include Neptune and Sensus as these are the standard encoder communication protocols used in the industry.

The register shall be capable of encoding the meter reading to 8 digits.

3.4.3. Reading Resolution

The meter register head shall display a minimum of eight digits (high resolution). The register shall be shipped factory programmed encoding all digits, a minimum of eight digits.

Registration in Cubic Feet	Encoded Digits								Not Encoded
	Most Significant							Highest Resolution	
Register Digit	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Meter Size ↓ **5/8" – 1"**	100,000	10,000	1,000	100	10	1	0.1	0.01	0.001
1.5" – 4"	1,000,000	100,000	10,000	1,000	100	10	1	0.1	0.01
6" and up	10,000,000	1,000,000	100,000	10,000	1,000	100	10	1	0.1

Table 8 - Encoder Register Resolution

3.4.4. Encoder Programmability

The meter encoder should be programmable so that City personnel may alter the meter reading configuration. This includes, but is not limited to, the number of encoded digits in the reading.

3.4.5. Labelling

The register head shall have permanently stamped on the face of the encoder the manufacturer, the meter size, the meter type, register type and unit of measure.

3.4.6. Leak Indicator

The register head shall have a low flow indicator visible on the face of the meter that can be used by the Customer to assist in the detection of a leak within the property.

3.4.7. Submersible

Water meter registers shall be capable of being fully submerged in water for the duration of their life.

3.4.8. Wiring and Wire Connector

All encoder registers shall be provided with 5' (for meters 5/8" to 2") and 22' (for meters 3" and larger) of 22-gauge 3-conductor solid wire potted at the time of manufacture and shall come with the plug end of a wiring connector device. The wiring connector device shall be a certified IP 68 connection, tamper proof, capable of

being connected and disconnected without having to cut the wire or break the connector device. There shall be no manual connections (e.g. gel caps).

The City currently uses Nicor Series III connectors for meters that are connected to a remote reading device.

3.5. Remote Shut Off Meters

The City may be interested in a small quantity of water meters with remote shut-off or flow restriction capability. All requirements and standards outlined in Sections 3.1 – 3.4 will apply to any proposed water meter that has remote shut off capability.

The Technical Questionnaire (WB-B) provides Bidders with an opportunity to outline their remote shut off meter product, and how the remote shut off function is enabled through the AMI system.

4. INSTALLATION REQUIREMENTS

The Contractor shall provide water meter replacement and radio transmitter installations. Services include installation management and field supervision, installer training, customer service, material management, quality management and data management.

4.1. Field Personnel

The Contractor shall ensure that all field personnel and installers are technically competent and properly trained to perform the work they are undertaking before they are allowed to perform that work on their own. All field personnel shall be of an acceptable character to allow them to perform work in an unsupervised manner. The Contractor shall establish written standard operating procedures to ensure all field personnel are providing a consistent level of service. The City may request such documentation at any time throughout the project.

4.1.1. Policies and Procedures Documentation

The Contractor shall develop detailed documentation on the policy and procedures the field personnel shall follow while conducting work in the field and office. These policies and procedures shall include work practices, systems operations, detailed workflow description specific to the City's project, safe work procedures adhering to California Workplace Safety and Health regulations.

These documents shall be submitted to the City for review and approval a minimum of four (4) weeks prior to installation start date. Once approved all Field Personnel shall be provided with a hard and PDF copy for reference in the field.

Where field personnel are not following policies and procedures, the City reserves the right to require the Contractor to remove them from the project at the Contractor's cost.

4.1.2. Training

The Contractor shall provide all field personnel with training in the different aspects of work expected during this program that reflects the Policies and Procedures Documentation. This training should include, at a minimum, the following:

- **A.** Water meter installation procedures (in class and in the field),
- **B.** Water meter and AMI radio transmitter product training,
- **C.** Customer service, use of AMI software for viewing usage and how to request reads for billing,
- **D.** Appointment management (if and where applicable),

- **E.** Handheld and workflow operation,
- **F.** Data integrity and management,
- **G.** Safe work practices and procedures, and
- **H.** Additional plumbing work, if applicable.

The Contractor will reserve two (2) spots in each installer training session so that City personnel can attend. Documentation of training shall be provided by the Contractor to the City upon request.

4.1.3. Uniform and Picture Identification

The Contractor shall ensure that all field personnel are fully uniformed. The Contractor's company logo shall appear on the uniform in conspicuous and appropriate locations. The uniform and logo should be distinguishable in all types of weather. The Contractor shall ensure that all vehicles that are used in relation to the work need to display the same company logo.

The Contractor shall ensure that all field personnel wear a Contractor supplied and City approved photo identification badge that includes the City's logo, and states "Authorized contractor for the City of Pleasanton." Each badge will be considered the property of the City and will be tracked by the Contractor. The Contractor shall ensure that each installer wears the identification badge and that it is visible at all times when interacting with Customers. As soon as an installer becomes inactive, the Contractor shall return the identification badge to the City. The Contractor shall provide specific language/logo requirements for uniforms, photo identifications, vehicles signage, etc. for review and acceptance by the City.

4.1.4. Two-Way Communication

The Contractor shall ensure that each field representative has a two-way communication device that will allow the Project Manager to contact him/her, as required.

4.1.5. Background Checks

The Contractor shall ensure that all staff (field and management) assigned to perform work at Customer premises shall have successfully passed an employment screening. The Contractor shall submit proof to the City of a satisfactory employment screening for each member of the Contractor's staff prior to commencing work under this Contract during the start-up phase.

4.1.6. Competency

The City may ask any of the Contractor's staff to leave the site of the work if the City finds the staff to be unacceptable due to incompetence, improper conduct, or posing a security risk, and in such a case the Project Manager shall assign a suitable replacement.

4.2. Work Requirements

4.2.1. Plumbing

All plumbing work and material shall conform to the current version of the following codes and standards:

- **A.** Private-side of Water Meter: California Plumbing Code (Uniform Plumbing Code)
- **B.** Public-side of Water Meter: California Title 17 and Title 22 Regulations Related to Drinking Water
- **A.** Inside Meter Box: City of Pleasanton Standard Specifications and Details, drawings 301-306 (City Standard Specifications and Details).

4.2.2. Work Types

The City will define the work types for each work order. The work types will include:

Meter Replacement – the Contractor will remove the existing water meter, install a Contractor provided water meter, supply and install an AMI radio transmitter. This work type shall be applicable to water meters 5/8 x 3/4" to 1".

Meter Retrofit - the Contractor will supply and install an AMI radio transmitter, connecting the radio transmitter to an existing meter that is equipped with encoder register, 22-gauge wire, and Nicor Series III waterproof connector. This work type shall be applicable to water meter meters 3/4" to 2".

4.2.3. Service Line Material Survey

Identification of the service line material, downstream of the meter setting and within the meter box, is required at the time that installation work is completed at the meter. The survey will be conducted to identify the material used for the customer side of service lines including copper, steel, galvanized steel, plastic or lead. If an additional type of material is encountered, the Contractor may no e the material type as "other non-metallic" or "other metallic."

Identification is expected to be performed using the visual scratch testing and magnet technique. In general, the visual scratch test consists of using a metal tool/object to scratch the surface of the service line to determine material type based on color and rigidity. The magnet supplements the scratch test by providing confirmation that a metallic material is not lead because a magnet will not stick to lead.

The Contractor shall train installers to identify a service line by showing them real world scenarios of type of material, the proper use of scratch testing and magnets for identifying material type. The Contractor shall submit training protocols for field identification and data recording during the Start-Up phase of the project. These submittals will serve to provide the Contractor's standardized approach to field identification. The City may conduct "spot checks" to confirm the accuracy of the data submitted.

A service line material question shall be a part of the electronic workflow, and the field data shall be delivered to the City at the time that results of meter replacement and retrofit work orders are delivered.

4.2.4. Approvals for Extra Work

The Contractor shall ensure that billing is in accordance with the unit rates that have been stipulated in the Contract. Some items within the Contract require pre-authorization prior to the work being undertaken. In these instances, the Contractor shall submit to the City a request in writing (or over the phone and followed up in writing where there is an emergency). This request shall include a picture of the location, a description of the work required, and the specific line items that are being requested. In the event of an hourly request, the Contractor shall provide the maximum upset hours that will be required to perform the work. Extra work items shall be reviewed daily with City assigned inspector.

The City will review the information and approve or deny specific requests. Where the City deems the work is unnecessary or excessive, the Contractor shall return to the property and complete the necessary work to install the meter as per the regular unit rates.

4.2.5. Valve Replacements

Where a service valve is inoperable, does not stop the water, or is leaking, the Contractor will notify the City of task work to be performed. The City will replace the valve and notify the contractor that the work order may be completed. The expected timeframe for task completion by the City is within 48 hours of receipt of notice by the City Operations Manager.

4.2.6. Existing Meter Setting

Water meters are located in meter boxes that are set in sidewalks (more than 50%) or grass/landscaping. Residential meters are typically located in the utility easement in the premise front yard. In the Kilkare Woods territory, meter boxes may be located beyond the typical utility easement. Traffic control measures are not required for the water meter or radio transmitter work.

Should the Contractor encounter a meter box with dirt inside which prevents the installation, the Contractor shall be responsible for cleaning out the dirt as well as responsible for the disposal of such dirt/materials. The City has estimated approximately 20% of accounts will require debris removal as represented in the Financial Workbook, line item C2.12.

4.2.7. Meter Installation

Meters shall be installed in the existing orientation/setting.

4.2.8. Adapting to Existing Plumbing

The City anticipates that the Contractor may encounter all types of water pipes during the course of the work. The Contractor is responsible for replacing water meters on properties where the plumbing consists of manufactured copper, galvanized, iron, PVC, CPVC, PEX, black and blue poly.

Where work cannot proceed because the condition of the plumbing, the Contractor shall notify the City Operations Manager of a task for City completion.

4.2.9. Poor Existing Plumbing

The Contractor is responsible for the plumbing system for a period of 60 business days after the replacement of the new water meter. It will be presumed that any leak reported to the Contractor or the City within this time is a result of work performed by the Contractor's installers and will necessitate, therefore, further investigation by the Contractor, followed by a report of findings to the City. Having received and considered the Contractor's report, if the City decides that a leak is likely the result of the meter installation process or materials installed, the Contractor shall make the required repairs, as necessary.

4.2.10. Temporary Electrical Ground

In all cases where a bypass or existing grounding does not exist, the Contractor shall ensure a temporary electrical ground is used before and after the meter location to ensure that electrical continuity and personnel safety is not compromised.

4.2.11. Radio Transmitter Mounting

The City's existing meter box lids are Armorcast polymer concrete lids. In determining the work required to adapt the existing lid to an AMI Radio Transmitter, the Contractor shall follow this order of preference:

- **A.** Mount the AMI Radio Transmitter under the existing lid using existing mounting holes
- **B.** Replace the existing lid with the Contractor's preferred lid solution.
- **C.** Adapt the existing lid using a through-the-lid mount

The Contractor shall propose mounting solution(s) that comply with the following conditions for all existing meter boxes and lids:

- **A.** No locking mechanism is allowed, the weight of the lid shall be sufficient to keep the lid in place
- **B.** Any "through-the-lid" antenna shall be installed to comply with the Americans with Disabilities Act (ADA) Accessibility Standards, Section 303 for vertical changes in level. Changes in level of 1/4 inch (6.4

mm) high maximum shall be permitted to be vertical. Changes in level between 1/4 inch (6.4 mm) high minimum and 1/2 inch (13 mm) high maximum shall be beveled with a slope not steeper than 1:2.

C. The submittal document for the proposed lid model(s) should include the coefficient of friction value, confirmation of AASHTO H20 vertical loading, and the anti-slip rating.

D. The AMI Radio Transmitter shall be secured to the lid to avoid damage to the device when removing the lid

E. If drilling an existing lid is proposed, the Contractor shall provide an engineering stamped confirmation that the integrity of the lid will not be impacted.

F. All AMI Radio Transmitter mounting equipment shall be provided by the Contractor

4.2.12. Wiring Connection

The Contractor shall ensure the wiring connection between the radio transmitter and the encoder register are fastened according to the manufacturer instructions. All wiring connectors shall be tamper resistant and show signs if the wire has been disconnected.

Existing wiring connectors on meter retrofit workorders are Nicor Series III waterproof connectors.

4.2.13. Testing the AMI Radio Transmitter

The Contractor shall validate the radio transmitter can read the water meter encoder at the time of installation and verify the radio transmitter can be heard by the AMI network either at the time of installation or within 24 hours of it being installed at the headend software. All testing equipment is to be supplied by the Contractor.

4.2.14. Worksite Cleanup

After exchange of a meter, the Contractor shall run water from the customer side, such as a nearby hose bib, to ensure that air is bled out of the line and the meter register flows with no error messages.

The Contractor will ensure any meter box debris, garbage, spoils, removed meter/register and existing radio transmitter are removed from the meter box prior to the installer's departure from the site.

4.2.15. Task Categories

Where field personnel are not able to complete an installation for any reason, the Contractor shall record the reason that the work order could not be completed. Where one of the following problems (listed below) exists at the site, the Contractor shall provide a clear digital picture and comments that can be used to review potential solutions:

A. **Authorization to Proceed** – where there is work required that is outside the scope of this program and the Contractor is requesting additional approval to complete the installation.

B. **Unable to Locate Meter** – where the Contractor's installer and Supervisor are unable to locate a meter.

C. **Meter Box Access** - where a customer has not provided adequate access for meter installation to occur. This task will continue to be a Contractor task as it moves through an appointment process.

D. **Hard Refusal** – where a Customer explicitly refuses to comply with the installation.

E. **Poor Plumbing** – where the Contractor feels that damage/leaks would be the inevitable result of any work conducted by an installer. Digital pictures of the situation shall be provided along with a description of what would be required to complete the installation.

F. **Safety Hazard** – where work conditions do not allow for the installation to be completed safely.

G. **Second Person Required** – where the work requires a second person onsite to perform safely.

H. **Irregular lid configuration** - where the installer finds a lid that does not fit the standard radio transmitter mounting specifications.

I. **Unusual or Difficult Meter** – where the installer requires Supervisor support and direction, and the Supervisor is not able to get to the property during the original on-site visit.

J. **Work Type Incorrect** – where the installer feels that the work type provided conflicts with the work required onsite.

During start-up meetings a final list of Task Categories and Task Responsibilities will be finalized between the Contractor and the City.

4.2.16. Return Visits

The Contractor is responsible for all costs associated with return visits required to complete the installation. Once a property has a documented Task requiring City action or approval, the Contractor shall not return to the property without authorization from the City.

4.2.17. Other Work

The Contractor shall not perform any other work at the property except what is required to install the products directly associated with this Contract. Under no circumstances shall the Contractor accept compensation of any kind for services performed relating to a water meter replacement. The Contractor shall not sell, promote, market, or communicate to the City's Customers any services or products not related to this Contract. All communication to the Customer shall be approved by the City prior to being distributed.

4.2.18. Removal and Disposal of Materials

The Contractor shall be responsible for removal and legal disposal or recycling of all materials removed from the meter box including the removed dirt and debris, old plumbing, excavation of roots, meters, and existing radio transmitters.

4.2.19. Cleaning out the Meter Box

The Contractor shall remove any water or dirt around the meter necessary to perform the work. It is up to the Contractor to determine the means and methods used to clean out each meter box. Meters may be buried in soil.

4.2.20. Meter Box Removal and Re-Installation

Where the meter box needs to be removed to perform the work, the Contractor shall supply all labor and equipment to perform this work. The meter box shall be removed such that it can be reinstalled. If the meter box in damaged as part of the removal, the Contractor will provide replacement boxes per specifications identified in the City Standard Specifications and Details, drawing 301. Meter box removal and re-installation is not anticipated where the meter box is located in concrete.

4.2.21. Utility Locates

The Contractor is responsible for of locating all utility services where required prior to excavation work being performed. The cost of utility locates shall be included in the various line-item prices where it is deemed required.

4.2.22. Chlorination Process

Great care must be exercised to keep the interior of the new meters, new and existing appurtenances and new and existing piping clean. Meter installation practices shall conform to AWWA M6 Manual and the meter manufacturer's installation manual. The Contractor shall develop, and submit for City review, a project specific meter installation work plan. All foreign matter, dust, dirt and water shall be removed from the interior of meter box enclosures to minimize the risk of foreign matter entering meters, piping and appurtenances during the meter installation process. No meter shall be installed submerged in water, mud or dirt. The interior of all appurtenances shall be kept clean before, during and after assembly or installation.

All meters shall be furnished on the project shall have end caps installed by the manufacturer for the purpose of keeping the interior of the meter sanitary. The manufacturer installed meter end caps shall remain installed on meters at all times and only be removed by the Contractor at the time of installation. Uninstalled meters found without end caps installed shall be removed from the project at no additional cost to the City.

During installation, the City may inspect any installation for compliance with the Contractor's approved installation work plan. The Contractor shall provide access for City inspection and remedy any deficiencies at no additional cost to the City.

The City may collect a water quality verification sample, which will be analyzed by the City. The Contractor shall provide suitable taps or other sample points as necessary to provide for verification sampling. Should the City find the installation to be in an unsanitary condition, the City may direct the Contractor to clean and disinfect the installation to its satisfaction with a swab saturated with a 5% sodium hypochlorite solution as described in Section G.7.2.23 Chlorine Solution, or by other means approved by the City. Sodium hypochlorite shall meet the requirements in Section 4.2.23 Chlorine Solution.

Included in the Contractor's public outreach support shall be a notice to each customer regarding flushing recommendations and sanitary practice FAQs.

4.2.23. Chlorine Solution

Chlorine used for disinfection shall be either liquid chlorine or hypochlorite. Tablets shall not be used unless approved by the City. If liquid chlorine is used, the method of application and precautions outlined in AWWA C651 Section 4.1.1 shall be followed, except as may be modified by the City. If sodium hypochlorite is used, it shall conform to AWWA B300, shall be certified to NSF 60, and shall contain no soluble material or organic substances in quantities capable of producing deleterious or injurious effects. In addition to any other warnings and markings required by law and regulations, the sodium hypochlorite container shall bear the following:

- **A.** Legible statement identifying contents and active ingredient. Label shall indicate that the only active ingredient is sodium hypochlorite. Any inert ingredients shall be labeled as such.
- **B.** Net weight of contents
- **C.** Name of manufacturer or distributor
- **D.** Lot number
- **E.** Brand name, if any
- **F.** NSF 61 Certification mark

4.3. Data Management

4.3.1. Tyler Munis billing System

The City uses the Tyler Munis Enterprise ERP software application for water billing customer information. The Contractor shall ensure that the Contractor's Meter Installation System (MIS) is able to receive a list of accounts where work is required, service address and meter information from the City's Munis software. Each record shall include a work type that will indicate the requested work to be performed by the Contractor.

The Contractor's Meter Installation System shall allow for information to be passed between the City and the Contractor in an acceptable digital format through a data interface.

4.3.2. Meter Installation System

The Contractor shall implement an automated Meter Installation System (MIS) to support the overall management of the project. The Contractor's system shall track the various Contractor work processes, document occurrence of activities, and track all related program components including at a minimum: work orders provided to the Contractor, installation blackout periods, contact history with each Customer (call center and the field), appointments, installations, surveys, tasks, inventory, and a record of follow-up pertaining to Customer complaints.

The Contractor shall include an integrated digital handheld work order system that will collect all installation information and ensure data validations are occurring in the field. This handheld device shall automatically transfer collected data into the Contractor's MIS, and no manual (paper-based) re-entering of data is to occur for any component of the work.

4.3.3. City Access to MIS

The Contractor shall provide secure read-only access to the MIS for City personnel and representatives as designated by the City to view forms and reports in the MIS. The Contractor shall provide a system in which the City can call up a work order to find out the status of the work, if the meter has been installed, what installation information is associated with the work order, when contacts have been made, and if an appointment is booked (including date and time).

The Contractor shall provide a portal to allow the City to run reports and download them into CSV, XLSX, or another acceptable format. The portal shall include the list of reports detailed in the MIS Reporting section of this RFP.

The Contractor will maintain access to the MIS for the City for at least 12 months after Substantial Performance.

4.3.4. Initial Customer Information

The City shall provide in an electronic format the following confidential Customer information to the Contractor:

- **A.** Account number – with a unique, one-to-one relationship with the meter
- **B.** Work order number
- **C.** Area
- **D.** RTU Rejection Flag
- **E.** RTU Rejection Comment
- **F.** Work Type
- **G.** Service address
- **H.** GPS Coordinates

I. Customer name
J. Customer mailing address
K. Customer phone number (where available)
L. Owner name (where available)
M. Owner mailing address (where available)
N. Medical Flag/Safety Alert
O. Provided meter size
P. Provided meter type (if available)
Q. Provided meter manufacturer (if available)
R. Provided meter serial number/radio ID
S. Provided radio transmitter ID
T. Meter location comment field
U. Last meter reading
V. Last reading date

Optional Fields (where the Contractor and the City agree in the value of providing the data):

W. Cycle, Route, Walk Sequence

If the data is incomplete or inaccurate, then the Contractor shall be responsible for working with the data provided and for updating data that may be missing as is reasonable.

4.3.5. Information Change File

This file will include records previously sent to the Contractor's MIS where key information has changed prior to the Contractor's installation. Changes may include work type, customer information, or meter information. The final list of fields where changes are allowed will be mutually agreed on during the Start Up Phase. Some examples of changes that will be sent include:

A. Account number
B. Work order number
C. Cancellation Flag
D. Work Type
E. GPS coordinates
F. Service address
G. Customer Name
H. Customer phone number
I. Customer billing address
J. Location comment field
K. Medical flag
L. Provided meter size
M. Provided meter type (if available)
N. Provided meter manufacturer (if available)
O. Provided meter serial number/radio ID
P. Provided radio transmitter ID

Q. Last meter reading
R. Last reading date

4.3.6. Cancellation File

Includes all records that were previously sent to the Contractor (in a new installation file) and where work is no longer required by the installer. This typically occurs with a location that has been cancelled by the customer or where the City has already completed an installation. The type of data that will be passed to the installer may include:

A. Account Number
B. Work order number
C. Cancellation Flag

4.3.7. Confirmation File

This file contains records where the meter installation information has been accepted into the customer information system. The type of data that will be passed to the installer may include:

A. Account number
B. Work order number
C. Acceptance Flag
    a. Accepted
    b. Not Accepted

4.3.8. Installation Information File

The Contractor and the City will define the type of data that is to be collected and the format in which it will be passed back to the City. A pre-established list of values (LOV) shall be used for all records within the fields. The Contractor shall collect and store the following information at minimum for each installation performed:

A. Date and time of installation
B. Account number
C. Contractor's Work order number
D. Service address - returned in same format as provided
E. Customer information including phone number and email (where acquired)
F. GPS latitude
G. GPS longitude
H. Provided Work Type
I. Found meter size (LOV)
J. Found meter type (LOV)
K. Found meter manufacturer (LOV)
L. Found meter serial number
M. Found meter seal number
N. Found number of dials to the billable unit (LOV)
O. Found unit of measure
P. Found meter reading

Q. Found remote/radio reading
R. Found radio transmitter ID
S. Found water service type (LOV)
T. Found water service size (LOV)
U. New meter size (LOV)
V. New meter type (LOV)
W. New meter manufacturer (LOV)
X. New meter register model (LOV)
Y. New meter serial number
Z. New meter seal number
AA. New water meter register model (LOV)
BB. New water meter register type (encoder)
CC. New water meter radio transmitter ID
DD. New water meter radio transmitter reading
EE. New water meter radio transmitter model
FF. New number of dials to the billable unit (LOV)
GG. New number of dials encoded (LOV)
HH. New water service type (LOV)
II. New water service size (LOV)
JJ. New meter location
KK. New or existing meter seal numbers
LL. New radio transmitter location
MM. Billable work performed to install meter (see Pricing Form)
NN. All materials used during installation
OO. Name and employee number of installer(s) who completed the work
PP. Notes on any leaks and damage that was present prior to the work being commenced.
QQ. Customer contacts (where collected for appointment purposes). For each contact provide the date and time the contact was initiated, the contact type (letter, door tag, phone call) and contact reference number.
RR. Curb stop located (LOV)
SS. Curb stop operated (LOV)
TT. Lead service line identified (LOV)
UU. Freeze Kit employed
VV. Found Backflow device or Check Valve (double check)
WW. Found service bypass
XX. Found bypass status
YY. Evidence of tampering

4.3.9. Warranty/Changes file

This file includes any records that were previously sent to the customer information system in the Installation Information File, where records require an update. This file also addresses instances when warranty replacements are made to the meter or AMI Radio Transmitter and require an update to the customer information system. This file will use the Installation Information File format.

4.3.10. Establishing data Fields and List of Values

The City and the Contractor will work to finalize a data layout that is suitable for both parties and, where necessary, add or take away fields of data. The Contractor and the City shall define the type of data that is to be collected within each field and the format in which it will be passed back to the City. Where a List of Values (LOV) is indicated, a pre-established list of values will be used for all records within the fields. The Contractor shall collect and store the specific information for each work type.

4.3.11. Integrated Digital Handheld

The Contractor shall supply all installers with a digital handheld work order that has the following capabilities:

- **A.** Allows account and address information to be automatically loaded from the MIS.
- **B.** Is able to store and present pre-established workflows to ensure proper information is collected for each type of work and meter.
- **C.** Has bar code scanning capabilities which can record the water meter, encoder register and radio transmitter serial numbers.
- **D.** Is able to take full color digital images of the meter installation.
- **E.** Collects GPS coordinates.
- **F.** Can capture digital signature(s)

4.3.12. Handheld Workflows

- **A.** All workflows shall be reviewed by the City during the Project's start-up phase. Where there are concerns with the proposed workflow the Contractor and the City will negotiate a resolution to the concern.
- **B.** Workflows shall include the ability for the installer to complete Tasks.
- **C.** Workflows shall include data validations to ensure the installer is entering accurate data. Additional validations may be established by the Contractor during the start-up phase.

4.3.13. Data Integrity

The Contractor shall provide the people, processes, and systems necessary to ensure all data being provided to the City has been checked and confirmed as accurate. In addition to validations done in the field, the Contractor shall perform the following checks before delivering data to the City:

- **A.** Validate the account and address are the same as provided.
- **B.** Check to ensure new meter serial numbers are unique and not associated with another previously installed meter.
- **C.** The existing water meter and radio transmitter meter serial numbers match what was provided in the initial file, where it is different document what is found and proceed with the work.
- **D.** Ensure billing information is correct and reflects only the work that was required at that site and pre-approved (where necessary).

E. High / Low reading check within an established and agreed to range.

F. Ensure digital pictures correspond to the correct address and meter.

G. Any other additional checks that will have been established by the Contractor and the City during the start-up phase meetings.

Where the City deems the data to be inaccurate (or suspects inaccuracies), the City will pass this account back to the Contractor to review, investigate, and verify. This procedure could require that the Contractor return to the field. These investigations shall be completed within one (1) week of the City's initial request at no additional cost to the City. Where the Contractor is not able to gain access to the property to perform the data check the Contractor shall initiate a three contact (letter, door knocker and final letter) process to request the Customer to call and book an appointment. If the Contractor is unable to resolve all City administration and field concerns, costs to resolve the issue shall be the responsibility of the Contractor.

4.3.14. MIS Reporting

The Contractor and City shall work together to define the exact reports that will be required. In general, the Contractor shall create and supply (or make available for the City to access) the following reports at the frequency stated or as defined during the start-up phase:

A. Database Balance Report / Area Management Report – showing the number of work orders passed to the Contractor and their respective states. The City and the Contractor shall define the exact requirements and frequency of this report during the kickoff meeting.

B. Production Reports (weekly) – showing a summary of planned and actual production by area along with a detailed report that supports this summary. Real-time reports may be requested on an as needed basis.

C. Task Report (weekly) – detailing the work orders that resulted in a Task, the responsibility, the corresponding Task category, and the history of contact since the task was created.

D. History of Contact Report (monthly) - showing a list of meter Customers the Contractor could not contact (where an appointment was required) and the history of contact including any area that has reached Area Complete with a Soft Refusal rate of 15% or greater where an additional door knocker, phone call and Final Notice was required to be performed by the Contractor.

E. Call Center Performance Report (monthly) - details key call center performance statistics relating to wait times, dropped calls, duration of calls, complaints, etc.

F. Data Management Reports (weekly) - a summary report that shows the number of installed work orders that have information sent to the City and the number of data issues outstanding.

G. Invoice Support Report (monthly) - detailing what work was completed at each site broken up by work type.

H. Quality Assurance reports (monthly) – detailing the inspections performed, the installation that was inspected and the results.

The Contractor shall ensure that all reports are created to be downloadable as Excel and PDF documents. All excel reports are to be logically structured to with information in properly named fields. The City will work with the Contractor to finalize the exact report requirements.

4.3.15. Data Management Plan

During the startup phase of the project, the Contractor shall work with the City and develop documentation that will detail how data will be handled on the project. The Contractor shall ensure this documentation includes the following components at minimum:

- **A.** A detailed layout of fields of data that will be passed back and forth including field name, description, length, data type, list of acceptable values.
- **B.** Flow diagrams of the handheld workflows including description of the validations that will occur in the field.
- **C.** Validations that shall occur prior to the transfer of data.
- **D.** A schedule of when data will be transferred.
- **E.** A detailed description of test cases that shall be used to test the data transfer processes.
- **F.** An information system disaster response plan to prevent data corruption or loss.
- **G.** A change management process to allow adjustments to be made during the project to the data management procedures.

4.3.16. Information Protection and Personal Privacy

The Contractor shall protect and maintain strict confidentiality for all personal information it manages including but not limited to the names, account numbers, addresses and phone numbers of Customers in accordance with Contract requirements. The Contractor shall only use personal information for the purpose of the installation of the water meter or to administer the quality and compliant resolution programs. Any list that contains personal information for the purpose of performing installations or otherwise shall be kept secure and destroyed after use.

4.3.17. Digital Images

The Contractor shall take digital color images of a high quality (i.e., sufficient light, in focus, centered on the topic, and showing the full topic) clearly showing the meter and work performed. The Contractor shall remove register or dial covers if required to get a clear image of each meter reading.

The Contractor shall make the digital images available to the City and its representative within five (5) days of the installation. The Contractor shall hold all digital images during the project and provide them to the City after completion of Milestone 5. The Contractor shall take enough digital images to accurately convey the work that was done at each site or that is required. Digital pictures should be JPEG (72 DPI resolution) quality digital pictures.

At a minimum, the Contractor shall capture the following images for each replacement:

- **A.** “Before” picture of the meter and surrounding area around the water service prior to the performance of the work.
- **B.** Picture of the existing register(s) clear enough to view the reading.
- **C.** Picture of the old meter serial number.
- **D.** Picture of the old meter transmitter and ID#.
- **E.** “After” picture of the meter and surrounding area around the water service after the performance of the work.
- **F.** Picture of the new meter serial number.
- **G.** Picture of the new radio transmitter and ID #.
- **H.** Picture of any visible pre-existing damage in the vicinity of the water meter and/or radio transmitter.
- **I.** “After” picture of the meter and surrounding area around the water service after the performance of the work.

For work that the Contractor refers to the City, the Contractor shall take sufficient digital images that help detail the issue at a particular property.

The Contractor shall provide access to a searchable database of the digital images or will incorporate them into the MIS to allow the City to easily access them for one year after Milestone 5. The Contractor shall ensure that the images are to be retrievable using any of the following fields: address, account number, work order number and meter serial number. At the end of the project, the Contractor shall transfer all images to the City; the Contractor shall ensure the image file names have a reference to the service address where they were taken.

4.4. Customer Service

4.4.1. Hours of Field Work

For the purposes of fieldwork, the Contractor shall maintain weekly hours of operation at a minimum, from 8:00AM to 5:00PM (Pacific Time) Monday to Friday, ~~Monday to Friday and 9:00AM to 5:00PM (Pacific Time) on Saturday~~. Saturday and Sunday appointments are allowed if requested by a Customer and agreeable with the Contractor.

4.4.2. Call Center

The Contractor shall supply a Customer call center with adequate personnel to respond to appointment requests and complaints. The Contractor shall provide and advertise a single local or toll-free number that shall allow the City's Customers to access a customer representative or emergency contact system 24-hours-per-day, seven-days-per-week. Under no circumstances should installers give out a phone number other than the main customer service number.

At a minimum, the Contractor shall staff the call center with adequate personnel – from 8:00AM to 8:00PM (Pacific Time), Monday to Thursday and 8:00AM to 6:00PM Friday and provide a "live" response within two (2) minutes of each call received.

4.4.3. Call Center Tracking

Measuring and monitoring activity within the call center shall be an on-going activity conducted by the Contractor. The Contractor shall track the following and report back to the City on a monthly basis:

- **A.** Complaints
- **B.** Documentation of incoming calls (customer name, service address, account number if available, reason for call, resolution)

4.4.4. Customer Contact History

The Contractor shall track all contact attempts (digitally in the Meter Installation System) they have made with a Customer or resident throughout the Contract. This includes, but is not limited to, all attempts by the Contractor to set up an appointment and any attempts the resident or Customer may have made to contact the Contractor before, during or after the installation.

4.4.5. Emergency Response

Until Completion Milestone 5 is achieved, the Contractor shall provide the City's Customers with access to an after-hours emergency response system. The Contractor shall respond to an emergency request within 60 minutes of the Customer making the call and are required to be onsite within 120 minutes of the request.

4.4.6. Customer Complaints

The Contractor shall record all complaints received within the MIS. All complaints shall be documented with the date and time the complaint was received, who made the complaint, what work order/property the complaint pertained to, the complaint category, a description of the complaint, the status of the resolution and a description of the resolution.

All customer complaints will be responded to within 12 hours of the complaint being received. Any complaint that has not been resolved will be reported to the City on a daily or weekly basis depending on the severity of the complaint. Where the City deems a complaint serious, the Contractor will be required to expedite contact and resolution as required.

4.5. Public Outreach

4.5.1. Outreach Overview

A well-planned public outreach program is necessary to ensure that the project progresses smoothly and is completed in a timely manner. It is important that the public outreach program generates trust and goodwill with the City's customers and supports acceptance of the new technology. Additionally, the outreach program should reinforce brand identity and instill program recognition throughout the service area.

The city has existing branding policies and the outreach program shall:

- use the City's name to identify the project
- use the City's logo as a visual identifier, and
- use the City's colors, font, and design layouts where practical.

At a minimum, the Contractor shall include all of the public outreach components described within this section. Where requested, the Contractor shall provide:

- proposed language for the various outreach materials.
- quality digital product images, explanatory videos and infographics where requested.
- content for a question-and-answer bulletin specific to the project.
- content related to how the system works and/or how to read the meter.
- specific website or social media content including a breakdown of when work will be conducted (to be updated on an on-going basis throughout the project as work is completed in various areas).

Where any of the above support or information is requested, the Contractor shall provide any required information within five (5) days of the request. The City will work collaboratively with the Contractor through an editing and approval process that supports an agreed upon schedule. All communication materials shall be approved by the City prior to distribution to the public.

4.5.2. City Website and Social Media

The City's website and social media channels will be used as a part of the public outreach program. To ensure content is consistent with other program materials, the City will develop the content taking into consideration the other materials developed as part of the public outreach effort. If the City chooses, the Contractor may review and provide comments on the material produced.

The City will be responsible for monitoring and responding within the routine social media channels, as needed. The website will be the central location for customers to access information about the project. The Contractor shall provide the following content for the City to utilize for the website or social medial purposes:

- Pictures (and video clips if available) of meters, meter reading equipment, finished installations.

- Pictures of Contractor vehicles, uniforms and photo identification.
- The contractor will maintain a list of areas along with their (anticipated) installation date(s). This list shall be updated and provided to the City on a weekly basis with an 8 week forward looking schedule (forecasted opening and closing dates for cycles on a weekly basis). The Contractor shall have maps available for use on the website or other public communication purposes, updated on a regular basis and used to show completion by area.

4.5.3. Public Information Session(s)

The Contractor shall organize and host 1 (one) public information session at the beginning of the project (prior to POC) and 1(one) in the middle of the project. The public information sessions should allow for affected Customers to ask questions of the representatives from the City and the Contractor. The City will be responsible for selecting the location for the information session. Each information session shall be at least two (2) hours in duration. The City shall determine what advertising will be done for the purposes of the public information session and shall organize and bear all costs of this advertising. The City may advertise the events by any of the following means: introductory letter (Installation Commencement Letter), City website, or social media.

At each public information session, the Contractor shall include its display booth as well as a mock presentation of a typical installation showcasing various product samples, all of which will be constructed and provided by the Contractor. The City and the Contractor shall provide adequate staff for the public information session.

4.5.4. Customer Notification Process

In an effort to keep customers aware of the program and when work will take place in their area and at their property, the Contractor shall follow the process outlined in 4.5.4.1 – 4.5.4.7 for informing customers that work will be performed. The Contractor is required to document/track within their MIS and provide a report showing the date and type of outbound customer outreach or inbound communication from a customer.

4.5.4.1 Installation Commencement Letter

The Contractor will design and develop an Installation Commencement Letter. The letters shall be printed and mailed to customers by the Contractor. The mailing envelopes shall include the City's logo and return address. The letters will be sent approximately one to two months before installers arrive in their area. The letters will introduce the Contractor, the program, the benefits of the program, and describe the installation process.

Appointments are not required for most accounts. The letter will inform the customer that the work will proceed without further action on their part.

Notably, there may be a few customers who may request an appointment if water shut down impacts their business activities. The Contractor shall accommodate these appointments on a request basis. The Installation Commencement Letter for these accounts should state that it is incumbent upon the customer to phone the Contractor to book an appointment within two weeks. If an appointment is not requested, the Contractor may proceed per the standard process outlined, if agreeable with the customer.

Within two weeks of mailing, the Contractor shall provide the City with a list of customers who were sent an Installation Commencement Letter.

4.5.4.2 Secondary Installation Notice

The Contractor will design and develop a Secondary Installation Notice in the form of a Door Tag. The notice shall be printed and delivered by hand by the Contractor at each customer's property five to ten working days in advance of the work taking place at that address. The letter will inform them that work will proceed without

further action on their part, and that the water may be turned off for a short period of time. Notably, there may be a few customers who may request an appointment if water shut down impacts their business activities. The Contractor shall accommodate these appointments on a request basis.

4.5.4.3 Post Installation Notice

Face-to-face communication with each customer will be attempted immediately before work begins to inform them that the work is taking place and, where applicable, advise the customer that the water may be shut off while the work is being performed. Where face-to-face contact is not possible, the Contractor shall still proceed with the work.

The Contractor will design and develop a Post Installation Notice in the form of a Door Tag. The notice will inform the customer that work has taken place and provide the customer with a phone number to call for issues they may find with the installation. The Contractor shall print the notices; once the work has been performed the Contractor shall leave the Post Installation Notice at the property.

4.5.5. Task Notice

The Contractor will design and develop a Task Notice in the form of a Door Tag. A Task Notice would be used where work could not be performed at a particular address due to a reason that requires the property owner to be present, including situations such as inaccessible meter box, locked gate or security clearance requirements.

In these situations, a Task Notice (Door Tag) will be left by the Contractor at the property. For these accounts, the notice should state that it is incumbent upon the customer to phone the Contractor to book an appointment within two weeks.

4.5.6. Appointment Request

The City does not intend to advertise appointments to all customers. However, the City anticipates that some accounts may require appointments. Where possible, the City will identify these accounts and provide a list to the Contractor. The Contractor will design and develop an Appointment Request Letter. The Contractor shall be responsible for printing and mailing of these letters. The Appointment Request Letter shall provide the Contractor's call center phone number and request that the customer phone to book an appointment within two weeks. The Contractor shall coordinate all communication with the customer to ensure the installer has access to the meter.

Customers shall be provided with four-hour appointment windows. If an installer expects to be late or is unable to attend a scheduled appointment, the affected customer will be informed by that installer or a call center representative prior to the end of the appointment block. Under no circumstances shall more than one appointment with the same customer be missed or rescheduled. The Contractor is responsible for all costs for return visits required for any reason.

4.5.7. Final Request Letter

If the customer is non-responsive to the Appointment Request Letter, the Contractor will send a Final Request Letter to the customer. The Contractor will design and develop the letter and the Contractor shall print and mail. If a response is not received within three weeks of issuance, then the customer will be considered non-responsive. If the customer declines to permit the installation of the water meter, the customer will be considered a "refusal". No further attempt to contact this customer shall be made unless authorized by the City.

4.5.8. Public Outreach Communication Tracking

The Contractor is required to track all public outreach communication made with City customers throughout the Contract. This includes, but is not limited to, all outreach communication made by the Contractor and any attempts the customer may have made to contact the Contractor before, during or after the installation.

4.6. Quality Control

4.6.1. Quality Inspections

The Contractor shall perform quality field inspections at a minimum of 5% of the addresses where work was performed as a part of a quality assurance program. The Contractor is required to document these inspections in the Meter Installation System (MIS) and report on a weekly basis.

Where quality becomes an issue and is considered a major deficiency, as defined in the deficiency process, the City may require additional field inspections to be completed at the Contractor's cost.

4.6.2. Task Review

The Contractor shall perform a supervisorial review where the field personnel could not complete an installation. Prior to any Tasks being assigned back to the City, the Contractor's supervisor shall review the task category, pictures, and comments to ensure the task category appropriately reflects the issue at hand and is correctly updated within the Meter Installation System. This shall include review of soft refusals prior to assigning back to the City.

4.6.3. Quality Assurance

The City will implement a quality assurance program that will include review of installations via digital images and field inspections. The Contractor shall provide all required information about work scheduling, previously inspected sites, and completed installations to allow the City to perform quality assurance activities.

The Quality Assurance program will evaluate performance on the criteria outlined below. An error found in any of the three areas on a single account will result in a failure and payment may be withheld until all issues are rectified.

- **A. Data Completeness and Accuracy**: All data fields associated with a completion record sent from MIS are complete and appropriate based on the type of work performed.
- **B. Installation Quality**: Work performed on site is complete per the Installation Requirements defined in this Specification.
- **C. Network Performance**: The AMI radio transmitter communicates with the network and the radio transmitter ID, meter number and account combination captured in MIS match the information in the AMI Software.

4.7. Installation Warranty

The Contractor shall provide a 1-year installation warranty from date of project acceptance on all meters, radio transmitters and related equipment. The Installation Warranty shall fulfill the following requirements:

- **A.** The Contractor shall investigate the problem with a meter (e.g. leaking meter, noisy meter, etc.) and provide resolution acceptable to the City for a period of 1 year (the "Installation Warranty Period") from the date of installation. Where the product is defective, the Contractor shall be responsible for the cost to retrieve the meter from the field.

B. The date of the start of the warranty of all products supplied and installed by the Contractor will be the date of installation.

C. Products installed by the Contractor shall include all costs to retrieve the defective product from the field for the Installation Warranty Periods.

D. Any products damaged as a result of the installation are the responsibility of the Contractor during the Installation Warranty Period.

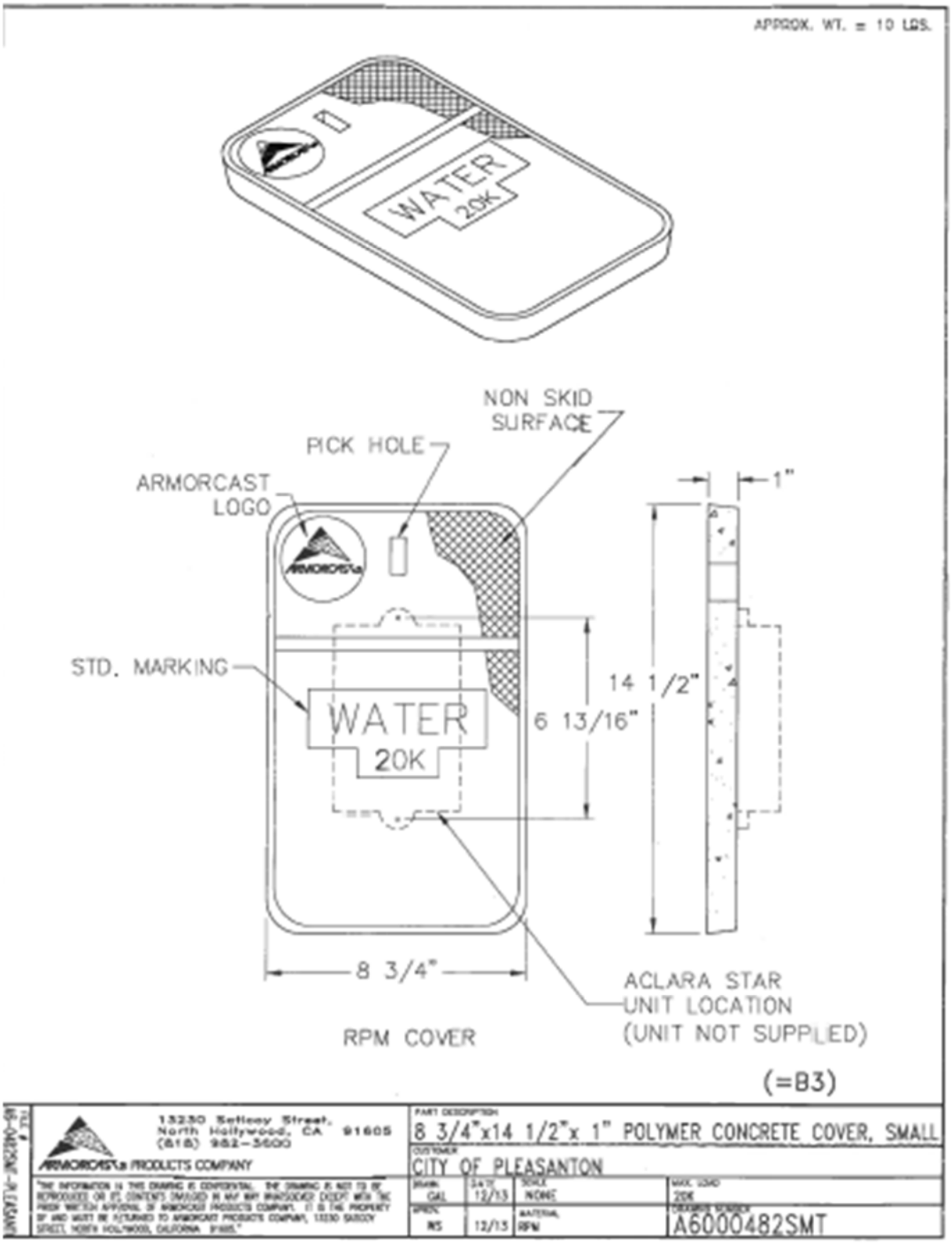
The obligations contained in this section shall survive the termination or expiry of the Contract.

4.8. Health and Safety

Contractor's strict adherence to compliance with laws, regulations, and safety protocols is mandatory to ensure a safe working environment and prevent accidents or injuries. All OSHA Safety Requirements must be adhered to by the Contractor and/or any subcontractors while on-site. Contractor is responsible for maintaining all applicable safety documentation and standards, including but not limited to:

- Injury Prevention Program
- Annual OSHA Reporting

5. APPENDIX A – EXISTING METER BOX LID SPECIFICATIONS



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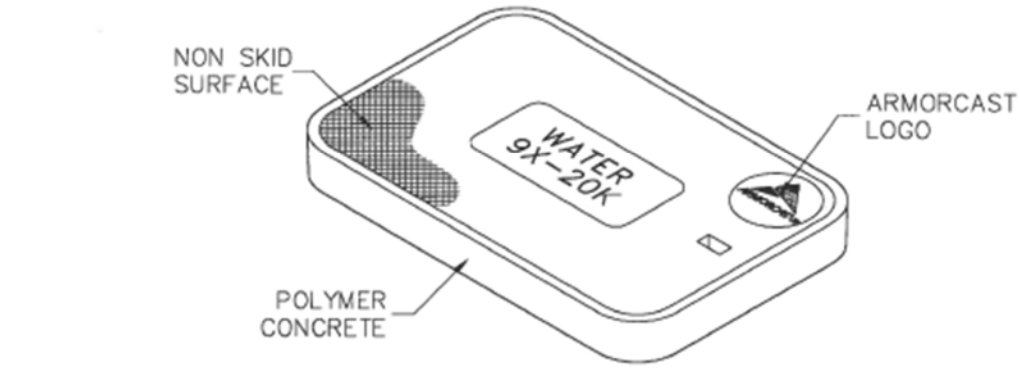

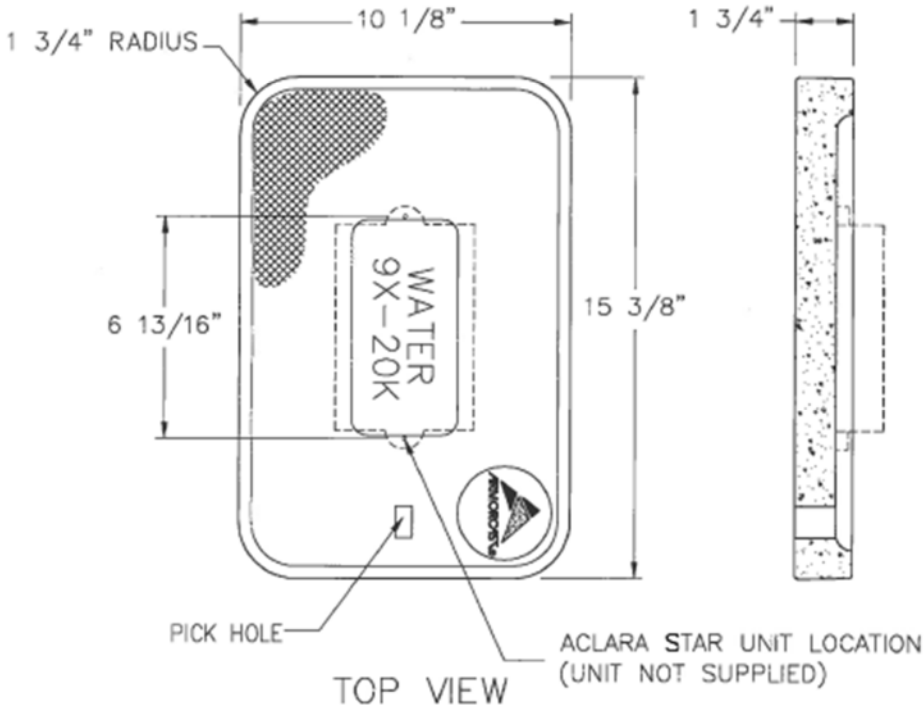

TOP VIEW

(=B9X)

FILE A6-1922T-9X-PLEASANTON

13230 Saticoy Street, North Hollywood, CA 91605 (818) 982-3600

ARMORCAST PRODUCTS COMPANY

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CUSTOMER: CITY OF PLEASANTON			
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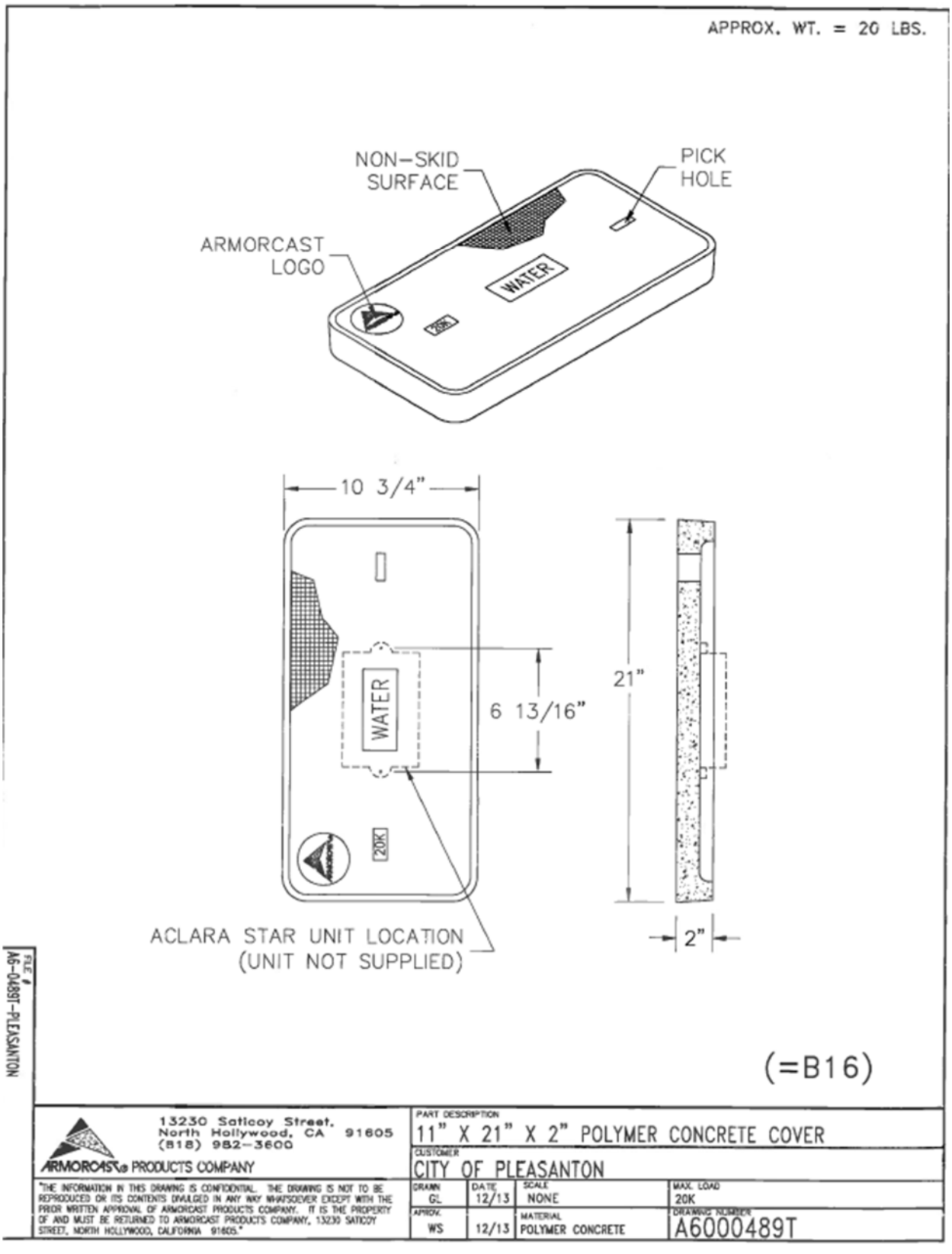
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(UNIT NOT SUPPLIED)
(=B16)
FILE A6-0489T-PLEASANTON
13230 Saticoy Street,
North Hollywood, CA 91605
(818) 982-3600
ARMORCAST® PRODUCTS COMPANY
"THE INFORMATION IN THIS DRAWING IS CONFIDENTIAL. THE DRAWING IS NOT TO BE REPRODUCED OR ITS CONTENTS DIVULGED IN ANY WAY WHATSOEVER EXCEPT WITH THE PRIOR WRITTEN APPROVAL OF ARMORCAST PRODUCTS COMPANY. IT IS THE PROPERTY OF AND MUST BE RETURNED TO ARMORCAST PRODUCTS COMPANY, 13230 SATICOY STREET, NORTH HOLLYWOOD, CALIFORNIA 91605."
PART DESCRIPTION
11" X 21" X 2" POLYMER CONCRETE COVER
CUSTOMER
CITY OF PLEASANTON
DRAWN GL
DATE 12/13
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MAX. LOAD 20K
APPROV. WS
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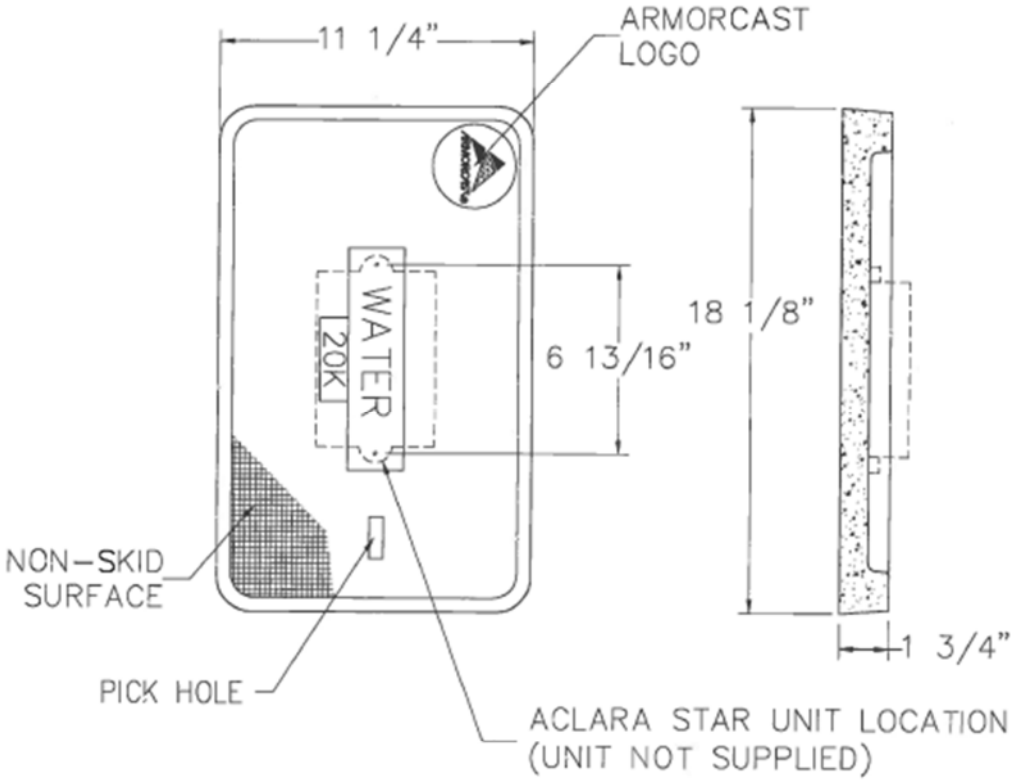

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	"THE INFORMATION IN THIS DRAWING IS CONFIDENTIAL. THE DRAWING IS NOT TO BE REPRODUCED OR ITS CONTENTS DIVULGED IN ANY WAY WHATSOEVER EXCEPT WITH THE PRIOR WRITTEN APPROVAL OF ARMORCAST PRODUCTS COMPANY. IT IS THE PROPERTY OF AND MUST BE RETURNED TO ARMORCAST PRODUCTS COMPANY, 13230 SATICOY STREET, NORTH HOLLYWOOD, CALIFORNIA 91605."	DRAWN: GL	DATE: 12/13	SCALE: NONE	MAX. LOAD: 20K
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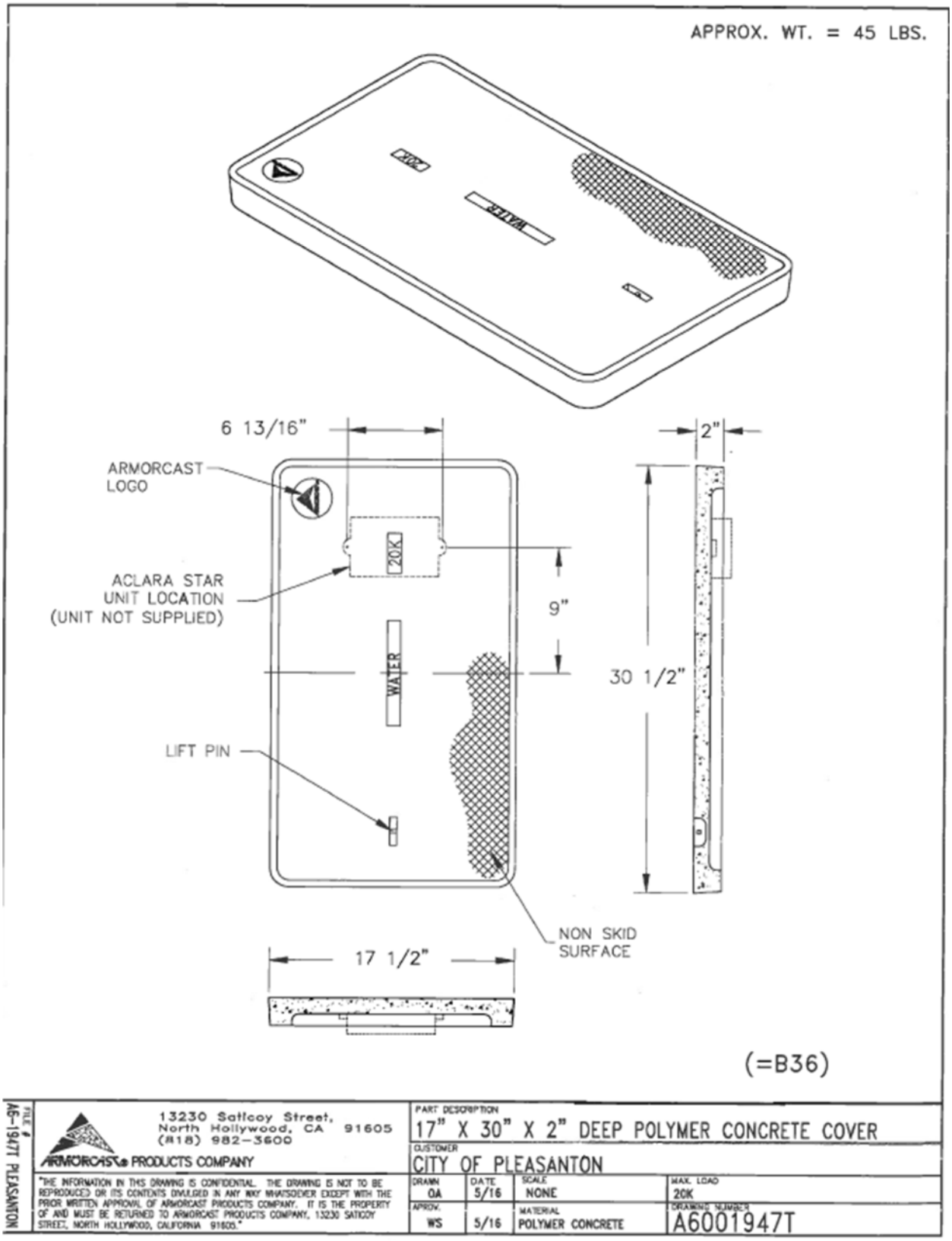
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LIFT PIN
NON SKID SURFACE
17 1/2"
(=B36)
13230 Saticoy Street, North Hollywood, CA 91605 (818) 982-3600
ARMORCAST PRODUCTS COMPANY
"THE INFORMATION IN THIS DRAWING IS CONFIDENTIAL. THE DRAWING IS NOT TO BE REPRODUCED OR ITS CONTENTS DIVULGED IN ANY WAY WHATSOEVER EXCEPT WITH THE PRIOR WRITTEN APPROVAL OF ARMORCAST PRODUCTS COMPANY. IT IS THE PROPERTY OF AND MUST BE RETURNED TO ARMORCAST PRODUCTS COMPANY, 13230 SATICOY STREET, NORTH HOLLYWOOD, CALIFORNIA 91605."
FILE # AG-1947T PLEASANTON
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CITY OF PLEASANTON
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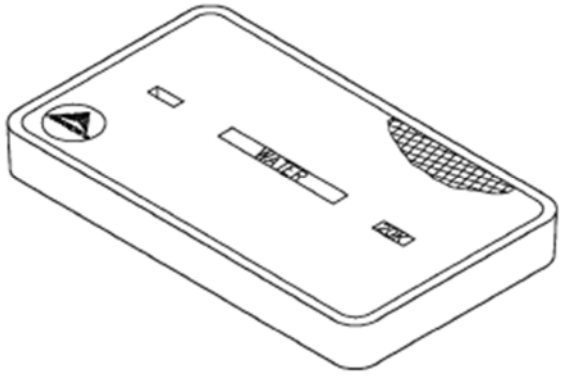

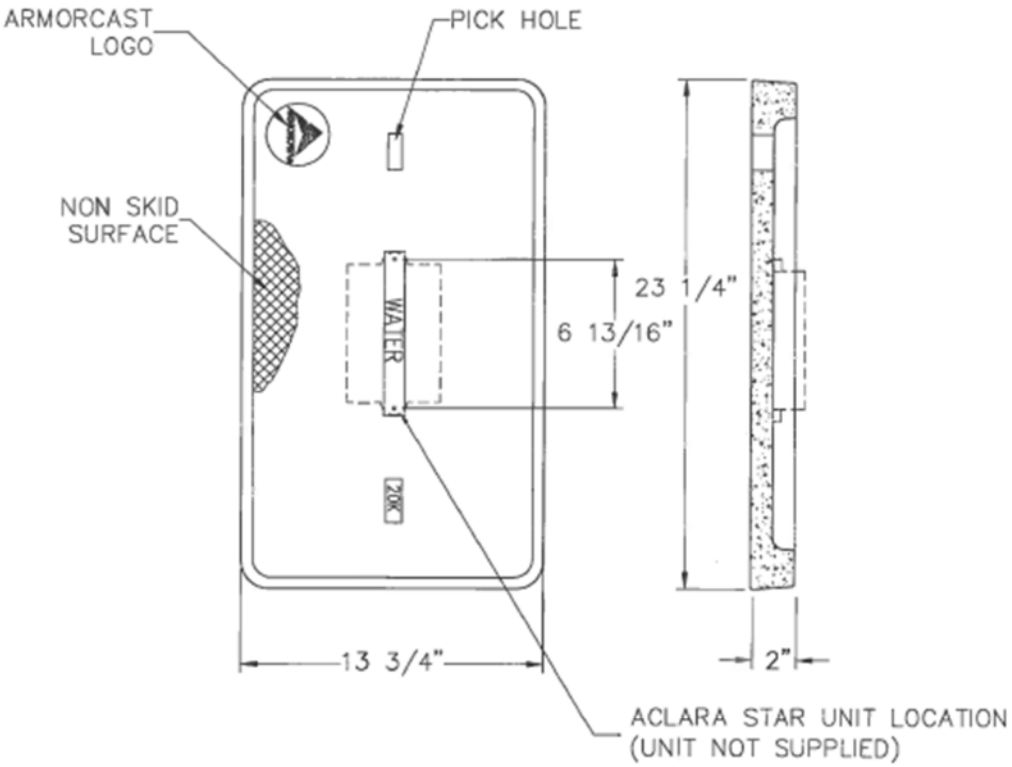

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FILE # A6-1969-PLEASANTON

13230 Saticoy Street,
North Hollywood, CA 91605
(818) 982-3600
ARMORCAST PRODUCTS COMPANY

"THE INFORMATION IN THIS DRAWING IS CONFIDENTIAL. THE DRAWING IS NOT TO BE REPRODUCED OR ITS CONTENTS DIVULGED IN ANY WAY WHATSOEVER EXCEPT WITH THE PRIOR WRITTEN APPROVAL OF ARMORCAST PRODUCTS COMPANY. IT IS THE PROPERTY OF AND MUST BE RETURNED TO ARMORCAST PRODUCTS COMPANY, 13230 SATICOY STREET, NORTH HOLLYWOOD, CALIFORNIA 91605."

PART DESCRIPTION: 13" X 24" X 2" POLYMER CONCRETE COVER			
CUSTOMER: CITY OF PLEASANTON			
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