EXHIBIT H – PERFORMANCE ACCEPTANCE AND PAYMENT CRITERIA

Exhibit H
Performance Acceptance and Payment Criteria

1. Performance Acceptance

The Acceptance Criteria herein will be used by Norman Utilities Authority (referred to as "Client") to structure project progression--to provide phasing on the scope of goods, services, and other work to be rendered, and to establish quality criteria for each of those phases.

This document contains criteria for confirmation of service level agreements (SLAs) for network performance and read rate. The guarantee of these SLAs is based on the propagation study as detailed in Exhibit E of the Master Services Agreement. If any basestation location is moved, removed, or has an antenna height that differs more than 5% from the design, Sensus will not guarantee these SLAs until such time as the propagation study may be modified by change order or a propagation study can be rerun on the as-built network to assess the SLAs. For clarity, the follow definitions apply to these SLAs:

- Register Read: a reading from a meter that measures the totalized consumption through the meter. This read represents the cumulative, aggregate consumption through the meter since the meter (or register) was installed.
- Interval Read: the consumption through a meter over some period of time. An hourly interval read is the consumption through the meter over the previous hour.
- Billing Read: the register read that can be used for the purpose of billing customer in the Client billing system. The billing read is commonly a register reading at midnight of each day.
- Available Meter: a meter is available if it is properly functional and not damaged (beyond incidental wear), is installed in compliance to specifications and has properly registered in the headend system, and whose communications has not been otherwise interfered with.

1.1. Professional Services

The project at Client is composed of three phases that require acceptance that include: Project Planning, Design/Build/Test (DBT), and Full Deployment.

Successful completion will occur upon confirmation of meeting all the Acceptance Criteria outlined for each phase. Acceptance Criteria are outlined through a linear responsibility chart for each phase. Responsibilities are outlined in the following table:

Responsibility	Description
R (Responsible)	Designates the entity is responsible for the completion of or adherence to the acceptance criteria
A (Accountable)	Designates the entity is responsible for approval
C (Consulted)	Designates the entity is responsible for providing resources and input to the Responsible entity
I (Informed)	Designates the entity is kept up-to-date on the status of the acceptance criteria

Utiliuse is not authorized to proceed with a subsequent project phase until client fully accepts the previous phase's work, or Client authorizes Utiliuse in writing that work may proceed with a

subsequent phase prior to acceptance of the previous project phase. Exhibit H-1 will be completed to memorialize this acceptance. Nothing in this paragraph will remove Utiliuse's responsibility for defective or non-conforming work as further addressed in this Agreement.

1.2. **Planning**

Acceptance Criteria

To be deemed accepted, the following criteria must be met. These milestones work in conjunction with and are subservient to the Utiliuse Scope of Work (SOW) and the SOWs of subcontracted firms; completion of these criteria does not absolve Utiliuse or its subcontractors from the responsibility of carrying out additional services associated with SOW delivery.

Criteria	Utiliuse	Metering: Utility Technology Service	MDMS: SmartWorks, a Division of N. Harris Computer Company	Customer Portal: Advanced Utility Systems, a Division of N. Harris Computer Company	Client
Provide Notice to Proceed	I	I	I	I	R/A
Approve a project charter	C	C	C	C	R/A
Define a project team	R	C	C	C	A/C
Produce a project communication plan	C	C	C	C	R/A
Coordinate, schedule, and attend a kickoff meeting	R	R	R	R	R/A
Produce a Project Execution Plan	R	C	C	C	A/C
Produce a project schedule	R	C	C	C	A/C
Produce an inventory forecast	C	R			A/C
Document and formalize standard operating procedures for installation, including communications processes and procedures	R	C			A/C

Upon meeting all criteria outlined above, Planning phase will have been met and will serve as entrance criteria to Design/Build/Test phase.

1.3. Design/Build/Test

Acceptance Criteria

To be deemed accepted, the following criteria must be met. These milestones work in conjunction with and are subservient to the Utiliuse SOW and the SOWs of subcontracted firms; completion of these criteria does not absolve Utiliuse or its subcontractors from the responsibility of carrying out additional services associated with SOW delivery.

Criteria	Utiliuse	Metering: Utility Technology Service	MDMS: SmartWorks, a Division of N. Harris Computer Company	Customer Portal: Advanced Utility Systems, a Division of N. Harris Computer Company	Client
Perform studies and validation on AMI coverage and performance	R				C/A
Prepare document and attain approvals for any site plans	C		I		R/A/C
Design meter Profiles configurations	R	A			C
Perform a contract requirements analysis based on Exhibit H-2 and any subsequent design workshops, and produce a requirements traceability matrix and test plans	R/C	I	R/C	R/C	R/A
Approve test cases for future implementation testing	C		C	C	R/A

Criteria	Utiliuse	Metering: Utility Technology Service	MDMS: SmartWorks, a Division of N. Harris Computer Company	Customer Portal: Advanced Utility Systems, a Division of N. Harris Computer Company	Client
Configure system to meet design specifications and requirements in Exhibit H-2	R		R	R	A/C
Provision system access Setup	R		R	R	A/C
Install network infrastructure and perform tuning	R/A				C
Identify IDA meter installation locations and provision data to support work orders	C	C			R/A
Verify all test meter and endpoint register and interval reads are accurately transmitting to the headend and displayed in the headend appropriately with the desired resolution	R	I			A

Criteria	Utiliuse	Metering: Utility Technology Service	MDMS: SmartWorks, a Division of N. Harris Computer Company	Customer Portal: Advanced Utility Systems, a Division of N. Harris Computer Company	Client
Integrate the installation work order management system to/from the utility billing system to transfer customer and meter information	R				R/A
Provide work order data from all successfully completed IDA installation locations, including any to be accepted by the utility billing system	R				A/C
Integrate the headed to/from the MDMS to exchange all meter event data, reads, and initiation of remote commands	R		R		A/C
Integrate the customer portal to/from the MDMS to exchange all consumption data	C		R	R	A/C

Criteria	Utiliuse	Metering: Utility Technology Service	MDMS: SmartWorks, a Division of N. Harris Computer Company	Customer Portal: Advanced Utility Systems, a Division of N. Harris Computer Company	Client
Integrate the customer portal to/from the CIS to exchange all customer and meter information	I		C	R	R/A
Integrate the MDMS to/from the billing system for the delivery of billing determinants and for process automation	C		R		R/A
Perform system training	R		R	R	R/A
Verify a 98.5% success rate or greater of daily register reads transmitted from available meters within 96 hours of read timestamp, processed at the AMI headend and available for other systems	R		C		A

Criteria	Utiliuse	Metering: Utility Technology Service	MDMS: SmartWorks, a Division of N. Harris Computer Company	Customer Portal: Advanced Utility Systems, a Division of N. Harris Computer Company	Client
Verify a 98.5% success rate or greater of daily register reads transmitted from available meters within 24 hours of read timestamp, processed at the AMI headend and available for other systems	R		C		A
Verify a 95% success rate or greater of all interval reads transmitted from available meters within 24 hours of read timestamp, processed at the AMI headend and available for other systems	R		C		A
Verify all alerts and alarms are registering in the headend	R				A
Verify lifecycle status of test meters	R				A

Criteria	Utiliuse	Metering: Utility Technology Service	MDMS: SmartWorks, a Division of N. Harris Computer Company	Customer Portal: Advanced Utility Systems, a Division of N. Harris Computer Company	Client
Provide deliverables, including: product specification documents, user application manuals, training materials, standard reporting manuals, integration architecture diagrams, and system installation and troubleshooting documentation	R	R	R	R	A
Provide confirmation of system configuration compliance to design requirements, and that System Acceptance Testing (SAT) and User Acceptance Testing (UAT) has passed	C	I	C	C	R/A

Upon meeting all criteria outlined above, DBT phase will have been met and will serve as entrance criteria to Full Deployment phase.

1.4. Full Deployment

Acceptance Criteria

To be deemed Accepted, the following criteria must be met. These milestones work in conjunction with and are subservient to the Utiliuse SOW and the SOWs of subcontracted firms; completion of these criteria does not absolve Utiliuse or its subcontractors from the responsibility of carrying out additional services associated with SOW delivery.

Criteria	Utiiuse	Metering: Utility Technology Service	MDMS: SmartWorks, a Division of N. Harris Computer Company	Customer Portal: Advanced Utility Systems, a Division of N. Harris Computer Company	Client
Provide work order data from all successful installations, including any to be accepted by the utility billing system	R/A				C
Verify a 98.5% success rate or greater of daily register reads transmitted from available meters within 96 hours of read timestamp, processed at the AMI headend and available for other systems	R		C		A
Verify a 98.5% success rate or greater of daily register reads transmitted from available meters within 24 hours of read timestamp, processed at the AMI headend and available for other systems	R		C		A
Verify a 98.5% success rate or greater of all interval reads					

transmitted from available meters within 24 hours of read timestamp, processed at the AMI headend and available for other systems					
Hold project close-out meeting	A	R			R

Upon meeting the criteria outlined, and after receiving written acceptance from Client, the project will close.

2. Payment Criteria

Utiliuse will submit monthly invoices to Client for work completed in the antecedent month and in accordance with the payment schedule hereunder. Except in the event of a disputed invoice, Client shall issue payment for the monthly invoice submitted by Utiliuse which reasonably meets the criteria herein and in accordance with the payment terms hereto Section 5 of the Master Services Agreement. All quantities and amounts will be commensurate with the project pricing in Exhibit A, subject to additions or deductions made by authorized change order in accordance with Section 8 of the Master Services Agreement.

2.1. Network Deployment Services

Network Deployment Services shall be considered as "one-time" fees attributable to the tasks necessary to install, setup, and configure the AMI infrastructure, software, and head end environment; NovusCenter™ WOMS setup and configuration, standard or custom integration(s), and training. Network Deployment Services fees shall be invoiced upon completion of each respective task.

A. Network Infrastructure

I. Utiliuse will invoice Basestation Installation services to Client upon successful installation of a Basestation at each of the designated locations.

B. Setup, Integration and Configuration Fees

I. Sensus setup, integration and configuration one-time fees associated with implementing network, including but not limited to the Regional Network Interface ("RNI"); Sensus to SmartWorks Integration, and training fees shall be invoiced by Utiliuse to Client upon completion of each task respectively.

II. Harris SmartWorks MDMS implementation and first year software SaaS fees will be invoiced by Utiliuse to Client in accordance with the following milestone schedule:

Milestone	Services %	SaaS %
Contract signature	25%	
Software Installation	25%	100%

Completion of Integrations	20%	
Completion of Training	15%	
Completion of User Acceptance Test	15%	

III. Advanced Utility Systems Customer Engagement Portal (CEP) Payment Schedule

Milestone	Services %	SaaS %
Contract signature	25%	
Software Installation	25%	100%
Completion of Integrations	20%	
Completion of Training	15%	
Completion of User Acceptance Test	15%	

IV. Setup and configuration of NovusCenter™ Work Order Management System ("WOMS") will be invoiced by Utiliuse to Client upon completion of the Flat File Exchange setup at the beginning of each phase, the "IDA Phase" and "Full Deployment Phase", respectfully.

2.2. Professional Services

A. Project Management

I. Utiliuse will invoice Client on a monthly basis for the ongoing project management personnel assigned to the project at the rates identified within Exhibit A.

II. Project management fees are based upon estimated deployment timelines as demonstrated within the project schedule included as Exhibit G and for the months (quantity) outlined in Exhibit A. The monthly fees for personnel may be reasonably adjusted as necessary through the duration of the project to accommodate for a reduction or extension in the project schedule and in accordance with a duly executed Change Order between the Parties. Delays resulting from untimely execution of services described in the SOW not at the fault of NUA, or project holds resulting from lack of availability of materials and hardware, will not constitute grounds for adjustment of monthly fees.

B. Operational Services

I. Operational Services are considered as the ongoing fees for services such as rentals, leases maintained through the duration of the project. On-Going Deployment Services will be invoiced to Client on a monthly basis through the duration of the project or other duration(s) where reasonably applicable for the services rendered.

2.3. Materials & Hardware

A. Materials are expected to be provided throughout the duration of the IDA and Full Deployment phases, and individual items will be accepted prior to payment. Utiliuse will furnish the Materials outlined within Exhibit A. Materials shall be considered all

physical products including but not limited to infrastructure and ancillary communication devices, drive-by software, meters, radios, parts, fittings, etc. as manufactured by Sensus or other third-party suppliers. Materials will be invoiced to Client monthly for those items delivered to the Client project site.

I. Client may, within ten (10) business days of Material delivery to the Client project site, inspect and confirm Materials provided to the staging site conform to those items identified in Exhibit A, meet those requirements outlined in Exhibit H-2, and are generally free of defects in manufacturing and functionality. Unless explicitly rejected in writing by Client within the inspection period, Utiliuse may consider delivered Materials as automatically approved and accepted by Client.

2.4. Meter Exchange Services

1

A. Mobilization

I. Mobilization shall be considered as the initial "one-time" fee to deploy field crews and equipment to the project site. Mobilization will become due no less than thirty (30) days prior to the commencement of the Meter Exchange Services.

B. Standard Meter Exchange Services

I. Meter Exchange Services shall be considered the standard installation, replacement or retrofit of a customer meter and SmartPoint at any given service account. Meter Exchange Services are expected to be performed throughout the duration of the IDA and Full Deployment phases, in accordance with Exhibit B and Exhibit D. Meter Exchange Services shall be invoiced on a monthly basis for work completed in the antecedent month.

a. Client shall retain its right to inspect all or a portion of the Meter Exchange work completed by Utiliuse within the antecedent month. Client shall promptly notify Utiliuse of any incomplete, non-conforming, or defective work. Utiliuse shall promptly dispatch field technicians to assess and correct the incomplete, non-conforming, or defective work in accordance with the Meter Services Warranty.

C. Meter Exchange Supplemental Work (Incidentals)

I. Supplemental Work (or incidental) shall be considered as the ancillary or supplemental tasks necessary to facilitate a complete meter exchange. Client shall preauthorize all Supplemental Work to be performed at the time of meter exchange. Any Supplemental Work required to perform a Meter Exchange and not preauthorized by Client will result in the account being flagged as Return to Utility. Supplemental Work will be invoiced to Client monthly and on a consumption basis for the work completed in the antecedent month.

a. Client shall retain its right to inspect all or a portion of the Meter Exchange Supplemental Work completed by Utiliuse within the antecedent month. Client shall promptly notify Utiliuse of any incomplete, non-conforming, or defective work. Utiliuse shall promptly dispatch field technicians to assess and correct the incomplete, non-conforming, or defective work in accordance with the Meter Services Warranty.

2.5. **Recurring Annual Fees**

A. Sensus Software-as-a-Service ("SaaS") Services

I. The SaaS Services shall include the hosted Regional Network Interface (RNI) head-end environment, and Sensus Basestation Protection Plan. The SaaS term shall extend for five (5) calendar years. Except where specified otherwise below, first year SaaS Service fees will be payable to Utiliuse under this Agreement and subsequent years beginning year two will be paid through Sensus' local channel partner, ETNA Supply, separate of this Agreement.

a. Sensus RNI SaaS fee (year one) will become due at RNI "go-live". Subsequent years will be invoiced on the annual anniversary date of RNI go-live.

b. Sensus Basestation Protection Plan will be invoiced by ETNA Supply to Client beginning on the first anniversary of the date of Sensus shipment for each Basestation. Subsequent years will be invoiced by ETNA Supply to Client on the recurring anniversary date.

B. Harris SmartWorks MDMS

I. SmartWorks MDMS SaaS fee (year one) will be invoiced by Utiliuse to Client at contract signing. Subsequent annual SmartWorks MDMS fees (year two and beyond) will become payable to Harris directly by Client and in accordance with the Harris End User Software Services Agreement separate of this Agreement.

C. Advanced Utility Systems

I. Advanced Utility Systems Customer Engagement Portal fee (year one) will be invoiced by Utiliuse to Client at contract signing. Subsequent annual Customer Engagement Portal SaaS fees (year two and beyond) will become payable to Advanced Utility Systems directly by Client and in accordance with the Harris Master Subscription Agreement separate of this Agreement.

2.6. **Miscellaneous**

A. Bonds

I. Bond fees shall become due by Client at the time of contract execution. Bond premiums may adjust upon project completion depending on final contract value and duration. A final project reconciliation will be reviewed at project completion and any amounts over the planned premium will be invoiced to Client within Utiliuse's final invoice.

B. Insurance

I. In the event Client request insurance coverage in excess to Utiliuse's standard insurance policy limits, Utiliuse shall invoice Client for reasonable and applicable costs to obtain such coverage limits. Insurance costs shall become due by Client at the time of contract execution and on the anniversary of the initial invoice each subsequent year such coverage is maintained.

C. Other

I. Any other fee schedule for material(s) or service(s) not outlined herein will be invoiced upon consumption or as reasonably appropriate for such material or service rendered.

Exhibit H-1
Acceptance Certificate

Project Phase / Invoice # / Other _____

Client, under the Master Services Agreement with Utiliuse, hereby certifies:

This Acceptance Certificate is a Project **Planning / DBT and IDA / Full Deployment** *(circle one)* Acceptance Certificate.

1. The Project Materials and Supplies inclusive of this phase have been delivered to Client.

2. Client has conducted such inspection and/or testing of the Project Materials and Supplies as it deems necessary and appropriate and hereby acknowledges that it accepts the Project Materials and Supplies for all purposes on the date indicated below. The Project Materials and Supplies have been examined and/or tested and are in good operating order and condition and is in all respects satisfactory to the undersigned and complies with the terms of Appendix A, subject, to the warranty provided. Client does not waive any other rights to which it would otherwise be entitled, including defects not reasonably or readily apparent.

3. Client has examined all Services and/or Work performed by Utiliuse and covered by the related invoices or draw requests and finds such Services and/or Work were performed in a professional or workmanlike manner and in accordance with all applicable requirements in Exhibit H-2.

4. The following is a list of items left to be completed, deferred for **DBT and IDA / Full Deployment** *(circle one)*:

   - Insert Punch List, if any

Agreed to and Accepted as of _____, 20____ by:

"Client"

By: _____

Printed Name: _____

Printed Title _____

Exhibit H-2
Requirements

This exhibit provides requirements and responses from each party regarding the system design and services. These requirements will serve as the b traceability and developing Client's System Acceptance Testing ("SAT") and User Acceptance Testing ("UAT"). Notwithstanding, the requirements he changed or modified by the Parties and without formal Change Order unless such change contains a material impact to the project cost or timelines. final documentation prepared for Client SAT and UAT, including but not limited to any changes as discovered and documented during the Planning c shall prevail.

1 AMI Vendor

ID	Category	Priority	Requirement	Proposer Response	Proposer Comment
1	Administration	Critical	Provide administrator tools and console for the administration and monitoring of the application.	Current Base	
2	Administration	Critical	Provide export of all interval and register usage data, alarms, and events.	Current Base	Reports of all data can be created and exported
3	Administration	Critical	Provide tools or applications for users to create and export custom reports.	Current Base	Sensus provides extensive standard and custon through both the FlexNet Head End System, as box reports to support utility operations. Repo both network detail reporting and endpoint re directed to a printer, screen, or data file and da CSV format. Filtering, data selection, and sorting available w head end. Each report can be easily tailored to
4	Administration	Critical	Have the ability to archive and purge data according to a data strategy.	Current Base	Comply, this capability will be discussed during where your system objectives will be discussed Head End System automatically purges its data discussions, the data exported to downstream retained for longer times to enable studies and advantage of more data.

5	Administration	Critical	Collect all interval data and logs from meters and Communications Network components at a configurable frequency, but at least once per day.	Current Base	Interval data and register reads are collected h Meter, but transmitted every four hours (six tir transmission, all previous readings from the ho
6	Administration	Critical	Support centralized remote management, monitoring, graphical monitoring, and control of all network hardware.	Current Base	The AMI solution provides access to monitor ar base stations.
7	Administration	Critical	Support centralized remote management, monitoring, graphical monitoring, and control of all endpoint hardware.	Current Base	The AMI solution provides access to monitor ar
8	Administration	Critical	Be capable of remotely detecting network communications problems including loss of redundant communications pathways, diminishing signal strength, or poor interval performance.	Current Base	Network Communication Statistics are availabl remotely. Network Metrics helps utilities fully realize the communication network. This network manage the health of the network using charts, tables, displayed on a fully customizable dashboard. Users can select the metrics they want to view, across a specific time period. Network Metrics alarms, system-level statistics, endpoint statisti The application maintains all customized config enabling each user to configure their own setti
9	Administration	Critical	Be capable of remotely correcting system/component problems, which at a minimum shall include the ability to remotely recycle (or restart) a component.	Current Base	Our system is self-correcting and does not requ system or component problems. However, in t system does not auto detect, the FlexNet serve mechanisms to remotely start and stop servers the event that the system experiences unplann be configured to automatically restart to reduc
10	Administration	Critical	Support automatic discovery of all new endpoint devices.	Current Base	All Endpoints are discovered automatically by t SmartPoint activation. Please note, the City's C to reflect the new endpoint devices or changes

11	Administration	Critical	Support automatic and/or programmatic discovery of communications equipment (repeaters, collectors / concentrators, etc.).	Current Base	Basestation collectors will be commissioned to head-end.
12	Administration	Critical	Have capability to automatically perform a last read of interval and register data, before a configuration update is performed	Current Base	A final read can be requested before sending a
13	General	Critical	Provide separate production, test, and dev environments prior to go-live.	Current Base	Prior to Go-Live, all AMI information will be ava environment at the head-end. At this time, Util workshop with Utility personnel where we will pre-production environment is valid throughou head-end). During the validation workshop, we from approximately ten meters manually and c information provided within the pre-productio information is confirmed to be correct, we can environment. Additionally, if the Utility would like to separat environment and production environment prio provided at an additional fee.
14	General	Critical	Provide context-sensitive system documentation for online user help.	Current Base	Sensus provides an imbedded help section in th .pdf and .pptx documentation per user role is a
15	General	Critical	Have a non-proprietary database file structure that is ODBC-compliant and SQL-compliant, and provided by a standard commercial database supplier	Current Base	The head end software is written primarily in Ja development platform. Red Hat Linux is used f and Window Server and MSSQL for the data st run as a virtual machine using VMWare. The FlexNet Head End System is comprised of t Red Hat and the other uses Microsoft Windows on the Windows server include MS SQL, .NET fr JDK. Sensus uses open source software when a open source licensing requirements, manages a and manages all related software bugs on beha

					model, Sensus maintains all software and softw behalf.
16	General	Critical	Provide a minimum of 12 months of online storage for all AMI endpoint data collected.	Current Base	The FlexNet Head End System automatically pu However, the data can be exported to downstr be retained for longer periods of time.
17	Functionality	Critical	Be capable of performing on-demand read requests to retrieve events, usage and register data.	Current Base	
18	Functionality	Critical	Be able to distinguish between a missing interval and zero consumption and provide reporting capability for missing data or gaps.	Current Base	The RNI read view will show if a read/interval is read gaps of 24hr, 48hr, 72hr, 9hr, and 120hr a extracted for all meters.
19	Functionality	Critical	Track devices with missing data due to failed or incomplete communications and provide an automatic retry process to ensure several efforts are made to capture missing interval data for endpoints.	Current Base	
20	Functionality	Critical	Log all messages sent to and received from all AMI components with the message date/time, event/message type identifier, and source/target(s) identifier.	Current Base	
21	Functionality	Critical	Log each instance when an event message has been sent to an AMI component, but no acknowledgement is received within the configured time frame.	Current Base	

22	Functionality	Critical	Process Standard Time and Daylight Savings Time changes across system devices.	Current Base	Sensus AMI accounts for daylight savings time.
23	Functionality	Critical	Process leap year changes across system devices.	Current Base	Time in a FlexNet system is controlled by the ba equipped with on-board GPS. At intervals, the l time pulse which is used to maintain the time a FlexNet system.
24	Functionality	Optional	Have the capability to assign internal user-specific screen presentation criteria (i.e. personalized home dashboard) based on user sign-in (role-based presentation).	Current Base	Sensus AMI uses role-based parameters to dete permission is not granted, a user will not be ab restricted pages.
25	Functionality	Critical	Support user capability to export report and query data in CSV, SQL, Excel, XML, TXT, or other flat-file formats.	Current Base	Sensus reports can be exported in html (page d xls, xlsx, csv, rtf and txt formats. Sensus can offer an add-on component for data apply.
26	Functionality	Critical	Support a variety of number of dials that contain up to 7 digits on register read.	Current Base	The AMI solution can support registers with a v digits long the first 8 digits will be transmitted t
27	Functionality	Critical	Support 8-digit length serial number for meter or endpoint.	Current Base	
28	Endpoints	Critical	Be capable of configuring endpoints to deliver either hourly or 15-minute interval reads.	Current Base	
29	Endpoints	Critical	Have the ability to time stamp and align intervals in accordance with: a) for hourly intervals, on the hour; b) for 15 minute intervals, on the 15, 30, 45 and 60 minute clock positions.	Current Base	All readings are timestamped and time aligned noted in the requirement. The meter remains t alignment does not drift.

30	Endpoints	Critical	Have the ability to have alternate method of capturing reads when unable to do so using the fixed network.	Current Base	Sensus has designed each of their systems to h unison with one another. Specifically, the AMR as a backup system within AMI. Sensus is uniqu only AMR system that can affordably and realis Metering Infrastructure (AMI) system with min requirements and without revisiting each endp of operating in either AMR (walk-by/drive-by) c These transmitters utilize high-powered two-w directly with AMR or AMI systems. SmartPoints each system type with a single command given feature provides a clear area of cost savings ve the system coverage and redundancy available System, a AMR/Drive-By backup system is not c be provided at a later date, if needed.
31	Endpoints	Critical	Provide a means for extracting stored data directly from the device in the event of network communications or equipment failure.	Current Base	In the event a basestation (data collector) beco and stored data can be extracted / captured fr the proposed handhelds themselves. If this hap automatically switch from AMI to AMR or Walk visit each site or reprogram the endpoint.
32	Endpoints	Critical	Be designed to have a failure rate of less than 0.5 % per year.	Current Base	Failure rates are as follows: The Sensus M400B2 Base Station has an expect 0.5% per year. The Sensus ally water meter has an expected fa The Sensus iPERL water meter has an expected The Sensus OMNI water meter has an expectec The Sensus water SmartPoint has an expected f for all units shipped. The Electronic Register+ has an expected failur
33	Endpoints	Critical	Store interval data and daily read data including date and time stamps for a	Partially Comply	The FlexNet SmartPoints store hourly reads for

			minimum of 45 days in module memory for hourly interval data.		
34	Endpoints	Critical	Provide a full warranty for 15-years.	Current Base	The Sensus 520M SmartPoint modules and batt of 20 years. Sensus is an industry leader with th which includes a fifteen year full warranty and
35	Endpoints	Critical	Be rated for performance of at least IP68 conditions or better.	Current Base	The iPERL, AccuSTREAM, SRII, and OMNI meter SmartPoint communication modules and Sensu and fully submersible. Water meters and regist operation in a submerged environment of up to them to handle flooding conditions. FlexNet Sm affected by water-filled pits when installed in a instructions.
36	Endpoints	Critical	Be supplied with a scannable bar code label affixed to the endpoint.	Current Base	Endpoints include a barcode of the serial numb
37	Endpoints	Critical	Support local data exchange of all AMI communications data and logs.	Current Base	The Sensus head-end software has a number o exporting information to 3rd party systems. Th CMEP (California Meter Exchange Protocol) and Customer integrations are also possible thru th group.

38	Endpoints	Critical	Provide security/authentication for local AMI meter data exchange to ensure that data exchanges can only be executed by authorized users or users authorized with designated field tools.	Current Base	Authentication is the granting of access based (username and password). Multi-factor authentication is the practice of re credentials, such as a username/password and Authorization is the granting of appropriate pri In the Sensus solution, authentication is perfor • By the AMI server. Access to the FlexNet AMI instance of an LDAP-based authentication store can be configured to access the organization's (MS Active Directory). The authentication store information about each user, including authori: robust role-based Authorization. • By the AMI collector. Access to the AMI collec instance of an LDAP-based authentication store large number of AMI collectors, authentication centralized by integration with an instance of R Multi-factor Authentication is done at the AMI authentication is supported through the impler software in the datacenter network. Sensus provides strong authentication mechan through a local LDAP authentication store inclu ability to integrate into an organization's existir authentication store is also an option. This pro\ solution for a broad range of deployment optio provides role-based access to ensure separatio access to critical functions. This provides a gran the various roles required by complex organiza configuration of eight pre-defined roles with va (e.g., administrator, read-write, read-only) and the customer to meet their specific needs. The create unlimited roles with an unlimited numbe the access control needs.

					In addition, AMI collectors support local auther RADIUS/LDAP for centralized identity managem Each AMI endpoint authenticates using unique message is encrypted and CBC-MAC'd using the provides message layer authentication for mes: The FlexNet AMI server also performs this mes: commands sent to the AMI endpoints. This pro authentication across the network. The AMI se: in a manual or automatic fashion for periodic r keys.
39	Endpoints	Critical	Keep time even if there is no communication with the AMI system.	Current Base	

40	Event/Alarm Management	Critical	Identify or flag events/alarms that require further investigation or field resolution.	Current Base	Water SmartPoint Alarms SmartPoint communication modules for water on the communications they receive from the r utility to potential issues before they become n transmitted immediately to the FlexNet Head E utility gets vital information as quickly as possil • Swapped Meter • The Swapped Meter alarm indicates that the the register has been changed without a prope meter is detected by comparing the register se to the next. If it differs, the register has been sv • Additionally, the alarm can be triggered if the reported from the register differs from one rea read was reporting six digits and the next read would also be interpreted as a swapped meter. • Continuous Flow • The Continuous Flow alarm indicates when th continuous flow for an extended time period. C include volume, threshold, and duration. • High Flow • The High Flow alarm indicates that the Smart excessive flow rate, possibly caused by a broke parameters include volume and threshold. • Meter Communication Fail • This alarm indicates that the SmartPoint faile water register – either there was no response f reading string was corrupted. Possible causes n or poor connection to the register, a malfunctic connected at all. • When a cut wire condition is detected for the SmartPoint alarm to be sent to the FlexNet Hea wire. When it is time to transmit a reading mes

the SmartPoint checks the last meter sample. If
obtaining the last meter sample (including an a
SmartPoint sends an alarm message with a rea
in Lieu of Reading bit set instead of a reading m
• If a Cut Wire alarm persists – that is, it has oc
days (840 samples – but the SmartPoint detect
longer present, then the normal reading will be
• Non-Numeric Read/Meter Read Malfunction/
• This alarm indicates that the SmartPoint succ
register, but the register indicated an error con
encoder wheel.
• Backflow/Reverse Flow
• The Backflow alarm indicates that the SmartP
(decreasing reading values) for a specified peri
parameters include volume, threshold, and dur
• Bidirectional Communication Failed
• The SmartPoint failed to successfully send a c
the response to a command back.

41	Event/Alarm Management	Critical	Be configurable to analyze received events and alarms and initiate creation of service orders or other exceptions.	Current Base	The FlexNet Head End System supports this use alarms to your downstream systems where the
42	Event/Alarm Management	Critical	Provide mechanism to automatically communicate a certain event and/or alarm to designated recipients via email.	Current Base	While event data can be queried within the RN notifications are provided through the propose
43	Event/Alarm Management	Optional	Provide mechanism to automatically communicate a certain event and/or alarm to designated recipients via SMS.	Current Base	While event data can be queried within the RN notifications are provided through the propose
44	Event/Alarm Management	Critical	Have the ability to forward selected events or alarms, once received, to another application as necessary to support distribution operations and monitoring.	Current Base	The FlexNet Head End System supports the abil via integrations to your downstream systems. I can send selected email and SMS text message personnel.
45	Event/Alarm Management	Critical	Store all events and alarms for display to the user and for analysis using queries and reports.	Current Base	The FlexNet Head End System receives all even them in its database. The head end supports ea to view and analysis them.
46	Event/Alarm Management	Critical	Allow for configuration or custom events or alarms based on analytics or calculation (e.g. continuous consumption), rather than a report.	Current Base	SmartPoints support the ability to have alarm t be done in the head end for one meter or a gro system.
47	Event/Alarm Management	Critical	Detect, timestamp, and report removal of an endpoint (cut wire).	Current Base	Sensus provides a meter communication alarm radio cannot communicate with the register. Th and delivered to multiple users.
48	Event/Alarm Management	Critical	Detect, timestamp, and report meter tilt/tamper, for meters with the capability to detect tilt.	Current Base	This can be provided through the AMI system a can provide the alarm.
49	Event/Alarm Management	Critical	Detect, timestamp, and report stopped/dead/non-registering meters.	Current Base	The FlexNet Head End System records and stor messages. Any missing endpoint messages fron registering meters will be tracked and reported
50	Event/Alarm Management	Critical	Detect, timestamp, and report rollover events.	Current Base	Negative consumption reports are available to

51	Event/Alarm Management	Critical	Detect, timestamp, and report reverse flow on meters not operating as net or bi-directional meters.	Current Base	Reverse flow features are a primary feature set This capability provides two primary benefits to utility to identify potential situations in which a steal water by reversing the meter. The back flo this potential condition. Additionally, the rever utility that a potentially harmful situation may l back into the system.
52	Event/Alarm Management	Critical	Support user-defined global thresholds (i.e., thresholds for all meters) for alarms/events based on nominal values.	Current Base	The FlexNet Head End System is the 'system of installed in your FlexNet network. a global conf SmartPoints if desired. In addition, for unique l be updated for that site's needs. All configurati remotely over the FlexNet system.
53	Event/Alarm Management	Critical	Support user-defined local thresholds (i.e., thresholds by individual meter or batch of meters) for alarms/events based on nominal values.	Current Base	
54	Event/Alarm Management	Critical	Support user-defined prioritization of events to allow critical traffic to have priority.	Current Base	In a FlexNet system, events and alarms are assi frequencies for communication to ensure they normal system message traffic, like billing mess
55	Event/Alarm Management	Critical	Support ability to configure whether an event/alarm is transmitted instantaneously or with a regularly scheduled batch of readings and event data.	Current Base	Water alarms will be transmitted directly to the stations when they occur and be passed along t systems at the configured integration rates.
56	Event/Alarm Management	Critical	Be able to report high priority messages within thirty seconds 90% of the time.	Current Base	Total transit time from endpoint to head end sy
57	Event/Alarm Management	Critical	Be able to report medium priority messages 90% of the time.	Current Base	Five minute reporting for all alerts is provided.
58	Event/Alarm Management	Critical	Be able to report low priority messages 90% of the time.	Current Base	Five minute reporting for all alerts is provided.

59	Event/Alarm Management	Critical	Automatically resend event notification until a message is acknowledged by the AMI headend.	Current Base	Water SmartPoints will continue to transmit ala end for 35 days. We call this a 'persistent' alarn cleared from the FlexNet Head End System at a SmartPoint will stop transmitting the alarm afte again. In this case it will report for another 35 c occurrence.
60	Event/Alarm Management	Critical	Detect and log access by any field device (e.g., optical port, Bluetooth connection, etc.).	Current Base	
61	Event/Alarm Management	Critical	Detect, timestamp, and report continuous flow leaks based on some nominal value threshold.	Current Base	This feature is a scheduled report that can be d
62	Event/Alarm Management	Critical	Detect, timestamp, and report low-flow leaks where some intervals may be zero.	Current Base	The Sensus iPERL and Electronic Register+ are c gallon wheel moves continuously, it will trigger
63	Event/Alarm Management	Critical	Detect, timestamp, and report high flow leaks or burst events based on some nominal value threshold.	Current Base	The High Flow alarm indicates that the SmartPc flow rate, possibly caused by a broken pipe. Co volume and threshold.
64	Event/Alarm Management	Critical	Detect, timestamp, and report backflow events.	Current Base	Backflow events and alarms are supported and reported to the head end.
65	Event/Alarm Management	Optional	Be able to display events and alarms on a map-view.	Current Base	The FlexNet Head End System supports a limite alarms. A robust capability is supported in the I
76	Network Configuration	Critical	Display and Log configuration parameters.	Current Base	The FlexNet head-end system is the system of r the current programming for basestation netw metering endpoints.
77	Network Configuration	Critical	Display and Log communications network check results on all installed interfaces.	Current Base	The FlexNet head-end system is the system of r the current programming for basestation netw metering endpoints.
78	Network Diagnostics	Critical	Detect, log, and report program or memory failure.	Current Base	The head-end includes the Network Metrics so by individual. This software tracks and displays basestations.

79	Network Diagnostics	Critical	Detect, log, and report power supply or battery failure/degradation.	Current Base	The head-end includes the Network Metrics so by individual. This software tracks and displays basestations.
80	Network Diagnostics	Critical	Detect, log and report communications link failure.	Current Base	The head-end includes the Network Metrics so by individual. This software tracks and displays basestations.
81	Network Diagnostics	Critical	Detect, log and report excessive device temperature.	Current Base	The head-end includes the Network Metrics so by individual. This software tracks and displays basestations.
82	Network Diagnostics	Critical	Detect, log and report microprocessor failure.	Current Base	The head-end includes the Network Metrics so by individual. This software tracks and displays basestations.
83	Network Diagnostics	Critical	Log the communication performance and report it regularly.	Current Base	The head-end includes the Network Metrics so by individual. This software tracks and displays basestations.
84	Network Diagnostics	Critical	Make diagnostic log information available either on-demand or by regular reporting.	Current Base	
85	Network Diagnostics	Critical	Support a remotely or locally initiated test for communications connection status. Local diagnostic will include the capability to perform "ping" and obtain network interface and link information, network association status, and signal level status.	Current Base	
86	Network Diagnostics	Optional	Provide managed services to the from a vendor-operated remote Network Operations Center, for a hosted solution. Managed services will include, at a minimum, alerting of network health issues and remote troubleshooting	Current Base	

			services for network components maintenance/repair.		
87	Network Diagnostics	Critical	Remotely detect network communications problems, including loss of redundant communications pathways, diminishing signal strength, or poor performance.	Current Base	Sensus deploys an advanced toolkit of diagnost FlexNet AMI server software. The AMI server s display of every aspect for every element in the meter to AMI collectors (base stations) to the A overall system performance so that key perfor latency, Signal-to-Noise Ratio (SNR), message t viewed and examined. These can be drilled to a transmission over a 30-day period. Analytic too a dozen metrics. Results can be shown in time following is a partial listing of available reports: • Avg SNR vs. Overall Throughput; • Distance t vs. Throughput • SNR vs. Missing Data (MaxRG); • SNR vs. Hou Count • Stale Meter Histograms; • Individual Meter S Reports • Distance to FlexNet Base Station; • Average S • 2s Signal; • Average Noise; • 2s Noise; • Thro Number of Received Messages; • SNR Histogra Additionally, Sensus frequently develops custo that are delivered daily as a management dash monitoring. All of these tools can be used to diagnose and r problems remotely without the need to visit th circumstances where a field visit is necessary, S diagnostic tools. The Google Maps application provides a visual the operator in accessing map data across mult to access data points on exception data of inte

88	Network Diagnostics	Critical	Provide mechanisms for remotely correcting system/component problems, which, at a minimum, shall include the ability to remotely recycle (or restart) a component.	Current Base	
89	Network Diagnostics	Critical	Log the results of all remote testing and diagnostics activities and any automatic actions taken based on those results.	Current Base	The AMI server GUI provides a listing of all acti in the system, including the user who initiated Additionally, each proposed meter supports th and alarms to a log file for future analysis and r
90	Network Diagnostics	Critical	Provide on-demand reports that contain key diagnostics and statistics from endpoints, devices, and field communication network elements, including event/transaction status reports, trouble reports, and additions/removals.	Current Base	Utiliuse can provide the capabilities stated, as v information. Additional details can be provided request.
91	Network Diagnostics	Critical	Export meter data upon request and provide capabilities to export log data.	Current Base	
92	Network Diagnostics	Critical	Send non-usage messages and alarms to the AMI headend that contain date/time stamp from internal meter clock, message code/type, and meter identifier.	Current Base	
93	Network Diagnostics	Critical	Support configurable alert levels and notifications based on the severity of a problem detected and the number of endpoints affected.	Current Base	The Sensus FlexNet AMI server supports the ab alerts through the AMI server GUI, MDM applic interfaces such as MultiSpeak, SYSLOG, and SN configured to deliver information about all aler selected alerts, groups of alerts, specified seve specific device, or having occurred during a spe
94	Network Equipment	Critical	Provide a battery back-up for network components (collectors, repeaters, etc.) with a runtime of at least 8 hours.	Current Base	Each M400B2 basestation includes two 24v bat than 8 hours of backup runtime.

96	Network Equipment	Critical	Utilize secure communications with all authorized systems and devices, including access ports, wireless communications (such as Bluetooth), field servicing tools, and communications to any network infrastructure devices.	Current Base	Utiliuse understands and complies with this rec
97	Network Equipment	Critical	Support the following backhaul communications on network infrastructure components: Ethernet, fiber; and cellular.	Current Base	While the proposed AMI solution can utilize a f Utiliuse's proposal includes a SaaS backhaul sul
98	Network Equipment	Critical	Provide network equipment that operates in temperatures between -40 and +85 degrees Celsius.	Current Base	FlexNet Basestations are available in both indo can operate in a variety of environmental cond installed in an environmentally controlled roor the M400B2 basestation, are packaged in NEM. M400B2 basestations can operate with interna 70°C (158°F) with internal transceiver compone of external temperatures of -50°C (-58°F) are o heating mat. Basestations should not be stored in outside su as internal case temperatures can reach 82°C (the batteries quickly.
99	Network Equipment	Critical	Provide network equipment that complies to operating vibrations specified in IEC 68-2-6.	Current Base	
100	Network Equipment	Critical	Provide network equipment that complies to operating shocks specified in IEC 68-2-27.	Current Base	

101	Network Equipment	Critical	Provide network equipment that complies to humidity conditions specified in ANSI 12.20 and 5.4.3.18.	Partially Comply	Thousands of M400B2 base stations have been America in hot and cold environments. There p variety of environmental conditions has been p The proposed M400B2 base stations have the f - UL listed - NEMA 4 certified - UL/CSA/IEC/EN 62368-1 standard for audio/vi communication technology equipment - Part 1: - FCC regulations
102	Network Equipment	Critical	Provide network equipment that complies to electromagnetic conditions specified in ANSI C37.90.2.	Current Base	
103	Network Equipment	Critical	Provide network equipment that complies to surge conditions specified in ANSI C37.90.1. and ANSI C62.41.	Current Base	
104	Network Equipment	Critical	Provide network equipment that complies to electrostatic discharge conditions specified in IEC 801.2.	Current Base	
105	Network Equipment	Critical	Provide network equipment that shall utilize non-volatile memory for storing, collecting, transmitting, and retaining data.	Current Base	All network communication equipment in the F volatile memory for storing and retaining data. data in SD drives. Memory is allocated for the C minimum of 30 days of data is stored in the eve communications are lost. Dependent on the nu transmit interval, enough memory is available f
106	Network Equipment	Critical	Provide network equipment that shall be capable of connecting to a main voltage ranging from 120V to 480V with a tolerance of +/- 10%.	Partially Comply	The proposed M400B2 base stations require a are also equipped with on-board batteries whic operations for a minimum of eight hours upon
107	Network Performance and Reliability	Critical	Meet all applicable Federal, State, and local regulatory requirements (including, but not limited to, Federal Communications Commission (FCC Title	Current Base	Utiliuse understands and complies with this rec

			47 C.F.R,Part 15 - Radio Frequency Devices), and applicable standards by the American National Standards Institute (ANSI)).		
108	Network Performance and Reliability	Critical	Support full two-way communications across the communications network (LAN, WAN, and Backhaul).	Current Base	The Sensus FlexNet AMI solution is a true two-v
109	Network Performance and Reliability	Critical	Support full two-way communications from metering endpoint devices to headend system.	Current Base	The Sensus FlexNet AMI solution is a true two-v with its 2-watt singable transmitters.
110	Network Performance and Reliability	Critical	Uniquely identify all endpoints and communication devices on the system.	Current Base	Each basestation and Sensus SmartPoint will ha
111	Network Performance and Reliability	Critical	Automatically select from redundant communications paths if available.	Current Base	Unlike all other systems on the market today, t requires no reconfiguration or rerouting. The FlexNet AMI system is designed to provide with neighboring AMI collectors. The surroundi automatically reach over to the neighboring po temporary loss of an AMI collector, or a failed c collector. Cellular coverage area is designed to adjacent cells, whereas AMI collector coverage adjacent cells, creating significant signal redunc Unlike systems that require deterministic routi system retains all routing knowledge in the Flex multiple locations. This purposeful design to m information provides the most robust network hears a transmission from a FlexNet AMI device end system through one or more AMI collector from a nearby meter or meters. Each AMI collector receives the message from a relays the message to the head end system wh resolved. Meters push multiple transmissions t

					a packet is missed, the next packet contains the with historical reads so that the database conta redundant transmissions and redundant histori
112	Network Performance and Reliability	Critical	Perform data flow control after a communication or power outage to prevent resources from being overloaded.	Current Base	This is a typical solution for mesh type network reading messages to get alarm messages in suc by Sensus since we have separate spectrum ass Meter messaging continues to operate as norm messaging is being received and acknowledged
113	Network Performance and Reliability	Critical	Provides coverage of 100% of the current meter population represented and covers infill areas that are within the bounds of the current meter footprint.	Current Base	The enclosed propagation analysis was created packet. As per this analysis, we are able to prov

	Count	%
Total Endpoints Covered	40,935	100.00
ally Coverage	38,447	93.92
2 Way Coverage	2,481	6.06%
1 Way Coverage	7	0.017
Total Endpoints Analyzed	40,935	

114	IoT Applications	Optional	Be capable of transmitting data from and receiving at the headend water monitoring devices/sensors, such as for pressure, temperature, lead detection devices and water quality.	Current Base	Sensus solution supports sensors today. The All meter has integrated temperature and pressur powered Smart Gateway can support any sens sensor readings from the Ally and Smart Gatew end and made available to the utility through tl (CMEP and MultiSpeak). Additional fees apply f custom exports. Pricing can be provided upon a City's requirements.
115	IoT Applications	Optional	Provide a platform that is capable of communicating bi-directionally from remote disconnect devices, including valves and/or meters.	Current Base	The enclosed cost proposal includes pricing for disconnect water meter, which complies with t
116	Remote Disconnect	Critical	Provide the capability to perform a meter/valve remote connect/disconnect.	Current Base	Sensus' ally meter is equipped with a three-stat valve that allows for remote control of service
119	Remote Disconnect	Critical	Provide meter/valve disconnect switch state (i.e. closed, open) and last read after remote connect/disconnect command is executed.	Current Base	
120	Remote Disconnect	Critical	Be able to retry on a configurable basis failed remote connect/disconnect operations.	Current Base	
121	Remote Disconnect	Critical	Identify and report failed remote connect/disconnect operations.	Current Base	
122	Remote Disconnect	Critical	Support the ability to identify emergency and critical needs customers to prevent remote meter/valve disconnect.	Current Base	The FlexNet Head End System supports 'Discon selected meters, like customers with lifesaving from disconnecting. However, we are depende
123	Remote Disconnect	Critical	Allow for remote connect/disconnects to be initiated based on commands by an authorized application other than the AMI headend (e.g., MDMS, CIS, SCADA).	Current Base	
124	Security	Critical	Receive and process data requests from other systems (e.g.. MDMS, CIS, OMS).	Current Base	Third-party systems may use the standard APIs Valve Control, and other commands.

125	Security	Critical	Not store personally-identifiable customer information.	Current Base	
126	Security	Critical	Log invalid login attempts; retain 12 months of authentication logs success and failure.	Current Base	
127	Security	Critical	Support a lockout for a configurable number (minimum 3) of failed login/access attempts. This applies to the AMI headend application, meter and endpoint configuration products, all field tool applications, meters and endpoints.	Current Base	Lockout is currently available on all head-end a control field access to meters, the most effecti encryption on each meter. This will allow appr has access to which meters at a specified time i
128	Security	Critical	Support Advanced Encryption Standard (AES) for 256-bit (or higher) encryption end-to-end.	Current Base	Communications on the FlexNet communicatio using AES-256 encryption from end to end
129	Security	Critical	Support rolling encryption keys on a configurable basis.	Current Base	
130	Security	Critical	Support functions which allow for secure device authentication, registration, and revocation of registration.	Current Base	End-to-end integrity of data and communicatio a key component of the security model used th Beginning at the AMI endpoints, the physical in achieved through physical locks and seals. Inte in the AMI endpoint is also validated through tl cryptographic key and CRC checks to ensure th been tampered with during transmission. From the AMI endpoint to the communication communications to and from the AMI endpoint authenticated messages using the AMI endpoir and the AES-CCM algorithm. This ensures that the AMI server and that the communications h transmission. In addition, communications with based quantum to prevent replay attacks or re communications. FlexNet AMI server supports communications to and from the endpoint, spe

					commands (remote disconnect, meter reprogra download) to support non-repudiation of these endpoints are registered with the network, enr validated based on the endpoint's digital certifi
131	Security	Critical	Supply mechanisms which audit and store all security related events including all messages, access, and modification events within the system for 90 days.	Current Base	
132	Security	Critical	Supply a security audit store which includes the date and time of the event, type of event, subject identity, and the outcome (success or failure) of the event.	Current Base	
133	Security	Critical	Supply access control mechanisms (i.e., Identification & Authentication mechanisms) which prevent unauthorized access of information and resource.	Current Base	The FlexNet AMI server includes a built-in LDAF and authorization of users. An administrator us of the AMI server to add/remove users, reset p permissions/roles. Through the integration of t can be achieved through the native tools for th Single Sign On is supported within the AMI serv standard Security Assertion Markup Language (single sign on through all the applications that customers.
134	Security	Critical	Log unauthorized access attempts.	Current Base	
135	Security	Critical	Support 2-factor authentication for system access.	Current Base	
136	Security	Critical	Restrict access to reconfiguration commands based upon user role.	Current Base	Access and actions are controlled by the grante appropriate roll to see or reconfigure a setting.

137	Security	Critical	Reject messages/requests that are received from unauthorized systems or devices.	Current Base	All FlexNet communications are encrypted and FlexNet network using unique cryptographic ke received that are not encrypted or authenticat The failures in encryption or authentication of and can be exported using SYSLOG.
138	Security	Critical	Provide a configurable 'choke' to restrict the maximum number of disconnect operations allowed concurrently or on a daily basis including those disconnect requests transmitted via other systems.	Partially Comply	The FlexNet system manages network traffic ar commands based on tower to meter communi but we have a feature on our roadmap that wil actuations which could be used to achieve thro
139	Security	Critical	Provide automated methods of preventing cross-site scripting (XSS) attacks or SQL injection attacks from compromising the databases or software functions.	Current Base	
140	Security	Critical	Provide Network Layer IP filtering solution to allow access only from the utility's IP address to the remote server environment (especially hosted for the utility).	Current Base	
141	Security	Critical	Securely transfer/process data between the utility and the Vendor's environment through SITE-TO-SITE VPN communication, enhanced with Multi-Factor Authentication (MFA).	Current Base	
142	Security	Critical	Securely encrypt utility's data during the operational process, hosted at rest, and the backup stage, at the Vendor's environment (including Vendor's contracting organization's environment)	Current Base	

143	Security	Critical	Offer robust disaster recovery and business continuity solutions with maximum 8 (eight) hours RTO (Recovery Time Objective) (i.e., in the event of a disaster, the services offered by the Vendor shall not exceed 8 hours downtime).	Current Base	
144	Security	Critical	For systems hosted using third-party cloud services, such as AWS, offer a secured, logically separated IT environment in cloud consistent with the AWS_Security_Compute_Services_White paper document (https://d1.awsstatic.com/whitepapers/Security/Security_Compute_Services_Whitepaper.pdf).	Current Base	Hosted RNI features include: 24x7x365 data mc centers, Achilles Practices Certification (APC), A Certifications (ACC), and application of industry measures including NIST, SDLC, and ITIL.
145	Security	Critical	Offer authentication and authorization from the "utility's environment to the Vendor's environment" and "Vendor's environment to the cloud-hosted environment" enhanced with SSO and MFA.	Current Base	The FlexNet AMI server includes a built-in LDAF and authorization of users. An administrator us of the AMI server to add/remove users, reset p permissions/roles. Through the integration of t can be achieved through the native tools for th Single Sign On is supported within the AMI serv standard Security Assertion Markup Language (single sign on through all the applications that customers. SSO is an additional fee and can be
146	Security	Critical	Offer IP filtering for all the applications and database access to the Vendor's environment and to the cloud environment.	Current Base	For an additional fee the RNI cloud environmer Direct access to the database is not provided e:
147	Security	Critical	Be compliant to NISTIR 7628 Rev. 1.	Current Base	The FlexNet Smart Utility Network complies wit For an on-premise solution, this will be the resp

					on-premise implementation and will depend or running your on-premise head end.
148	Security	Critical	Be audited and certified under ISO 27001.	Current Base	
149	Security	Critical	Be audited and certified under SOC 2 Type 1.	Current Base	Comply. Also, see Soc 2 Type 2 response below
150	Security	Critical	Be audited and certified under SOC 2 Type 2.	Current Base	Sensus currently has SOC 2 Type 2 certification testing for this certification and can provide a r and NDA has been signed.
151	Service Level	Critical	Be capable of 97% on-demand read success executed within 60 seconds, when issued to a single meter.	Current Base	While Sensus is capable of achieving the goals r able to guarantee the limits fully expressed wit documents. Typical on-demand reads will be re - 90 seconds for a single meter.
152	Service Level	Critical	Be capable of securing a 99% success rate or greater of daily register reads transmitted within 72 hours of read timestamp, processed at the AMI headend and available for other systems.	Current Base	While the proposed Sensus FlexNet AMI solutic providing superior read success rates, we are o provided within Sensus's nationally published v includes a 98.5% read success rate over a four-
153	Service Level	Critical	Be capable of securing a 98% success rate or greater of daily register reads transmitted within 24 hours of read timestamp, processed at the AMI headend and available for other systems.	Current Base	While the proposed Sensus FlexNet AMI solutic providing superior read success rates, we are o provided within Sensus's nationally published v includes a 98.5% read success rate over a four-
154	Service Level	Critical	Be capable of securing a 95% success rate or greater of all interval reads transmitted within 24 hours of read timestamp, processed at the AMI headend and available for other systems.	Current Base	While the proposed Sensus FlexNet AMI solutic providing superior read success rates, we are o provided within Sensus's nationally published v includes a 98.5% read success rate over a four-
155	Service Level	Critical	Maintain less than 0.75% failure rate per annum for all network communications	Current Base	

			equipment over the required operating life of the system.		
156	Service Level	Critical	Maintain less than 1.50% failure rate per annum for all network communications equipment over the extended operating life of the system.	Current Base	
157	Service Level	Critical	Offer 99.9% uptime for a SaaS or NaaS solution.	Current Base	Sensus SLAs provide
158	Software/Firmware Releases	Critical	Provide release notes prior to updates.	Current Base	
159	Software/Firmware Releases	Optional	Allow for software releases to be able to be scheduled at Utility's discretion.	Current Base	
160	Software/Firmware Releases	Critical	Have a rollback plan in place and be communicated to the Utility prior to any upgrades to the Software.	Current Base	
161	Software/Firmware Releases	Critical	Retain all AMI Meter configuration and program settings, statuses, customer information, and event logs over a full Software/firmware upgrade.	Current Base	
162	Software/Firmware Releases	Critical	Accept and install firmware upgrades remotely (over-the-air) via the AMI system in a secure manner.	Current Base	
163	Software/Firmware Releases	Critical	Provide a secure capability to perform meter program and firmware updates in the field without removing devices.	Current Base	
164	Software/Firmware Releases	Critical	Continue normal operation while downloading Software/firmware upgrades until instructed to switch to the new version.	Current Base	

165	Software/Firmware Releases	Critical	Log firmware download and upgrade attempts, failures, successes, reversions, etc. with timestamp.	Current Base	
166	Software/Firmware Releases	Critical	Report firmware upgrade status (successful or unsuccessful) to the AMI headend.	Current Base	
167	System Performance and Reliability	Critical	Secure register reads and interval data from unknown meters for which the system has not yet received notice of the AMI meter installation, and automatically store and process these reads once the meter data synchronization completes.	Current Base	Endpoints Joining the Network after Installatio meters and SmartPoints self-register on the Fle installation. Readings will typically start popula system when the meters send in their initial bil hours following their installation. The speed in which FlexNet endpoints join the FlexNet system's use of a point to multipoint a communicate directly up to the network and d messages via a series of nearby endpoints.
168	System Performance and Reliability	Critical	Be capable of receiving and processing incoming meter data on a continuous basis.	Current Base	The basestation is in constant communication a reliable network connection.
169	System Performance and Reliability	Critical	Transmit and log the following information for each event: Event Timestamp, Event Type, AMI RF endpoint, and/or meter ID.	Current Base	Communication statistics are available.
170	System Performance and Reliability	Critical	Automatically retry commands when a message is not acknowledged.	Current Base	
171	System Performance and Reliability	Critical	Record metrology data while communicating and during communication failures.	Current Base	
172	System Performance and Reliability	Critical	Support remote configuration of all user-controllable endpoint parameters.	Current Base	

173	System Performance and Reliability	Critical	Support remote configuration of multiple endpoints in a batched mode, via user-defined batching.	Current Base	
174	System Performance and Reliability	Critical	Log all configuration commands and results for a minimum of 90 days.	Current Base	Sensus products log all actions to local system l audit and reporting of system actions. These lo standard SYSLOG interface to a centralized serv configured during or any time after system inst
175	Systems Integration	Critical	Support Multi-Speak communication and protocols for integration to other enterprise IT systems.	Current Base	Sensus currently supports up to MultiSpeak ver
176	Systems Integration	Critical	Support Common Information Model (CIM) structures, commercial enterprise application infrastructure interfaces, and service oriented integration patterns for IT systems integration the utility's CIS and other enterprise IT systems.	Current Base	The FlexNet Head End System/Regional Netwo variety of integration methods for third-party a • Flat file exports of CMEP, HHF, MV-90, and M OMS systems with register reads, interval data, • MultiSpeak Web services for meter reading, c management, meter management, and meter l • The MultiSpeak Web service, which includes t Web service. It can transmit real-time readings receives them and ensures that they are not du integration is a huge advancement over daily fl utilities today. Third party integrations will require a scope of specific integration requirements.
177	Systems Integration	Critical	Be capable of securing and delivering register data, interval data, and logs from endpoints and communications network components at a configurable frequency, but at least 4 times per day.	Current Base	Sensus radio warranties are based on 1 hour in hours. Each transmission will contain the last 2 and reads.
178	Systems Integration	Critical	Support scheduled batch loading of meter events to other enterprise IT systems at a configurable frequency, but at least 4 times per day.	Current Base	Additionally, custom CMEP exports can be prov additional fee.

179	Systems Integration	Critical	Be able to initiate an on-demand read request through a real-time interface from another authorized system (i.e., MDMS, CIS, OMS).	Current Base	On demand reads may be integrated into third additional fee.
180	Systems Integration	Critical	Be capable of delivering the results of all received alarms, outages and remote testing and diagnostic results to other systems in near-real time (within 30 seconds of receipt to the AMI headend).	Current Base	Total transit time from endpoint to head end sy Custom exports can be provided for additional
181	Systems Integration	Critical	Support integration as identified in Appendix 1.	Current Base	Utiliuse has reviewed the City's Appendix 1 - IT Context Diagram, and we are able to successful party software listed. However, at this time, we integration of the Sensus FlexNet HES with our (Harris). Should additional third-party integrati develop a specific Scope of Work for the servic provide custom pricing to the City.

2 Meter Vendor

ID	Category	Priority	Requirement	Proposer Response	Proposer Comment
1	Meter - Register	Critical	Meet the latest AWWA C700 series Encoder-Type Remote-Registration Systems for Cold-Water Meters	Current Base	Each proposed water meter meets their requir
2	Meter - Register	Critical	Be compatible with AMI water endpoints	Current Base	All Sensus metering products proposed will be coupler connections that are made to commun 520M endpoints.
3	Meter - Register	Critical	Provide reads to the AMI water endpoints in units of no greater than 1 gallon.	Current Base	Sensus iPERL, SRII, and Ally Residential Meters a gallon (0.1 USG) for 5/8" - 1" applications; 1 1 can read down to 1 USG

4	Meter - Register	Critical	Be capable of being read both manually and electronically.	Current Base	Each proposed water meter can be read manu register. All proposed water meters are provid electronic register that will show totalization a components are installed with each meter for
5	Meter - Register	Critical	Have a leak detector indicator or equivalent means of indicating minimal flows of water.	Current Base	Comply for all proposed water meters.
6	Meter - Register	Critical	Should have a cap to prevent dirt from interfering with the visual inspection of the register	Current Base	Comply for all proposed water meters.
7	Meter - Register	Critical	Be waterproof and corrosion proof.	Current Base	Comply for all proposed water meters.
8	Meter - General	Critical	Meet AWWA C700 series standards for Minimum Test Flows, and Nominal Flow Limits For Specified Meter Size and Type	Current Base	Each proposed water meter meets their requir
9	Meter - General	Critical	Be made of or non-corrosive material. Composite is acceptable.	Current Base	The Ally and iPERL meter body is made of com metal material. The OMNI meter's maincase is NSF approved epoxy coating.
10	Meter - General	Critical	Have accuracy tests that shall be conducted in accordance with AWWA test methods and meter standards.	Current Base	Test tags are provided with each meter. Test re electronically.
11	Meter - General	Critical	Provide electronic vendor meter factory accuracy test file with deliveries.	Current Base	Electronic test files can be provided via email w
12	Meter - General	Critical	Have a permanently affixed serial number.	Current Base	Comply for all proposed water meters.
13	Meter - General	Critical	Be supplied with a scannable bar code label affixed to the meter.	Current Base	Comply for all proposed water meters.
14	Meter - General	Critical	Provide a full warranty for 15-years.	Current Base	The Sensus iPERL water meter has a 20-year ac (15-year full warranty; 5-year prorated warrant 15-year battery warranty. The OMNI Meter has and 10-year register warranty.
15	Meter - Functionality	Critical	Perform metrology using electronic (read: no moving parts) technology.	Current Base	The proposed Sensus iPERL and Ally water met requirement.

16	Meter - Functionality	Critical	Provide electronic vendor meter inventory file with deliveries.	Current Base	Electronic test files can be provided via email w
17	Meter - Functionality	Critical	Be capable of continuous operation in dust or a submerged environment, of at least IP 68 rating or higher, per IEC 60529.	Current Base	
18	Meter - Functionality	Critical	Have connections that shall be waterproof and corrosion proof.	Current Base	Comply for all proposed water meters.
19	Meter - Functionality	Critical	Measure consumption in gallons.	Current Base	Comply for all proposed water meters.
20	Meter - Other Applications	Optional	Be available with an optional integrated remote disconnect valve, for new meters.	Current Base	The Sensus Ally remote disconnect water mete state remote service valve for meter shut off, t is an alternate optional metering option quote
21	Meter - Other Applications	Optional	Be available with an optional integrated pressure monitor, for new meters.	Current Base	The Sensus Ally remote disconnect water mete and alarms. This is an alternate optional meteri Utility.
22	Meter - Other Applications	Optional	Be available with an optional integrated temperature monitor, for new meters.	Current Base	The Sensus Ally remote disconnect water mete and alarms. This is an alternate optional meteri Utility.
23	Meter - General	Critical	Be warranted free from defects in materials and workmanship for twenty four (24) months from date of shipment or eighteen (18) months from date of installations	Partially Comply	The proposed Sensus iPERL and Ally water met The Sensus OMNI metering line is provided wit warranty, but a 10 year register warranty. Plea Limited Warranty G-500 document for additior
28	Lids	Critical	Fit the standard meter boxes identified.	Current Base	Utiliuse is proposing an alternate meter box lid that includes DFW brand meter boxes instead proposed DFW meter box lids meet the City's r Furthermore, the Sensus FlexNet AMI Solution mounting of existing metal and plastic meter b pricing can be adjusted to reflect meter box lid complete replacement, should this interest the
29	Lids	Critical	Have Radio Frequency (RF)-Transparency.	Current Base	

30	Lids	Critical	Have a recessed hole for a through-the-lid antenna to mount flush.	Current Base	Molded recesses are design to fit the 520M Ser SmartPoint to be flush with tread pattern of th
31	Lids	Critical	Have sufficient weight or a locking mechanism that prevents them from being dislodged or from floating.	Current Base	The 200A lids proposed are provided with keyh Utility's existing Carson box requirements. 132 anti-float material.
32	Lids	Critical	Be designed to prevent pest or insect intrusion.	Current Base	The proposed 1324C and 1730C lids can be pro keyhole, if preferred.
33	Lids	Critical	Have a ferrous element (e.g. section of rebar) that enables them to be discovered by a metal detector when buried.	Current Base	A magnet is molded within the lid for detectior
34	Lids	Critical	Conform to chemical conditions tested in accordance with ASTM D543-06.	Current Base	
35	Lids	Critical	Be constructed from AASHTO-recognized materials (M105), capable of withstanding AASHTO M306 Sect 6 loads, at a minimum, for all lids with deliberate vehicular traffic applications.	Current Base	
36	Lids	Critical	Conform to UV conditions tested in accordance with ASTM G154-06.	Current Base	
37	Lids	Critical	Have a static coefficient of friction to mitigate slipping hazard, as tested in accordance with ASTM C1028-07.	Current Base	
38	Lids	Critical	Withstand impacts as described in ASTM D2444-05.	Current Base	
39	Lids	Critical	Be non-flammable or exhibit a burning rate as specified in ASTM D635-06.	Current Base	
40	Lids	Critical	Resist wear by abrasion in accordance to ASTM C501.	Current Base	

3	**Meter Installation Vendor**

ID	Category	Priority	Requirement	Proposer Response	Proposer Comment
1	Data Capture	Critical	Capture clear and legible digital images a minimum of: (1) pre-install meter site; (2) legacy meter face for out read;(3) new meter face immediately following install; (4) new endpoint serial number; (5) site as left by installer.	Current Base	All images are captured on site and uploaded ir NovusCenter.
2	Data Capture	Critical	Capture images with an accurate date / time stamp.	Current Base	All images are captured on site and uploaded ir NovusCenter.
3	Data Capture	Critical	Capture images searchable by meter number assigned by utility or alternatively another unique identifier as determined by utility.	Current Base	All images are captured on site and uploaded ir NovusCenter.
4	Data Capture	Critical	Capture multiple images for meters with multiple registers.	Current Base	All images are captured on site and uploaded ir NovusCenter.
5	Data Capture	Critical	Review and validate 100% of meter reads that have been entered in their work order management system against the meter face photo taken during installation.	Current Base	Utiliuse employs a data analyst who will review orders for the following: 1. Work order data is complete ; 2. Digital phot orders ; 3. Data in digital photos match work or / Meter ID / Register ID / Radio ID); 4. If a data will issue a new work order.; 5. Provide TRN log handheld via SFTP.; 6. The Utility will review th issues that require further field audit or mitigat requirements back to a Supervisor to create ne
6	Data Capture	Critical	Provide daily data uploads to proposed vendor WOMS site.	Current Base	Data is updated in near-real-time by each field performed the meter exchange services. The Ci WOMS, NovusCenter, in a read-only view and c being performed.
7	Data Capture	Critical	Provide completed work orders that pass data validation to utility within 2 business days of installation.	Current Base	Utiliuse is able to provide information to the U to ensure the highest quality of accurate data, three days for Q/A checks. Additionally, the Cit our WOMS, NovusCenter, and can review work

9	Data Capture	Critical	Perform a visual inspection, document, photograph, and notify Utility within 1 business day of new meter, tamper, or theft conditions found during installation.	Current Base	Utiliuse will conduct a Planning and Discovery V data collection requirements.
10	Data Capture	Critical	Perform a visual inspection, document, photograph, and notify Utility in near-real-time of potential damage, malfunction, or other critical issues (e.g., adverse conditions/indicators, safety hazards, infrastructure concerns, etc.) found during installation that would signal an immediate work stoppage for the meter.	Current Base	Utiliuse will conduct a Planning and Discovery V data collection requirements.
11	Data Capture	Critical	Verify meter/endpoint inventory is in stock and ready to be installed, and that serial numbers are not duplicated.	Current Base	All inventory tracking is provided through our V
12	Data Capture	Critical	Barcode scan transactions involving hardware to ensure data integrity of meters, registers and endpoints.	Current Base	This functionality is provided through our WOM
13	Installation	Critical	Provide a supervisor-to-installer ratio of at least 10-to-1.	Current Base	
16	Installation	Critical	If an installed meter is discovered to have failed within two years of installation, directly as a result of installation negligence, be responsible for replacing the meter or providing a credit to the utility.	Partially Comply	Utiliuse's standard installation warranty is inclu Installation Overview. Utiliuse's warranty servi installation services and one-year for data inte

17	Installation	Critical	Notify customer prior to meter replacement with advance postcard (double-sided, with color printing), and provide a door hanger (double-sided, with color printing) after installation complete or non-complete.	Current Base	The enclosed cost proposal reflects one pre-ins post-installation door tag per account as requir Postcard specifications are 6" x 9" full color, do cover, print and warehouse for distribution, ad Utility, first class postage. Rates do not include Standard turnaround time is 8-10 working days additional charges. Print and postal rates are su current market value and rate increases. Door hanger specifications are 4.25" x 11" stan with aqueous coat, full color double sided. Rate charges or sales tax. Standard turnaround time orders will incur additional charges. Print and p change based on current market value and rate
18	Scheduling	Critical	Complete phone calls for non-complete site visits.	Current Base	Utiliuse can perform this service; however, we Utility regarding their definition of "non-compl required to contact end-customers, we will req accounts including phone numbers. Further, if additional fees may apply.
19	Installation	Critical	Have a published process for resolving meter installation issues prior to making them an Return To Utility.	Current Base	A final process will be provided prior to comme services.
20	Installation	Critical	Make no less than three attempts to complete/resolve any given installation before transferring an Unable to Complete (UTC) / Return to Utility (RTU), unless due to existing service damage or tampering.	Current Base	Utiliuse can comply with this requirement; how with the utility for circumstances beyond our c sites.
21	Installation	Critical	Coordinate with the utility for gated community access.	Current Base	
22	Installation	Critical	Coordinate with the utility for curb stop keys, for any locked curbed stops.	Current Base	

23	Installation	Critical	Clean out meter box of dirt, water and other debris to registers necessary to facilitate meter/endpoint installation, and remove dirt and debris from the site.	Current Base	Utiliuse's base price for a standard meter excha debris and water by the field technician. Pricing for excessive cleaning by hand and vac t Attachment 2 - Price Proposal under "Optional City. Pricing assumes the City is able to provide
24	Installation	Critical	Be able to perform box replacements.	Current Base	Pricing for meter box replacement options are - Price Proposal under "Optional Work", as req
25	Installation	Critical	Be able to perform lid replacements.	Current Base	Pricing for meter box lid replacements are quo However, as a cost saving initiative, we can pro services. The Sensus FlexNet AMI system allow through the City's existing metal or plastic met proposal can be provided to the Utility based o replacement services, should the City be intere
26	Installation	Critical	Be able to perform lid drilling.	Current Base	Utiliuse is proposing new meter box lids with a accommodate a Sensus SmartPoint. However, i are required, we have provided pricing within A under the "Optional Work" section. Although box lid replacements are quoted with provide existing lid modification services as a c Sensus FlexNet AMI system allows for SmartPo existing metal or plastic meter box lids. An alte to the Utility based on lid modifications verses should the City be interested in this alternate s
27	Installation	Critical	Be able to perform meter resets for meters that are too high.	Current Base	Pricing for resets are included within Attachme "Optional Work" section as an incidental servic
28	Installation	Critical	Be able to perform meter setter installs.	Current Base	Pricing for meter setter installations are includ Proposal, under the "Optional Work" section a the quantities provided by the Utility. Pricing is inclusive of any material to perform the work. being installed have the same lay length as a th

29	Installation	Critical	Be able to perform lay length adjustments.	Current Base	Lay length adjustments can be performed as a the Utility. Any lay length adjustments will be q by-case basis.
30	Installation	Critical	Be able to perform general plumbing repairs on utility-side line.	Current Base	Pricing for standard utility-side line plumbing s Attachment 2 - Price Proposal, under the "Opti incidental service. Pricing noes not reflect servi plumber, but rather services performed by our
31	Installation	Critical	Provide traffic cones to alert drivers and pedestrians of work being performed in the area.	Current Base	Traffic cones will be placed to the front and rea being performed.
32	Installation	Critical	Install equipment in accordance with the manufacturer's specifications and recommendations.	Current Base	
33	Installation	Critical	Provide any consumable needed to meter installation (e.g., washers, gaskets, etc.).	Current Base	Pricing includes new meter gaskets for 5/8" - 1' bolts, washers, and full face gaskets for 1 1/2" additional items are subject to additional fees.
34	Installation	Critical	Verify that the new meter and/or endpoint is fully functional, properly installed, and that the customer is with the same status (on/off) before leaving a site.	Current Base	This is a standard process of our installation se
35	Installation	Critical	Correct all leaks related to the installed meters (e.g., damaged meter, washers, etc.)	Current Base	Utiliuse is able to comply with this section with installation warranty as included herein.
36	Installation	Critical	Be responsible for correcting at-fault breaks in the service line using similar material type for up to 3' before and after connection to the meter.	Current Base	Utiliuse is able to comply with this section with installation warranty as included herein.
37	Installation	Critical	Flush customer line after meter installation to be free of air and debris, if possible and remediate contaminated water supplied to the customer as a result of meter installation,	Current Base	After all meter exchange services, our standard line when an outside spigot is available and in g condition.

			including, but not limited to, disinfection, flushing, and sampling.		
38	Installation	Critical	Provide logs of errors / damage resulting from installation by the meter installation contractor, or of any customer complaints, including caller's name, address, account number if available, date and time of call, nature of problem, the action taken and the resolution.	Current Base	This functionality is provided through our WON
39	Installation	Critical	Respond within one (1) hour of receiving a complaint call and arrive at customer's premises ready to correct any problems resulting from errors / damage by the installer, unless otherwise directed by the utility.	Current Base	Utiliuse is able to comply with this section with installation warranty as included herein.
40	Installation	Critical	Resolve errors / damage resulting from installation by the installer within 24 hours, unless situation results in RTU.	Current Base	Utiliuse is able to comply with this section with installation warranty as included herein.
41	Installation	Critical	Handle non-binding or non-communication endpoint issues. Utility will not pay for installation services until it is verified that the meter is communicating with the proper information to the head end system.	Current Base	During the meter exchange, the field technician with local area infrastructure and include a vali within our WOMS. A meter and SmartPoint wo communicative after three consumption reads we prefer to limit the validation period to ten c installation in effort of prompt payment to our are open and willing to discuss a mutually agre contracting if awarded.
42	Installation	Critical	Verify meter is installed and registering properly and not reversed.	Current Base	
43	Other	Critical	Dispose of removed meters, registers, ancillary hardware, and all associated materials from the worksite.	Current Base	Utiliuse's cost proposal reflects hazardous wast existing endpoints. Pricing is per pound; Utilius one pound or less.

44	Other	Critical	Provide a call center for customer to coordinate appointments, address customer complaints, and answer question on the project and installation procedures, supporting English and Spanish language options.	Current Base	Utiliuse's cost proposal includes pricing for our which meet these requirements, up to 1,000 m fees will apply for usage over the initial 1,000 n As an alternate, since appointment scheduling where meters are inaccessible or when medica this line item by routing calls to our on-site pro on Utiliuse's website. If the City decides this ro clarification can be provided upon contract neg
45	Safety & Appearance	Critical	Be capable of servicing large meter vault in a confined space with proper access certification.	Current Base	Additional fees apply for confined space entry. Price Proposal for confined space entry costs. F quantity of 90% of the City's 3" and larger mete
46	Safety & Appearance	Critical	Have vehicles consistent in appearance and approved by the utility.	Current Base	Pricing reflects utilization of fleet vehicles.
47	Safety & Appearance	Critical	Have all field personnel wear hi-vis, easily recognizable and consistent uniforms or safety vest containing company name, as well as prominently displayed utility-approved photo identification badges.	Current Base	
48	Safety & Appearance	Critical	Be trained on basic customer service, how to address customer inquiries and when to transfer a customer to the utility.	Current Base	
49	Safety & Appearance	Critical	Leave the customer site in as good or better condition before and after servicing.	Current Base	
50	Safety & Appearance	Critical	Provide proof of background checks, which cover at minimum: criminal history, sex offender registry check, and driver's license verification.	Current Base	Results from background checks can be provide limits of the law.
51	Safety & Appearance	Critical	Provide pre-employment 8-panel drug and alcohol screening, random testing during employment, and a policy on identification of intoxication and testing based on reasonable suspicion.	Current Base	Results from tests and screenings can be provic limits of the law.

52	Safety & Appearance	Critical	Provide safety training for employees.	Current Base	
53	Scheduling	Critical	Attempt to notify customer prior to shutting water off, and have a process for handling a moving meter.	Current Base	
54	Other	Critical	Remove employees from the project upon request from the utility as deemed necessary by the utility.	Current Base	
55	Scheduling	Critical	Assist/coordinate meter installation scheduling according to the outlined deployment strategy, with the utility retaining the right to prioritize routes, neighborhoods, and customers, as needed.	Current Base	All prioritized routes need to be identified prio material.
56	Scheduling	Critical	Be available during utility's regular business hours (6 a.m. - 8 p.m.), with work beyond normal business hours coordinated with the utility at least two weeks in advance.	Current Base	
57	Other	Critical	Have the designated project manager along with key team members onsite and participating in weekly project status meetings, providing written reports on: actual versus projected deployment numbers; unable-to-complete and return-to-utility metrics; issue log (if needed), including RTU and UTC reports; quality assurance results; and inventory audit results.	Current Base	Utiliuse will provide designated personnel; how on-site and remote as needed. A full time on-si provided; however, additional fees will apply. H time field manager will be available providing c our field technicians. Designated personnel will participate in weekly comply with the requirements requested herei
58	Scheduling	Critical	Complete only routes pre-authorized for work by utility Project Manager.	Current Base	
59	Work Order Management System	Critical	Support storage for data capture requirements identified above and up to 10 photos per installation. Utility access to the storage will be provided for a minimum of 1	Current Base	

			year after project completion. Provide training on web interface to contractor provided Work Order Management System.		
60	Data Capture	Critical	Integrate and/or export meter exchange data (meter ID, last meter read, new meter read, installation date, meter model, location, GPS, service order number, etc.) to a format acceptable to CIS.	Current Base	
61	Work Order Management System	Critical	Provide all work order information to utility at the end of deployment in CSV, Excel, or other standard file format, in addition to labelled photos.	Current Base	
62	Work Order Management System	Critical	Provide a work order management system that can be web accessed by at least six (6) utility staff concurrently.	Current Base	Access can be provided in a read-only mode.
63	Work Order Management System	Critical	In the work order management system, provide summary view of planned, incomplete and completed work orders that is updated daily.	Current Base	
64	Work Order Management System	Critical	Provide lookup capabilities for individual work order details, with ability to look up by meter no., account no., or other identifiable information.	Current Base	
65	Work Order Management System	Critical	Provide reports or filtering tools to view route completion.	Current Base	
66	Work Order Management System	Critical	Have a WOMS capable of accepting periodic updates to the database as customers are added/changed within the existing utility meter reading routes.	Current Base	

67	Data Capture	Critical	Note the material of service lines leading to or from a meter (including a scratch test to determine if lead or not).	Current Base	Pricing for service line material surveying is incl Price Proposal, under the "other work" section Please note, each location selected to perform require either a meter box hand cleaning or va service line. Pricing for meter cleaning services "other work" section of our response. It is our City's meter services are on risers, our cost pro will need to remove up to 18" of dirt to access out of the meter riser. Survey pricing includes information, and uploading into our proprietar assumes all service line data is being collected

4 MDMS Vendor

ID	Category	Priority	Requirement	Proposer Response	Proposer Comm
1	General MDMS	Critical	Accept and store customer account and meter data characteristics (e.g. Meter ID, Parcel ID, account number, account address, etc.) according to the CIS data structure.	Current Base	The MeterSense SmartWorks Cor location and rate appropriate syste The full scope of process is define Although no anti can be synchroni may be subject t during discovery.
2	General MDMS	Critical	Have a non-proprietary database file structure that is ODBC-compliant and SQL-compliant, and provided by a standard commercial database supplier	Current Base	While SmartWorl PostGreSQL, for t the Norman Utili our deployment would implemen

				hosted environm compliant.
3	General MDMS Critical	Support a minimum of 7 digits for meter reading display.	Current Base	SmartWorks Cor obtained from AI resolution as raw with multipliers a applied as requir
4	General MDMS Critical	Support configurable units of measure and interval lengths.	Current Base	SmartWorks Cor obtained from AI resolution as raw with multipliers a applied as requir the UOM as reco any conversion n determinant. Sm capability to stor interval data reac and the Norman is based on hourl
5	General MDMS Critical	Support the units of measure: gallons (for register readings and interval readings) and hundred gallons (for delivering billing determinants).	Current Base	Standard SmartW
6	General MDMS Optional	Provide separate production, test, and dev environments prior to go-live.	Partially Comply	Our proposal incl environments; Pr Appendix - Serve Additional enviro scope for additio
7	General MDMS Critical	Retain a minimum of three (3) years of interval and register reads for immediate (online) utility access.	Current Base	Fully comply. Un architect and sto a period of three additional five (5

8	General MDMS Critical	Receive and retain a minimum of three (3) years of events and alarms for immediate (online) utility access.	Current Base	Fully comply. we and alarms data f online plus an ad archive.
9	General MDMS Critical	Retain a minimum of seven (7) years of interval and register reads archived (cold storage), not inclusive of immediate (online) data.	Partially Comply	Fully comply. We and register data of online plus an archive. An addit can be brought ir to additional effc
10	General MDMS Critical	Receive and retain a minimum of seven (7) years of events and alarms archived (cold storage), not inclusive of immediate (online) data.	Partially Comply	Fully comply. we and alarms data f online plus an ad An additional 2 y brought into scop additional effort/
11	General MDMS Critical	Process meter-related issues, including, at a minimum: meters with missing reads; and unknown meters.	Current Base	Fully comply. Sm reports and KPI d thresholds) that v of Norman (CITY) Authority can als processes to autc
12	General MDMS Critical	Process consumption-related issues, including, at a minimum: meter rollover; consumption on a vacant account; zero consumption on an active account; and high and low usage.	Current Base	Fully comply. Sn automatically prc number of native accounts and zer accounts. Howev this information, the Norman Utili Engine to set spe automatically prc groups of accoun

				Norman (CITY) ar Authority could p 'Snowbirds Accou and Continuous U in SmartWorks C
13	General MDMS Critical	Allow for the configuration of high and low usage exception thresholds.	Current Base	Reporting on Hig is standard functi Compass. Please MDMS (VEE) and for full functional
14	General MDMS Critical	Allow for high and low usage exception thresholds to be set based on customer parameter (e.g., customer class).	Current Base	Each validation a configured at the i. Globally ii. For a Meter (iii. For a Locatic iv. For a Comm v. For a Locatio vi. For a Meter vii. For a specifi viii. For any con Location Group, (and Meter Type
15	General MDMS Critical	Allow for tolerances in the high and low usage exception thresholds based on weather.	Partially Comply	SmartWorks brin information. Wh SmartWorks we ((CITY) and the Nc define and create currently in scop

16	General MDMS Critical	Provide the ability to evaluate billing reads for high and low readings, taking into account same-month previous year historical usage, leak history, and recent trends (e.g., compare previous-year same-month usage and if 2-times higher, flag the account as high, unless there has been a leak on the account in the previous 30 days or the previous 3 months have had higher than normal usage).	Partially Comply	This can be achie routine, subject t refer to Appendi full functionality
17	General MDMS Critical	Allow for configurable event notifications based on business rules (e.g. meter has not generated reads within X number of days).	Current Base	All reports (inclu and event report be configured for user defined crite
18	General MDMS Critical	Accept the CIS rate structure and other conversion for converting reads into billing determinants.	Current Base	Standard functio Compass.
19	General MDMS Critical	Accept register reads via manual entry.	Current Base	SmartWorks Com manually insertin captured in the fi and time.
20	General MDMS Critical	Allow for configuration by an authorized user, without the need for new code development by the user, for the following validation parameters: type of service; meter type; customer; customer group; billing cycle; and rate category.	Current Base	Fully comply. Wit Norman (CITY) ar Authority can sp criteria including: i. Globally ii. For a Meter (iii. For a Locatic iv. For a Comm v. For a Locatio vi. For a Meter vii. For a specifi viii. For any con Location Group, and Meter Type

21	General MDMS Critical	Process Daylight Savings time change.	Current Base	SmartWorks Cor internally in Loca ensures that ther data within the d periods. When lo systems, SmartW configuration opt scheme used by t before storing int supports a numb savings, to contr end users as well
22	General MDMS Critical	Track meter events by billing account (i.e. flags, relocation, reconfiguration, tampering, etc.).	Current Base	Event Reports & ' can be filtered by meter, location, meter (including groups.
23	General MDMS Critical	Align bill for usage starting with the same date each month for coincident billing (i.e. align with billing period and billing calendar set at the utility).	Current Base	Alignment can be comparison acco parameters.
24	General MDMS Critical	Upon request by CIS for specified accounts and start/end dates, provide the configured billing determinants for each account.	Current Base	Flexible billing scl MeterSense MDM • Our proposal MeterSense MDM on a request-resp usually generated billing personnel. response that co for the meters ar request. • Alternatively, billing schedule v

					MeterSense MDI determinants for comma delimitec without a specifi
25	General	MDMS	Critical	Provide a tool to analyze and classify customers by actual usage patterns, rather than nominal customer class.	Current Base	SmartWorks Cor segment your cu
26	General	MDMS	Critical	Store raw reads, validated (via VEE) reads, and calculated billing determinants.	Current Base	Fully comply. Sta MeterSense MDI
27	General	MDMS	Critical	Allow export of raw reads, VEE reads, and calculated billing determinants via a standard file format (e.g., .csv, .xls, etc.)	Current Base	Fully comply. Sta MeterSense MDI
28	Reporting		Critical	Provide the ability to group or sort on compound meters for export of usage data.	Current Base	Supported functi allows creating c (virtual meters) a usage data.
29	Reporting		Critical	Be capable of aggregating water use for all customers and by customer rate codes using user-defined date/time.	Current Base	Fully supported. the ability to crea groups based on also be imported record such as CI
30	General	MDMS	Critical	Validate newly provisioned AMI meters are properly configured and communicating correctly.	Current Base	Fully comply. Sta MeterSense MDI
31	General	MDMS	Critical	Report AMI meters that are not properly configured or communicating incorrectly.	Current Base	Fully comply. Sta MeterSense MDI
32	General	MDMS	Optional	Support the delivery of past-dated billing determinants to support rebilling.	Current Base	Fully comply. Sta MeterSense MDI

33	VEE	Critical	Have the ability to automatically validate register reads and interval data received from AMI meters to identify missing or invalid data using configurable validation rules.	Current Base	Fully comply. Sm versions. RAW, e subsequent versi as the ones descr listed and proces within MeterSens exceptions is mac MeterSense MDM the user with cor information to al decisions quickly When processing the reviewer may • Accept current bulk. • Edit reads manu • Have MeterSen • Alter or overrid validation routine SmartWorks MDI failing VEE should on advanced AI c consumption and please refer to: A Prediction

34	VEE	Critical	Have the ability to automatically estimate missing or invalid register reads and interval data using configurable estimation rules.	Current Base	There are two ty processes in Met Extrapolation **Gap Filling** Immediately follc is enabled) any g filled in. Gaps in i temporary comr meter, or may sir being delivered c generally a good fill in any gaps in detected. In the e subsequently rep new reads will au filled reads. **Extrapolation** The Extrapolatior for intervals beyc interval for the m required other th to communicate period of time. N process produces hence is not reco manually read th communicating n register read, the to produce scale

35	VEE	Critical	Have the ability to clearly identify to the user any sets of reads or data requiring manual verification or editing.	Current Base	Standard functio review of excepti easy and efficien MeterSense MDI context sensitive allow the user to how to handle ex validation except may take one of • Accept current bulk. • Edit reads man • Have MeterSen • Alter or overrid validation routin MeterSense stor collected from th Estimated data is Version numbers system for audit
36	VEE	Critical	Provide a user interface and tools for viewing, verifying and changing register reads and interval data.	Current Base	Standard functio review of excepti easy and efficien MeterSense MDI context sensitive allow the user to how to handle ex validation except may take one of • Accept current bulk. • Edit reads man

					• Have MeterSen • Alter or overrid validation routin MeterSense stor collected from th Estimated data is Version numbers system for audit
37	VEE	Critical	Receive, process and store register reads and interval data from AMI meters where data was previously identified as missing and estimated without delete any previously received or estimated data.	Current Base	Standard functio Personal review is made easy and and presents the to other informa good decisions q exceptions. Whe exceptions manu of several action • Accept current bulk. • Edit reads man • Have MeterSen • Alter or overrid validation routin MeterSense stor collected from th Estimated data is Version numbers system for audit

38	VEE	Critical	Have the ability to identify scenarios where estimated data is provided for billing and subsequently, actual read data is received, and should store both the estimate and actual.	Current Base	Both estimated a identified, flagge are able to identi estimated with v
39	VEE	Critical	Not overwrite, replace or version valid data with estimated data unless replacement occurs by a manual process.	Current Base	All reads are trac to track any chan editing, validatin versioning of rea and manual proc
40	VEE	Critical	Have the ability to identify reads or data that requires manual verification or editing and provide a user interface for verifying and changing register reads and interval data. An audit trail of all changes should be provided.	Current Base	SmartWorks Cor and user-friendly and analyze read manual user veri of-the-box repor the system is trac data retained for throughout the a information is ma security scheme Compass applica tracing and versi numbers and not for audit purpose to specified roles privacy. Please re Security for detai
41	VEE	Critical	Have the ability to receive, process, and store reads from external sources (e.g. MV-90; manually captured reads, etc.).	Current Base	MDM is flexible a MV-90, manually data captured us Note that our pr One AMI and one

					customization an effort/cost might
42	VEE	Critical	Have the ability to assign VEE rule sets to each data channel to allow different VEE behavior for different channels of data.	Current Base	VEE configuratio differently for dif refer to Appendi attached for mor
43	VEE	Critical	Support the modification of existing VEE rules or creation of new VEE rules.	Current Base	One of the Benef configurable VEE series of highly fl estimation techn are highly configu directly from the configured at the Group, Meter Ty individual meter. validation routin address utility sp
44	VEE	Critical	Estimate interval data based on the characteristics of the meter.	Current Base	There are two ty processes in Met Extrapolation **Gap Filling** Immediately follc is enabled) any g filled in. Gaps in i temporary comr meter, or may sir being delivered c generally a good fill in any gaps in detected. In the subsequently rep

					new reads will au filled reads. **Extrapolation** The Extrapolatior for intervals beyc interval for the m required other th to communicate period of time. N process produces hence is not reco manually read th communicating n register read, the to produce scalec
45	Performance	Critical	Have system parameters optimized for handling real-time event and alarm data (e.g. bursts, system failures, etc.) over routine and batch processes.	Current Base	Comply. Standarc MeterSense MDI
46	Performance	Optional	Be capable of creating a service request to CIS or a work management system based on meter events and alarms received.	Current Base	SmartWorks Cor AUS to generate Our solution is ca orders automatic Compass interfac typically not requ scope, if requirec
47	Performance	Critical	Receive on-demand reads from the AMI headend within 30 seconds.	Current Base	Functionality exis the AMI network opportunity for fi requirement in gi
48	Operations	Optional	Convert the register reading unit of measure to a different billing unit of measure.	Current Base	Unit of measure part of the Valida process.

49	Operations	Critical	Have the ability to truncate received meter register readings to accommodate billing determinate resolutions.	Current Base	As part of the VE truncate.
50	Operations	Critical	Have the ability to associate multiple accounts or meters to a single customer.	Current Base	Comply. Standarc MeterSense MDI
51	Reporting	Critical	Allow for utility users to search for records based on the following characteristics: account number, name, address, premises ID number, meter body ID number, register ID number, and endpoints ID number.	Current Base	Comply. Standarc MeterSense MDI
52	Reporting	Critical	Provide reporting capabilities and exportability of reports and/or data screens to other file formats (such as .csv or .xlsx).	Current Base	Comply. Standarc MeterSense MDI
53	Reporting	Critical	Provide the ability to schedule a report to be generated and distributed on a user-defined-basis.	Current Base	Comply. Standarc MeterSense MDI
54	Reporting	Critical	Provide the ability for users to view tables and graphs of data (at interval, daily, weekly, monthly levels) for individual meters, for a selectable date range.	Current Base	Reports can be ru and other param tabular & graphic
55	Reporting	Critical	Provide reports that compare multiple years (>2) of historical data side-by-side.	Current Base	Our available hea side by side comp usage. The amou can be configure proposal include support a 3yr onl Usage graphs car different user de
56	Reporting	Critical	Provide reporting tool to allow user-defined date range in graphical and tabular formats.	Current Base	All of our reporti with user configu additional option
57	Reporting	Optional	Render meter records on a map view based on report results.	Current Base	Fully comply. As will utilize a URL (CITY) and the Nc system. This will the Norman Utili geospatial view c on a map within

58	Reporting	Optional	Provide configurable system homepages with reports / KPI / other depending on the user needs (e.g., revenue health, conservation program health, outage management health, revenue protection health).	Current Base	SmartWorks Com Dashboards out c can be enabled w included in our p
59	Reporting	Optional	Have elements of an individual user's system homepage that can be customized using existing tools within the MDM.	Current Base	Every user within customize their h reports/dashboa using their settin
60	Reporting	Optional	Provide a mechanism to detect and report on under-performing/slowing meters.	Partially Comply	SmartWorks Com include reports tl performing/slow an additional mo module not inclu be brought into s
61	Reporting	Optional	Provide a mechanism to detect and report on inappropriate meter sizes.	Partially Comply	SmartWorks Com include reports tl sizes. SmartWork called Water Met in this proposal a at a later date.
62	Virtual Metering	Critical	Provide virtualization of meters using from attributes synchronized with the CIS system (e.g. by pressure zone, meter type or size, customer class, rate group, etc.).	Current Base	Fully supported. the ability to crea groups based on also be imported record such as CI
63	Virtual Metering	Critical	Provide virtualization of meters using ad hoc meter groups (e.g. via a polygon on a map).	Current Base	SmartWorks Com of meter data inc
64	Virtual Metering	Optional	Be able to establish utility user-defined alarm thresholds for each virtual (aggregation / DMA) meter.	Current Base	City of Norman ((Authority will hav defined threshol meters (virtual m

					require the purch or services
65	Virtual Metering	Critical	Totalize/sum usage channels for assigned meters in a virtual meter.	Current Base	This functionality Virtual meters ca authorized users interface. Virtual other meter and any individual wi same alarms for meters. There is meters that can b Virtual meters ca attributes within residential, comn attribute.
66	Virtual Metering	Optional	Delivery billing determinants for virtual meters using standard billing integrations.	Partially Comply	Our default solut enable the utility purposes. Howev brought into scop additional effort/
67	Reporting	Critical	Provide reports of customers with leaks due to continuous consumption alerts based on configurable threshold for customer leak detection.	Current Base	Fully comply. On Continuous Usag

68	Reporting	Critical	Provide zero consumption reporting; identify meters with zero consumption and the account is inactive, as well as zero consumption on active accounts.	Current Base	SmartWorks Cor account status in generate the foll Consumption Re flagged as "inacti accounts in CIS, i showing consum unauthorized usa Zero Consumptio the usage profile correlates it to th accounts that are generating accou that are showing indicating a mete configurable thre and Continuous U in SmartWorks C
69	Reporting	Critical	Provide vacant consumption reporting; identify inactive accounts with consumption.	Current Base	Fully comply. As with the CIS, one consumption on
70	Reporting	Optional	Provide consumption forecasting tools that can identify consumption patterns and predict future consumption based on historical trends and weather predictions.	Partially Comply	Requires the pur used for forecast with this offer.
71	Reporting	Optional	Provide revenue analysis tools to support, at a minimum: revenue profiling daily, monthly and annually; and revenue profiling for billing customer classes or based on user-selected virtual metering.	Current Base	The optional Rat includes a library well as a powerfu user-defined pro product and prog supply costs, Ret utility rates or co The pricing analy

					serve with the ne and customer sa can run these sce or location group Pricing for the Ra and associated se
72	Reporting	Optional	Provide water conservation consumption reporting to support, at a minimum: the ability to identify accounts with high water consumption based on monthly consumption targets and non-watering days of the week.	Current Base	Reporting capabi are in our base sc
73	Reporting	Critical	Incorporate external data (weather, property, climate) into reporting and analytical reporting tools.	Current Base	SmartWorks Com including: • Temperature (H • Humidity (Hour • Wind Speed (H • Wind Direction • Weather Condi • Precipitation (D This data is autor data provider, fo within a utility's s automatically ins Compass databas overlay onto usa and customers to weather patterns can be imported support for this f determine scope

74	System Admin	Critical	Provide for a minimum of 50 concurrent non-admin users.	Current Base	Fully comply. Sm license based the modules. We do
75	System Admin	Critical	Store utility-accessible audit logs for up to three (3) years or a configurable length of time up to ten (10) years.	Current Base	Comply. All data versions of the d This data can als thereby increasir includes a server and 5yr archive o Additional years additional cost/e
76	System Admin	Critical	Align the read delivered for billing to the date calendared by CIS.	Current Base	Flexible billing sc MeterSense MD • Our proposal i MeterSense MD on a request-resp usually generate billing personnel. response that co for the meters ar request. • Alternatively, billing schedule v MeterSense MD determinants for comma delimitec without a specifi

77	Systems Integration	Critical	Support real-time integration methods (e.g., MultiSpeak, SOAP, XML, Restful API, etc.)	Current Base	Real time transac and service conn through SmartW captured. Our pr way MultiSpeak made available ir as it is available, i scheduled uploa leverage MultiSp methods are: • On Demand Re • Remote shut-o • Real Time Even Interface • Real Time Inter • Register Reads • Service Orders
78	Systems Integration	Critical	Provide updates to the MDM Integrations within 3 months of the General Availability of new versions of the AMI Headend System or MDMS.	Current Base	SmartWorks will in coordination w updates do not d Coordination wit the City's involve makes new versi SAAS/hosted solu first, typically wit availability.
79	Systems Integration	Critical	Provide synchronization tracking method for request for file exchange with other IT systems, logging request for file exchange, and completion of file exchange requests by MDMS.	Current Base	All data in the sy of the data retair Transactional log external systems for review. Audit

					administrative us includes integrati
80	Systems Integration	Critical	Support the transfer of data to and from the AMI headend and other utility systems using real-time communication protocols or other common interface models to ensure transfer of data.	Current Base	Note that our prc one AMI and one brought into scop requirements. M but we are backv MultiSpeak 3.0 h and is still the mc supported versio 4.1 is beginning t and contains mar much better supp technology. Smar simultaneously s 4.1. The SmartW interface automa incoming request same version. Co MultiSpeak versi different version sent to different that leverage Mu methods are: - On Demand Rea - Remote Connec - Real Time Event - Register Read B - Real Time Interv - Register Reads I - Service Orders

81	Systems Integration	Critical	Accept scheduled batch files.	Current Base	Fully comply. We files
82	Systems Integration	Critical	Originate and receive real-time data transfers with the AMI headend (i.e., on demand read request/response).	Current Base	Fully comply. Rea request read, and are brokered thr information is ca (CITY) and the Nc to implement AU many of these ta within the AUS C
83	Systems Integration	Optional	Support an interface with email and SMS to send alarms or status reports to designated recipients.	Current Base	All reports within scheduled and se can be accomplis within the rules e
84	Systems Integration	Critical	Support integration as identified in Appendix 1.	Current Base	This proposal incl and one AMI syst and listed as opti included at this ti scope at a later d
85	On-Demand Read	Critical	Support on-demand meter reads by authorized users.	Current Base	Fully comply. Sh the Norman Utili implement AUS's task can be perfo AUS CIS interface
86	On-Demand Read	Critical	Support on-demand meter reads of multiple meters at once by authorized users.	Current Base	SmartWorks Con initiate Mass Ren reads for multipl including the veri transactions via t

87	On-Demand Read	Critical	Provide the capability to schedule an on-demand read operation to be initiated at a specified time.	Current Base	SmartWorks Cor initiate on-dema on – including th these transactior the user. Automa these commands Automation Rule that best practice record (typically to minimize busi Rules configurati it is subject to dis effort.
88	Security	Critical	Have collected metering data to be owned by the utility; and that this data may not be used by any other party unless prior authorization / approval is granted.	Current Base	Standard offering MDM belongs to
89	Security	Critical	Provide a secure login (e.g. authentication with LDAP) in compliance with ISO27001 to prevent access by unauthorized users.	Partially Comply	LDAP configurati functionality. We to implement ISC engagements, ho and is implement administrator.
90	Security	Critical	Provide two factor authentication for system access.	Partially Comply	Solution can be c
91	Security	Critical	Support user authentication and authorization by role in compliance with ISO27001.	Current Base	Typical deployme within the utility secure encrypted deployment. It is utility's security p access to authori connected to the utility's firewall. opportunity to in

					current engagem based, and is imp systems administ SmartWorks Secu
92	Security	Critical	Provide authorized users' access to audit logs in compliance with ISO27001 that shall track all changes to interval usage, register meter reads and configuration data.	Partially Comply	All data in the sy of the data retair database level, a processes, if avai application level, the application a maintained using the entire Smart highly structured that data. Versio recorded in the s data can also be thereby increasir had the opportur our current enga Appendix - Smart
93	Security	Critical	Secure web interfaces (i.e. 'https') and utilize appropriate encryption and authentication.	Current Base	Compliant. Secur Compass include interfaces includi user application i
94	Security	Critical	Secure / encrypt all file transfers to other systems (e.g., via SFTP, AES 128-bit encryption, RSA key, etc.).	Current Base	Comply. SFTP is c other options cou
95	Security	Critical	Support a lockout for a configurable number (minimum 3) of failed login / access attempts.	Current Base	Standard functio This can be enabl user configuratio

96	Security	Critical	Enable and support IP filtering.	Current Base	IP filtering is offe their individual A restricted by con range to each inc network).
97	Security	Critical	Provide automated methods of preventing cross-site scripting (XSS) attacks or SQL injection attacks from compromising the databases or software functions.	Current Base	Cross site scriptir vulnerabilities ar web applications ensure they cann individuals. All cu (web presentmer been separated f and is delivered i Customer Conne of XSS for interna considered low-r efforts to elimina vulnerabilities, th Compass functio based user interf been made immu
98	Security	Critical	Provide Network Layer IP filtering solution to allow access only from the utility's IP address to the Vendor environment (especially hosted for the utility).	Current Base	IP filtering is offe their individual A restricted by con range to each inc network). Vendo and test databas subject to netwo addressed during
99	Security	Critical	Securely transfer/process data between the utility and the Vendor's environment through SITE-TO-SITE VPN communication, enhanced with Multi-Factor Authentication (MFA).	Current Base	IP filtering is offe their individual A restricted by con

					range to each inc network).
100	Security	Critical	Securely encrypt utility's data during the operational process, hosted at rest, and the backup stage, at the Vendor's environment (including Vendor's contracting organization's environment)	Current Base	Comply. Please r
101	Security	Critical	Offer robust disaster recovery and business continuity solutions with maximum 8 (eight) hours RTO (Recovery Time Objective) (i.e., in the event of a disaster, the services offered by the Vendor shall not exceed 8 hours downtime).	Partially Comply	Our proposal incl The 8-hour RTO r using our high av Pricing for the HA upon request. Ple Architecture Post
102	Security	Critical	Offer 99.8% up-time in the Service Level Agreement (SLA).	Current Base	Comply. SmartW 99.8% uptime 24 maintenance win
103	Security	Critical	For systems hosted using third-party cloud services, such as AWS: offer a secured, logically separated IT environment in cloud consistent with the AWS_Security_Compute_Services_Whitepaper document (https://d1.awsstatic.com/whitepapers/Security/Security_Compute_Services_Whitepaper.pdf).	Current Base	SmartWorks utili provider. Each cli single tenant dat application serve host and zone ba authorized comn database servers zones. Direct Log servers is restrict Host firewall rule movement betw zone.
104	Security	Critical	Offer authentication and authorization from the "utility's environment to the Vendor's environment" and "Vendor's environment to the cloud-hosted environment" enhanced with SSO and MFA.	Current Base	IP filtering is offe their individual A restricted by con range to each inc network).

105	Security	Critical	Offer IP filtering for all the applications and database access to the Vendor's environment and to the cloud environment.	Current Base	IP filtering is offe their individual A restricted by con range to each inc network). Vendo and test databas
106	Security	Critical	Provide automated methods of preventing cross-site scripting (XSS) attacks or SQL injection attacks from compromising the databases or software functions.	Current Base	Cross site scriptir vulnerabilities ar web applications ensure they cann individuals. All cu (web presentmer been separated f and is delivered i Customer Conne of XSS for interna considered low-r efforts to elimina vulnerabilities, th Compass functio based user interf been made immu
107	Security	Critical	Provide Network Layer IP filtering solution to allow access only from the utility's IP address to the Vendor environment (especially hosted for the utility).	Current Base	IP filtering is offe their individual A restricted by con range to each inc network). Vendo and test databas subject to netwo addressed during

108	Security	Critical	Securely transfer/process data between the utility and the Vendor's environment through SITE-TO-SITE VPN communication, enhanced with Multi-Factor Authentication (MFA).	Current Base	IP filtering is offe their individual A restricted by con range to each inc network). Vendo and test databas subject to netwo addressed during
109	Security	Critical	Securely encrypt utility's data during the operational process, hosted at rest, and the backup stage, at the Vendor's environment (including Vendor's contracting organization's environment)	Current Base	Compliant. Secur Compass include interfaces includi user application i
110	Security	Critical	Offer robust disaster recovery and business continuity solutions with maximum 8 (eight) hours RTO (Recovery Time Objective) (i.e., in the event of a disaster, the services offered by the Vendor shall not exceed 8 hours downtime).	Partially Comply	Our proposal incl The 8-hour RTO r using our high av Pricing for the HA upon request. Ple Architecture Post
111	Security	Critical	Offer 99.8% up-time in the Service Level Agreement (SLA).	Current Base	Comply. SmartW 99.8% uptime 24 maintenance win
112	Security	Critical	For systems hosted using third-party cloud services, such as AWS: offer a secured, logically separated IT environment in cloud consistent with the AWS_Security_Compute_Services_Whitepaper document (https://d1.awsstatic.com/whitepapers/Security/Security_Compute_Services_Whitepaper.pdf).	Current Base	SmartWorks utili provider. Each cli single tenant dat application serve host and zone ba authorized comm database servers zones. Direct Log servers is restrict Host firewall rule

					movement betwe zone.
113	Security	Critical	Offer authentication and authorization from the "utility's environment to the Vendor's environment" and "Vendor's environment to the cloud-hosted environment" enhanced with SSO and MFA.	Current Base	IP filtering is offe their individual A restricted by con range to each inc network). Vendo and test databas subject to netwo addressed during
114	Security	Critical	Offer IP filtering for all the applications and database access to the Vendor's environment and to the cloud environment.	Current Base	IP filtering is offe their individual A restricted by con range to each inc network). Vendo and test databas subject to netwo addressed during

5 Customer Portal Vendor

ID	Category	Priority	Requirement	Proposer Response	Proposer Comme
1	System Design	Critical	Include a mobile-responsive website.	Current Base	
2	System Design	Critical	Support log-in with email/username and password by utility staff.	Current Base	
3	System Design	Critical	Support log-in with email/username and password by utility customer.	Current Base	

4	System Design	Critical	Allow users to sign up requiring only personal and billing information, and without intervention or input from utility staff.	Current Base	
5	System Design	Critical	Require email or phone authorization to complete the user sign-up process.	Current Base	
6	System Design	Critical	Provide for 35 simultaneous active utility staff users.	Current Base	
7	System Design	Critical	Present usage information with billing amounts in hourly, daily, weekly, and monthly increments for each account.	Current Base	
8	System Design	Optional	Support capability to visually differentiate/identify (via text, color, etc.) various types of reads (e.g., estimated, manual) on consumption graph. Be capable of displaying all intervals as valid (no indication that it is an estimate).	Current Base	
9	System Design	Critical	Support customer comparison of past usage in: hours, days, weeks, months, and years.	Current Base	
10	System Design	Critical	Support comparison of customers' usage information for up to 3 years.	Current Base	
11	System Design	Optional	Support comparison of customers' current usage to a monthly budget.	Current Base	
12	System Design	Optional	Provide budget recommendations based on customer demographics, geography, household makeup, or other factors.	Current Base	Infinity CEP can suggest measures for consumpt consumption patterns.
13	System Design	Optional	Support monitoring of multiple accounts with a single account sign-on.	Current Base	
14	System Design	Critical	Provide weather-related data to the customer as an overlay to consumption data.	Current Base	
15	System Design	Critical	Allow users to convert units of measure for usage data (e.g., from cubic feet to gallons and vice versa).	Current Base	

16	System Design	Critical	Support changing default interface language (e.g., from English to Spanish).	Current Base
17	System Design	Optional	Enable customer to request start, stop, or transfer of service.	Current Base
18	System Design	Critical	Support branding with utility's styling.	Current Base
19	System Design	Critical	Support a CSR portal that mirrors the customer portal.	Current Base
20	System Design	Critical	Support CSV, XLS, and PDF file download capability for customers for interval and billing data.	Current Base
21	System Design	Optional	Support pay-as-you-go (pre-pay) payment functionality.	Current Base
22	System Design	Optional	Support collection of household data (e.g., number of persons in household, number and kind of appliances, etc.) through an optional form.	Current Base
23	System Design	Critical	Provide separate production, test, and dev environments prior to go-live.	Current Base
24	Events/Notifications	Critical	Enable customer to opt-in or opt-out from all events and notifications.	Current Base
25	Events/Notifications	Critical	Support alerts and notifications via email for bill due dates for residential and commercial customers.	Current Base
26	Events/Notifications	Critical	Support alerts and notifications via SMS for bill due dates for residential and commercial customers.	Current Base
27	Events/Notifications	Critical	Support customer self-configuration preferences for notifications channels (SMS text, e-mail, etc.).	Current Base
28	Events/Notifications	Critical	Support customer notification channel preferences (SMS text, e-mail, etc.) configuration by CSR.	Current Base

29	Events/NotificationsCritical	Support budget monitoring notifications for residential and commercial customers.	Current Base
30	Events/NotificationsCritical	Support customer configured alert for approaching or crossing a customer established threshold.	Current Base
31	Events/NotificationsCritical	Support past due payment notifications for residential and commercial customers.	Current Base
32	Events/NotificationsCritical	Support utility configured notifications to alert customer when they are approaching the next billing tier.	Current Base
33	Events/NotificationsCritical	Support automated incentives and rebates messaging relevant to customers by utility-specified attribute, such as active service (e.g., efficient appliances rebate notification sent to only customers with active service) via email.	Current Base
34	Events/NotificationsCritical	Support automated incentives and rebates messaging relevant to customers by utility-specified attribute, such as active service (e.g., efficient appliances rebate notification sent to only customers with active service) via SMS .	Current Base
35	Events/NotificationsCritical	Support automated incentives and rebates messaging relevant to customers by utility-specified attribute, such as active service (e.g., efficient appliances rebate notification sent to only customers with active service) via push notification.	Current Base
36	Events/NotificationsCritical	Support conservation alerts and notifications via email based on weather conditions (e.g., email to encourage conservation triggered by pre-defined temperature or precipitation criteria).	Current Base

37	Events/NotificationsCritical	Support conservation alerts and notifications via SMS based on weather conditions (e.g., text message to encourage conservation triggered by pre-defined temperature or precipitation criteria).	Current Base	
38	Events/NotificationsCritical	Support conservation alerts and notifications via push notification based on weather conditions (e.g., text message to encourage conservation triggered by pre-defined temperature or precipitation criteria).	Current Base	
39	Events/NotificationsCritical	Support customer opt-in for newsletters and other utility programs.	Current Base	
40	Events/NotificationsCritical	Support notification via email for service disruptions.	Current Base	
41	Events/NotificationsCritical	Support notification via SMS for service disruptions.	Current Base	This is accomplished through a combination of (
42	Events/NotificationsCritical	Support notification via push notification for service disruptions.	Current Base	
43	Events/NotificationsCritical	Enable customer to contact CSR through e-mail.	Current Base	Need further clarification on the workflow. Onc CSR email address/inbox, they can use any ema
45	Events/NotificationsCritical	Support tracking of utility programs (e.g., rebates, conservation, etc.).	Current Base	This is accomplished through a combination of (
46	Events/NotificationsCritical	Support automated leak notifications and provide a library of self-service tips or help to resolve customer issue without utility intervention.	Current Base	CEP needs the intelligent MDM to identify the l automated through the portal.

47	Billing	Optional	Allow users to view total consumption-to-date and corresponding bill amount-to-date for the given billing period (based on utility rates, tiers, and other fees).	Current Base
48	Billing	Optional	Support customer tools to establish savings goals based on prior usage.	Current Base
49	Billing	Optional	Support functionality for utility to establish savings goals for customers based on prior usage.	Current Base
50	Billing	Optional	Support residential usage comparison to all similarly-sized homes.	Current Base
51	Billing	Optional	Support residential usage comparison to similarly-sized homes in a defined geographic area.	Current Base
52	Billing	Critical	Support double entry of key information, such as email address and account numbers to ensure entry accuracy.	Current Base
53	Billing	Optional	Provide the ability to display bills directly from third party bill print processors or to mimic the print bill.	Current Base
54	Billing	Optional	Support self-service bill date extension based on utility-defined requirements (e.g., account in good standing, no past bills due, etc.)	Current Base
55	Systems Integration	Critical	Support the transfer of data to and from the AMI headend and other utility systems using real-time communication protocols or other common interface models to ensure transfer of data.	Current Base
56	Systems Integration	Critical	Accept scheduled batch files.	Current Base
57	Systems Integration	Critical	Support integration as identified in Appendix 1.	Current Base
58	Security	Critical	Log lock-out status by utility staff account.	Current Base

59	Security	Critical	Log lock-out status by utility customer account.	Current Base
60	Security	Critical	Support temporary lockout after a number of failed log-in attempts by utility staff.	Current Base
61	Security	Critical	Support temporary lockout after a number of failed log-in attempts by utility customer.	Current Base
62	Security	Optional	Support two factor authentication for log-in by utility staff.	Current Base
63	Security	Optional	Support two factor authentication for log-in by utility customer.	Current Base
64	Security	Critical	Provide mechanisms which audit access and modification events within the system.	Current Base
65	Security	Critical	Provide a security audit store which includes the date and time of the event, type of event, subject identity, and the outcome (success or failure) of the event.	Current Base
66	Security	Critical	Provide access control mechanisms (i.e., Identification & Authentication mechanisms) which prevent unauthorized access of information and resource.	Current Base
67	Security	Critical	Reject messages/requests that are received from unauthorized systems or devices.	Current Base
68	Security	Critical	Support utility customer self-service password reset.	Current Base
69	Security	Critical	Support utility customer password reset by CSR.	Current Base
70	Security	Critical	Encrypt all personally identifiable information stored outside of the CIS or MDM system.	Current Base
71	Security	Critical	Support DMZ placement of the web portal server.	Current Base
72	System Design	Critical	Present usage information in configurable units of measure from the MDM or AMI	Current Base

73	System Design	Critical	MDM or AMI provided data will be available to customers within 1 hour of receiving the data.	Current Base	
75	Outages	Critical	Be able to display number of customers affected, outage start time, estimated time of restoration, outage cause, and crew status.	Current Base	
76	Leaks	Critical	Provide automated customer leak notification and provide users a library of leak resolution tips/help to resolve leaks without utility intervention.	Current Base	CEP needs the intelligent MDM to identify the le automated through the portal.
77	Leaks	Optional	Support changing leak resolution library language (e.g., from English to Spanish).	Current Base	
79	Events/Notifications	Critical	Enable customer to opt-in or opt-out from all events and notifications.	Current Base	
80	Events/Notifications	Optional	Support alerts and notifications via email.	Current Base	
81	Events/Notifications	Optional	Support alerts and notifications via SMS.	Current Base	
82	Events/Notifications	Optional	Support alerts and notifications via mobile push notification.	Current Base	
84	Events/Notifications	Critical	Support customer self-configuration preferences for notifications channels (SMS text, e-mail, etc.).	Current Base	
85	Events/Notifications	Critical	Support customer notification channel preferences (SMS text, e-mail, etc.) configuration by CSR.	Current Base	
87	Events/Notifications	Critical	Support multiple email addresses and phone numbers for notifications.	Current Base	
88	Events/Notifications	Optional	Support customer opt-in for newsletters and other utility programs.	Current Base	
89	Events/Notifications	Optional	Support notification for service disruptions.	Current Base	
90	Events/Notifications	Critical	Be able to group customer by some characteristic (class, ZIP code, etc.) to send an outbound message.	Current Base	

91	Events/Notifications	Critical	Be able to group customer by an arbitrary geography (i.e., via a polygon drawn on a map) to send an outbound message.	Current Base	
92	Events/Notifications	Critical	Support changing default events/notifications language (e.g., from English to Spanish).	Current Base	
93	Contact	Optional	Enable customer to contact CSR through e-mail.	Current Base	Need further clarification on the workflow. Onc CSR email address/inbox, they can use any ema
95	Contact	Optional	Enable customer to contact CSR through webform.	Current Base	
96	Contact	Optional	Provide an automated confirmation email to a customer on successful submittal of a webform.	Current Base	
97	Conservation	Optional	Provide tips to customers on how to reduce or conserve usage.	Current Base	
98	Conservation	Optional	Support conservation alerts and notifications.	Current Base	
99	Conservation	Optional	Support tracking of utility rebate programs per customer.	Current Base	
100	Conservation	Optional	Offer customers the ability to submit rebate applications online.	Current Base	
101	Conservation	Optional	Support customer tools to establish savings goals based on prior usage.	Current Base	
102	Conservation	Optional	Support functionality for utility to establish savings goals for customers based on prior usage.	Current Base	
103	Conservation	Optional	Provide a user with the capability of 'home audit' features, such as the use of a consumption calculator to assess and track the consumption appliances or other types of use within the home.	Current Base	

105	Conservation	Optional	Have the ability to view, remotely manage, and control smart home appliances and HVAC systems.	Current Base
107	Conservation	Optional	Support demand response program and events, including view of curtainment data for DR programs and summary information on savings realized.	Current Base
110	Comparison	Critical	Support customer comparison of past usage in: hours, days, weeks, months, quarters, and years.	Current Base
111	Comparison	Critical	Support comparison of customers' usage information for up to 3 years.	Current Base
112	Comparison	Optional	Support comparison of customers' current usage to a monthly budget.	Current Base
114	Comparison	Critical	Provide users comparison tools based on historical data, including: aggregate and daily average consumption for historical time periods; and usage trending over time.	Current Base
115	Comparison	Critical	Support residential usage comparison by rate or customer class.	Current Base
117	Comparison	Critical	Support residential usage comparison to similarly-sized homes in a defined geographic area or neighborhood.	Current Base
118	Billing	Optional	Support bill due dates notifications for residential and commercial customers.	Current Base
119	Billing	Optional	Support budget monitoring notifications for residential and commercial customers.	Current Base
120	Billing	Critical	Support high bill alerts notifications for residential and commercial customers.	Current Base
121	Billing	Critical	Support usage spike/high usage notifications for residential and commercial customers.	Current Base

122	Billing	Critical	Support customer configured alert for approaching or crossing a customer established threshold.	Current Base	
123	Billing	Optional	Support past due payment notifications for residential and commercial customers.	Current Base	
124	Billing	Optional	Support utility-configured notifications to alert customer when they are approaching the next billing tier.	Current Base	This can be done as long as the customer has nc notifications.
125	Billing	Optional	Allow users to view total consumption-to-date and corresponding bill amount-to-date for the given billing period (based on utility rates, tiers, and other fees).	Current Base	
127	Billing	Optional	Provide the ability to display bills directly from third party bill print processors or to mimic the print bill.	Current Base	
128	Billing	Optional	Support display for bill details, such as: bill period, total due this period, previous balance due, previous bill amount, total bill amount, and due date.	Current Base	
129	Billing	Optional	Provide a bill explainer tool to identify causes of high consumption/bills.	Current Base	
130	Billing	Critical	Provide a link to a bill payment portal.	Current Base	
131	Billing	Critical	Provide a 'Payment Locations' feature/link where user shall be able to view the details for various physical locations of the utility for bill payment purposes, including the ability to display the information on a map in the solution.	Current Base	
132	Billing	Optional	Provide tools for projected bill amount based on consumption.	Current Base	