Tantalus
Tomorrow's Smart Grid. Today.

TUNet® NETWORK SYSTEMS AGREEMENT

THIS TUNet® Network Systems Agreement ("**Agreement**") is made as of the ___ day of _____ 2019 (the "**Effective Date**"), by and between TANTALUS SYSTEMS INC., a Delaware corporation, for itself and its Affiliates, with its principal place of business at 1130 Situs Court, Suite 230, Raleigh NC 27606 ("**Tantalus**") and the City of Riverside, a California charter city and municipal corporation, with its principal place of business at 3900 Main Street, Riverside, California 92522 ("**Customer**" or "**City**").

This Agreement includes the Tantalus Systems Inc. Terms and Conditions of Sale and the following Exhibit(s) and Attachments:

EXHIBITS AND ATTACHMENTS	
☒ **EXHIBIT "A"**: End User License Agreement	☒ **EXHIBIT "G"**: Insurance

☒ **EXHIBIT "B"**: Statement of Work
  ☒ Attachment B-1: System Acceptance Test Plan
  ☒ Attachment B-2: System Acceptance Test Record
  ☒ Attachment B-3: System Acceptance Test Certificate
	☒ **EXHIBIT "H"** – Transferrable Warranties

☒ **EXHIBIT "C"**: Compensation	☒ **EXHIBIT "I"** – Maintenance and Support
☒ **EXHIBIT "D"**: Third-Party Products and Warranty	☒ **EXHIBIT "J"** – Hosted Service Levels
☒ **EXHIBIT "E"**: Mutual Non-Disclosure and Confidentiality Agreement	☒ **EXHIBIT "K"** – Requirements and Capabilities; Technical Requirements
☒ **EXHIBIT "F"**: Key Personnel	

Each Exhibit and Attachment is incorporated by reference into, forms part of and is governed by the terms of this Agreement. In the event of any inconsistency or conflict between the terms of any of the above Exhibit(s) and the terms of this Agreement, which is not otherwise addressed by a statement regarding precedence, the terms of this Agreement shall govern.

Capitalized terms not otherwise defined herein shall have the meaning set forth in the applicable Exhibit.

TANTALUS SYSTEMS INC.
TERMS AND CONDITIONS OF SALE

Purpose/Goal. These Terms and Conditions of Sale ("Terms") record the terms and conditions under which Customer agrees to purchase from Tantalus, and Tantalus agrees to sell to Customer, TUNet. Notwithstanding any other provision to the contrary, these Terms become a binding agreement between Tantalus Systems Inc. ("Tantalus") and the Customer when (a) Customer delivers a signed copy of this quotation to Tantalus, which shall be deemed a duly authorized Purchase Order (PO) for the Network Equipment and Services quoted therein; or (b) Customer delivers a signed Purchase Order for all or any portion of the Network Equipment and Services. Except as provided above, any provision in any acceptance or acknowledgment hereof, inconsistent with or in addition to these Terms and Conditions

of Sale, are expressly rejected and shall have no force or effect, unless otherwise agreed in writing between the parties.

Purchase Orders. Subject to the Customer's right to terminate the Alpha POC or the Beta POC as described in the Termination section of this Agreement, (i) promptly following the Effective Date, Customer shall deliver a Purchase Order to Tantalus (the "**Alpha POC Purchase Order**") for all equipment, services and other fees payable for the Alpha POC and (ii) promptly following Customer's election to proceed with the Beta POC, the Customer shall deliver a Purchase Order to Tantalus (the "**Beta POC Purchase Order**") for all equipment, services and other fees payable for the Beta POC. Tantalus hereby agrees to accept

such Alpha POC Purchase Order and Beta POC Purchase Order in accordance with the terms set forth herein. Customer may purchase additional Network Equipment and Services by issuing properly authorized Purchase Orders to Tantalus. Each type of Network Equipment may have an economic order quantity or minimum order quantity, meaning that no Purchase Order may be placed for a quantity of those units of Network Equipment which is less than the minimum number of units specified on the then current Tantalus price list and designated as the "economic order quantity" or "minimum order quantity". Each Purchase Order issued by Customer shall have a lead-time of at least 90 days. Lead-time means the time extending from the date the Purchase Order is received by Tantalus to the specified delivery date. Each Purchase Order shall reference these Terms and shall state product description, quantity of Network Equipment and Services ordered, part number, desired delivery date and Destination, method of shipment, unit price for each unit ordered and total purchase price. In the event of any inconsistency or conflict between any terms of a Purchase Order, order confirmation, invoice or any other commercial form used by the parties and these Terms, these Terms shall govern. No oral, electronic, or written additional or different provisions proposed by either party in any acceptance, confirmation, or acknowledgment shall apply. Purchase Orders, once accepted, may not be cancelled, except as outlined below.

Acceptance, Rejection or Changes to Purchase Orders. Tantalus will notify Customer of its acceptance or rejection of each Purchase Order as soon as practicable and notice of acceptance shall include confirmation of requested quantities and prices consistent with these Terms. Once a Purchase Order is accepted by Tantalus, the quantities and prices within that acceptance, unless otherwise noted on such acceptance, are committed to and cannot be changed without the consent of both Tantalus and Customer. If the parties agree to changes to a Purchase Order, those changes will be incorporated in a replacement Purchase Order, which will follow the same process outlined above referencing the Purchase Order to be replaced. Notwithstanding the foregoing, Customer may terminate the Alpha POC or the Beta POC in accordance with the Termination section of the Agreement.

Pricing. The prices provided to Customer under this Quotation may contain promotional or one-time pricing. Future prices shall be as set forth on Tantalus's then current price list and do not include taxes. In addition, Tantalus shall bear the costs and charges to ensure that all Network Equipment purchased by Customer is cleared for importation into the United States, if applicable, and delivered to the Shipping Point. Customer will be responsible for and pay all applicable federal, state, municipal or other governmental sales use, excise, value-added taxes, occupational or other taxes, tariffs, duties and surcharges now in force or enacted in the future which are associated with the provision of Network Equipment and Services by Tantalus, excluding taxes on Tantalus's income generally.

Price Changes. Tantalus reserves the right, in its sole discretion, to revise the prices on thirty (30) days prior written notice to Customer by whichever of the following is greater: (i) the immediately preceding year's percentage increase in the Consumer Price Index For All Urban Customers, All Cities Average, All Items (CPI-U"), as published by the Bureau of Labor Statistics, U.S. Department of Labor in the "Summary Data from the Consumer Price Index New Release" for the 12-month period ending at December 31st of the calendar year immediately preceding the adjustment date; or (ii) the average percentage change during the most recent 12-month period to Tantalus's published price list, or (iii) 3.5% per year.

Notwithstanding the foregoing, the original price of any Network Equipment and Services covered by Purchase Orders issued by the Customer, and which Purchase Orders are confirmed and accepted by Tantalus prior to the Effective Date of such price revision, will not be changed for such Purchase Orders issued and accepted as of the Effective Date.

Payment. Customer agrees to pay an advance payment (the "Deposit") equal to five percent (5%) of the total purchase price of the Network Equipment and Services specified on each Purchase Order. The Deposit will be due and payable, notwithstanding the absence of the applicable Tantalus's invoice, within thirty (30) days of the date of the Tantalus order acknowledgement issued in connection with an accepted Purchase Order. Failure to pay the Deposit by such due date shall result in the cancellation of the Purchase Order by Tantalus, without requirement for any further action, or notice to Customer, by Tantalus.

Payment Terms. Tantalus shall invoice Customer for Network Equipment and Services purchased upon delivery of Services and such Network Equipment to Customer at the Shipping Point. Deposit amounts paid will be reflected as a credit to the total purchase price due and owing upon delivery completion of the total Purchase Order. To the extent any portion of the Deposit has not been applied and there are not amounts due, payable or amounts that will be due and payable to Tantalus in accordance with the terms of this Agreement equal to or greater than the amount of such remaining Deposit at the time of termination of this Agreement in accordance with its terms, Tantalus will refund such portion of the Deposit that has not been applied and will not be applied in accordance with the terms of this Agreement, if any, to Customer. Payment terms are net thirty (30) days from date of Tantalus's invoice. All payments shall be in U.S. dollars,

unless otherwise agreed to between Tantalus and Customer. In addition to any other remedies Tantalus may have for late payments, Customer will be charged interest at 1½% per month (equivalent to an annual rate of interest of 18%), payable monthly on all overdue amounts. Customer shall also be responsible for collection costs associated with the late payment, if any, including reasonable attorney's fees. Payments will be applied first to interest payable and then principal owing.

Delivery and Risk of Loss. Tantalus shall deliver the Network Equipment to Customer at the Shipping Point (cleared for export, if applicable) and title (other than title to Licensed Software which shall remain with Tantalus) and risk of loss of Network Equipment shall pass from Tantalus to Customer at the Shipping Point. If any loss of or damage to the Network Equipment occurs prior to delivery to Customer at the Destination, regardless of passage of title prior to such delivery, Tantalus shall without cost to the Customer, promptly make all repairs or replacements necessary to place the Network Equipment in the condition required by these Terms. Customer will notify Tantalus within five (5) days of delivery of any damage to Network Equipment and/or within 10 days of shipping should an order not be received. If the Shipping Point and Destination are not the same, Customer shall be responsible for and shall pay all transportation and insurance costs for Network Equipment from the Shipping Point to the Destination, provided however that upon request by Customer, Tantalus shall make the arrangements for such transportation and insurance and will invoice Customer for reimbursement at cost. The payment terms described herein shall apply to such invoices, *mutatis mutandis.* Delivery dates are approximate only. Tantalus shall notify Customer in writing, if Tantalus has knowledge of any event that is reasonably likely to materially delay any specified delivery date or change any specified delivery date.

Third-Party Products, Services and Software. Customer may elect to use the Third-Party Products, Third- Party Services and/or Third-Party Software. Unless otherwise specifically set forth in writing (and subject to applicable pass through terms and conditions) upon mutual agreement of all involved parties, Tantalus does not warrant Third-Party Products, Third-Party Services and/or Third-Party Software and disclaims all responsibility and liability for these items, their access to the Network Equipment and TUNet, including their modification, deletion, disclosure or collection of Customer information.

Insurance. During all times in which Customer has possession of Network Equipment for which Tantalus has not received payment in full, Customer shall ensure that comprehensive general liability insurance with limits at least equal to the total value of all such Network Equipment is

obtained and, upon request, provide Tantalus with a certificate evidencing such coverage whether from a third-party insurer or pursuant to a program of self-insurance of commensurate levels. Tantalus will provide insurance as set forth in Exhibit G hereto, which is incorporated herein by this reference.

No Resell. Customer acknowledges and agrees that it has no rights to market and resell the Network Equipment. The purchase and sale of Network Equipment hereunder is solely for Customer and its Affiliates' requirements.

Confidentiality. The parties have entered into a Mutual Non-Disclosure and Confidentiality Agreement simultaneously with execution of this Agreement ("**MNDCA**"), a copy of which is attached hereto as Exhibit E. The parties agree that the MNDCA governs the obligations of each party with respect to Confidential Information of the other party, which obligations shall survive termination of this Agreement.

Warranty. With respect to new Network Equipment, for a period of one (1) year from the date of shipment of each unit of Network Equipment to Customer from Shipping Point, Tantalus warrants that: (i) each unit of Network Equipment will be free from defects in material, workmanship and manufacture under normal use and service, (ii) title to each unit of Network Equipment shall be free and clear of all liens, financial encumbrances and security interests, (iii) all materials, parts, components and other items initially incorporated in the Network Equipment will be new; and (iv) each unit of Network Equipment shall be compliant with, and perform in accordance with its Specifications. The warranty for replaced or repaired Network Equipment originally warranted under this paragraph shall be thirty (30) days from date of return to Customer or the balance of the original warranty period, whichever is greater. With respect to refurbished equipment, for a period of 30 days from the date of shipment of refurbished Network Equipment to Customer from Shipping Point, Tantalus warrants that: (i) each unit of refurbished Network Equipment will be free from defects in material, workmanship and manufacture under normal use and service, (ii) title to each unit of refurbished Network Equipment shall be free and clear of all liens, financial encumbrances and security interests; and (iii) each unit of refurbished Network Equipment shall be compliant with, and perform in accordance with its Specifications. The aforementioned warranties apply only when all three of the following conditions prevail: (i) the unit of Network Equipment is owned by the original Customer and not by an assignee; (ii) the Customer is not the subject of bankruptcy or comparable proceedings; and (iii) while Tantalus has not invoked a subsisting remedy in respect of Force Majeure. The aforementioned warranties will not apply to Licensed Software which is sold "as is" with no warranty, in accordance

with the applicable End User License, will not cover any Third-Party Products, Third-Party Services and/or Third-Party Software provided by Tantalus or Third-Party Products, Third-Party Services and/or Third-Party Software provided to Customer by third-party suppliers. Any warranty for such products will be between Customer and the third-party manufacturer or supplier. To the fullest extent allowed, Tantalus will assign all third-party warranties to Customer.

Warranty Returns. For any breach of warranty with respect to Network Equipment, Tantalus's sole obligation shall be to, at its sole option and expense, repair or replace defective Network Equipment or refund the purchase price thereof, within 60 days of receipt of such defective Network Equipment at its designated depot, provided that the Customer has returned the defective Network Equipment to Tantalus no later than four weeks after the expiry of the applicable warranty period set forth herein. Customer will be responsible for removing defective Network Equipment from the installation point and returning the defective Network Equipment, transportation charges prepaid by Customer, to Tantalus at its designated depot, together with Tantalus's return material authorization number ("**RMA**") and completed problem sheet. Tantalus will be responsible for paying all shipping and other costs incidental to the return of repaired or replacement Network Equipment to Customer. Customer will be responsible for re-installing such repaired or replacement Network Equipment. To the extent Tantalus determines that the Network Equipment returned under warranty is not defective (that is, no fault found), Customer will pay for the return of the Network Equipment and will pay Tantalus the fee of US$150 per no fault found Network Equipment. Tantalus will make available out-of-warranty repairs in accordance with its programs in effect at the relevant time. Services for out-of-warranty repairs will be provided at Tantalus's then current time and materials fees and rates.

No Warranty. The warranties described herein will not cover Network Equipment: (i) units whose original bar code, copyright notices and proprietary legends, if any, have been spoiled or altered, (ii) units that were not installed or de-installed as per Tantalus's specifications or serviced by Tantalus or a person authorized by Tantalus to do so, (iii) units that were the subject of repair, modification or alteration without Tantalus's approval, (iv) units damaged or defective because of reasonable wear and tear, (v) units that were not operated in accordance with the Specifications; (vi) units damaged or defective because of problems with electrical power, (vii) units damaged or defective because of acts of God, (viii) units that in Tantalus's reasonable opinion have been misused, altered, abused or subject to abnormal conditions of operation or handling, and (ix) units damaged or defective due to an Excusing Event.

DISCLAIMER. TANTALUS DISCLAIMS ALL OTHER REPRESENTATIONS, WARRANTIES AND CONDITIONS, EXPRESS OR IMPLIED OR STATUTORY, INCLUDING ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT OF OTHER'S INTELLECTUAL PROPERTY RIGHTS AND DURABILITY.

Relief for patent and copyright matters. Tantalus, at its expense, shall defend any court suit brought against Customer by a third party alleging that units of Network Equipment purchased by Customer infringe US or Canadian patent or copyright. Tantalus's obligation to defend is effective only if Customer is not in breach of any of these Terms and of any other agreement between the parties, and if Tantalus is notified promptly and given complete information, assistance and authority by Customer to conduct the defense. If any unit of Network Equipment: (a) is adjudicated by a court of competent jurisdiction after appeals therefrom are exhausted, as infringing any US or Canadian patent or copyright or (b) has its use enjoined by such court, Tantalus will, at its election: (i) procure for the Customer the right to continue using said unit; (ii) replace it with non-infringing and functional equivalent; (iii) modify it to become non-infringing; or (iv) if none of the aforementioned options are reasonably available, refund to Customer all amounts paid for the infringing Network Equipment, depreciated on a straight line basis over a ten (10) year period. Tantalus's obligation to defend includes the sole right to settle. Tantalus's obligation to defend does not apply to the following: (A) Network Equipment based on a design, specifications or instructions supplied or requested by Customer; (B) use of Network Equipment in combination with any other hardware or software not provided by Tantalus, if infringement would not have occurred but for such combination; (C) use of any release of Licensed Software or any firmware other than the most current release made available to Customer; (D) use of Network Equipment other than as permitted under these Terms , or as intended by Tantalus, if the infringement would not have occurred but for such use; or (E) modifications made to Network Equipment not made by Tantalus or approved by Tantalus. The foregoing states Tantalus's entire liability with respect to intellectual property infringement by any unit of Network Equipment.

General Indemnity. Tantalus shall defend, indemnify and hold Customer harmless from all loss, expense or damages (including without limitation, reasonable attorney's fees) which may be incurred by Customer as a result of any claims or actions resulting from: (a) damage to tangible personal property owned by Customer and caused by the gross negligence of Tantalus; and (b) death of or bodily injury to a Customer employee or third party to the extent caused by

Tantalus's gross negligence. Customer will provide Tantalus with prompt, written notice of any claim covered by this indemnification. Unless Tantalus fails to defend Customer, Customer shall not undertake the defense of any such claim. Tantalus, at its sole expense, shall defend all such claims and actions against Customer, whether brought informally or through court or administrative procedures.

Customer Indemnity. The relationship of Tantalus and Customer established by these Terms are that of independent contractors and neither party is an employee, agent or joint venture of the other. All financial obligations associated with Customer's business are the sole responsibility of Customer. Except for warranty claims under these Terms, Customer shall indemnify, defend and hold harmless Tantalus from and against any and all claims, liabilities, damages, debts, settlements, costs, attorneys' fees, expenses and liabilities of any type whatsoever that may arise on account of Customer's activities, or those of its employees or agents, including, without limitation, (i) all sales and use taxes and similar charges arising in connection with the purchase of Network Equipment and Services hereunder and all other federal, state and municipal taxes, interest, fines and penalties arising in connection with Customer's business activities and (ii) those relating to Customer's use of the Network Equipment or Customer's breach of any term, representation or warranty of these Terms.

Limitations. NOTWITHSTANDING ANY OTHER PROVISION TO THE CONTRARY, AND (SUBJECT TO THE CAP SET FORTH IN THE FOLLOWING SENTENCE) OTHER THAN FOR GROSS NEGLIGENCE, WILLFUL MISCONDUCT,FRAUD OR CLAIMS FOR PROPERTY DAMAGES OR PERSONAL INJURY, NEITHER PARTY WILL BE LIABLE TO THE OTHER FOR ANY (I) SPECIAL, INDIRECT, CONSEQUENTIAL OR INCIDENTAL DAMAGES OR LOSSES INCLUDING, WITHOUT LIMITATION, LOSS OR CORRUPTION OF DATA, LOSS OF REVENUE, SAVINGS OR PROFITS, CLAIMS BY USERS AND THIRD PARTIES, LOSS OF GOODWILL, BUSINESS INTERRUPTION OR OTHER PECUNIARY LOSS WHETHER ARISING FROM BREACH OF WARRANTY OR CONDITION, BASED ON CONTRACT, TORT, RELIANCE, FUNDAMENTAL BREACH, STATUTE, OR ANY OTHER THEORY, AND EVEN IF SUCH PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES; OR (II) COST OF PROCUREMENT OF SUBSTITUTE GOODS, TECHNOLOGY OR SERVICES. NOTWITHSTANDING ANYTHING ELSE IN THESE TERMS AND WITHOUT LIMITING THE FOREGOING, TANTALUS WILL NOT BE LIABLE WITH RESPECT TO ANY SUBJECT MATTER OF THESE TERMS UNDER ANY CONTRACT, NEGLIGENCE, CIVIL LIABILITY, TORT, STRICT LIABILITY OR OTHER LEGAL OR EQUITABLE THEORY FOR: (A) ANY AMOUNTS IN EXCESS OF THE AGGREGATE AMOUNTS PAID TO TANTALUS FOR NETWORK EQUIPMENT AND SERVICES GIVING RISE TO SUCH LIABILITY IN THE TWELVE (12) MONTH PERIOD IMMEDIATELY PRECEDING THE CLAIM; (B) ANY FAILURE OR DELAY DUE TO FORCE MAJEURE; OR (C) ANY ALLOCATION OF NETWORK EQUIPMENT AND SERVICES AMONG ITS CUSTOMERS IN THE EVENT OF A SHORTAGE. LIMITATIONS OF LIABILITY WILL NOT BE ASSERTED TO THE EXTENT PROHIBITED BY RELEVANT LAWS AND POLICIES. TANTALUS' PRICING REFLECTS THIS ALLOCATION OF RISKS AND THE LIMITATION OF LIABILITY.

Ownership of Intellectual Property. Except for licenses otherwise expressly granted under these Terms, the sale of Network Equipment hereunder does not convey to Customer any Proprietary Rights in the Network Equipment and Customer acknowledges Tantalus's exclusive rights thereto. Neither the sale of Network Equipment nor any provision of these Terms will be construed to grant to Customer, either expressly, by implication or by way of estoppel, any license under any other Proprietary Rights of Tantalus covering or relating to any other product or invention of Tantalus, or any combination of the Network Equipment with any other product of Tantalus.

Term. Unless terminated earlier as provided herein, this Agreement shall have an initial term as follows: two (2) years commencing on the execution date of this Agreement ("**Initial Term**") and, upon mutual agreement between the Parties in writing, may be extended for an additional three (3) year term following the Initial Term. In such an event, it shall be the responsibility of the Customer to obtain authorization to extend from the appropriate approval authorities prior to expiration of the Initial Term. In the event that the Agreement expires without extension, amendment or replacement with a new agreement, Customer agrees that its payment obligations herein as related to maintenance, support and licensing shall continue in full force and effect for as long as TUNet is operational by Customer in any respect.

Termination. Either party may terminate this Agreement effective upon the delivery of written notice of such termination to the other party, if the other party: becomes insolvent, is generally not paying its debts as such debts become due, makes an assignment for the benefit of creditors, is the subject of any voluntary or involuntary case commenced under the federal bankruptcy laws, as now constituted or hereafter amended (which, in the case of involuntary bankruptcy, is not dismissed within 30 days), or of any other

proceeding under other applicable laws of any jurisdiction regarding bankruptcy, insolvency, reorganization, adjustment of debt or other forms of relief for debtors, has a receiver, trustee, liquidator, assignee, custodian or similar official appointed for it or for any substantial part of its property, or is the subject of any dissolution or liquidation proceeding; breaches its obligations related to confidentiality; or is in default in any material respect in the performance of any its obligations under of these Terms, provided that the party not at fault has given the other party forty five (45) days prior written notice of such default and such other party has not remedied the default; provided however if the defaulting party is Customer and such default is attributable to or includes Customer's failure to pay any amount when due, then the aforementioned 45 day cure period will be reduced to five (5) days. Either party may terminate these Terms, at any time and for any reason, on ninety (90) days' prior written notice to the other party, provided however that if terminated by Customer, Tantalus shall take commercially reasonable efforts to cancel any orders and deliveries to Customer which are scheduled to be made after the termination date. Customer shall be responsible for actual costs reasonably incurred by Tantalus and amounts due to Tantalus in performing hereunder before the effective date of termination, including the cost of Network Equipment released or received by Customer, or that has been shipped within 45 days, prior to the effective date of termination. Prior to the effective termination of these Terms, all of the terms and conditions of, and the respective rights and obligations of the parties to, these Terms will remain completely valid and enforceable; provided however that, in the event Tantalus terminates these Terms for cause, then any deliveries of Network Equipment and Services to Customer which are scheduled to be made subsequent to the effective date of termination shall be cancelled. Termination is not the sole remedy available under these Terms and, whether or not termination is effected; all other legal remedies will remain available. Notwithstanding anything to the contrary in these Terms, no expiration or termination of these Terms by either party shall affect any rights or obligations of either party: (i) which are vested pursuant to these as of the effective date of such expiration or termination, (ii) any other provisions intended by the parties to survive such expiration or termination including, but not limited to, Purchase Orders accepted pursuant to these Terms.

For the avoidance of doubt and notwithstanding anything to the contrary herein, Customer shall have the right, in its sole discretion and in writing, to terminate either the Alpha POC Purchase Order or the Beta POC Purchase Order (provided that, such election shall be on no less than ninety (90) days' prior written notice to Tantalus and shall not apply with respect to equipment delivered and services performed for the Alpha POC or Beta POC, as applicable prior to the effective date of termination for which the Customer and Tantalus shall

be responsible for in accordance with this Agreement). In the event that Customer elects not to complete the Alpha POC or not to proceed with the Beta POC, Customer shall not be subject to any penalties payable to Tantalus arising from such election (provided, that Customer makes payment in accordance with the terms herein for all amounts due to Tantalus in performing hereunder before the effective date of termination).

Dispute Resolution. Except for disputes related to nonpayment or as otherwise provided herein, neither party shall resort to formal litigation proceedings until the parties have attempted to resolve the Dispute through non-binding mediation. The party raising a Dispute shall submit to the other party a written notice and supporting material describing all issues and circumstances related to the Dispute (a "**Dispute Notice**"). A designated senior management representative of each party shall attempt to resolve the Dispute. If the parties' representatives fail to resolve the Dispute within thirty (30) days from receipt of a Dispute Notice, the Dispute shall be referred to a mediator in the jurisdiction set forth under the Governing Law section of these Terms, as mutually agreed between the parties. If the use of non-binding mediation is not successful, either party may commence formal litigation proceedings to resolve the Dispute. This Section shall not be construed to prevent a party from instituting litigation proceedings earlier than as indicated in this section to: (a) avoid the expiration of any applicable limitations period, (b) preserve a superior creditor position or (c) seek injunctive relief to prevent irreparable harm, including without limitation, harm caused by a breach of confidentiality obligations.

Notices. Any notification, notice, approval, confirmation or consent required or permitted to be given under these Terms must be in writing and signed by an authorized Representative of a party (whether a party hereto or a third party, as the case may be), and be either: (i) personally delivered, (ii) sent by prepaid, certified first class mail, return receipt requested, or (iii) sent by facsimile to (919) 900-8978 (provided confirmation of delivery is obtained at the time of transmission). Communications to Tantalus must be addressed to: Peter A. Londa, President & CEO, Tantalus Systems Inc. 1130 Situs Court, Suite 230, Raleigh, NC 27606. Unless expressly set out to the contrary herein, consent or approval that is explicitly required herein of a party hereto will not be unreasonably delayed, withheld or withdrawn by it. Either party may change the address for service by giving 15 days advance written notice to the other party. All notices will be effective upon receipt and will be deemed received: (i) upon delivery, if personally delivered, (ii) upon signature by the receiving party, if sent by certified mail, or (iii) upon the date stated in the facsimile delivery confirmation, if sent by facsimile.

Severability. If any provision or term of these Terms is determined to be invalid or unenforceable, the invalidity or unenforceability of that provision or term will not affect the validity or enforceability of the remaining provisions and terms or the validity or enforceability of that provision or term in any other jurisdiction. Upon such determination that any term or other provision is invalid, illegal or incapable of being enforced, the parties hereto shall negotiate in good faith to modify these Terms so as to effect the original intent of the parties as closely as possible in an acceptable manner to the end that transactions contemplated hereby are fulfilled to the extent possible.

Amendment and Waiver. No amendment or waiver of any provision of these Terms shall be effective unless it is in writing and signed by the party against which it is sought to be enforced. No waiver by any party or any breach or series of breaches in performance by the other party, and no failure, refusal or neglect to exercise any right, power or option given to either party to insist upon strict compliance with or performance of the obligations hereunder, will constitute a waiver of the provisions hereof with respect to any subsequent breach thereof or a waiver by such party of its right at any time thereafter to require strict compliance with the provisions hereof.

Governing Law. These Terms shall be governed by, and construed under, the laws of the State of California without regard to conflicts of law provisions thereof and without regard to the United Nations Convention on Contracts for the International Sale of Goods. Tantalus and Customer waive a trial by jury in any such suit, action or proceeding.

Force Majeure. No default, delay or failure to perform on the part of either Party shall be considered a breach of these Terms where such default, delay or failure is due to a force majeure or to circumstances beyond its control. Such circumstances will include, without limitation, strikes, riots, civil disturbances, actions or inactions concerning government authorities, epidemics, war, terrorist acts, embargoes, severe weather, fire, earthquakes, acts of God or the public enemy or default of a common carrier or other disasters or events ("**Force Majeure**"). Lack of funds or credit will not constitute a Force Majeure.

Successors and Assigns. These Terms bind, and inures to the benefit of, the parties and their respective successors. These Terms shall not be assigned by either party without the prior written consent of the other party, except that Customer agrees that Tantalus may assign, without notice to Customer, any account receivable arising under these Terms in connection with a factoring arrangement.

Definitions and Interpretation. "**Affiliate**" means, with respect to any Party, any legal entity that such Party owns, is owned by, or is under common control with such Party. For purposes of the foregoing definition of "Affiliate," the terms "control" and "own" mean possessing a 50% or greater interest in an entity or the right to direct the management of the entity. "**Business Day**" means any day that is not a Saturday, Sunday or a state or federal holiday. "**Confidential Information**" of a party is information (in tangible or intangible form) that it owns or has license for, and discloses to the other party, that: (i) derives economic value, actual or potential, from not being generally known to, and is not readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use; and (ii) is the subject of efforts that are reasonable under the circumstances to maintain its confidentiality; and includes technical information (such as formulas, data, programs, methods, techniques and processes), business information (such as information about finances, customers and potential customers, marketing plans and business strategies), and the terms of these Terms; but Confidential Information does not include information that the receiving party establishes: (i) it developed independently; or (ii) was generally available to the public through no fault of its own; or (iii) was possessed by it before its receipt thereof from disclosing party; or (iv) was acquired from a third party without the breach of any confidentiality obligation; or (v) five (5) years after its disclosure, does not constitute a trade secret under relevant laws and policies. Confidential Information shall also include all notes, copies and summaries, in any media, and recollections of a receiving party of Confidential Information. "**Destination**" means Customer's designated destination point for the delivery of Network Equipment. "**Dispute**" means any dispute, controversy, difference or claim, arising under or in connection with these Terms, including its formation, validity, binding effect, interpretation, performance, breach or termination, as well as non-contractual claims. "**Excusing Event**" means any (i) Force Majeure or other event outside of Tantalus's reasonable control; (ii) failure, act or omission of Customer or its agents, employees, suppliers, subcontractors or consultants, including without limitation improper performance of Customer's responsibilities under the Agreement, or unreasonable delay or failure of Customer to approve changes that are relevant to an applicable failure; (iv) failure, act or omission of any third party (including any Third- Party Supplier) or its agents, employees, suppliers, subcontractors or consultants; or (v) failure of any components (hardware, software, network, maintenance) provided and/or maintained by Customer. "**Licensed Software**" means all Tantalus software and firmware residing on, or provided in connection with, each unit of Network Equipment purchased under these Terms, together with all software documentation related thereto and any and all updates thereto. The terms and conditions of EULA will apply to the Licensed Software provided to

Customer. **"Network Equipment"** means the equipment manufactured by or for Tantalus for use as part of TUNet and its associated Licensed Software that are or will be under these Terms physically deployed in the Customer's service territory. For clarity, Network Equipment does not include the system backhaul, network operations center, meters or any Third-Party Products, Third-Party Services, or Third-Party Software. **"Purchase Orders"** means purchase orders issued, from time to time, by Customer to Tantalus pursuant to which Customer will purchase Network Equipment and Services in accordance with these Terms and Conditions of Sale. Each Purchase Order will be deemed to include these Terms, even if not specifically stated on the Purchase Order. **"Services"** means deployment engineering support services as described on the price list that Tantalus provides from time to time. For clarity, Services do not include Technical Support; **"Shipping Point"** means the designated depot or depots in North America selected by Tantalus as its shipping point for Network Equipment. **"Specifications"** means the design, performance and regulatory requirements for each Network Equipment, as such may be amended from time to time by Tantalus. **"Third-Party Product"** means a product or application that is produced by a company other than Tantalus. Third-Party Products may have the benefit of a manufacturer's warranty provided by the product manufacturer. **"Third-Party Services"** means those services that are offered or provided by a company other than Tantalus. **"Third-Party Software"** means software that is licensed by a company other than Tantalus. Use of Third-Party Software is subject to end-user's acceptance of the third-party End User's License Agreement (EULA). Third-party software may have the benefit of warranties provided by the third-party software licensor. **"TUNet®"** means the TUNet smart grid network provided by Tantalus pursuant to these Terms and does not include Third-Party Products, Third-Party Services or Third-Party Software. **Interpretation Not Affected by Headings, etc.** The division of these Terms into sections and other portions and the insertion of headings are for convenience of reference only and shall not affect the construction or interpretation hereof. **Date For Any Action.** In the event that any date on which any action is required to be taken hereunder by any of the parties hereto is not a Business Day, such action shall be required to be taken on the next succeeding day which is a Business Day. **Authorship.** Authorship of these Terms will have no bearing on the construction of any terms hereof or ambiguities thereof.

Quotation as Purchase Order. Signature below shall constitute submission by the Customer and acceptance by Tantalus of the foregoing quotation as an authorized Purchase Order for the equipment and services listed thereon, subject to the foregoing Terms and Purchase of Sale. The Purchase Order may not be modified, added to or rescinded except through mutual agreement and acceptance in writing by both Parties.
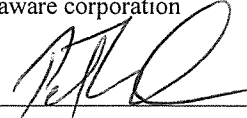
[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly authorized representatives as of the Effective Date.

Accepted on this day by:

CITY OF RIVERSIDE, a California
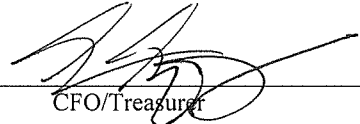charter city and municipal corporation

By: _____
           City Manager

Attest: _____
           City Clerk

Certified as to Availability of Funds

By: _____
           CFO/Treasurer

Approved as to Form:

By: _____
           Assistant City Attorney

TANTALUS SYSTEMS INC.,
a Delaware corporation

By: _____
           Peter A. Londa
           President & CEO

By: _____
           Param Pawar
           Vice President, Finance
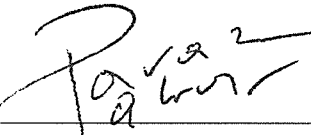
Licensed Software, which excludes third party software products that have their own end user license terms, is subject to the terms and conditions herein, which may also be referred to as the "EULA". THIS EULA IS A LEGALLY BINDING CONTRACT BETWEEN CITY AND TANTALUS AND SETS FORTH THE TERMS AND CONDITIONS THAT GOVERN CITY'S USE OF THE LICENSED SOFTWARE. BY INSTALLING OR USING ALL OR ANY PORTION OF THE LICENSED SOFTWARE, CITY ACCEPTS ALL THE TERMS AND CONDITIONS STATED OR REFERENCED IN THIS EULA. IF CITY IS UNABLE OR UNWILLING TO ENTER INTO AND COMPLY WITH THE TERMS AND CONDITIONS OF THIS EULA, OR IF THIS EULA TERMINATES FOR ANY REASON, CITY MUST NOT INSTALL OR USE THE LICENSED SOFTWARE AND SHALL IMMEDIATELY RETURN TO TANTALUS THE TANTALUS PRODUCT ON WHICH THE LICENSED SOFTWARE RESIDES AND/OR IS USED OR IMMEDIATELY DISCONTINUE ACCESS TO AND USE OF THE LICENSED SOFTWARE, AS THE CASE MAY BE.

DEFINITIONS. Unless otherwise defined in this Exhibit, defined terms will have the respective meaning set out in the Agreement.

GRANT OF LICENSE. The Licensed Software is licensed, and not sold, for use by the legal entity entering into this EULA and only in accordance with the terms of this EULA. Subject to the terms and conditions of this EULA and the Agreement, and any limitations imposed as part of a special beta test, trial, or promotional program, Tantalus hereby grants to City a limited, non-exclusive, non-transferable license to use the Licensed Software solely for its internal business operations in conjunction with the application package purchased from Tantalus by City, for operation in Tantalus approved application environments, and in strict accordance with third party license conditions, if any, or as otherwise set forth by Tantalus in writing if not set forth under the terms of this EULA, and Tantalus reserves all other rights. -

RESTRICTIONS ON USE. Unless expressly permitted by this EULA, or otherwise by applicable law or by Tantalus in writing, City shall not: (i) reproduce, modify, adapt, translate, update or transmit the Licensed Software, in whole or in part; provided, however that City may temporarily transfer the Licensed Software from one physical device to another in the event of a computer malfunction; (ii) rent, lease, license, assign, give, transfer, or otherwise provide access or distribute the program or rights to the Licensed Software to another entity; (iii) use, alter, remove, or cover trademarks or proprietary notices of Tantalus or any third party on the Licensed Software; (iv) directly or indirectly export, import or transmit the Licensed Software, or any direct product thereof,

to any country in contravention of the laws of that country or the laws of the United States or Canada; (v) use the Licensed Software except in Tantalus approved application environment(s); (vi) decompile, disassemble, decrypt, unbundle, extract or otherwise attempt or assist others to reverse engineer the Licensed Software, except as necessary, when permitted by applicable law, to correct defects or achieve interoperability with complimentary programs, for City's purposes only, but only if City has subscribed for, and paid all applicable fees relating to, the Licensed Software Maintenance Services (as defined in and provided pursuant to the Licensed Software Maintenance Addendum A-1) and Tantalus has refused to provide such Licensed Software Maintenance Services; (vi) use the Licensed Software for rental, timesharing, subscription service, hosting or outsourcing; (vii) make the Licensed Software available in any manner to any third party for use in the third party's business operations (except that City may permit its customers to use the Licensed Software only in furtherance of interactions between the City and its customers as expressly permitted by Tantalus); (viii) use the Licensed Software to provide third party training; (ix) disclose results of any Licensed Software benchmark tests without Tantalus or its third party supplier's prior written consent; (x) duplicate the Licensed Software, except for a sufficient number of copies as permitted by this EULA, or any documentation; or (xi) publish any results of any benchmarks or similar tests performed on the Licensed Software.

Use of the Licensed Software is limited to City, along with its approved agents or contractors (including, without limitation, outsourcers, if applicable) on City's behalf for City's internal business operations, subject to the terms of this EULA. City shall be responsible for its agents', contractors', outsourcers', customers' and members' use of the Licensed Software and compliance with this EULA.

Unless otherwise agreed between City and Tantalus, Tantalus has no obligation to provide maintenance, updates, fixes, support, or training for the Licensed Software.

THIRD PARTY TECHNOLOGY: City acknowledges and agrees that certain third-party technology, as indicated in the documentation or otherwise communicated by Tantalus, may be provided for use with the Licensed Software. City shall have the right to use third party technology only with the Licensed Software and in accordance with the terms of any such third-party license agreement specified in the documentation or otherwise provided by Tantalus to City.

EXPORT RESTRICTIONS. Export laws and regulations of Canada and the United States and any other relevant local export laws and regulations apply to the Licensed Software. City agrees that such export control laws govern

City's use of the Licensed Software (including technical data) and City agrees to comply with all such export laws and regulations (including "deemed export" and "deemed re-export" regulations). City agree that no data, information and/or Licensed Software will be exported, directly or indirectly, in violation of these laws, or will be used for any purpose prohibited by these laws including, without limitation, nuclear, chemical, or biological weapons proliferation, or development of missile technology. City represents and warrants that: (i) City is not located in a country that is subject to a U.S. Government embargo, or that has been designated by the U.S. Government as a "terrorist supporting" country; and (ii) City is not listed on any U.S. Government list of prohibited or restricted parties.

OWNERSHIP. The Licensed Software is protected by Canadian and international copyright and intellectual property laws. All rights to the Licensed Software are owned by Tantalus, its Affiliates or third-party suppliers, and Tantalus, its Affiliates or third-party suppliers retain all rights, title and interest in and to the Licensed Software including, without limitation, the source code, object code and any related information and documentation that may be provided as part of standard shipment(s) of Licensed Software. By acquiring a license to use the Licensed Software, City does not become the owner of the Licensed Software or receive any interest in the Licensed Software, and City has only limited license rights to use the Licensed Software, source code, object code and related information and documentation in accordance with the terms of this EULA. Furthermore, City may not assign, give or transfer any interest in the Licensed Software to any third party. This section shall survive the termination or expiry of this EULA.

AUDITS. Tantalus shall have the right, upon reasonable request, to audit the systems and records of City necessary to verify City's compliance with this EULA. City shall provide reasonable assistance and access to information necessary to complete the audit. City acknowledges and agrees that Tantalus may report the audit results to its third-party suppliers, as applicable. Each party acknowledges and agrees that they shall bear their own costs incurred related to the audit.

UNIFORM COMPUTER INFORMATION TRANSACTIONS ACT (UCITA). For clarity, Tantalus and City acknowledge and agree that the provisions of the Uniform Computer Information Transactions Act (UCITA) do not apply to this EULA.

LIMITED WARRANTY. For a period of one (1) year from the date of shipment of Network Equipment from Shipping Point, the physical media on which the Licensed Software is recorded by Tantalus will be free from defects in materials and workmanship under normal use. If failure of such physical media has resulted from accident, abuse or misapplication, Tantalus will have no responsibility to replace the physical media or refund any portions of the amount paid by City for the Licensed Software thereon. This limited warranty on the physical media from Tantalus on which the Licensed Software is recorded applies only when all three of the following conditions prevail, and is subject to the terms of the Agreement: (a) such physical media is used in accordance with this EULA by the original customer and not by an assignee; (b) City is not the subject of bankruptcy or comparable proceedings; and (c) while Tantalus has not invoked a subsisting remedy in respect of force majeure.

CITY'S SOLE REMEDY. Tantalus and its Affiliates', suppliers', agents', officers' and directors' entire liability and City's sole remedy under this EULA for defects or failure of the Licensed Software shall be, at Tantalus's option from time to time exercised subject to applicable law, repair or replacement of the physical media that does not meet this limited warranty. This limited warranty is void if failure of the physical media has resulted from accident, abuse, misapplication, abnormal use, a virus or use in contravention of this EULA. Any replacement physical media will be warranted for the remainder of the original limited warranty period or thirty days (30) days, whichever is longer.

LIMITATION OF REMEDIES. TO THE EXTENT NOT PROHIBITED BY LAW, TANTALUS HEREBY DISCLAIMS ALL EXPRESS OR IMPLIED REPRESENTATIONS, WARRANTIES, GUARANTEES, AND CONDITIONS OF ANY KIND, ARISING BY LAW OR OTHERWISE, WITH REGARD TO THE PROGRAM, INCLUDING BUT NOT LIMITED TO REPRESENTATIONS, WARRANTIES, GUARANTEES, AND CONDITIONS OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE, NONINFRINGEMENT, AND QUALITY OF SERVICE. TANTALUS MAKES NO REPRESENTATIONS OR WARRANTIES REGARDING THE CONTENT, EFFECTIVENESS, USEFULNESS, RELIABILITY, AVAILABILITY, TIMELINESS, QUALITY, SUITABILITY, ACCURACY OR COMPLETENESS OF THE SOFTWARE OR THE RESULTS CITY MAY OBTAIN BY USING THE PROGRAM OR THAT THE PROGRAM WILL BE UNINTERRUPTED OR ERROR-FREE OR THAT IT IS COMPLETELY SECURE. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, TANTALUS DOES NOT REPRESENT OR WARRANT THAT (A) THE OPERATION OR USE OF THE PROGRAM WILL BE TIMELY, SECURE, UNINTERRUPTED OR ERROR-FREE; OR (B) THE QUALITY OF ANY PRODUCTS, SERVICES, INFORMATION OR OTHER MATERIAL CITY PURCHASES OR OBTAINS THROUGH THE PROGRAM

WILL MEET CITY'S REQUIREMENTS. CITY ACKNOWLEDGES THAT TANTALUS DOES NOT CONTROL THE TRANSFER OF DATA OVER COMMUNICATIONS FACILITIES, INCLUDING THE INTERNET, AND THAT THE PROGRAM MAY BE SUBJECT TO LIMITATIONS, DELAYS, AND OTHER PROBLEMS INHERENT IN THE USE OF SUCH COMMUNICATIONS FACILITIES. TANTALUS IS NOT RESPONSIBLE FOR ANY DELAYS, DELIVERY FAILURES, OR OTHER DAMAGE RESULTING FROM SUCH PROBLEMS. EXCEPT WHERE EXPRESSLY PROVIDED OTHERWISE BY TANTALUS, THE PROGRAM IS PROVIDED TO CITY ON AN "AS IS" BASIS.

IN NO EVENT SHALL TANTALUS OR ITS THIRD PARTY SUPPLIER(S) BE LIABLE TO CITY OR ANY THIRD PARTY FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, PUNITIVE OR CONSEQUENTIAL DAMAGES, OR DAMAGES FOR LOSS OF PROFITS, GOODWILL, BUSINESS OPPORTUNITY, REVENUE, DATA OR DATA USE, INCURRED BY CITY OR ANY THIRD PARTY, WHETHER IN AN ACTION IN CONTRACT OR TORT OR OTHERWISE, ARISING FROM OR RELATED TO THE USE OF THE SOFTWARE OR ANY DATA DERIVED THEREFROM, EVEN IF TANTALUS HAD BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

TERMINATION. Without prejudice to any other rights, Tantalus may terminate this EULA if City does not abide by the terms and conditions of this EULA. Upon termination of this EULA for any reason, City must discontinue use and destroy or return to Tantalus, at Tantalus's discretion, the Licensed Software and all of its documentation, and all copies thereof.

THIRD PARTY BENEFICIARY. Oracle Canada ULC, along with any other third party that Tantalus may indicate in writing to City, shall be a third-party beneficiary of this EULA.

IN WITNESS WHEREOF, the parties have caused this EULA to be executed by their duly authorized representatives as of the Effective Date of the TUNet® Network Systems Agreement.

Accepted on this day by:

CITY OF RIVERSIDE, a California
charter city and municipal corporation

By: _____
       City Manager

TANTALUS SYSTEMS INC.,
a Delaware corporation

By: _____
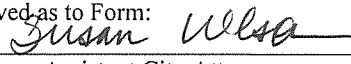   Peter A. Londa
       President & CEO

Attest: _____
       City Clerk

Certified as to Availability of Funds

By: _____
       CFO/Treasurer

By: _____
       Param Pawar
       Vice President, Finance

Approved as to Form:
By: _____
       Assistant City Attorney

This Statement of Work ("**SOW**") is an Exhibit to the TUNet® Network Systems Agreement ("**Agreement**") dated as of _____, 2019 by and between Tantalus Systems Inc. ("**Tantalus**") and the City of Riverside ("**City**"). Tantalus shall provide the Services and Deliverables set forth in, and pursuant to the terms of the Agreement and this SOW, including subsequent modifications thereto. Capitalized terms not otherwise defined herein shall have the meanings ascribed to them in the Agreement. In the event of a conflict between this SOW and the Agreement, the terms and conditions of this SOW shall prevail unless expressly stated to the contrary herein. This SOW is effective upon execution of the Agreement.

1. Description of Deliverables

Tantalus will provide project management services, network setup, system integration, training and field engineering support services during the project setup and project deployment stages of the Alpha Proof-of-Concept ("Alpha POC") and Beta Proof-of-Concept ("Beta POC") ("**Initial Deployment Services**").

Initial Deployment Services include travel and expenses based on the Customer specific bill of material at the time of contracting. It is assumed that project deployment for the Alpha POC will be six (6) months in duration and two (2) onsite visits are included in the Alpha POC Initial Deployment Services. Beta POC Initial Deployment Services includes three (3) onsite visits over the twelve (12) month deployment period.

The Initial Deployment Services described in Exhibit C, Compensation, reflect a 6-month deployment timeframe for the Alpha POC and a 12-month deployment timeframe for the Beta POC. If the timeframe for deployment of the Alpha POC or Beta POC exceeds the respective timeframe referenced in the preceding sentence, Tantalus shall invoice the City on a time and materials basis for all Initial Deployment Services provided following the end of the respective timeframe referenced for the Alpha POC and Beta POC, as applicable, and such invoices shall be due and payable net 30 days from the City's receipt of Tantalus's invoice.

Changes to the Customer's bill of material that require an increased number of onsite visits by Tantalus support personnel, are subject to additional service fees and will be mutually agreed to in writing by the City and Tantalus in accordance with Section 5, Change Control, of this SOW.

Integration to existing vendor supported interfaces set forth in 1.1 below are included in the Initial Deployment Services.

Specifically, Tantalus will support integration of the Tantalus TUNet system to the Harris MDMS during the Alpha POC. For the avoidance of doubt, Harris shall be responsible for integration of its MDMS to the City's CIS, which will take place during the Beta POC.

To the extent Customer requests custom services, including integration(s) between TUNet and third-party applications that are not existing vendor supported interfaces or that the City has not elected to receive as of the date of this SOW, such customer services are subject to additional fees and agreement between Tantalus, Customer and any applicable third party in writing.

The project will consist of two (2) phases, the Alpha POC and the Beta POC, the details of which will be collaboratively agreed to between Tantalus and the City at the beginning of each Phase based on the deliverables set forth for each in Exhibit C and shall include the tasks below.

1.1 Alpha Proof-of-Concept ("Alpha POC")

Tantalus will:
- Deliver the AMI Network Infrastructure, AMI Deployment Tools and AMI Software described on Exhibit C for the City's Alpha POC deployment pursuant to a mutually agreed project plan;
- Install and commission the Head End System ("**HES**"). Data center will be located in Fairview, OR as described in Exhibit K, Hosted Service Levels;
- Facilitate ordering and integration of Tantalus's communications modules with third-party meters, which shall be purchased by City through Tantalus in accordance with the Alpha POC section of Exhibit C, Compensation.
- Provide the Active Directory / LDAP validation services (LDAP) detailed in Exhibit C, as appropriate.
- Support the integration of the HES with the City's third-party platforms listed below:

Harris MeterSense MDMS
- Connect/Disconnect – MS3.0
- Read on Request – MS3.0
- Interval Billing – CMEP Flat File

Note: There will be no cost to the City for decoding of values in connection with the Harris MeterSense MDMS as described herein.

enQuesta CIS
- Meter Provisioning Flat File.csv

- Training.
  As part of the Initial Deployment Services, Tantalus will provide two (2) separate training sessions for utility staff and other designated personnel as outlined below.

  For clarity, Initial Deployment Services do not include TUNet University or attendance at the Tantalus Users Conference, which are available at an additional charge.

  During the Alpha POC, Tantalus will familiarize the Customer team members with basic information and an overview of the Tantalus TUNet system, technology, and operational concepts to ensure a baseline for everyone involved in the project. This is followed by an extensive training program conducted at the early stages of project deployment utilizing your own Tantalus TUNet network and equipment. Additional training as described below is provided later into the deployment.

  The training sessions are flexible and can be broken up into multiple sessions, depending on the required participants. Trainings are on-site and typically held for approximately 10 participants. Below is a sample schedule.

Training Outline
Day 1 - Utility Operations/Billing Training
a. TUNet Theory of Operation
b. TUNet Utility Web Application Overview
c. Remote Disconnects
d. Contextual Addressing and CIS Integration
Day 2 - Deployment Training
a. Deployment Management & Planning
b. Endpoints/Meters Overview and Tools
c. Network - Account and Company Admin
d. Network WAN - Managing the WAN
e. Network WAN - Troubleshooting the WAN
f. Network LAN - Managing the LAN
g. Network LAN - Troubleshooting the LAN
h. Network - Dashboard
i. Utility - Configuration
Day 3 - Operation and Maintenance
a. Periodic Maintenance Activities
b. TRUView GIS
Q&A and Discussions:
a. Business-Line discussion
b. Engineering Analysis
c. Technical Support/Community/TeamRoom
d. Future items, General Topics, Q&A

- Perform Alpha POC System Acceptance Testing ("SAT") based on a mutually agreed upon City and Tantalus SAT plan
- Alpha POC SAT and testing plan will be developed during discovery
  SAT plan will include Test cases for interfaces and data flows between AMI and MDMS, AMI and CIS.

City will:

- Prepare facilities for the installation of the HES (Depending on final solution initial deployment of HES will be hosted. City has the option to convert to on-site HES) and, as and if applicable, including local commissioning of a 3rd party to mount tower equipment and cabling to Tantalus specifications;
- Provide IT networking support for the AMI system;
- Deploy the network infrastructure equipment and meters purchased from and through Tantalus;
- Provide overall project oversight and management from the utility front;
- Network Configuration including site to site VPN, IP addressing, port assignments, SSH and FTP/SCP access.

- Participate in Alpha POC TUNet System Acceptance Tests.
- Install the meters and infrastructure;
- Be responsible for third-party installation contractor(s).
- City will provide any notice referenced herein in writing to Tantalus pursuant to the Agreement.
- City shall use commercially reasonable efforts in cooperating with Tantalus and supporting the deployment referenced herein as reasonably requested by Tantalus from time to time.

1.2 Beta Proof-of-Concept ("Beta POC")

Tantalus will:

- Deliver the AMI Network Infrastructure, AMI Deployment Tools and AMI Software described on Exhibit C for the City's Beta POC deployment pursuant to a mutually agreed project plan;
- If the City elects to move forward with a hosted server for the Beta POC, Tantalus shall install and commission the HES at a U.S. based data center as further described in Exhibit K, Hosted Services Levels. For clarity, final decision as to whether the City proceeds with an on-site or hosted server is to be determined by the City on or prior to the date that the City elects to proceed with the Beta POC. The City shall provide Tantalus with such notice in writing.
- If the City moves forward with a hosted server for the Beta POC, but later wishes to migrate to an on-site server, the City shall provide Tantalus with no less than 60 days' prior written notice. Tantalus and the City shall set forth changes to this Agreement, as applicable, in a mutually agreed written Change Order which shall set forth the costs for such change, including any applicable price reduction (if Tantalus's then current pricing for migration to an on-site server is less than that detailed in Exhibit C).
- Participate in Beta POC TUNet System Acceptance Tests;
- Install the meters and infrastructure for the Beta POC phase;
- Be responsible for third-party installation contractor(s) for the Beta POC, provided however that in the event turn-key installation services of network infrastructure equipment are purchased by the City through Tantalus, Tantalus will be responsible for management of its third-party installation subcontractors.
- City will provide any notice referenced herein in writing to Tantalus pursuant to the Agreement.
- City shall use commercially reasonable efforts in cooperating with Tantalus and supporting the deployment referenced herein as reasonably requested by Tantalus from time to time.

2. Milestones.

The following represents sample milestones commonly seen in multi-phased AMI deployments. Upon execution of the Agreement, a Kickoff Meeting will be scheduled by Tantalus and the City will work collaboratively to develop a Project Plan, including detailed milestones, specific to the City's Alpha POC deployment. This process shall be repeated for the Beta POC deployment.

#	Milestones
1	Project Setup/kickoff Includes: Tantalus Business tools/system configuration
2	TCC (HES) Installed Includes: Installation, commissioning and configuration of the HES, VPN site to site established and tested, configuration and enabling of all licenses
3	Pole Design Complete Includes: Collector/repeater install locations identified
4	Initial Training Session – See section 1.1 above
5	System Integration City Business tools, enQuesta and MeterSense configured/tested
6	Equipment Deployment
7	Second Training – See section 1.1 above
8	SAT – See Attachment B-1 below
9	Project Complete Includes: All infrastructure/meters installed, SAT complete, invoices are processed and deliverables complete for all Alpha and Beta activities

Performance Criteria.

<u>Definitions</u>

"**Available Meters**" means TUNet enabled electric meters that are (i) associated with the TUNet headend system, (ii) not in outage, (iii) not marked out of service; and (iv) included in the Final Network Design and Plan. Available Meters do not include electric ERT meters.

"**Coverage Area**" means the Available Meters and electric ERT meters located in the geographic service area for deployment of the AMI system as defined in the Final Network Design and Plan.

"**Coverage Commitment**" means a read rate of 99% over a rolling three (3) day period for all Available Meters and 97% daily read rate for electric ERT meters installed within the Coverage Area per the Final Network System Design and Plan. Performance criteria will be deemed met once Tantalus has validated that the TUNet is capable of establishing and maintaining network connectivity in the Coverage Area.

"Final Network Design and Plan" means the detailed TUNet system design and associated project plan developed by Tantalus, in consultation with the City and applicable third parties, as required, upon commencement of the project.

Performance Guarantee. For the period beginning upon completion of the Alpha POC until execution of the System Acceptance Test Certificate referenced below for the Beta POC, Tantalus guarantees on a commercially reasonable basis that the TUNet solution provided to Customer under this Agreement will meet the Coverage Commitment within the Coverage Area using the equipment identified herein and installed in accordance with the Final Network System Design and Tantalus specifications. In the event that the read rate for all expected reads, falls below that set forth in the Coverage Commitment during the aforementioned period, Customer will investigate the shortfall in the Coverage Commitment and report the findings to Tantalus within three (3) business days. Customer agrees to support Tantalus in its efforts to achieve compliance including but not limited to, providing for the deployment of additional Tantalus collectors and/or repeaters into the Customer's Coverage Area as Tantalus deems necessary. In the event additional collectors or repeaters are deemed necessary and required to meet the Coverage Commitment in the Coverage Area (as defined herein), Tantalus will provide such additional collectors and/or repeaters to Customer at no additional expense to Customer provided that the design reserve set forth in Exhibit C of the Agreement shall be reduced by the cost of any such additional collectors and/or repeaters (and to the extent the cost exceeds the design reserve, Tantalus shall be responsible for such costs of additional collectors and/or repeaters). For the avoidance of doubt, the deployment of additional collectors and/or repeaters in accordance with this paragraph shall be the Customer's sole remedy in the event that the performance guaranty set forth herein is not achieved. Further, the performance guaranty set forth herein shall apply to Available Meters and be contingent upon Customer taking commercially reasonable actions in connection with maintaining the TUNet system, including, without limitation, entering into and complying with the terms of Tantalus's Maintenance and Support Agreement. Any failure to meet the performance guaranty set forth herein resulting from the acts, omissions or performance of systems, services or networks provided by third parties or not otherwise within the control of Tantalus shall not be a breach of the performance guaranty set forth herein.

3. Validation and Acceptance Process for Project Deliverables

Validation will consist of running the incremental test cases and comparing them to the defined success criteria described in Attachment B-1 – System Acceptance Test Plan.

Once a test has been successfully performed and signed off on the Attachment B-2 in the System Acceptance Test Record, it is considered complete.

Acceptance shall be deemed to have occurred at such time that the City and Tantalus have signed off on the Tantalus System Acceptance Test Certificate (Attachment B-3) indicating that the system acceptance tests have been completed and that all requirements of Acceptance were met. With respect to each applicable milestone, the parties agree to execute the applicable Tantalus System Acceptance Test Certificate promptly upon the relevant success criteria being met with respect to the applicable system acceptance tests performed as described herein and any failure of a party to execute such certificate shall constitute a breach of the Agreement.

Milestone	Deliverables
Alpha POC System Acceptance Test (SAT) Complete / Signoff	Project Setup, Final System Design, Server Setup, Initial Training Session, Software Integration, Alpha Phase Deployment

Milestone	Deliverables
Beta POC System Acceptance Test (SAT) Complete / Project Complete	Second Training Session, Beta POC Deployment

4. Change Control.

It may become necessary to amend this SOW for reasons including, but not limited to, the following:

- Discretionary changes to the project schedule
- Discretionary changes to the project scope
- Non-availability of products, resources or services which are beyond the control of Tantalus or Customer
- Environmental or architectural impediments not previously identified
- Lack of access to City personnel or facilities necessary to progress the project

All requested contractual changes including requests for Additional Services shall be in writing pursuant to a Change Order when the change results in adjustments to affected provisions, including price, schedule, and guarantees prior to implementation of the change.

No Change Order shall be effective unless executed in writing by both Tantalus and the City. In the event that the Parties cannot agree on the cost of a Change Order or scope of schedule change within 15 business days the matter shall be submitted to mediation in accordance with the dispute resolution process set forth in this Agreement. During the pendency of any such dispute, all parties shall remain obligated to perform under this Agreement during the pendency of the mediation.

THIS IS A SAMPLE SAT WHICH WILL BE MODIFIED TO MEET THE REQUIREMENTS OF THE PROPOSED SOLUTION.

ALPHA POC SYSTEM ACCEPTANCE TEST PLAN

STANDARD SYSTEM ACCEPTANCE TEST ("SAT")

This document outlines the following:
- The equipment needed to conduct a successful SAT;
- Pre-test requirements; and
- System specific SAT tests used to verify the functionality, accuracy and reliability of Tantalus's AMI System.

NETWORK EQUIPMENT REQUIREMENTS

At a minimum, the following Tantalus system components need to be installed for a successful Alpha SAT to take place:
- An estimated 100 installed Tantalus electric endpoints will be required for this test. Of these, an estimated 60 will be new single-phase meters requiring the Tantalus TC-1210-RD (if Aclara)/TC-1220-RD (if Itron) meter modules and an estimated 40 will be poly-phase meters requiring the Tantalus PP-1316 (if Itron) / PP-1310 (if Aclara) meter modules.
- (7) IP-Based collectors. Tantalus shall use the backhaul communication network with cell modems provisioned by the City to the collector.
- (1) TUNet Control Center (HES)
- (7) LAN Repeater (TR-1901 or TR-1905)
- The same SAT Test applies to the Beta POC however, the Network Equipment and Pre-Test Requirements will be modified, as needed, to support the Beta POC SAT.

PRE-TEST REQUIREMENTS

The following requirements must be met before this SAT can take place:
- All Tantalus equipment is to be setup according to design specifications as per Tantalus Personnel.
- The location of (7) IP-Based Network Collectors need to be finalized by Tantalus and approved by the City. All equipment and ancillary items (Antenna, Cabling, Grounding, etc.) needs to be in place and installed.
- An appropriate backhaul communication network must be established by the City to the Network Controller that is reachable by the TUNet Control Center.
- The area containing the electric endpoints needs to be identified and the quantity of each meter type and all other necessary items need to be specified to Tantalus and the meter distributor.
- Issue Purchase Orders to Tantalus for Alpha POC equipment and services.

SPECIFIC SYSTEM ACCEPTANCE TESTS

The following tests will be performed to verify the functionality of the Tantalus AMI system:

1. **Network Operations, LAN, TC-1216, TC-1220-RD, PP-1316, and all Tantalus-equipped meters. Installation and Association**

Objective:	Verify that Tantalus-equipped meters complete a normal network acquisition and provide the expected LED status indication from power up through to association with the NS.
Setup:	At the discretion of the customer, this test may either be done at selected consumer service locations or using a test meter socket in the customer's shop. Meters will be selected to test any meter form and at least one (1) IP-Based Collector.
Method:	This test will entail installing Tantalus-equipped LAN meters that are not connected to a VersaComms Gateway. 24 hours after installation, an operator will use the Network Administrator web interface of the Network Server to verify the association status of the Tantalus-equipped meter. By using the Network Admin → LAN Device → Update Device screen, the operator can view the association status, including date and time of association and the reported hardware and firmware versions.
Success Criteria:	The Tantalus-equipped meter will associate with the network within 24 hours from the installation time.

2. **Advanced Metering, Meter Configuration Set-up**

Objective:	Demonstrate the process by which the customer creates electric and water meter configurations in TUNet and defines the metered quantities to be collected and the events and alarms to be enabled. Then verify that newly installed meters begin delivering the correct meter quantities, properly time stamped consumption data and voltage at their set intervals within 24 hours after the installation.
Setup:	At the discretion of the customer, this test may either be done at selected consumer service locations or using a test meter socket in the customer's shop.
Method:	Delivery of periodic consumption readings may take up to 24 hours to be reported following initial meter installation/association. A new meter will be installed and the meter serial number and time of installation noted. Up to 24 hours following installation, an operator, using the Network Server Utility Administrator web interface, will search for the meter serial number and verify that the meter is delivering consumption data by viewing the latest reading reported by the meter and the related consumption graph.
Success Criteria:	The meters must send the first consumption data and voltage data within 24 hours of the meter installation. The data must be time stamped with the correct system time.
	Note: Although meters will typically associate within 24 hours, depending on network communications, the association time could be greater than 24 hours.

3. Advanced Metering, Meter Activation

Objective:	Verify that newly installed meters begin delivering properly time stamped consumption data and power quality data at their set intervals within 24 hours after the installation.
Setup:	At the discretion of the customer, this test may either be done at selected consumer service locations or using a test meter socket in the customer's shop.
Method:	Delivery of periodic consumption readings may take up to 24 hours to be reported following initial meter installation/association. A new meter will be installed and the meter serial number and time of installation noted. Up to 24 hours following installation, an operator, using the Network Server Utility Administrator web interface, will search for the meter serial number and verify that the meter is delivering consumption data by viewing the latest reading reported by the meter and the related consumption graph.
Success Criteria:	The meters must send the first consumption data and power quality data within 24 hours of the meter installation. The data must be time stamped with the correct system time.

4. Meter Disconnect/Reconnect Process

Objective:	Verify the capabilities of TUNet to remotely control the electric meter disconnect switch and provide City with capabilities to remotely disconnect and reconnect customers.
Setup:	At the discretion of the customer, this test may either be done at selected consumer service locations or using a test meter socket in the customer's shop.
Method:	Using the Network Server Utility Administrator web interface, an operator will select one or more meters from those selected for testing. This test can be easily accomplished in the meter shop, but situations may also arise during Alpha testing where City may encounter a live scenario need for disconnection. If the customer chooses to test meter(s) in the field, A field worker will reside at the physical location of each meter tested to verify the disconnect and reconnect actions complete successfully.
Success Criteria:	The meters under test must successfully interrupt power to the customer in a timely manner after the order is given on TUNet and must restore power to the customer once the order to reconnect has been given by TUNet.

5. On-Request Meter/ Voltage Reading

Objective:	Verify that an operator can select any meter connected to Tantalus and request an immediate update of the meter reading, voltage and view the current reading.
Setup:	At the discretion of the customer, this test may either be done at selected consumer service locations or using a test meter socket in the customer's shop.
Method:	Using the Network Server Utility Administrator web interface, an operator will select one or more meters of each meter form from the test meter socket or, if field tested,

	field installed base of meters for each TUNet AMI module type and request an updated reading from the selected meter(s) and then view the updated reading noting the updated timestamp on the consumption reading. The response time will be measured and recorded. If the customer chooses to test meter(s) in the field, A field worker will reside at the physical location of each meter tested and verify the readings viewed by the Network Server operator.
Success Criteria:	The operator will view all the readings update from all the meters selected via the Network Server in less than 120 seconds from the time the request was submitted. Accuracy of the remote reading will be checked at the meter site during this test. If field tested, the operator will verify the reading with the field worker at the meters physical location and this test is satisfied for all TUNet AMI module types installed.

6. Consumption and Voltage Profiles

Objective:	Verify that both the kWh readings and the voltage readings can be displayed in graphical form for any residential meter on any selected date and that kWh, kVARh (as applicable), and voltage readings can be displayed in graphical form for any commercial or industrial meter. (Itron ERTs report readings in RAW form, Utility will provide Tantalus the ERT decode values to be imported into TUNet.
Setup:	At the discretion of the customer, this test may either be done using selected consumer service locations or using a test meter socket in the customer's shop. The meters used in this test must be in operation for at least 2 complete days before this test is conducted.
Method:	Using the Network Server Utility Administrator web interface, an operator will select one or more meters of each meter form from the installed base of test meters and view the graphed consumption, voltage readings, and kVARh (as applicable) readings. The graphs will be viewed for a minimum of two selected dates. If meters are to be tested in the field instead of the meter shop, meters with any TUNet module type may be chosen for the test.
Success Criteria:	The graphs display consumption and voltage for all 24 hours for residential meters. The graphs display kWh, kVARh (as applicable), and voltage for all 15-minute intervals (grouped hourly) in 24 hours for all commercial and Industrial meters of the selected days. All the graphed data accurately represents the consumption and voltage. During this process, the operator must be trained on how to change the meter interval and hence the graphed meter interval for all data above to 5 minutes for a commercial or industrial meter and 15 minutes for a residential meter.

7. Outage and Restoration Detection

Objective:	Verify that a Tantalus-equipped meter, not directly connected to a VersaComms Gateway reports a power outage immediately on occurrence and reports power restoration immediately on occurrence.
Setup:	This test will entail simulating a power outage by turning off power to a Tantalus-equipped meter fitted to a test meter socket in the customer's shop and/or, if the customer so chooses, after the test this feature will be successfully demonstrated using a sample of installed meters of all forms at customer homes or businesses.
Method:	A clock or watch that will be used to track the times of outage and restoration must be synchronized to Tantalus. Using the Network Server Utility Administrator web interface, an operator will monitor the Event monitor window for power outage events. Power to the meters will be shut off and the time will be recorded. The operator will look for the respective outage event to appear in the Event monitor and record the time the event appeared and note the time stamp associated with the outage. The power to the meters shall be left off for at least 5 minutes to ensure the meter module's capacitors have fully discharged, then power will be restored and the time of restoration will be recorded. The operator will look for the respective outage event to clear (i.e. power restoration) in the TUNet Monitor and record the time the event cleared and note the time stamp associated with the restoration. Multiple meters may be tested at the same time whether tested in the shop or in the field.
Success Criteria:	The outage event for all meters will appear within 2 minutes of occurrence and the restoration event (outage clearing) will occur within 10 minutes after the power has been restored to the meters. The time stamps of both events for a particular meter should match the recorded times of the respective power outage and restoration actions, within ± 1 second.

8. Events and Alarms

Objective:	Verify that all (to the extent practical) meter events and alarms provided by the meters supported by TUNet can be tested and demonstrated to work and that TUNet provides the capabilities for retrieval, reporting or transferring the events and alarms depending on the customer requirements.
Setup:	At the discretion of the customer, this test may either be done at selected consumer service locations using live meters or a test meter socket in the customer's shop or some combination of both.
Method:	Using the Network Server Utility Administrator web interface, an operator will create conditions on the test bench at the City meter shop to simulate each of the events and alarms the meter is capable of generating. Separate testing will be conducted for each class and manufacturer of meters. Wherever events and/or alarms have been reported naturally on the TUNet system during the Alpha testing those can be used to satisfy the requirement provided proper documentation is provided.
Success Criteria:	All events and alarms can be generated and observed in TUNet.

9. Readings from ERT meters

Objective:	Demonstrate TUNet capabilities for retrieval of registers, data and events from Itron legacy ERT equipped meters connected to Tantalus.
Setup:	This test shall be done at selected consumer service locations using meters selected for the Alpha phase testing.
Method:	Using the Network Server Utility Administrator web interface, an operator will select one or more meters and verify the reading in the TUNet database.
Success Criteria:	The user is able to validate a measurement value reported in TUNet.

10. TUNet Insight

Objective:	Verify the various TUNet Insight dashboards and KPIs are configured correctly and produce meaningful results for City.
Setup:	At the discretion of the customer, this test is best accomplished at selected consumer service locations using live data.
Method:	Methodically step through all of the KPIs, Dashboards and Reports included with Insight. Verify that results seem reasonable, units of measure are correct, geographic locations seem logical where GIS coordinates are involved.
Success Criteria:	Insight KPIs and dashboards can be run without error, seem to be correctly configured and provide useful information for understanding the system status and for troubleshooting problem meters or collectors.

At the discretion of the customer, any of the above tests may be repeated. Once a test has been successfully performed and every required test (not just one particular test) has been signed off in the Tantalus SAT Record (Attachment B-2), it will be considered complete. The term test should not be misconstrued to be a one-time occurrence. The system should perform to the test level 90% of the time. Therefore, Tantalus cannot continue to try to pass a test until it does and construe this performance as passing any of the tests performed unless there is a technically reason why the test could not be successfully performed (e.g. device under test not connected).

Upon signing off all tests in the Tantalus SAT Record, the City and Tantalus will sign the Tantalus System Acceptance Test Certificate (Attachment B-3) indicating that the system acceptance tests have been completed and that all requirements of Acceptance were met and all tests passed.

Note: Production acquisition and full deployment of meters and supporting equipment are dependent upon successful SAT completion and acceptance by the customer.
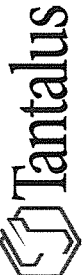
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Document:	
Project:	Advanced Metering Infrastructure (AMI)

Exhibit B – Statement of Work
Attachment B-2 – System Acceptance Test Record

THIS IS A SAMPLE SAT TEST RECORD WHICH WILL BE MODIFIED TO MEET THE REQUIREMENTS OF THE ALPHA POC AND BETA POC.

Row #	Reference Contract #	Tantalus Test #	Description	Date Tested	Pass / Fail	Notes	Initials
1		1	Network Operations, LAN, [TC-12XX, TC-1XXX-RD, PP-1316], and all Tantalus-equipped meters. Installation and Association				
2		2	Advanced Metering, Meter Configuration Setup				
3		3	Advanced Metering, Meter Activation				
4		4	Meter Disconnect/Reconnect Process				
5		5	On-Request Meter/Voltage Reading				
6		6	Consumption and Voltage Profiles				
7		7	Outage and Restoration Detection				
8		8	Events and Alarms				
9		9	Readings from ERT meters				
10		10	TUNet Insight				

[FORM OF]

Tantalus Utility Network (TUNet®)

System Acceptance Test Acceptance Certificate

Pursuant to the Tantalus System Acceptance Test Plan, as mutually agreed to between Tantalus Systems Inc. and [   ], this certificate recognizes that on the ___ day of _____, 20___, the complete set of system acceptance tests have passed and that the commissioned Tantalus Utility Network has been accepted with respect to the [Alpha][Beta] POC (as such term is defined in [NAME OF AGREEMENT].

Tantalus Systems Inc.   [   ]
                                                              Customer

_____   _____
Signature   Signature

_____   _____
Name   Name

_____   _____
Title   Title

_____   _____
Date   Date

City of Riverside - Riverside Public Utilities
Tantalus Systems Inc.
AMI Equipment and Services
Alpha POC (Duration - 6 months)

Item #	Item/Service	Quantity	Unit Price		Extended Price
AMI Network Infrastructure					
TR-1901	Pole mount repeater	7	$	289.00	$ 2,023.00
VC-820-GE	Cell modem/router for WAN backhaul	7	$	975.00	$ 6,825.00
VC-934	1000 endpoint gateway	7	$	3,400.00	$ 23,800.00
PP-1310	Aclara polyphase meter module	4	$	145.00	$ 580.00
PP-1316	Itron polyphase meter module	36	$	145.00	$ 5,220.00
TC-1210-RD	Aclara i210+ meter module	4	$	62.50	$ 250.00
TC-1220-RD	Itron C2 remote disconnect meter module	56	$	62.50	$ 3,500.00
		AMI Network Infrastructure Subtotal		$	**42,198.00**
		Estimated 8.75% Tax		$	3,692.33
		AMI Network Infrastructure + Tax		$	**45,890.33**

AMI Deployment Tools					
DT-420-BUN	Semi-Rugged deployment laptop for programming Tantalus infrastructure and meter modules.	1	$	2,700.00	$ 2,700.00
DT-116	Itron Centron register reset key, used to set the TUNet meter module to zero.	1	$	32.85	$ 32.85
		AMI Deployment Tools Subtotal		$	**2,732.85**
		Estimated 8.75% Tax		$	239.12
		AMI Deployment Tools + Tax		$	**2,971.97**

AMI Software					
NSE-201	Tantalus endpoint software license	100	$	5.00	$ 500.00
		AMI Software Subtotal		$	**500.00**

Professional Services					
SV-1000	Initial Deployment Services - includes, project management, project engineering, field services, deployment training and operation training. (Does not include meter, VC or TR installation)	1	$	48,070.00	$ 48,070.00
INS	Cyber Liability Insurance	1		$5,000.00	$ 5,000.00
		Professional Services Subtotal		$	**53,070.00**
Integration Services					
NSI-301	Flat file or MultiSpeak 3.0 interface to CIS	1		included	$ -
NSI-303	MultiSpeak interface for 3rd party remote disconnect, example CIS, MDM or prepay.	1	$	20,000.00	$ 20,000.00
NSI-307	LDAP Interface	1	$	1,100.00	$ 1,100.00
		Integration Services Subtotal		$	**21,100.00**

Third Party Electric Meters
See quotations from Itron and Aclara

Aclara Meter Total	$	988.50
Itron Meter Total	$	9,587.24
Third Party Electric Meter Subtotal	**$**	**10,575.74**
Estimated 8.75% Tax	$	925.38
Third Party Electric Meter + Tax	**$**	**11,501.12**

Other

Equipment Delivery Fees (Estimated)	$	800.00
Other Subtotal	**$**	**800.00**

TOTAL COST - ALPHA POC	**$**	*130,976.59*
TOTAL COST - ALPHA POC + ESTIMATED TAXES	**$**	*135,833.42*

Pricing Notes and Assumptions

1. 3% markup added to third-party electric meters purchased through Tantalus.

2. Tantalus does not guarantee pricing of Third-Party AMI Meters, which are quoted pursuant to and subject to the respective third-party meter manufacturer's terms and conditions (including warranty) described in Exhibit D (Third-Party Products and Warranty) and Exhibit H (Transferrable Warranties) hereto. Notwithstanding anything to the contrary and unless otherwise expressly and mutually agreed to in writing (including applicable pass through terms and conditions) between the City, Tantalus and the third-party manufacturer, the terms and conditions of Exhibit D and Exhibit H shall govern and control over all purchases involving Third-Party Products, Services and Software.

3. Third-Party AMI Meter pricing and any related quantity and price validity terms set forth herein have been provided by the third-party manufacturer, in its sole discretion.

4. Water meters and water modules are outside the scope of the Tantalus proposal. The pricing provided is indicative for Itron encoder registers. We assume that the City will purchase them directly from the Itron distributor.

5. Water Meters encoder registers, connectors, RF endpoint and thru the lid antenna pricing is estimated AND NOT INCLUDED IN TOTAL COST. Water equipment to be purchased from Itron or local Itron representative.

6. Should the City opt to read water ERTs, subsequent licenses are required and will be quoted upon request.

7. Pricing assumes hosting for Alpha POC at the Tantalus data center supported by GenPac.

8. Pricing for the Alpha POC is based on inclusion of approximately 100 electric meters located in the vicinity of eleven of the largest electric and water consumers in the City with these eleven customers being grouped in the six (6) Alpha POC areas of focus. Specific details related to the Alpha POC areas of focus shall be discussed and set forth in a mutually agreed project plan.

9. Changes to the Alpha POC, including without limitation, the scope, budget, associated pricing and timing shall be discussed between the parties and set forth in a mutually agreed written Change Order in accordance with Exhibit A (End User License Agreement).

10. Also see Tantalus's Additional Pricing Notes and Assumptions, which apply to both the Alpha POC and Beta POC.

11. Estimated Taxes are included at the request of the City for calculation of not-to-exceed cost only. Tantalus does not invoice for taxes and does not make any representations regarding the accuracy of the same, which are the sole responsibility of the City pursuant to the Terms and Conditions of Sale set forth in the Agreement. To the extent that any taxes owed by the City are in excess of the amount set forth above, the City shall be responsible for the payment and reporting of such amounts and Tantalus shall have no liability whatsoever with respect thereto.

AMI Equipment and Services
Hosted AMI Server
Beta POC (Duration - 12 months)
Extended Beta POC (Duration - 6 months)
Total Beta POC = 18 months

Item #	Item/Service	Quantity	Unit Price		Extended Price	
AMI Network Infrastructure						
TR-1901	Pole mount repeater	43	$	289.00	$	12,427.00
TR-1905	Streetlight top mount repeater	40	$	289.00	$	11,560.00
VC-820-GE	Cell modem/router for WAN backhaul	67	$	975.00	$	65,325.00
VC-934	1000 endpoint gateway	84	$	3,400.00	$	285,600.00
TC-xxxx-RD	Remote Disconnect meter module	17,508	$	62.50	$	1,094,250.00
PP-xxxx	Polyphase meter module	8,392	$	145.00	$	1,216,840.00
		AMI Network Infrastructure Subtotal			$	2,686,002.00
		Estimated 8.75% Tax			$	235,025.18
		AMI Network Infrastructure + Tax			$	2,921,027.18

AMI Deployment Tools						
DT-420- BUN	Semi-Rugged deployment laptop for programming Tantalus infrastructure and meter modules.	1	$	2,700.00	$	2,700.00
DT-116	Itron Centron register reset key, used to set the TUNet meter module to zero.	1	$	32.85	$	32.85
		AMI Deployment Tools Subtotal			$	2,732.85
		Estimated 8.75% Tax			$	239.12
		AMI Deployment Tools Subtotal			$	2,971.97
AMI Software						
TCC-2040	Tantalus Insight software license	1	$	95,000.00	$	95,000.00
NSE-201	Tantalus endpoint software license	25,731	$	5.00	$	128,655.00
TAL-400-5	Electric ERT read fee (80K Max ERT's)	1	$	60,000.00	$	60,000.00
R400 ERT Fee	R400 ERT read license	4,150	$	1.25	$	5,187.50
		AMI Software Subtotal			$	288,842.50

Professional Services						
SV-1000	Initial Deployment Services - includes, project management, project engineering, field services, deployment training and operation training. (Does not include meter, VC or TR installation)	1	$	87,140.00	$	87,140.00
SL-3001	Premium maintenance and support (Annual Fee - incremental to standard support) Adder for Premium is due Net 30 days from commencement date of Beta POC.	1	$	15,000.00	$	15,000.00
SL-3001	Premium Maintenance and Support - 6 month extension of Beta POC (Extension Fee is due on the 1st day of the 19th month from the Effective Date of Agreement)	1	$	44,077.44	$	44,077.44
SV-4100	Hosting set-up and testing fee	1	$	15,000.00	$	15,000.00
SV-4040	Hosting Services for 2040 Server	18	$	3,500.00	$	63,000.00
		Professional Services Subtotal			$	224,217.44

Integration Services						
NSI-301	Flat file or MultiSpeak 3.0 interface to CIS	1		included	$	-
NSI-304	MultiSpeak interface MDM	1	$	25,000.00	$	25,000.00
			Integration Services Subtotal		**$**	**25,000.00**

Third Party Electric Meters			
See quotations from Itron and Aclara			
Estimated meter total (Final quantities and pricing TBD based on RPU's final determination regarding quantity and meter forms to be ordered from one or more third-party meter manufacturers through Tantalus for Beta POC)		$	2,878,857.18
Estimated Third Party Electric Meter Subtotal		**$**	**2,878,857.18**
Estimated 8.75% Tax		**$**	**251,900.00**
Estimated Third Party Electric Meter Subtotal		**$**	**3,130,757.18**

Other			
Estimated Equipment Delivery Fees (Standard shipping costs will apply for each delivery)		$	2,300.00
Other Subtotal		**$**	**2,300.00**

TOTAL COST - BETA POC - HOSTED		**$**	**6,107,951.97**
TOTAL COST - BETA POC - HOSTED + ESTIMATED TAX		$	6,595,116.27
DESIGN RESERVE		$	18,745.60
TOTAL COST - BETA POC - HOSTED + ESTIMATED TAX - WITH DESIGN RESERVE		**$**	**6,613,861.87**

Pricing Notes and Assumptions

1. 3% markup added to third-party electric meters purchased by the City through Tantalus.

2. Tantalus does not guarantee pricing of Third-Party AMI Meters, which are quoted pursuant to and subject to the respective third-party meter manufacturer's terms and conditions (including warranty) described in Exhibit D (Third-Party Products and Warranty) and Exhibit H (Transferrable Warranties) hereto. Notwithstanding anything to the contrary and unless otherwise expressly and mutually agreed to in writing (including applicable pass through terms and conditions) between the City, Tantalus and the third-party manufacturer, the terms and conditions of Exhibit D and Exhibit H shall govern and control over all purchases involving Third-Party Products, Services and Software.

3. Third-Party AMI Meter pricing and any related quantity and price validity terms set forth herein have been provided by the third-party manufacturer, in its sole discretion.

4. Water meters and water modules are outside the scope of the Tantalus proposal. The pricing provided is indicative for Itron encoder registers. We assume that the City will purchase them directly from the Itron distributor.

5. Water Meters encoder registers, connectors, RF endpoint and thru the lid antenna pricing is estimated AND NOT INCLUDED IN TOTAL COST. Water equipment to be purchased from Itron or local Itron representative.

6. Should the City opt to read water ERTs, subsequent licenses are required and will be quoted upon request.

7. Changes to the Beta POC, including without limitation, the scope, budget, associated pricing and timing shall be discussed between the parties and set forth in a mutually agreed written Change Order in accordance with Exhibit A (End User

8. Actual Beta POC electric meter counts to be determined based on the number of AMI meters needed to communicate with all of the legacy AMR meters.

9. Also see Tantalus's Additional Pricing Notes and Assumptions, which apply to both the Alpha POC and Beta POC.

10. Estimated Taxes are included at the request of the City for calculation of not-to-exceed cost only. Tantalus does not invoice for taxes and does not make any representations regarding the accuracy of the same, which are the sole responsibility of the City pursuant to the Terms and Conditions of Sale set forth in the Agreement. To the extent that any taxes owed by the City are in excess of the amount set forth above, the City shall be responsible for the payment and reporting of such amounts and Tantalus shall have no liability whatsoever with respect thereto.

AMI Equipment and Services
AMI On-Site, RPU Managed
Beta POC (Duration - 12 months)
Extended Beta POC (Duration - 6 months)
Total Beta POC = 18 months

Item #	Item/Service	Quantity	Unit Price		Extended Price
AMI Network Infrastructure					
TR-1901	Pole mount repeater	43	$	289.00	$ 12,427.00
TR-1905	Streetlight top mount repeater	40	$	289.00	$ 11,560.00
VC-820-GE	Cell modem/router for WAN backhaul	67	$	975.00	$ 65,325.00
VC-934	1000 endpoint gateway	84	$	3,400.00	$ 285,600.00
TC-xxxx-RD	Remote Disconnect meter module	17,508	$	62.50	$ 1,094,250.00
PP-xxxx	Polyphase meter module	8,392	$	145.00	$ 1,216,840.00
		AMI Network Infrastructure Subtotal		$	**2,686,002.00**
		Estimated 8.75% Tax		$	235,025.18
		AMI Network Infrastructure + Tax		$	**2,921,027.18**

Item #	Item/Service	Quantity	Unit Price		Extended Price
AMI Deployment Tools					
DT-420- BUN	Semi-Rugged deployment laptop for programming Tantalus infrastructure and meter modules.	1	$	2,700.00	$ 2,700.00
DT-116	Itron Centron register reset key, used to set the TUNet meter module to zero.	1	$	32.85	$ 32.85
		AMI Deployment Tools Subtotal		$	**2,732.85**
		Estimated 8.75% Tax		$	239.12
		AMI Deployment Tools + Tax		$	**2,971.97**

Item #	Item/Service	Quantity	Unit Price		Extended Price
AMI Software					
NS-2040	2040 Network Server	0	$	125,000.00	$ -
VSL-200	Virtualization Support License	1	$	10,000.00	$ 10,000.00
TCC-2040	Tantalus Insight software license	1	$	95,000.00	$ 95,000.00
NSE-201	Tantalus endpoint software license	25,731	$	5.00	$ 128,655.00
TAL-400-5	Electric ERT read fee (80K Max ERT's)	1	$	60,000.00	$ 60,000.00
R400 ERT Fee	R400 ERT read license	4,150	$	1.25	$ 5,187.50
		AMI Software Subtotal		$	**298,842.50**
Professional Services					
SV-1000	Initial Deployment Services - includes project management, project engineering, field services, deployment training and operation training. (Does not include meter, VC or TR installation)	1	$	87,140.00	$ 87,140.00
SL-3001	Premium maintenance and support (Annual Fee - incremental to standard support) Adder for Premium is due Net 30 days from commencement	1	$	15,000.00	$ 15,000.00
SL-3001	Premium Maintenance and Support - 6 month extension of Beta POC (Extension Fee is due on the 1st day of the 19th month from the Effective Date of Agreement)	1	$	44,077.44	$ 44,077.44
	Server Migration (Migration from Hosted to On-Site Server)	1	$	7,160.00	$ 7,160.00
		Professional Services Subtotal		$	**94,300.00**
Integration Services					
NSI-301	Flat file or MultiSpeak 3.0 interface to CIS	1	included		$ -
NSI-304	MultiSpeak interface MDM	1	$	25,000.00	$ 25,000.00
		Integration Services Subtotal		$	**25,000.00**

Third Party Electric Meters
See quotations from Itron and Aclara

	Estimated meter total	$	2,878,857.18
	(Final quantities and pricing TBD based on RPU's final determination regarding quantity and meter forms to be ordered from one or more third-party meter manufacturers through Tantalus for Beta POC)		
	Third Party Electric Meter Subtotal	$	2,878,857.18
	Estimated 8.75% Tax	$	251,900.00
	Third Party Electric Meter + Tax	$	3,130,757.18

Other

	Estimated Equipment Delivery Fees	$	2,300.00
	(Standard shipping costs will apply for each delivery)		
	Other Subtotal	$	2,300.00

TOTAL COST - BETA POC - ONSITE	$	5,988,034.53
TOTAL COST - BETA POC - ONSITE + TAXES	$	6,475,198.83
DESIGN RESERVE	$	18,745.60
TOTAL COST - BETA POC - ONSITE + ESTIMATED TAXES WITH DESIGN RESERVE	$	6,493,944.43

Pricing Notes and Assumptions

1. 3% markup added to third-party electric meters purchased by the City through Tantalus.

2. Tantalus does not guarantee pricing of Third-Party AMI Meters, which are quoted pursuant to and subject to the respective third-party meter manufacturer's terms and conditions (including warranty) described in Exhibit D (Third-Party Products and Warranty) and Exhibit H (Transferrable Warranties) hereto. Notwithstanding anything to the contrary and unless otherwise expressly and mutually agreed to in writing (including applicable pass through terms and conditions) between the City, Tantalus and the third-party manufacturer, the terms and conditions of Exhibit D and Exhibit H shall govern and control over all purchases involving Third-Party Products, Services and Software.

3. Third-Party AMI Meter pricing and any related quantity and price validity terms set forth herein have been provided by the third-party manufacturer, in its sole discretion.

4. Water meters and water modules are outside the scope of the Tantalus proposal. The pricing provided is indicative for Itron encoder registers. We assume that the City will purchase them directly from the Itron distributor.

5. Water Meters encoder registers, connectors, RF endpoint and thru the lid antenna pricing is estimated AND NOT INCLUDED IN TOTAL COST. Water equipment to be purchased from Itron or local Itron representative.

6. Should the City opt to read water ERTs, subsequent licenses are required and will be quoted upon request.

7. Changes to the Beta POC, including without limitation, the scope, budget, associated pricing and timing shall be discussed between the parties and set forth in a mutually agreed written Change Order in accordance with Exhibit A (End User License Agreement).

8. Actual Beta POC electric meter counts to be determined based on the number of AMI meters needed to communicate with all of the legacy AMR meters.

9. Also see Tantalus's Additional Pricing Notes and Assumptions, which apply to both the Alpha POC and Beta POC.

10. Estimated Taxes are included at the request of the City for calculation of not-to-exceed cost only. Tantalus does not invoice for taxes and does not make any representations regarding the accuracy of the same, which are the sole responsibility of the City pursuant to the Terms and Conditions of Sale set forth in the Agreement. To the extent that any taxes owed by the City are in excess of the amount set forth above, the City shall be responsible for the payment and reporting of such amounts and Tantalus shall have no liability whatsoever with respect thereto.

AMI Equipment and Services
AMI On-Site, RPU Managed - Beta POC
Beta POC - Turnkey Infrastructure Installation Services

Description		Price
Infrastructure (TR/VC) Installation	$	150,349.00
Turnkey Deployment Services - Infrastructure	$	64,100.00
Mobilization	$	3,500.00
Total Price	**$**	**217,949.00**

Aerial Equipment	Quantity
TR-1901 Pole Mounted	40
TR-1905 Pole Mounted	43
VC-934 Pole Mounted	84
Total Quantity	**167**

Pricing Notes and Assumptions

1. Assumes prevailing wage.
2. Assumes no bonding is required.
3. Permits are not required or included for aerial installations.
4. Assumes aerial device installations do not require specialty license for Tantalus subcontractors and/or Personnel.
5. Assumes aerial device installations do not require ROW Permits.
6. Assumes Contractor company vehicles
7. Utility will provide keys and for any access or right-of-ways.
8. Utility will provide warehouse for storage, preparation and execution of daily operations.

Additional Note: Wood poles and other utility assets (such as substations) for installation of Aerial Equipment will be identified by the City and agreed to between the parties in the Final Network Design and Plan.

Annual Maintenance and Support (Estimated)				

Ongoing System Costs (Annual Maintenance and Support)				
SL-2001	Standard maintenance and support	25,731	$ 0.77	$ 19,812.87
SL-3001	Premium maintenance and support (Incremental to standard support)	1	$ 15,000.00	$ 15,000.00
SM-2040	Tantalus Insight software support	1	$ 30,000.00	$ 30,000.00
SM-4000	Tantalus ERT maintenance and support (Dependent on total ERT's read (water and electric)		22%	$ 13,200.00
SM-5000	NSI, LMA, PPx, DA, TAL maintenance and support. (Dependent on total number of SW applications; current total is based on NSI-303 (Remote Disconnect) and NSI-307 (LDAP) deployed in Alpha POC phase.)		22%	$ 10,142.00
SV-4040	Hosting Services for 2040 Server (Monthly fee applies if the City proceeds with hosted server)	12	$ 3,500.00	$ 42,000.00
SV-4900	Optional Tantalus Team Room subscription	0	$ 2,000.00	$ -
	Ongoing System Costs (Maintenance and Support) - Annual			$ 130,154.87

Pricing Notes and Assumptions

1. The Annual Maintenance and Support Fees are charged on an incremental basis and are subject to change based on the applications, infrastructure and endpoints deployed by NEP, as the case may be.

2. In the event that the Agreement expires without extension, amendment or replacement with a new agreement, Customer agrees that its payment obligations herein as related to maintenance, support and licensing shall continue in full force and effect for as long as TUNet is operational by Customer in any respect.

3. A true-up will take place at the end of the Initial Term to determine the number of devices deployed for calculation of maintenance and support.

4. If the City elects to extend the Agreement beyond the Initial Term, Price Changes, Tantalus reserves the right, in its sole discretion, to revise the above Maintenance and Support prices on thirty (30) days prior written notice to Customer by whichever of the following is greater: (i) the immediately preceding year's percentage increase in the Consumer Price Index For All Urban Customers, All Cities Average, All Items (CPI-U"), as published by the Bureau of Labor Statistics, U.S. Department of Labor in the "Summary Data from the Consumer Price Index New Release" for the 12-month period ending at December 31st of the calendar year immediately preceding the adjustment date; or (ii) the average percentage change during the most recent 12-month period to Tantalus's published price list, or (iii) 3.5% per year.

5. Also see Tantalus's Additional Pricing Notes and Assumptions, as applicable.

Additional Offerings & Services
(Incremental TUNet Applications)

Item #	Item/Service		Unit Price	Notes/Comments
Optional Equipment/Services				
	Streetlighting			
	Streetlight (20 unit pilot)			*Pricing based on size of deployment.*
	Luminaires		S153 - S400	Depending on specific requirments
	Integrated Lumen IQ/TUNet controller	S	133.00	
	Controller connection fee	S	3.00	
	CMS SaaS fee - Annual	S	5.00	
	Streetlight (Full Deployment = 26,000 LED units / Luminaires)			*Pricing based on size of deployment. Cost per unit.*
	Luminaires		S153 - S400	Depending on specific requirments / Cost per unit
	Integrated Lumen IQ/TUNet controller	S	126.00	Cost per unit
	Controller connection fee	S	3.00	Cost per unit
	CMS SaaS fee - Annual	S	3.50	Cost per unit
	Decorative Controller		TBD	Standard controller cost + modification
Load Management				
	Hardware Options			
	Pioneer Smart Thermostat	S	149.00	
	Foundation Smart Thermostat	S	199.00	
	Load Control Switch / TUNet / 1xLV Relay	S	151.00	
	Load Control Switch / TUNet / 1xHV Relay	S	160.00	
	Load Control Switch / TUNet / 1xHV Relay / 1xLV Relay	S	163.00	
	Load Control Switch / TUNet / 1xHV Relay / 2xLV Relay	S	167.00	
	Load Control Switch / TUNet / 2xHV Relay / 1xLV Relay	S	175.00	
	Smart Appliance Controller	S	54.00	
	Software			
	LMS SaaS Standard / Lite Setup	S	15,000.00	One time fee
	LMS SaaS Standard Annual Subscription (includes first 1,000 devices)	S	20,000.00	Annual fee
	LMS SaaS Standard Annual Device Fee (per additional devices above 1,000)	S	8.00	Annual fee

Item #	Item/Service	Unit Price	Notes/Comments
AMI System Options			
DA-1710-01	Optional Distribution automation	$ 1,000.00	DA Bridge Modem Serial Only c/w power pigtail, 3dBI bulkhead antenna
DA-1710-22	Optional Distribution automation	$ 2,200.00	DA Bridge Modem inside Weatherproof enclosure pole rugged mountable, wide input power supply, battery backup, surge protection, 5dBi Antenna, bracket, surge arrestor
NSI-302	MultiSpeak 4.1 interface to OMS	$ 20,000.00	
NSI-303	MultiSpeak interface for 3rd party remote disconnect, example CIS, MDM or prepay.	$ 20,000.00	
NSI-304	MultiSpeak 4.1 interface CIS/MDM	$ 25,000.00	
NSI-305	Tantalus interface to SCADA for voltage optimization.	$ 45,000.00	Requires TAL-500-4
NSI-306	TRUView GIS Admin License	$ 10,000.00	
NSI-350	NSI Bundle, includes NSI 302, 303, 304, and 306.	$ 55,000.00	
PP-1316	Itron Sentinel PP meter module	$ 175.00	
PPA-100	Optional advanced functionality for C&I PP meters (PPD & PPN Options plus TRUPush sag/swell and non-recurring demand reset calendars (100 PP Licenses))	$ 1,200.00	Recommended
PPA-1000	Optional advanced functionality for C&I PP meters (PPD & PPN Options plus TRUPush sag/swell and non-recurring demand reset calendars (1000 PP Licenses))	$ 11,000.00	
PPA-10000	Optional advanced functionality for C&I PP meters (PPD & PPN Options plus TRUPush sag/swell and non-recurring demand reset calendars (10000 PP Licenses))	$ 100,000.00	
TAL-410-1	Water ERT read fee.	$ 14,999.00	Free of charge for up to 9 months or conclusion of Alpha POC, whichever comes first.
TAL-410-5	Water ERT read fee (80K Max ERT's)	$ 130,000.00	
TAL-500-4	Optional Volt/VAR optimization	$ 45,000.00	TUNet Application License - CLVR Device Manager. Requires NSI-305
TAL-530-5	Optional Itron C2 peak demand functionality	$ 60,000.00	TUNet Application License - Residential Peak Demand
TAL-601-1	Optional Tantalus Insight consumption alarms	$ 3,500.00	For detecting and alarming on abnormal consumption
TR-1905	Streetlight top mount repeater	$ 289.00	
VC-934	1000 endpoint gateway	$ 3,400.00	Additional gateways as required to support additional TUNet-equipped meters as desired.
	Optional Extended warranty option (36 months total coverage) for Head end components/collectors, repeaters	5%	3 years total coverage (5% of TR and VC infrastructure).
	Optional Solar powered AMI collector	TBD	Available as non standard item
Item #	**Item/Service**	**Unit Price**	**Notes/Comments**
Ongoing System Costs			
SM-5000	Ongoing NSI, PPX, DA and TAL Support	22%	Adding additional features and functionality such as NSI, PPX, DA and TAL options will increase "Ongoing System Costs/SM-5000" by 22% of added feature/functionality.
SV-4040	Disaster Recovery Services/Monthly Rate	$ 3,500.00	x12 months = $42,000/year

Riverside Public Utilities
Quotation - Third Party Meters
Third-Party Meters & Meter Related Equipment (Electric and Water)

Alpha POC (6 Months)						
Qty	**Form**	**Manufacturer**	**Meter Description**	**Voltage**	**Unit Price**	**Extended Price**
4	9	Aclara	KV2c	120-480	$ 178.54	$ 714.16
4	2	Aclara	I210+ disconnect	240	$ 68.59	$ 274.34
48	2	Itron	Centron II Disconnect	240	$ 60.63	$ 2,910.04
16	9	Itron	Sentinel Poly phase 120-480 volt, ML3	120-480	$ 162.95	$ 2,607.14
8	12n	Itron	Centron II Network/disconnect	120	$ 101.39	$ 811.15
16	16	Itron	Sentinel Poly phase 120-480 volt, ML3	120-480	$ 162.95	$ 2,607.14
4	45	Itron	Sentinel Poly phase 120-480 volt, ML3	120-480	$ 162.95	$ 651.78
100	**Total**					**$ 10,575.74**

Beta POC (12 Months)						
Qty	**Form**	**Manufacturer**	**Meter Description**	**Voltage**	**Unit Price**	**Extended Price**
28	1	TBD	Disconnect	120		$ -
16,452	2	TBD	Disconnect	240		$ -
60	3	TBD		240		$ -
168	4	TBD		240		$ -
800	12n	TBD	Network/Disconnect	120		$ -
2,420	9	TBD	Poly phase 120-480 volt, ML3 or equivalent	120-480		$ -
304	12	TBD	Poly phase 120-480 volt, ML3 or equivalent	120-480		$ -
5,428	16	TBD	Poly phase 120-480 volt, ML3 or equivalent	120-480		$ -
240	45	TBD	Poly phase 120-480 volt, ML3 or equivalent	120-480		$ -
25,900	**Total**					**$ -**

Quotation for Tantalus Equipped Electric Meters at Riverside Public Utilities

FULL SYSTEM PRICING					
Meter Form	**Quantity**	**C1SX Pricing**	**C2SXD Pricing**	**Sentinel ML1**	**Sentinel ML3**
1S	353	$65.70			
1S, Disconnect	353		$85.25		
2S CL200	101394		$54.50		
2S CL320	294	$64.80			
3S	96	$64.80			
4S	258	$64.80			
12S CL200 Network	3147	$77.70			
12S CL200 Network, Disconnect	3147		$97.13		
45S	247			$145.60	$156.80
9S	2403			$145.60	$156.80
12S CL200, 3P	304			$145.60	$156.80
16S CL200	5475			$145.60	$156.80

ERT OVERLAY					
Meter Form	**Quantity**	**C1SX Pricing**	**C2SXD Pricing**	**Sentinel ML1**	**Sentinel ML3**
1S	71	$65.94			
1S, Disconnect	71		$87.19		
2S CL200	20279		$58.86		
2S CL320	59	$65.94			
3S	19	$65.94			
4S	52	$65.94			
12S CL200 Network	629	$78.75			
12S CL200 Network, Disconnect	629		$98.44		
45S	49			$148.20	$158.20
9S	481			$148.20	$158.20
12S CL200, 3P	61			$148.20	$158.20
16S CL200	1095			$148.20	$158.20

Notes:

1. All prices includes TU Net integration
2. Terms are net 30 days
3. California sales tax is collected unless a valid resale permit is provided
4. Warranty is through Itron and can be found at: https://www.itron.com/termsofsale

5. Freight is prepaid and allowed
6. Lead time is 8-10 weeks after receipt of an order
7. Pricing valid through 12/31/2020

McAvoy & Markham Engineering and Sales
16 Technology Dr, Suite 113
Irvine, CA 92618

11/29/2018

Itron Meter Pricing (Qty 1+)								
Qty	**Form**	**Manufacturer**	**Meter Description**	**Voltage**	**Itron**	**Adder**	**Unit Price**	**Extended Price**
28	1	Itron	Disconnect	120	$ 87.19	1.03	$ 89.81	$ 2,514.56
16,452	2	Itron	Disconnect	240	$ 58.86	1.03	$ 60.63	$ 997,415.66
60	3	Itron		240	$ 65.94	1.03	$ 67.92	$ 4,075.09
168	4	Itron		240	$ 65.94	1.03	$ 67.92	$ 11,410.26
800	12n	Itron	Network/Disconnect	120	$ 98.44	1.03	$ 101.39	$ 81,114.56
2,420	9	Itron	Poly phase 120-480 volt, ML3	120-480	$ 158.20	1.03	$ 162.95	$ 394,329.32
304	12	Itron	Poly phase 120-480 volt, ML3	120-480	$ 158.20	1.03	$ 162.95	$ 49,535.58
5,428	16	Itron	Poly phase 120-480 volt, ML3	120-480	$ 158.20	1.03	$ 162.95	$ 884,470.89
240	45	Itron	Poly phase 120-480 volt, ML3	120-480	$ 158.20	1.03	$ 162.95	$ 39,107.04
25,900	**Total**						**Itron Total**	**$ 2,463,972.96**

Anixter's Aclara Meter Quote to Tantalus for Riverside, CA 12-03-2018

Item/Service	Quantity	Unit Sell	Extended Price	Lead Time Weeks	Notes/Comments
Electric Meters					
Form/Class					
Form 1s Class 100	28	$111.24	$ 3,115	8	I210+ 1S RD CL100 120V or 240V O V2 ami-ready
Form 2s Class 200	16,452	$66.59	$1,095,512.32	8	I210+ 2S RD CL100 240V O V2 ami-ready
Form 3s Class 20	60	$68.31	$4,098.88	8	I210+ 3S CL20 120V or 240V O V2 ami-ready
Form 4s Class 20	168	$68.31	$11,476.85	8	I210+ 4S CL20 240V O V2 ami-ready
Form 9s Class 20	2,420	$173.34	$419,471.10	8	KV2c 9S CL20 120-480V TQEVR (no K switch) ami-ready
Form 12s Class 200 3 phase, 3 wire, Delta	304	$191.43	$58,193.76	8	KV2c 12S CL200 120-480V TQEVR (no K switch) ami-ready
Form 12s Class 200 Network	800	$113.33	$90,666.67	8	I210+ 12S RD CL200 O V2 ami-ready
Form 16s Class 200	5,428	$184.97	$1,004,020.35	8	KV2c 16S CL200 120-480V TQEVR (no K switch) ami-ready
Form 45s Class 20	240	$191.43	$45,942.44	8	KV2c 45S CL20 120-480V TQEVR (no K switch) ami-ready
Total Meters in RPU Service Territory	25,900		$2,732,496.97		
Form 2s Class 200 (Option for 25% of 2S)	4,113	$ 75.14	$ 309,043	8	I210+ 2S RD CL100 240V O V2 ami-ready

Ancillary Electric Meter Related Equipment

Rings	?				Anixter can provide Brooks, Eckstrom, or Marwell
Seals	?				Anixter can provide Brooks, Eckstrom, or Marwell
Item 3: SIO Board for KYZ outputs	As Needed	$ 68.75	n/a	8	
Item 4: Reactive Measures on KV2c (K)	As Needed	$ 12.50	n/a	n/a	
Item 5: MIO Board on KV2c for pulse inputs/outputs	As Needed	$ 193.75	n/a	8	

Configuration Notes	Assumed I210+ configuration includes cover with D-ring, no test link
	Aclara quotation is valid only for the 12-pin configuration of I210+. It is not valid for the 10-pin version.
Price Validity	Quote valid through 11/6/2019. In event that 10,000 or more meters are ordered from Aclara on a single purchase order for this project, then the KV2c meter prices will be reduced by $8.50 each and the I210+c 2S-RD meter prices will be reduced by $2.50 each.
Specific Customer/RFP Application	This price quote is applicable to only the Riverside RFP-1814.
Terms	Terms are per the standard Anixter terms. For ami-ready configurations, the ami-ready terms listed below also apply. Other than as stated in the terms currently in place, Anixter accepts no government or end-user flow-down terms unless agreed in writing in advance.
Warranty	Warranty period included in pricing is 36 months from Aclara delivery. Warranty parameters are per the standard warranties of the current Anixter agreement.
Integration	Communication module integration is Tantatlus responsibility.
AMI-Ready Terms	– Purchaser is responsible for supplying, at time of Aclara order, all meter configuration requirements details and meter programming if required
	– Providing consolidated meter and module information to utility is Purchaser/Integrator responsibility, including any module test data, data consolidation, and utility data formatting requirements
	– Purchaser/Integrator is responsible for determining and performing all processes related to integration of meter and module
	– Purchaser/Integrator is responsible to ensure that the assembly of the end-point is performed using the combination of meters and NICs that have been validated per ANSI C12.1 and C12.20 standards.
	– Purchaser/Integrator is responsible for all labeling in conjunction with the NIC installation (and RMA services) according to the AMI vendor and given utility customer requirements. Aclara provides no tools, software, or services for this process.
	– Purchaser/Integrator/AMI vendor is responsible for understanding any requirements, limitations, and options for meter functionality, configuration, initialization and test.
	– Purchaser/Integrator is responsible for transportation from Integrator facility to utility
	– Purchaser/Integrator is responsible for full RMA responsibilities for the integrated product. Purchaser/Integrator is responsible to analyze returns to determine if the problem is the meter or the NIC. The NIC must be removed from the meter before any meter is returned for Aclara warranty services. If a meter is repaired/replaced by Aclara under warranty then the Purchaser/Integrator must perform re-integration services. If Aclara receives a meter for warranty service for which no problem is found, a charge of $25 to Utility will apply.
	– When Aclara repairs or replaces meter under warranty, transportation from Aclara Factory to Purchaser/Integrator facility is Aclara responsibility (prepaid and allowed).
	– Aclara warranty does not void upon installation of an AMI module. However, Aclara is not responsible for any damage, or any meter performance degradation if caused or contributed to by AMI module or non-Aclara integration service. Aclara disclaims meter warranty conditions as follows: o Aclara does not warrant the AMI module o Aclara does not warrant the interoperability between the meter and the AMI module o Aclara does not warrant the installation service of the AMI module o Aclara does not warrant any damage caused by the integration process o Aclara does not warrant any degradation in performance, accuracy, or reliability of the meter caused by the installation or presence of the AMI module
	– Aclara is not responsible for transit damage in transportation segments of Purchaser/Integrator responsibility
	– For meter returns under Aclara warranty, return transportation to Aclara Factory is Purchaser/Integrator responsibility
	– Aclara consulting is not included. If desired, and subject to Aclara availability, Aclara consulting can be requested, quoted, and provided upon agreed scope of work and associated Utility or designated Integrator purchase order.

Aclara Meter Pricing

Qty	Form	Manufacturer	Meter Description	Voltage	Aclara	Adder	Unit Price	Extended Price
28	1	Aclara	I210+ 1S RD CL100 120V or 240V O V2 ami-ready	120/240	$ 111.24	1.03	$ 114.57	$ 3,208.04
16,452	2	Aclara	I210+ 2S RD CL100 240V O V2 ami-ready	240	$ 66.59	1.03	$ 68.59	$ 1,128,377.69
60	3	Aclara	I210+ 3S CL20 120V or 240V O V2 ami-ready	120/240	$ 68.31	1.03	$ 70.36	$ 4,221.84
168	4	Aclara	I210+ 4S CL20 240V O V2 ami-ready	240	$ 68.31	1.03	$ 70.36	$ 11,821.16
800	12	Aclara	I210+ 12S RD CL200 O V2 ami-ready	120/240	$ 113.33	1.03	$ 116.73	$ 93,383.92
2,420	9	Aclara	KV2c 9S CL20 120-480V TQEVR (no K switch) ami-ready	120-140	$ 173.34	1.03	$ 178.54	$ 432,067.28
304	12	Aclara	KV2c 12S CL200 120-480V TQEVR (no K switch) ami-ready	120-480	$ 191.43	1.03	$ 197.17	$ 59,940.56
5,428	16	Aclara	KV2c 16S CL200 120-480V TQEVR (no K switch) ami-ready	120-480	$ 184.97	1.03	$ 190.52	$ 1,034,140.96
240	45	Aclara	KV2c 45S CL20 120-480V TQEVR (no K switch) ami-ready	120-480	$ 191.43	1.03	$ 197.17	$ 47,320.71
25900	**Total**						**Aclara Total**	**$ 2,814,482.18**

Ancillary Electric Meter Related Equipment

Manufacture	Item	Qty	Price	Adder	Unit Price	Extended Price
Brooks, Eckstrom, or Marwell	Rings	TBD	TBD			
Brooks, Eckstrom, or Marwell	Seals	TBD	TBD			
Aclara	Item 3: SIO Board for KYZ outputs	TBD	$ 68.85	1.03	$ 70.92	
Aclara	Item 4: Reactive Measures on KV2c (K)	5000	$ 12.50	1.03	$ 12.88	$ 64,375.00
Aclara	Item 5: MIO Board on KV2c for pulse inputs/outputs	TBD	$ 193.75	1.03	$ 199.56	
					Total	**$ 64,375.00**
						$ 2,878,857.18

TANTALUS'S ADDITIONAL PRICING NOTES & ASSUMPTIONS
(ALPHA POC & BETA POC)

In addition to the Pricing Notes and Assumption listed on the foregoing pricing sheets, the following shall apply:

1. "Deployment Services" means Tantalus' project management services, network setup, system integration, training and field engineering support services provided during the Project Setup and Project Deployment Stages Deployment services includes travel and expenses based on the Customer specific bill of material at the time of contracting. Changes to the Customer's bill of material that require an increased number of onsite visits by Tantalus support personnel, in Tantalus' discretion, are subject to additional fees. Integration to existing vendor supported interfaces are included in the Initial Deployment Services. To the extent Customer requests custom services, including integration(s) between TUNet and third party applications that are not existing vendor supported interfaces, such customer services are subject to additional fees and agreement between Tantalus, Customer and any applicable third party in writing.

Tantalus shall invoice the City and the City shall remit payment to Tantalus for the SV-1000 Deployment Service fees associated with each phase of the project pursuant to the following Milestone schedule:

#	Milestones	Percentage of SV-1000 Due
1	Project Setup/kickoff	15.00%
2	TCC (HES) Installed	10.00%
3	System Design Complete	10.00%
4	Initial Training Session	10.00%
5	System Integration	15.00%
6	Equipment Deployment	10.00%
7	Second Training	10.00%
8	SAT	15.00%
9	Project Complete	5.00%

2. Annual System Support is available in both Premium and Standard Levels (as quoted on the Annual Fees pricing). The City may elect to receive Premium Level support features during the Alpha POC deployment phase, subject to up-front payment in full of the Premium Maintenance and Support Adder ($15,000.00) at the time of such election.

3. Adding additional features and functionality such as NSI, PPX, DA and TAL options will increase "Ongoing System Costs/SM-5000" (quoted in Annual Fees) by 22% of added feature/functionality.

4. Design Reserve: $18,750.00. Tantalus' network is designed to provide full connectivity and is based on customer supplied site location data. To allow for variances in data accuracy or completeness Tantalus provides a Design Reserve. If during deployment it is determined that additional collectors or repeaters are required to meet the Coverage Commitment described in Exhibit B (Statement of Work), the Design Reserve shall cover the cost of such equipment. This cost is not billed to the client unless used. Any additional equipment required beyond the Reserve will be furnished by Tantalus at its expense.

5. Optional Equipment/Services may be subject to additional terms and conditions, including without limitation those related to use of the software.

6. Customer agrees to pay an advance payment (the "Deposit") equal to five percent (5%) of the total purchase price of the Network Equipment and Services specified on each Purchase Order. The Deposit will be due and payable, notwithstanding the absence of the applicable Tantalus's invoice, within thirty (30) days of the date of the Tantalus order acknowledgement issued in connection with an accepted Purchase Order. Failure to pay the Deposit by such due date shall result in the cancellation of the Purchase Order by Tantalus, without requirement for any further action, or notice to Customer, by Tantalus.

7. Pricing includes 3-year warranty on TUNet Communications Modules. Extended warranty on collectors and repeaters is available for an additional cost as detailed under Incremental TUNet Applications.

Pricing Summary Table – Initial Term
(Includes Estimated Taxes Per Pricing Notes)

Alpha POC	$	135,833.42
Beta POC; Hosted Values	$	6,613,861.87
Beta POC; Onsite Values	$	6,493,944.43
Beta POC; Install	$	217,949.00
Smart City Pilot Applications & Other Offerings (Incremental TUNet Applications)	$	300,000.00

NOT-TO-EXCEED COST: $7,267,644.29

THIRD PARTY PRODUCTS AND WARRANTY

Notwithstanding anything to the contrary in the Agreement, the following applies to Third-Party Products:

Third-Party Products, Services and Software. Customer may elect to use the Third-Party Products, Third-Party Services and/or Third-Party Software. Unless otherwise specifically set forth in writing (and subject to applicable pass through terms and conditions) upon mutual agreement of all involved Parties, Tantalus does not provide a warranty of any type or manner with respect to Third-party Products, Third-party Services and/or Third-party Software and disclaims all responsibility and liability for these items, their access to the TUNet, including their modification, deletion, disclosure or collection of Customer information.

Third-Party Warranty
The Third-Party AMI Meters meet the existing design specifications set forth by the meter manufacturer as included in Tantalus's proposal, and are subject to a third-party manufacturer's warranty. Subject to Tantalus completing any necessary documentation with the manufacturer of such Third-Party Products that would permit Customer to be the beneficiary of such manufacturer's warranty and any other applicable service benefits, Tantalus shall transfer and pass applicable third party warranty terms and conditions through to Customer, as applicable; however, Tantalus shall remain the point of contact for Customer and shall coordinate all warranty claims with the Third-Party manufacturer for all AMI Meter warranty claims.

For reference purposes only:

- McAvoy & Markham Engineering and Sales, a distributor of Itron, Inc., has included its Terms and Conditions of Sale in Exhibit C, Compensation and Itron's warranty terms referenced therein are attached hereto in Exhibit H.

- As a reseller of Aclara products, Anixter Inc.'s Terms and Conditions of Sale are available for public viewing separate and apart from this Agreement at https://www.anixter.com/content/dam/Anixter/Legal/Terms-and-Conditions-of-Sales/general-terms-and-conditions-of-sales-anixter-2016-en.pdf and Aclara's warranty terms and conditions referenced therein are attached hereto in Exhibit H and shall be for the term set forth in Exhibit C, Compensation.

Definitions:

"Third-Party Product" means a product or application that is produced by a company other than Tantalus. Third-Party Products may have the benefit of a manufacturer's warranty provided by the product manufacturer.

"Third-Party Services" means those services that are offered or provided by a company other than Tantalus.

"Third-Party Software" means software that is licensed by a company other than Tantalus. Use of Third-Party Software is subject to end-user's acceptance of the third-party End User's License Agreement (EULA). Third-party software may have the benefit of warranties provided by the third-party software licensor.

"Third-Party AMI Meter" means a Third-Party Product that is used to measure consumption of electricity, water or gas by a residence or business.

MUTUAL NON-DISCLOSURE AND CONFIDENTIALITY AGREEMENT

This Mutual Non-Disclosure and Confidentiality Agreement (this "**Agreement**") is made and entered into this ___ day of _____, 2019, between Tantalus Systems Inc., a Delaware corporation, with a primary business address of 1130 Situs Court, Suite 230, Raleigh, NC 27606 ("**Tantalus**") on behalf of itself and its Affiliates, and the City of Riverside with a primary business address of 3900 Main Street, Riverside, California 92522 ("**Company**"). **Tantalus and Company** shall be collectively referred to herein as the "Parties" and each individually as a "Party." The Parties acknowledge that Tantalus and Company have entered into, or wish to enter into, a business relationship (the "Business Relationship") and that in the course of past, present and/or future dealings between the Parties relating to the Business Relationship or otherwise, the Parties have disclosed and/or may disclose their respective Confidential Information (as defined below) to the other Party. This Agreement is intended to allow the Parties to have open communications during the course of the business dealings contemplated by the Business Relationship, while protecting their respective Confidential Information (including Confidential Information previously disclosed by either Party to the other Party) against unauthorized use or disclosure.

NOW, THEREFORE, in consideration of the mutual covenants set forth below, the Parties agree as follows:

1. Confidential Information. As used in this Agreement, the term "Confidential Information" means all information, whether or not reduced to writing, related to the Business Relationship or to the business of either Party or its Affiliates (as defined below) that (a) is provided or made available by one Party or its Affiliates or Representatives (as defined below) (the "**Disclosing Party**") to the other Party (the "**Recipient**") or observed by the Recipient in connection with the Business Relationship, in any form and at any time (whether prior or subsequent to the Effective Date), and (b) is either identified as "confidential" (or with other similar designation(s)) by the Disclosing Party, or would or should reasonably be understood by the Recipient to be confidential given the nature of the information and/or the circumstances under which such information was disclosed. Confidential Information includes but is not limited to data (technical and non-technical), formulas, patterns, compilations (including compilations of customer information), programs (including models), devices, methods (including design methods), techniques, drawings (including equipment drawings), processes, financial information (including sales forecasts), pricing, lists of actual or potential customers or suppliers (including identifying information about those customers), operational information, planning or strategy information, research and development information, information about existing and future products, and information about personnel matters of the Disclosing Party. The Parties further acknowledge and agree that the scope of the Business Relationship, performance thereof, and all discussions between the Parties and information relating thereto, constitute Confidential Information. "**Representatives**" means the directors, officers, employees, agents, consultants, legal counsel, accountants and financial advisors of a Party to this Agreement. An "**Affiliate**" of a Party means any legal entity that such Party owns, is owned by, or is under common control with such Party. For purposes of the foregoing definition of "Affiliate," the terms "**control**" and "**own**" mean possessing a 50% or greater interest in an entity or the right to direct the management of the entity.

2. Exclusions. For purposes of this Agreement, other than with respect to personal data or other legally protected information, "Confidential Information" does not include any data or information which: (a) is or becomes generally available to the public other than by the fault of the Recipient, or by a third party that has a duty of confidentiality to the Disclosing Party with respect to the disclosed information or is otherwise prohibited from transmitting that information by a contractual, legal or other obligation; (b) is or becomes available to the Recipient on a non-confidential basis from a source other than Disclosing Party, provided that the source does not at the time of disclosure have a duty of confidentiality to the Disclosing Party with respect to the disclosed information or is not otherwise prohibited from disclosing that information by a contractual, legal or other obligation; (c) the Recipient can demonstrate by written records was, prior to its receipt from Disclosing Party, known to it at the time of disclosure; (d) is independently developed by the Recipient without use of or reliance on, directly or indirectly, Confidential Information of the Disclosing Party, as demonstrated from the written records of the Recipient; or (e) is required to be disclosed to a governmental entity or agency in connection with seeking any governmental or regulatory approval, or pursuant to the lawful requirement or request of a governmental entity or agency, or otherwise required to be disclosed by law; provided however that any information required to be disclosed under this Section 2(e) shall be subject to Section 4 below.

3. Protection of Confidential Information. Each of the Parties hereto, its Affiliates and its Representatives (a) must use the same care and discretion as it employs with its own confidential and proprietary information of a similar nature

(but in no event less than reasonable care and discretion) to maintain in confidence, and prevent disclosures of, the Confidential Information of the Disclosing Party, and (b) must not use the Confidential Information of the Disclosing Party except to further the Business Relationship or as otherwise specifically authorized in writing by the Disclosing Party. Under no circumstances, except as expressly set forth below, shall the Recipient reproduce, distribute, transfer, disclose or otherwise provide or make available, directly or indirectly, any Confidential Information of Disclosing Party to any third party other than as permitted under Section 4 below, without the prior written consent of the Disclosing Party. Each Party understands that in addition to its obligations to the other Party under this Agreement, it may not use any Confidential Information of the Disclosing Party, or permit the Disclosing Party's Confidential Information to be used by any person or entity, for its or their own benefit or to the detriment of the Disclosing Party, or in violation of any federal or state laws, including securities laws governing insider trading. Each Party understands and will inform its Representatives that such laws prohibit any person, directly or indirectly, from buying or selling securities of any company while in possession of material non-public information regarding that company.

4. Permitted and Compelled Disclosures. Recipient may disclose the Confidential Information of the Disclosing Party only to its Affiliates or Representatives who are directly involved in performing or evaluating the Business Relationship, who have a specific need to know such information, and who are obligated to hold the information in confidence and otherwise to comply with the terms of this Agreement. The Recipient agrees to instruct each of its Affiliates and Representatives to maintain the confidentiality of all of the Confidential Information and shall be liable for any unauthorized disclosures of Confidential Information or other breach of this Agreement by Recipients' Representatives authorized by Recipient to receive the information. If the Recipient is required to produce or disclose the Disclosing Party's Confidential Information by law, court order or governmental authority, the Recipient must promptly notify the Disclosing Party of that obligation. The Recipient shall not produce or disclose any such Confidential Information until the Disclosing Party has (a) requested protection from the court or other legal or governmental authority issuing the process (with the reasonable assistance of the Recipient at the Disclosing Party's expense) and the request has been denied, (b) consented in writing to the production or disclosure of such Confidential Information, or (c) taken no action to protect its interest in the Confidential Information within ten (10) business days (or such shorter period required by order of a court or other legal or governmental authority) after receipt of notice from the Recipient of the obligation to produce or disclose. Notwithstanding the foregoing, the Recipient shall only disclose such portion of the Disclosing Party's Confidential Information which the Recipient is advised by counsel is required to be disclosed in order for the Recipient to comply with legal obligation. Notwithstanding the foregoing, the Recipient may disclose the Disclosing Party's Confidential Information in response to requests made pursuant to the California Public Records Act (California Government Code section 6250 et seq.) provided, that the party required to make the disclosure shall provide prompt, advance notice thereof to enable the other party to seek a protective order or otherwise prevent such disclosure.

5. Return of Confidential Information. Within ten (10) business days following the Recipient's receipt of a written request from the Disclosing Party, the Recipient must (a) return to the Disclosing Party, or at the Disclosing Party's election destroy, all tangible materials containing or embodying the Confidential Information in its possession, custody or control; and (b) securely erase all electronic materials containing or embodying the Confidential Information but shall not be otherwise required to erase, expunge or destroy any electronic copies of Confidential Information created as a result of the Recipient's standard back-up policies and procedures for the retention of information in an electronic format, and certify the same to the Disclosing Party in writing. Notwithstanding the foregoing delivery requirement, the Recipient may destroy any notes, analyses or reports generated by the Recipient to the extent any such notes, analyses or reports contain Confidential Information, and the Recipient shall certify such destruction within such ten (10) business day period.

6. Rights and Ownership of Confidential Information. Recipient acknowledges and agrees that as between the Parties, any Confidential Information is the sole and exclusive property of the Disclosing Party. Except as expressly herein provided, this Agreement shall not be construed as granting or conferring to either Party, either expressly or impliedly, any rights, licenses or interests in or with respect to any Confidential Information of the other Party, including any intellectual property or ownership rights. This Agreement shall also not create any exclusive business relationship or other rights or obligations between the Parties, nor require the Parties to enter into any other definitive business agreement.

7. Competitive Information. Each of the Parties acknowledges and understands that the other Party may currently or in the future market or have under development products or services which are competitive with products or services now offered or which may be offered by the other Party, and, except as expressly set forth in this Agreement, the Parties' communications hereunder will not serve to impair the

right of either Party to develop, make, use, procure or market products or services now or in the future which may be competitive with those offered by the other Party, nor require either Party to disclose any planning or other information to the other Party, provided that in no even may either Party use the Confidential Information of the other Party in pursuit thereof.

8. Term and Survival. This Agreement shall remain in effect until terminated by either Party upon ten (10) business days' written notice to the other Party ("Term"), provided however, the obligations of either Party under this Agreement with respect to any given information shall survive any termination of this Agreement until the information no longer qualifies as Confidential Information.

9. Warranties. The Disclosing Party represents that if the Confidential Information disclosed hereunder contains confidential or proprietary information of any third party, such third party has authorized the disclosure of such information pursuant to the terms hereof. No other warranties of any kind are made with respect to any information disclosed under this Agreement.

10. Notices. All notices under this Agreement shall be made in writing and shall be deemed properly delivered when: (a) delivered personally, (b) sent by e-mail to the address below, delivery confirmation required, or (c) mailed by certified mail, postage prepaid or overnight delivery service to the address of the other Party set forth below. Notices shall be effective upon receipt.

11. Entire Agreement. This Agreement constitutes the entire agreement between the Parties with respect to the subject matter hereof. Should any provision of this Agreement be held invalid, illegal or unenforceable for any reason, such provision shall be deemed restricted in application to the extent required to render it valid, and the remainder of this Agreement shall in no way be affected and shall remain valid and enforceable for all purposes. No modifications of this Agreement will be effective unless set forth in writing signed by both Parties.

12. Governing Law and Venue. This contract shall be governed and construed in accordance with the laws of the State of California (without giving effect to its conflict of laws provisions which would lead to the application of the laws of another jurisdiction). If either Party employs attorneys to enforce any rights arising out of or relating to this Agreement, the prevailing Party shall be entitled to recover actual, reasonable attorneys' fees. Except to the extent necessary to obtain jurisdiction over a third party, any legal action, suit or proceeding arising out of this Agreement shall be brought solely and exclusively in the Superior Court of the County of Riverside, California

13. Successors and Assigns. Neither Party may assign this Agreement or any rights or obligations hereunder without the prior written consent of the other Party, and any attempted assignment in contravention with the foregoing shall be void. The rights and obligations of the Parties will inure to the benefit of, will be binding upon, and will be enforceable by the Parties and their permitted successors.

14. Non-Waiver. A waiver of any claim, demand or right based on the breach of any provision of this Agreement shall not be construed as a waiver of any other claim, demand or right based on a subsequent breach of the same or any other provision.

15. Injunctive Relief. The Recipient acknowledges and agrees that should it or any one of its Representatives threaten to breach or breach any provision of this Agreement, the Disclosing Party will suffer irreparable damages, and its remedy at law will be inadequate. Therefore, the Disclosing Party shall be entitled, in addition to all other remedies available to it at law or in equity, to seek equitable relief, including specific performance and injunctive relief, to enforce any provision hereof and to restrain the Recipient or its Agents from using or disclosing, in whole or in part, directly or indirectly, any Confidential Information, without payment of a bond or other security.

16. Counterparts. This Agreement may be executed in counterparts, and by facsimile, each of which shall be deemed an original, and either Party may execute any such counterpart, all of which, when taken together, shall constitute one and the same instrument.

IN WITNESS WHEREOF, this Agreement has been executed and delivered as of the date first written above.

[Signatures on next page]

Accepted on this day by:

CITY OF RIVERSIDE, a California
charter city and municipal corporation
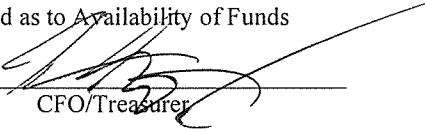
TANTALUS SYSTEMS INC.,
a Delaware corporation
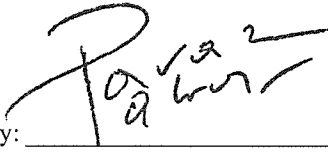
By: _____
    City Manager

By: _____
    Peter A. Londa
    President & CEO
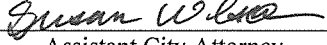
Attest: _____
    City Clerk

Certified as to Availability of Funds

By: _____
    CFO/Treasurer

By: _____
    Param Pawar
    Vice President, Finance

Approved as to Form:
By: _____
    Assistant City Attorney

Tantalus's contact for the project is:

Name: John Ziehl

Title: VP, Customer Operations

Email: jziehl@tantalus.com

Mobile: (503) 748-9542

1. **Insurance.**

    1.1 **General Provisions.** Prior to the Customer's execution of this Agreement, Tantalus shall provide satisfactory evidence of, and shall thereafter maintain during the term of this Agreement, such insurance policies and coverages in the types, limits, forms and ratings required herein. The rating and required insurance policies and coverages may be modified in writing by the Customer's Risk Manager or City Attorney, or a designee, unless such modification is prohibited by law.

    1.1.1 **Limitations.** These minimum amounts of coverage shall not constitute any limitation or cap on Tantalus's indemnification obligations under Section 1 hereof.

    1.1.2 **Ratings.** Any insurance policy or coverage provided by Tantalus or subcontractors as required by this Agreement shall be deemed inadequate and a material breach of this Agreement, unless such policy or coverage is issued by insurance companies authorized to transact insurance business in the State of California with a policy holder's rating of A or higher and a Financial Class of VII or higher.

    1.1.3 **Cancellation.** The policies shall not be canceled unless thirty (30) days' prior written notification of intended cancellation has been given to Customer by certified or registered mail, postage prepaid.

    1.1.4 **Adequacy.** The Customer, its officers, employees and agents make no representation that the types or limits of insurance specified to be carried by Tantalus pursuant to this Agreement are adequate to protect Tantalus. If Tantalus believes that any required insurance coverage is inadequate, Tantalus will obtain such additional insurance coverage as Tantalus deems adequate, at Tantalus's sole expense.

    1.2 **Workers' Compensation Insurance.** By executing this Agreement, Tantalus certifies that Tantalus is aware of and will comply with Section 3700 of the Labor Code of the State of California requiring every employer to be insured against liability for workers' compensation, or to undertake self-insurance before commencing any of the work. Tantalus shall carry the insurance or provide for self-insurance required by California law to protect said Tantalus from claims under the Workers' Compensation Act. Prior to Customer's execution of this Agreement, Tantalus shall file with Customer either 1) a certificate of insurance showing that such insurance is in effect, or that Tantalus is self-insured for such coverage, or 2) a certified statement that Tantalus has no employees, and acknowledging that if Tantalus does employ any person, the necessary certificate of insurance will immediately be filed with Customer. Any certificate filed with Customer shall provide that Customer will be given ten (10) days' prior written notice before modification or cancellation thereof.

    1.3 **Commercial General Liability** Prior to Customer's execution of this Agreement, Tantalus shall obtain, and shall thereafter maintain during the term of this Agreement, commercial general liability insurance as required to insure Tantalus against damages for personal injury, including accidental death, as well as from claims for property damage, which may arise from or which may concern operations by anyone directly or indirectly employed by, connected with, or acting for or on behalf of Tantalus. The Customer, and its officers, employees and agents, shall be named as additional insureds under the Tantalus's insurance policies.

    1.3.1 Tantalus's commercial general liability insurance policy shall cover both bodily injury (including death) and property damage (including, but not limited to, premises operations liability, products-completed operations liability, independent contractor's liability, personal injury liability, and contractual liability) in an amount not less than \$1,000,000 per occurrence and a general aggregate limit in the amount of not less than \$2,000,000.

1.3.2   Tantalus's automobile liability policy shall cover both bodily injury and property damage in an amount not less than $1,000,000 per occurrence and an aggregate limit of not less than $1,000,000. All of Tantalus's automobile and/or commercial general liability insurance policies shall cover all vehicles used in connection with Tantalus's performance of this Agreement, which vehicles shall include, but are not limited to, non- owned vehicles and hired vehicles.

1.3.3   Prior to Customer's execution of this Agreement, copies of insurance policies or original certificates along with additional insured endorsements acceptable to the Customer evidencing the coverage required by this Agreement, for both commercial general, shall be filed with Customer and shall include the Customer and its officers, employees and agents, as additional insureds. Said policies shall be in the usual form of commercial general and automobile liability insurance policies, but shall include the following provisions:

It is agreed that the City of Riverside, and its officers, employees and agents, are added as additional insureds under this policy, solely for work done by and on behalf of the named insured for the City of Riverside.

1.3.4   The insurance policy or policies shall also comply with the following provisions:

a.   If the policy is written on a claims made basis, the certificate should so specify and the policy must continue in force for one year after completion of the services. The retroactive date of coverage must also be listed.

b.   The policy shall specify that the insurance provided by Tantalus will be considered primary and not contributory to any other insurance available to the Customer.

1.4   **Errors and Omissions Insurance.** Prior to Customer's execution of this Agreement, Tantalus shall obtain, and shall thereafter maintain during the term of this Agreement, errors and omissions professional liability insurance in the minimum amount of $1,000,000 to protect the City from claims resulting from the Tantalus's activities.

1.5   **Subcontractors' Insurance.** Tantalus shall require all of its subcontractors to carry insurance, in an amount sufficient to cover the risk of injury, damage or loss that may be caused by the subcontractors' scope of work and activities provided in furtherance of this Agreement, including, but without limitation, the following coverages: Workers Compensation, Commercial General Liability, Errors and Omissions, and Automobile liability. Upon Customer's request, Tantalus shall provide Customer with satisfactory evidence that Subcontractors have obtained insurance policies and coverages required by this section.

1.6   **Cyber Liability Insurance.** Prior to delivery of the Alpha POC Purchase Order in accordance with the Agreement, Tantalus shall obtain and maintain during the term of this agreement cyber liability insurance with limits not less than $1,000,000 per occurrence or claim, $1,000,000 aggregate. Coverage shall be sufficiently broad to respond to the duties and obligations as is undertaken by Consultant in this agreement and shall include, but not be limited to, claims involving infringement of intellectual property, including but not limited to infringement of copyright, trademark, trade dress, invasion of privacy violations, information theft, damage to or destruction of electronic information, release of private information, alteration of electronic information, extortion and network security. The policy shall provide coverage for breach response costs as well as regulatory fines and penalties as well as credit monitoring expenses with limits sufficient to respond to these obligations.

The attached warranties for Itron and Aclara Meters are provided for the convenience of the City and reference purposes only, and the City acknowledges that such terms and warranties are subject to modification from time to time by such third-parties in their sole discretion. Tantalus makes no representations or warranties as to the accuracy and/or applicability of such terms and warranties with respect to any equipment purchased by the City.

Aclara Hardware Warranties

Aclara Meters Equipment Warranty

Aclara Meters LLC (Aclara Meters) Equipment Warranty

Seller warrants that Products shall be delivered free from defects in material, workmanship and title and that Services shall be performed in a competent, diligent manner in accordance with any mutually agreed specifications.

The warranty for Products shall expire one (1) year from first use or eighteen (18) months from delivery, whichever occurs first, except that software is warranted for ninety (90) days from delivery. The warranty for Services shall expire one (1) year after performance of the Service, except that software-related Services are warranted for ninety (90) days.

If Products or Services do not meet the above warranties, Buyer shall promptly notify Seller in writing prior to expiration of the warranty period. Seller shall (i) at its option, repair or replace defective Products and (ii) re-perform defective Services. If despite Seller's reasonable efforts, a non-conforming Product cannot be repaired or replaced, or non-conforming Services cannot be re-performed, Seller shall refund or credit monies paid by Buyer for such non-conforming Products and Services. Warranty repair, replacement or re-performance by Seller shall not extend or renew the applicable warranty period. Buyer shall obtain Seller's agreement on the specifications of any tests it plans to conduct to determine whether a non-conformance exists.

Buyer shall bear the costs of access for Seller's remedial warranty efforts (including removal and replacement of systems, structures or other parts of Buyer's facility), de-installation, decontamination, re- installation and transportation of defective Products to Seller and back to Buyer.

The warranties and remedies are conditioned upon (a) proper storage, installation, use, operation, and maintenance of Products, (b) Buyer keeping accurate and complete records of operation and maintenance during the warranty period and providing Seller access to those records, and (c) modification or repair of Products or Services only as authorized by Seller in writing. Failure to meet any such conditions renders the warranty null and void. Seller is not responsible for normal wear and tear.

This Article 5 provides the exclusive remedies for all claims based on failure of or defect in Products or Services, regardless of when the failure or defect arises, and whether a claim, however described, is based on contract, warranty, indemnity, tort/extra-contractual liability (including negligence), strict liability or otherwise. The warranties provided in this Article 5 are exclusive and are in lieu of all other warranties, conditions and guarantees whether written, oral, implied or statutory.

NO IMPLIED OR STATUTORY WARRANTY, OR WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE APPLIES.

Warranty Terms

Limited Equipment Warranty

Warranty and Remedy.
Except to the extent otherwise provided in Attachment A or as agreed otherwise by Itron in writing, Itron warrants to Customer that the Equipment that is manufactured by Itron will be free from defects in materials and workmanship and will conform to the applicable published Itron specifications for a period of one year from the date of shipment. Except to the extent otherwise provided in Attachment A or as agreed otherwise by Itron in writing, Itron's sole obligation and Customer's exclusive remedy in connection with the breach of a warranty provided under this Section or under Attachment A or as agreed otherwise by Itron in writing shall be for Itron, at its own option, to repair non-conforming Equipment or provide Customer with replacement Equipment after Customer has returned non-conforming Equipment properly packaged and prepaid during the applicable warranty period to a repair facility designated by Itron in accordance with Itron's then-current RMA procedures. If Itron, in its sole discretion, determines that it is unable to repair or replace such non-conforming Equipment, Itron will refund to Customer the amount paid for such Equipment. Equipment that is repaired or replaced pursuant to this Section will be warranted for the remainder of the original warranty period or 30 days, whichever is longer.

Exclusions
The warranty provided herein does not cover damage due to external causes, including accident, abuse, misuse, inadequate maintenance, problems with electrical power, acts of God; service (including installation or de-installation) not performed or authorized by Itron; usage not in accordance with product instructions or in a configuration not approved by Itron; normal wear and tear; and problems caused by use of parts and components not supplied or approved by Itron in writing. The warranty provided herein shall be void if the Equipment is modified in a way not previously authorized in writing by Itron. The above warranty does not cover any third party equipment provided by Itron. Any warranty for such equipment will be between Customer and the third party manufacturer.

Product	Warranty Terms
Centron and Sentinel electricity meters	3 years from shipment
Repairs for out-of-warranty Centron and Sentinel electricity meters	Itron shall perform the repairs with reasonable care and in a diligent and competent manner. Itron's sole obligation in connection with repair warranty failures shall be, at its option, to correct or re- perform repairs or refund to Customer the amount paid for the repairs. Customer must report any deficiencies in repair work to Itron in writing within 90 days of shipment to receive the remedies described herein.
200W series water endpoints (including battery)	**Standard Warranty:** Full warranty consistent with the warranty terms in the Agreement for the first 5 years from shipment. **Optional Extended Warranty (if purchased by Customer):** For warranty claims in years 6 through 10, Itron's sole obligation will be to provide Customer with a discount on replacement product equal to 100 percent of its then-current list price for the replacement product. For warranty claims in years 11 through 15, Itron's sole obligation will be to provide Customer with a discount on replacement product equal to 50 percent of its then-current list price for the replacement product. For warranty claims in years 16 through 20, Itron's sole obligation will be to provide Customer with a discount on replacement product equal to 25 percent of its then-current list price for the replacement product. The warranty on Itron water endpoints shall be void if the endpoint is used in connection with a third party reading system that is not approved by Itron.
100W and 60W series water endpoints (including battery)	Full warranty consistent with the warranty terms in the Agreement for the first 10 years from shipment. For warranty claims in years 11 through 15, Itron's sole obligation will be to provide Customer with a discount on replacement product equal to 50 percent of its then-current list price for the replacement product. For warranty claims in years 16 through 20, Itron's sole obligation will be to provide Customer with a discount on replacement product equal to 25 percent of its then-current list price for the replacement product. The warranty on Itron water endpoints shall be void if the endpoint is used in connection with a third party reading system that is not approved by Itron.
Leak Sensor	Full warranty consistent with the warranty terms in the Agreement for the first 10 years from shipment. For warranty claims in years 11 through 15, Itron's sole obligation will be to provide Customer with a discount on replacement product equal to 50 percent of its then-current list price for the replacement product. For warranty claims in years 16 through 20, Itron's sole obligation will be to provide Customer with a discount on replacement product equal to 25 percent of its then-current list price for the replacement product.
Upgraded handhelds or mobile collectors	90 days from shipment
METRIS Meters and I-250 Meters	Itron warrants that eighty-five percent (85%) or more of the METRIS Meters or I-250 Meters shipped to Customer during any calendar year will be free from defects in materials and workmanship such that they maintain set point calibration that is within two percent of their original factory set point calibration (open and check) ("Calibration Warranty"). The foregoing Calibration Warranty is valid until the earlier of (i) 15 years from shipment to Customer of the METRIS Meter or I-250 Meter for which warranty coverage is sought, (ii) the measurement of more than one million cubic feet of gas measured by such meter, or (iii) until such meter is replaced by Customer in connection with a periodic meter change-out. Seller's sole obligation and Company's exclusive remedy in connection with the breach of a warranty provided under this Section shall be for Seller, at its option, to repair any non-conforming METRIS Meters or I-250 Meters, provided that if Itron determines that it is unable to repair a non-conforming METRIS Meter or I-250 Meter, Itron will refund to Company the depreciated value of such non- conforming METRIS Meter or I-250 Meter. At the request of Itron, Company will provide evidence of meter's service history to verify warranty coverage.

LICENSED SOFTWARE MAINTENANCE

Under the terms of this Exhibit, Customer shall purchase, and Tantalus shall provide, software maintenance services, subject to the terms and conditions set out in this Addendum.

HOSTED SERVICES. If Customer elects to utilize a hosted server, subject to payment of the applicable set-up fee and monthly hosted services fee(s) set forth in this Agreement, Tantalus shall provide the Network Server / TCC, secure data center, TUNet set up and provisioning required to operate the TUNet software, and install on the hosted server such software upgrades (and release notes), enhancements and updates (collectively, the "**Updates**") as Tantalus makes generally available to its customers for the Licensed Software that is the subject of, and as defined in, the EULA (the "**Licensed Software Maintenance Services**"). Such Updates shall form part of the Software licensed in accordance with and subject to the terms of the EULA.

Tantalus shall be responsible for performing all of the set-up activities required at the hosting site to ensure that the hosted services will be provided in accordance with Exhibit J, Hosted Service Levels of this Agreement. Tantalus may request assistance from Customer to ensure connectivity is properly established and tested and that the database is configured correctly. Customer shall be responsible for creating and maintaining all user account information and for performing all other application level system administration functions that are available within TUNet.

Customer must have an be in compliance with an active End User License Agreement and Technical Support Agreement in place with Tantalus for continued use of the hosting services.

ON-PREMISE SERVER. If Customer elects to migrate to an on-site server at any time, subject to payment of the annual subscription fee(s) described in Exhibit C, Compensation, as the case may be, for such services as set out below and the other terms and conditions of the Agreement, Tantalus shall provide to Customer, such Updates (and release notes) as Tantalus makes generally available to its customers for the Licensed Software that is the subject of, and as defined in, the EULA (the "**Licensed Software Maintenance Services**"). Such Updates shall form part of the Software licensed in accordance with and subject to the terms of the EULA.

Customer shall maintain up-to-date and valid backup copies of its systems and data for recovery purposes. Customer acknowledges and agrees that Tantalus' ability to restore on premise systems is limited to the extent that such systems have up-to-date and valid backup copies, including, without limitation, in accordance with procedures provided by Tantalus. If an on premise server is elected, Customer is responsible for protecting from loss, damage or destruction all hardware and software (including materials, data, specifications, tapes and programs) provided by Tantalus. The replacement of any such products lost, damaged or destroyed shall be at Customer's sole expense. Customer shall provide to Tantalus all necessary information, support and cooperation as is necessary for the performance of the Licensed Software Maintenance Services under this Addendum. Without limiting the generality of the foregoing, Customer acknowledges and agrees that Tantalus requires, and Customer shall provide to Tantalus, secure and encrypted remote access to Customer's systems and servers as required and instructed by Tantalus, in Tantalus' discretion, to enable Tantalus to perform the Licensed Software Maintenance Services under this Addendum. Such instructions provided by Tantalus may include, without limitation, the use of a secure shell (ssh) or equivalent in accordance with Tantalus' security framework. If Customer requires Tantalus to utilize an alternative secure and encrypted access mechanism other than that provided or instructed by Tantalus, Customer shall pay Tantalus such additional service and support fees that may apply. Customer shall comply with the EULA, including, without limitation, the "Restrictions on Use" set out therein, failing which Tantalus shall have no obligation to provide the services described in this Addendum.

SUBSCRIPTION AND ANNUAL SUBSCRIPTION FEES. Licensed Software Maintenance Services, as described in this Addendum, shall be provided to Customer, without payment of an associated annual subscription fee, during the Initial Term. Thereafter, Tantalus shall invoice Customer in advance on an annual basis for such Licensed Software Maintenance Services. The first invoice will be pro-rated for the period from the first day of the month following the Initial Term to January 1st of the following year and then it will be based on a January 1 to December 31 time frame. Customer shall pay to Tantalus the then current applicable annual subscription fee for such Licensed Software Maintenance Services within thirty (30) days of Customer's receipt of an invoice for such annual subscription fee from Tantalus. Any payments outstanding for more than ninety (90) days from date of invoice will be considered a default under the Agreement. In order to cure such default, Customer may request that Tantalus re-commence provision of Licensed Software Maintenance Services by (a) issuing an appropriate

purchase order to Tantalus, and (b) paying to Tantalus, within thirty (30) days of Customer's receipt of an invoice for such annual subscription fees from Tantalus, the then current applicable annual subscription fee for such Licensed Software Maintenance Services, and all applicable annual subscription fees for the period of time during which the Customer was in default (the "**Back-Dated Subscription Fees**"), plus 50% of the Back-Dated Subscription Fees.

TERMINATION. Without prejudice to any other rights, Tantalus may cancel the Licensed Software Maintenance Services if Customer does not abide by the terms and conditions of this Addendum. In the event of a default or termination of this Agreement for any reason, Tantalus shall have no obligation to provide the Licensed Software Maintenance Services to Customer during such period and any guarantees set forth in this Agreement shall be deemed null, void and of no effect until Customer cures all default amounts.

In the event that the Agreement expires without extension, amendment or replacement with a new agreement, Customer agrees that its payment obligations herein as related to maintenance, support and licensing shall continue in full force and effect for as long as TUNet is operational by Customer in any respect.

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TECHNICAL SUPPORT

Unless otherwise defined in this Exhibit, each defined term will have the respective meaning set out in the Agreement.

1.   Technical Support.   Customer shall purchase from Tantalus, and Tantalus shall provide to Customer, the Premium email and telephone technical support set forth in Addendum B-1 ("**Technical Support**"). On-site technical support is defined later in this Exhibit.   For greater certainty, Technical Support does not include in or out of warranty repairs or hardware or software upgrades for Network Equipment. *Technical Support shall commence 12 months from commissioning of the TCC-2040 for the Beta Phase POC ("Start Date").*

Optional:

☒   **Premium Level Technical Support**

Premium support adder detailed in Exhibit C is due Net 30 days from commencement of the Beta POC and annually thereafter.

2.   Pricing.   The price for Technical Support is outlined in Exhibit C, Compensation and is based on the Technical Support Plan outlined in Addendum B-1 chosen by the Customer. The price is comprised of a base charge and an additional charge based on the number of endpoints ("**Endpoints**") shipped to the Customer, plus the Premium support additional charge of $15,000.00.   All prices are based on a 12-month period and are exclusive of all federal, state, provincial, municipal or other governmental use, sales, value-added taxes, occupational or other taxes, tariff's, duties and surcharges now in force or enacted in the future.   Notwithstanding the foregoing, the cost of Professional Services included with the Beta POC include the fees associated with provision of maintenance and support services through the 18th month of deployment. The cost of extending the project through the Initial Term of the Agreement is set forth in Exhibit C, Compensation, and shall be due and payable on the 1st day of the 19th month after the Effective Date of the Agreement.

3.   Payment.   Tantalus shall invoice Customer in advance for Technical Support, on an annual basis, commencing on the first day of the month following the Initial Term of the Agreement.   The first invoice will be pro-rated for the period from the first day of the month following the Initial Term to January 1st of the following year and then it will be based on a January 1 to December 31 time frame.   Payment terms will be net thirty (30) days from date of Tantalus's invoice.   In addition to any other remedies Tantalus may have for late payments, Customer

will be charged interest at 1½% per month (equivalent to an annual rate of interest of 18%), payable monthly. Payments will be applied first to interest payable and then principal owing. Tantalus may modify the preceding payment terms if, in its reasonable opinion, the payment record or financial condition of Customer so justifies. Any payments outstanding for more than 90 days from date of invoice will be considered a default under the Agreement.

4.   Price or Plan Changes.   Tantalus reserves the right, in its sole discretion, to modify the: (1) *Technical Support Plan* as outlined in Table 1 and (2) *Plan Pricing* as outlined in Exhibit C of the Agreement on thirty (30) days prior written notice to Customer by whichever of the following is greater: (i) the immediately preceding year's percentage increase in the Consumer Price Index For All Urban Customers, All Cities Average, All Items (CPI-U"), as published by the Bureau of Labor Statistics, U.S. Department of Labor in the "Summary Data from the Consumer Price Index New Release" for the 12-month period ending at December 31st of the calendar year immediately preceding the adjustment date; or (ii) the average percentage change during the most recent 12-month period to Tantalus's published price list, or (iii) 3.5% per year.

5.   On-Site Support.   Within this Agreement, Tantalus Technical Support is email and telephone based. On-site technical support, and other support services, may be provided, and will be billed outside the scope of this Agreement, including reasonable travel and living expenses for on-site Tantalus personnel.

6.   In the event that the Agreement expires without extension, amendment or replacement with a new agreement, Customer agrees that its payment obligations herein as related to maintenance, support and licensing shall continue in full force and effect for as long as TUNet is operational by Customer in any respect.

Customer Obligations.   Customer agrees:

(a)   that prior to requesting Technical Support, Customer will perform all diagnostics and follow the information provided by Tantalus to try and resolve any TUNet problems prior to contacting Technical Support;

(b)   that in order to have continuity in Technical Support, Customer will (i) designate, in writing, a minimum of two (2) personnel who have received full training from Tantalus in the operation of TUNet ("**TUNet Operators**") and (ii) ensure that those TUNet Operators are the only individuals that request Technical Support;

(c)   either: (i) if Customer elects an on premise server, to install and maintain network servers and other infrastructure, including any software upgrades as may be recommended by Tantalus from time to time, consistent with industry standards; or (ii) if Customer elects a hosted server, to install and maintain network infrastructure, computer hardware and other necessary equipment, including any software upgrades to network infrastructure and Customer provided equipment used to access the TUNet hosted network server, as may be recommended by Tantalus from time to time, consistent with industry standards;;

(d)   to safeguard all data; and

(e)   to install and maintain a robust and secure virtual private network (VPN) and/or secure shell connection (SSH) for access to the Tantalus hosted network servers, or to allow network server maintenance, performance monitoring and upgrades to an on premise server, as the case may be.

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TECHNICAL SUPPORT PLAN

This is Addendum B-1 to Exhibit B Technical Support. Unless otherwise defined in this Addendum or elsewhere in Exhibit B, defined terms will have the respective meaning set out in the Agreement.

The Technical Support Plans available are as follows:

STANDARD	PREMIUM TECHNICAL SUPPORT
5 x 12 Customer Support - *7AM - 7PM, 5 days per week excluding U.S.A. and Canadian holidays*	7 x 24 Extended Customer Support
Consolidated Invoices (TSA/Annual Support) - *NS/NC Software Annual Maintenance* - *Endpoint Annual Maintenance*	Consolidated Invoices (TSA/Annual Support) - *NS/NC Software Annual Maintenance* - *Endpoint Annual Maintenance*
Quarterly Training Sessions - *Remote [non-certification]*	Quarterly Training Sessions - *Remote [non-certification]*
Customer Community access	Customer Community access
	Annual Users Conference - *Admission for 2*
	Priority email premiumsupport@tantalus.com - *Response in 4 hours*
	Priority Support Line
	Online Technical Support Chat Annual Certification Training - *TUNet University* - *Admission for 2*
	Custom Billing Exports - *Includes annual support*
	NS (TCC) Labor Tantalus labor for troubleshooting and resolution (excludes materials)
	48-hour Part Replacement - *M-F (excluding U.S.A. and Canadian holidays), cutoff by 3PM*
	Advance RMA replacements - *Shipment within 48 hours after reported issue*
	Remote System Health Check - *Annual investigation with reported customer action plan* - *WAN Assessment* - *LAN Assessment* - *Dashboard Health Check*
	Assigned Project Manager (PM)

Individual features of each plan are as described below:

CUSTOMER SUPPORT

Standard Level - 5 x 12 Technical Support (7 am to 7 pm). Customer Support is available Monday through Friday excluding United States and Canadian statutory holidays via telephone and a normal customer service email address.

Premium Level - 7 x 24 Extended Customer Support (less than 2-hour response time during regular business hours with scaled support after hours), Exception Based Remote Monitoring (based on system alerts and urgency), Advance Repair and Replace for Warranty Devices, and Full Customer Community Access.

CONSOLIDATED INVOICES

Consolidated invoices for annual licensed software maintenance and technical support, including VC/IPC/NS/NC Software Annual Maintenance and Endpoint Annual Maintenance are included as part of Tantalus' Standard and Premium Technical Support packages.

QUARTERLY TRAINING SESSIONS

Remote Training

The training sessions are flexible and can be broken up into multiple sessions, depending on the required participants. These WebEx based training sessions are designed as 60-90 minute web based discussion groups, held once per quarter based upon the subject matter generated at Tantalus' Annual Users Conference. Recorded sessions are made available in Customer Community, via e-mail, etc.

COMMUNITY ACCESS

Community Access includes the following:

- Tools to track the status of current and previous equipment orders and enter and track Return Material Authorization (RMA) orders for Tantalus equipment through the Customer Community portal are made available as part of Phase 2 implementation.
- A TUNet Library provides TUNet technical product documentation and installation guides.
- A Project Information section including tracking of project related meetings and action items.
- A knowledge-based forum for open discussion of current issues in the deployment and concerns of the project team.
- An Issue Creator allows the Customer to create feature requests and other issues for the Tantalus project team in the event that the issue is not already covered in the standard system documentation. Once created, issues are evaluated, resourced, and reported based on resource availability. Time sensitive and urgent issues should be raised by Customer via Tantalus' Technical Support Line at +1 (919) 335-8109.

Routine Documentation Updates

Routine updates to operational TUNet material will be provided to all Customers. Examples of these Documents include Network Server Operation Manuals, TUNet endpoint product manuals, and other equipment upgraded as a part of system improvements. Updated versions of all Customer documentation will be available in Customer Community.

NOTE: THE REMAINING TECHNICAL SUPPORT FEATURES BELOW ARE ONLY AVAILABLE WITH THE PURCHASE OF PREMIUM SUPPORT PACKAGE.

ANNUAL TANTALUS USERS CONFERENCE – ADMISSION FOR TWO (2)*

With the purchase of a Premium package, the Customer receives admission for two (2) representatives to the Annual Tantalus Users Conference (TUC).

The annual TUC provides an excellent opportunity for the TUNet community to gather for education, sharing, networking, and social events. The TUNet User conference is a knowledge-driven event with heavy focus on the customer experience, technical training, and collaboration with Tantalus, utility peers, and our extensive network of partners.

*Admission includes the cost of registration for two (2) representatives only. Travel and living expenses are not included and are the responsibility of Customer. Customers with Standard packages will be responsible for costs associated with attendance, separate and apart from this Agreement.

DESIGNATED PRIORITY SUPPORT EMAIL

With purchase of a Premium package, Customer will receive a priority email address which directs email messages to the Field Operations team during non-core business hours, thereby allowing the issue being reported to receive attention prior to the start of the next business day. During normal business hours, response is provided within 4 hours.

Priority Support Email Address: premiumsupport@tantalus.com

PRIORITY SUPPORT LINE

With purchase of a Premium package, once available, Customer will have direct access to Tantalus' Field Operations team for placing high priority calls during non-core business hours. Upon receipt of such calls, Tantalus staff will take action, either by solving the problem directly, or by contacting other expert individuals to assist depending on the nature of the call.

Tantalus will apply commercially reasonable efforts to promptly deliver the described services in a professional and workman-like manner and in accordance with generally recognized commercial practices and standards. The promptness and utility of our response may vary from time-to-time, depending upon the accuracy and completeness of the information provided, our ability to reproduce the problem, the scope of work required to address an issue, and the volume of support service traffic at the time.

ONLINE TECHNICAL SUPPORT CHAT

Customers will be able to access Tantalus' Online Technical Support Chat ("Live Chat") to have a personalized one-on-one, real time, text-based interactive conversation with a Tantalus Field Service representative.

- Live Chat is available through Customer Community and will be queued on a on a first-come-first-serve basis.
- Hours of operation - 8:00am to 5:00pm, Monday – Friday, excluding U.S.A. and Canadian holidays.

ANNUAL CERTIFICATION TRAINING – TUNET UNIVERSITY

TUNet University™ – Admission for two (2)*

With purchase of a Premium package, Tantalus University™, a comprehensive training and certification series is available to TUNet Users. Tantalus University is designed to provide a full range of advanced training opportunities for TUNet Users across all utility departments. These valuable training courses will ensure that Users are able to maximize value from TUNet AMI investments, optimize system performance, and enhance technical skillsets. Class sizes are limited to ensure that students receive very focused and personalized training. Students who successfully complete Tantalus University courses will be endorsed as Certified TUNet Users. Completion of a Tantalus University course is currently the only way to receive this designation.

TUNet University training certification is required for those utility personnel responsible for reporting to and obtaining assistance from Tantalus Technical Support.

*Admission includes the cost of registration for two (2) representatives only. Travel and living expenses are not included and are the responsibility of Customer. Customers with Standard packages will be responsible for costs associated with attendance, separate and apart from this Agreement.

CUSTOM BILLING EXPORTS

With purchase of a Premium package, Customer has access to a billing function that summarizes meter data and presents it directly to Customer's billing or CIS system from TUNet.

TUNet can be used to bill utility customers based on end of day readings, interval readings, for both single-phase and poly-phase meters.

Includes customized extraction scripts of Customer data from the TUNet database and maintenance.

NS (TCC) LABOR

For problems related to component failures of Tantalus-sourced TCC hardware that is less than five (5) years old.

Includes Tantalus labor for troubleshooting and related resolution at software and hardware levels (e.g. including database administration)

Does not include materials.

48-HOUR PART REPLACEMENT

Applicable to non-warranty parts, excluding Network Server / TCC, during the times listed below. Only includes the cost associated with outgoing expedited shipping of component. Does not include the cost of material or shipping charges incurred by Customer.

Monday – Friday (excluding U.S.A. and Canadian holidays), cutoff by 3pm.
Shipment within 48 hours after reported issue.

ADVANCE RMA REPLACEMENTS

Most TUNet endpoint devices have a unique TUNet Network ID (NID) in a bar code on each unit. You can use the Customer Community to request an RMA for any of these devices (TCs, RTs, LMs, XRs, etc.). The Customer Community will tell you whether the device is under warranty, and help you through the process of submitting your request.

Inquiries about Network Servers, Network Controllers and any other equipment that does not have a NID should be directed to your Project Manager.

With the purchase of a Premium package, equipment repairs conducted under the applicable equipment warranty will include advance replacement of the failed components, if such components are available in Tantalus inventory, to afford greater responsiveness to the Customer. Otherwise, Tantalus will require the failed component be received prior to shipping a replacement under warranty. Where advance replacement is provided for failed components under warranty, Customer must return the failed component, within 30 days of shipment of advance replacement, freight prepaid by Customer to Tantalus at its designated depot, together with Tantalus' return material authorization number ("RMA") and completed on-line problem sheet. Where advance replaced failed components are not returned by Customer within 30 days, Tantalus will invoice Customer for the price of the advance replaced component supplied and Customer hereby agrees to make payment to Tantalus within 30 days of the invoice date.

REMOTE SYSTEM HEALTH CHECK

With purchase of a Premium package, Customer receives:

- Annual investigation with reported customer action plan

- WAN Assessment
- LAN Assessment
- Dashboard Health Check

A remote system health check provides a summarized report identifying Customer actions that need to be performed in order to improve system performance.

ASSIGNED PROJECT MANAGER
With purchase of a Premium package, Tantalus will assign a specific Project Manager to the Customer's project.

TANTALUS TECHNICAL SUPPORT CONTACT INFORMATION

If you have an URGENT issue, call: +1 (919) 335-8109

For non-urgent issues, please email:
Standard TSA - tantalustechsupport@tantalus.com
Premium TSA - premiumsupport@tantalus.com

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Alpha POC

The City's Alpha POC will be hosted at General Pacific's data center located in Fairview, OR., which is described in the attached General Pacific Technical Services document.

Responses to support requests within two (2) hours during working hours and within four (4) during non-working hours. Working hours are defined as Monday through Friday, 8am to 5pm Pacific.

Service levels
Target availability is 99.99% as described in the attached General Pacific Technical Services document and availability time is calculated on a monthly basis.

Upon failure of meeting the City will receive a credit to their account equal to 10% of their monthly costs for that specific service for that specific month that the outage took place for every 0.5% that availability falls below the standard, to a maximum of 50% of that particular services monthly fee to the City. These credits are summarized in the table below.

Outage time is calculated from the time of the initial customer ticket to the time when power and or network availability have been restored to our physical servers.

Monthly Availability	Billing Credit
99.99%	Not Applicable
< 99.99% to 99.5%	10%
< 99.5% to 99.0%	20%
< 99.0% to 98.5%	30%
< 98.5% to 98.0%	40%
98.0% or less	50%

Beta POC

Tantalus anticipates utilizing HostedBizz Incorporated as the hosted service provider for the City's Beta POC. Tantalus reserves the right to change such hosted service provider in its sole discretion, provided however that any such change shall not materially impact the hosted services being provided to the City under this Agreement.

Service Levels associated with hosted services provided by HostedBizz are described in the attached HostedBizz Cloud Technology Service Level Agreement. In the event Tantalus elects to use an alternative hosted services provider, Tantalus shall deliver to the City a copy of the applicable Service Level Agreement with such alternative provider.
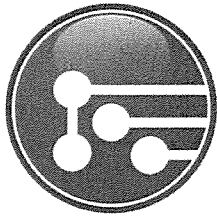
About Our Data Center

All hosting servers are located in General Pacific's privately owned data center located in Fairview, OR. Built in 2009, our data center was specifically designed, engineered, and constructed for the network. All aspects of the data center construction process were chosen to ensure that all systems and equipment used would maximize the reliability and security of the facility and network.

Power

The General Pacific data center gets its primary power from the Portland General Electric power grid via 3-Phase power feed. Each server rack in the data center is equipped with a dedicated 30 amp power circuit. Automatic and manual emergency power kill switches are linked into the power system in case of fire or other emergency.

Generator Power

The data center power system is backed by on-site generators equipped with automatic transfer switches. These automatic transfer switches start the generator systems within seconds of a power failure. The power load from the data center is then transferred to the generator systems within 2 minutes, once the generators have fully powered up.

Power is then kept on the generator systems until a clean and steady stream of power can be maintained from the primary power grid for at least 20 minutes. Once the primary power grid is ready, the transfer switches re-transfer the load back to the power grid and disengage the generator systems. These generator systems can power and run the data center load for an indefinite amount of time with the fuel and 24-hour delivery contracts we have in place with local vendors.

UPS Battery Power

Critical systems in the data center are also equipped with APC Uninterruptible Power Supplies which keep those systems online while the loads are being transferred to the generators. These critical systems are load balanced across the UPS systems to ensure at least 30 minutes of UPS battery power is available. This allows for enough time for the automatic transfer switches to engage and transfer the power loads to the generator systems.

All of the data center power systems are tested weekly to ensure that proper operation is available in the event of a power failure.

Routing

The routing system design for the network was specifically engineered for maximum redundancy and minimum down time. All of the routers used in the system design are powered using OpenBSD. The routing system utilizes OpenBGPD software to provide its multi stage platform using eBGP and iBGP services.

This routing system allows reduced down time in the event of a hardware failure by allowing each of the routers to be actively connected at all times. When a Router fails the network IP blocks are automatically re-routed to the next Backup Router in seconds of the failure. Once the failed router comes back online, it re-establishes connectivity to all the systems, collects all of the current routing information, and re-assumes its place in system.

Packet Filtering & Firewalling

All of the servers in our data center have two firewalls protecting them from unwanted attacks. Each of the servers is protected by a network edge firewall located on the primary Router systems. These edge firewalls are used to protect the system from attacks coming from the internet.

The secondary firewall for each server is located on each individual server. The server's firewall is used to protect the server from unwanted traffic from other servers on the network.

Core Equipment Placement

Each of our core pieces of equipment such as switches, routers, and DNS servers is strategically located throughout the datacenter to ensure the maximum number of diverse paths for redundancy.

IPv4 and IPv6 Connectivity

The General Pacific Data Center features a full end-to-end dual stack deployment of IPv4 and IPv6. All of our core servers, equipment, and routers respond natively to both IPv4 and IPv6 requests, allowing users on both networks to fully access all services that General Pacific has to offer.

System Monitoring & Security

All of the data center systems are monitored 24 hours a day, 7 days a week to ensure they are working properly. Power systems are monitored for power presence and quality, while security systems are monitored for authorized access codes and motion detection. Once an alarm has been triggered by the monitor, senior data center staff members are instantly notified via SMS, Email, Instant Message, and in some cases a phone call to ensure they are aware of the alarm's presence.

These monitoring systems help General Pacific react quickly to any problems that could arise at the data center.

Hosting Services

Co-Location Services

Co-Location is the ideal option for businesses which require administrative control over their hardware but do not have the time, expertise, or infrastructure to manage a 24/7 network.

General Pacific provides a stable and secure environment for your hardware and gives the Customer complete control over its administration.

Features of co-location include:
- Fully redundant data center with multi-layered network security and reliable infrastructure
- Ability to provide your own hardware
- 99.99% power and network uptime guarantee
- Server racking with managed internet access

- HVAC and environmental controls
- Quality support from an expert staff

Dedicated Server Hosting

Dedicated Server Hosting is an excellent choice for obtaining dedicated resources for your company. Dedicated Server Customers are provided with a unique physical server located in the data center for them to use. Every dedicated server provided by General Pacific is provided all of the following features:

- Full Administrative Access
- Dedicated Server Resources
- Isolation from Other Users
- Customizable Server Configurations
- UPS & Generator Backup Power
- Windows & Linux Systems Available

All Dedicated Server hardware failures are 100% replaced free of charge by General Pacific.

Shared Exchange Hosting

Enjoy all of the features that Microsoft Exchange & Microsoft Outlook has to offer without the upfront cost of Microsoft Server Licensing! Using Microsoft Exchange for your email server allows your email users to access:

- Shared Calendars, Contacts, and Tasks
- Group Calendar Scheduling
- Outlook Web Access
- Mobile Phone Email Sync (iPhone & Android)
- Advanced Spam Filtering

General Pacific's Shared Exchange Hosting allows your company to share your Exchange Hosting hardware with other companies and reduce your overall licensing costs.

Other Services

Technical Support

All of our hosting tools and platforms are backed by our excellent U.S. based technical support team. This helpful and friendly group of individuals is available to all web hosting clients to assist them with any tasks they may need help with. No matter what level of assistance is required, our technical support team is available to help via phone and email.

Server Backup Services

General Pacific can perform daily, weekly, and monthly server backups for any of the equipment stored in our data center. This includes any Co-Location or Dedicated Servers your company might have. Our backup solutions are specifically designed on a per customer basis to ensure that each customer is getting a level of backups that makes them comfortable.

Our Server Backup technologies allow for data restoration of Linux and Windows systems. General Pacific also has in place infrastructure to provide proper backups of:

- Microsoft Active Directory
- Microsoft SQL Server
- Microsoft Exchange Server
- Microsoft SharePoint Server
- Oracle Data Server

General Pacific has the ability to backup all of the servers listed in a live environment without having to take the service offline for a snapshot.

Server Monitoring
General Pacific has automated monitoring systems in place to test your server connectivity every few minutes. Each server can be tested for availability as well as proper functionality of each service on the server.

In the event of a server failure our technicians will be notified immediately informing them of the problem. Many times our staff resolves the problem and gets the services back online before the customers notice the service is offline.

Server Management
General Pacific's server management services are perfect for customers who do not have in house I.T. departments. Our server management services normally include all of the following services:

Software Installation Assistance
Our technicians can install and perform basic required configuration of software packages on your server.

Weekly Monitoring of Server Backups
Technicians will manually verify your server backups from our Server Backup Services for proper functionality on a weekly basis.

Weekly Monitoring of Firewall Rules
Technicians will manually verify the firewall rules setup on your server weekly to ensure that no new or unnecessary rules have been applied by system users or automated systems.

Weekly Monitoring of System Services
Technicians will manually verify the services running on your server to make sure that no extra or unnecessary services are running on your system.

Weekly Monitoring of Operating System Software Updates
Technicians will login to your server and apply any outstanding software updates to the operating system to ensure they are properly upgraded and secured.
Each customer's server management services can be customized to include more or less features as needed.

HostedBizz Cloud Technology Service Level Agreement

Service Level Agreement

This Service Level Agreement ("SLA") between HostedBizz Incorporated ("HostedBizz"), and the user ("Customer") of HostedBizz's services ("Services") sets forth the service level terms and conditions and is an integral part of the Agreement.

This SLA defines the terms of HostedBizz's responsibility with respect to the Services that HostedBizz provides and Customer's remedies in the event that HostedBizz fails to meet these Service Commitments. This SLA and the SLA Credits set forth herein represent HostedBizz's sole obligation and Customer's sole remedy for failure to meet such Service Commitments.

The SLA is binding only for the Customer and HostedBizz and does not apply to any Third Parties, including Customer End Users.

This SLA shall enter into force on the effective date of the customer Contract and shall end with the termination of the Contract to which it relates. HostedBizz, in its sole discretion, reserves the right to change or replace the SLA during the course of the Contract at any time. Any changes made to the SLA shall always enter into force for an indefinite period of time or until the next change or replacement.

SLA for operational functionality

HostedBizz will make every reasonable effort to ensure maximum availability of the services contracted by the Customer and, at the same time, the observance of the following operational functionality parameters:

A) Resources of the Data Center via which the Service is provided

HostedBizz

- 100% uptime on an annual basis for electricity and cooling;

- the switching off of the services contracted by the Customer caused by a general lack of the power supply and/or air conditioning is a malfunction for which, on the basis of its duration, by way of compensation the Customer will be due credit determined in accordance with Article A of this SLA.

- 99.95% uptime on an annual basis and accessibility via the Internet to the virtual infrastructure created and allocated by the Customer.
- the complete inaccessibility of the contracted services for a total time longer than that determined by the Uptime guaranteed parameter by HostedBizz is a malfunction for which, on the basis of its duration, by way of compensation, the Customer will be due credit according to Article A of this SLA.

Virtual infrastructure created and allocated by the Customer

- 99.95% uptime on an annual basis, for the availability of physical nodes (servers) hosting the virtual infrastructure;

- the failure of the virtual infrastructure created and allocated by the Customer - for a total time longer than that determined by the Uptime guaranteed parameter by HostedBizz - caused by failures and/or anomalies of the afore-mentioned physical nodes is a malfunction for which, on the basis of its duration, by way of compensation the Customer will be due credit according to Article A of this SLA.

Service Level Agreement

The goal of HostedBizz is to provide Service Availability twenty-four hours per day, seven (7) days per week (referred to as "24x7 Availability") EXCEPT during times of Service Maintenance as set forth below.

HostedBizz shall use reasonable efforts to achieve the target Service Availability Goal of 99.95% network uptime except during scheduled Service Maintenance ("Service Commitment").

Whilst Customers are free to monitor network uptime on their systems and other monitoring services, HostedBizz proactively monitors network uptime and the results of these monitoring systems shall provide the sole and exclusive determination of network uptime.

Time for planned maintenance is not counted in the Uptime calculation. Planned maintenance concerns activities regularly carried out by HostedBizz to maintain the functionality of the Data Center resources by means of which the Service and the physical nodes that host the virtual infrastructure is provided; both ordinary and extraordinary.

The implementation of the maintenance operations will be communicated to the Customer by HostedBizz with at least 48 hours notice by email sent to the email addresses indicated in our customer records. HostedBizz is committed to making every reasonable effort to carry out the planned maintenance tasks at times with minimal impact to the Customer's virtual infrastructure.

Service Issue Reporting

Any failures and/or faults with respect to the contracted services shall be reported by the Customer by opening a ticket on the following service page: http://hostedbizz.com/submit-a-ticket/

Primary incident reporting is done via our Customer Ticketing System (powered by Zendesk). Through this system customers have access to all tickets related to the customers' account, both open and completed, as well as current information and historical information.

Failures or faults can also be reported by the Customer to the HostedBizz support service 24 hours a day. Any reports received will be promptly forwarded to HostedBizz technical support.
For the purposes of calculating SLA service credits referred to in Article A, only malfunctions also confirmed by HostedBizz's monitoring system will be taken into consideration.

Monitoring by HostedBizz is carried out using specific software packages that detect and indicate any failures or faults by notifying the support service which operates 24/7, 365 days a year.

Financial Penalties for SLA Violations

For the purposes of this SLA, HostedBizz awards the customer, by way of compensation, with credit equal

to the amounts shown in Article A.

Listed below are the conditions in the presence of
which, despite the occurrence of any malfunction, the
Customer is not due any compensation provided by
the SLA:
- due to a Force Majeure, i.e. events that, objectively,
would prevent HostedBizz's staff from intervening to
perform the tasks set out by the Contract which are
HostedBizz's responsibility (merely by way of
example and not exhaustive: strikes and
demonstrations which block communication routes;
road accidents; wars and acts of terrorism, natural
disasters such as flooding, storms, hurricanes, etc.);

Ticket Response Goals

SLA goals and objectives are documented in Article
B

Limited Liability

In no event shall either party's aggregate liability
arising out of or related to this agreement, whether in
contract, tort (including negligence) or under any
other theory of liability, exceed the amounts actually
paid by customer hereunder in the three months
preceding the incident giving rise to liability.

Furthermore, in no event shall either party have any
liability to the other party for any lost profits or for
any indirect, special, incidental, punitive, or
consequential damages (including, without limitation,
damages for loss of business, loss of profits, business
interruption, loss of data, lost savings or other similar
pecuniary loss) however caused and, whether in
contract, tort (including negligence) or under any
other theory of liability, whether or not the party has
been advised of the possibility of such damages.
Notwithstanding the generality of the foregoing,
no limitation of either party's liability set forth in
this agreement shall apply to (i) damages arising
from a party's breach of its confidentiality
obligations, (ii) damages arising from
infringement and/or misappropriation of a party's
intellectual property rights; or (iii) any claims for
non-payment.

Article A

HostedBizz is committed to the provision of reliable services and infrastructure.

Our target availability for our physical servers is 99.99%. Target availability time is calculated on a monthly basis and is impacted by Power, Network and availability to the contracted services.

Upon failure of meeting the SLAs as outlined above, customers will be credited 10% of their monthly costs for that specific service for that specific month that the outage took place for every 0.5% that availability falls below the standard, to a maximum of 50% of that particular services monthly fee to the customer. These credits are summarized in the table below.

Outage time is calculated from the time of the initial customer ticket to the time when power and or network availability have been restored to our physical servers.

Monthly Availability %	HostedBizz Billing Credit
99.99%	Not Applicable
< 99.99% to 99.5%	10%
< 99.5% to 99.0%	20%
< 99.0% to 98.5%	30%
< 98.5% to 98.0%	40%
< 98.0% or less	50%

To be awarded the credit the Customer must contact HostedBizz by opening a ticket on the website: http://hostedbizz.com/submit-a-ticket/

Tickets must be raised within 10 days from the end of the Malfunction.

Credits awarded by HostedBizz will be issued by crediting the customer account.

Article B

HostedBizz is committed to the provision of reliable services and infrastructure.

Our Support Centre is open 24x7x365. Product support tickets are managed by priority. Our target response times are illustrated in the table below.

Severity	Explanation	Response Goal	Resolution Goal
Level 1 Emergency	Complete work stoppage. All customer users are effected	30 minutes	3 hours
Level 2 High	Production cloud or cloud dashboard is operational but is slow or performing in an irregular manner. Customer effecting	30 minutes	5 hours
Level 3 Medium	A subset of customers, or a single user is experiencing difficulties or limitations in performance. Customer effecting	30 minutes	6 hours
Level 4 Low	Customer has encountered an issue for which they do not know the resolution. Require technical assistance to help them or to create a work around	30 minutes	8 hours
Level 5 Job Requests	General support at customer requests. Examples may be the creation of a specific template, a vApp, resource changes, billing enquiries etc.	30 minutes	24 hours

Internally, our support team consists of engineers which have different levels of expertize and specialization. Some issues can be responded to more swiftly and many common questions and problems can be resolved immediately.

Outages must to be reported through the ticketing system @ http://hostedbizz.com/submit-a-ticket/

support@hostedbizz.com

phone +1.613.454.5810 xt 2

Contact Information

HostedBizz Inc.

150-150 Isabella Street
Ottawa, ON K1S 1V7

1.613.454.5810

Exhibit K sets forth the requirements and capabilities table from Tantalus's Response to RFP. This table is attached and incorporated in the Agreement for product and services reference purposes and the parties to the Agreement hereby agree (i) to the extent of any conflict between this table and any terms of the Agreement or any other Exhibit thereto, the terms of the Agreement or any such Exhibit thereto shall govern and (ii) to the extent any items set forth in the table are not applicable to the Alpha POC and/or the Beta POC, such items shall be of no force and effect. As of the Effective Date, Tantalus represents and warrants as to the accuracy of the items set forth in column entitled "Intended Vendor Response" in the following Exhibit with respect to the Alpha POC and, if Customer elects to proceed, the Beta POC.

Riverside Public Utility
Requirements and Capabilities - AMI System

Category	Req ID	Capability/Requirement The AMI System Shall:	Vendor Response	Vendor Comment	Covered in Agreement	SOW / Contract Review Comment	Intended Vendor Response
General AMI	1	Not significantly limit the brands of water meters that the Utility can install	Current Base	Tantalus is proposing the Itron universal water ERT, which fits a large selection of manufacturers and models of meters. Please see the attached document that list all compatible watermeters	NA	Not currently applicable - water	Not applicable to the project and accordingly not incorporated into the Agreement
General AMI	2	Meet all applicable Federal, State, and local regulatory requirements (including, but not limited to, National Electric Safety Code (NESC), Federal Communications Commission (FCC), and American National Standards Institute (ANSI))	Current Base	TUNet product complies with the relevant standard as applicable per the design criteria and regulatory requirements, as determined by Tantalus	N	Not in agreement or in Section 10 - product specifications or Section 15 - Appendix of Tantalus original RFP response. ensure inclusion	Comply as written in vendor comments and below. TUNet makes particularly heavy use of Secure Shell SSH-2 with extended feature sets to form highly secure tunneled connections for user access complete with key management, authentication services and management of digital certificates etc. Data transfer to the NS-2000 Network Server is via TCP/IP, utilizing SSH (AES) using 1024-bit RSA keys and PKI for data security The security framework model for the TUNet system is currently guided by the following six broad form standard suites namely; • NIST IR 7628 Volumes 1, 2, and 3 • AMI-SEC System Security Requirements v1.01 with AMI-SEC Security Profile v2.0 • NIST 800-82 Guide to SCADA and Industrial Control Systems Security • NIST 800-53 Recommended Security Controls for Federal Information Systems and Organizations • NIST 800-14 Principles and Practices for Securing Information Technology Systems • The Information Security Forum's "Standards for GoodPractice" Additionally the TUNet system utilizes specific subcomponents of the following standards with respect to security, authentication and encryption. • NERC CIP-005-1 • NERC CIP-007-1 • ANSI C12 18, 19, 21, Metering protocol standards • SHA-2 Secure Hash Standard • AES symmetrical encryption standard • RSA asymmetrical encryption standard • Secure Shell SSH-2
General AMI	3	Not interfere with the Utility's current Utility, SCADA, Public Safety or any other current communications system	Current Base	Currently no known system has suffered from any interference. This is due to the unique design of the TUNet system.	N	Not in agreement, determine inclusion	As of the Effective Date, no known system has suffered from any interference.
General AMI	4	Operate on a communications network that is different from the SCADA communications network	Current Base	The TUNet system has the flexibility to operate on a wide variety of communication back-hauls, allowing for the separation of the AMI system from the SCADA system.	Y	System Acceptance Test Plan in agreement states that collector network will use cellular for backhaul	Included in SAT
General AMI	5	Provide full system redundancy	Current Base	TUNet is designed with multiple levels of redundancy to mitigate the impact on network performance of an individual device failure	N	Response does not reflect system redundancy - focuses on module and communications redundancy and not HE	Comply as written in vendors comments For clarification, the TCC is hosted with a 99.99% uptime guarantee per the Agreement
General AMI	6	The AMI solution must use the same system for electric and water meters and endpoints	Current Base	TUNet supports both electric and water meter reading on the same network	NA	Not currently applicable - water	Not applicable to the project and accordingly not incorporated into the Agreement
General AMI	7	Provide both production and test environments for the "head-end" system	Current Base	A test environment can be supported but has not been included in the scope of this proposal	O	A test environment is not quoted for alpha / beta.	Not applicable to the project and accordingly not incorporated into the Agreement
General AMI	8	Must uniquely identify all meters, endpoints and communication devices on the system	Current Base		N	Not in agreement. Discuss inclusion	Provided through Network Server Utility Administrator web interface
General AMI	9	Provide a solar power option for collectors	Current Base	Option with Additional Cost.	O	Also optional in agreement pricing. IF locations are chosen that do not have power, these may be needed but that is not intent	Not applicable to the project and accordingly not incorporated into the Agreement
General AMI	10	Support MultiSpeak 4.1.6 (or higher) or IEC CIM 61968 - 100 compliant integrations with Meter Data Management System (MDMS) and other enterprise IT systems	Current Base	TUNet supports MultiSpeak 3.0 and 4.1.6. Additional fees may apply depending on the integrations required	N	Need to check available integrations and see if any additional integrations need to be included. agreement references 4.1, not 4.1.6 and current integrations integrations to OMS, CIS and MDM are available but do come with an overall cost of $65K that is included integration services pricing in the Alpha / Beta POC AMI values pricing spreadsheets.	Comply as written in vendors comments
General AMI	11	Future upgrades will continue to Support MultiSpeak 4.1.6 (or higher) or IEC CIM 61968 - 100 compliant, integrations with Meter Data Management System (MDMS) and other enterprise IT systems	Current Base	Tantalus will continue to support MS 4.1.6 into the future for any MDMS integration performed provided that the MDMS continues to support the existing MS 4.1.6 implementation	N	Need to check available integrations and see if any additional integrations need to be included. agreement references 4.1, not 4.1.6 and current integrations integrations to OMS, CIS and MDM are available but do come with an overall cost of $65K that is included integration services pricing in the Alpha / Beta POC AMI values pricing spreadsheets.	Comply as written in vendors comments
General AMI	11	Support Service Oriented Architecture patterns for integration with MDMS and other enterprise applications	Current Base	TUNet supports MultiSpeak implemented as SOA. TUNet also has a GeoServer option to interface natively with GIS applications. We can integrate to the MDMS application of your choice as well as other enterprise applications such as OMS and GIS	O	Optional as written in the response. Does this need to be written into the agreement or will this be determined at discovery?	Comply as written in vendors comments
General AMI	12	Support scheduled batch loading of meter data to the MDMS	Current Base	Tantalus supports both scheduled batch loading of meter data and real time streaming of meter data to the MDMS.	N	Should be included in agreement.	Comply as written in vendors comments - that the daily automation has been scoped.

Category	Req ID	Capability/Requirement	Vendor Response	Vendor Comment	Covered in Agreement	SOW / Contract Review Comment	Intended Vendor Response
General AMI	13	Be capable of obtaining interval data and event logs from meters and endpoints at a configurable frequency, but at least 4x per day for delivery to the AMI head-end	Current Base	Using TRUPush technology, interval and log data are pushed from the meters to the network and head end at the end of every interval as configured for TUNet-enabled endpoints, as frequently as every 5 minutes. Electricity ERT data is pushed once a day, and water ERT data is normally pushed every 4 hours	N	Applies for electric, not currently applicable for water. Not stated in agreement - need to include. Confirm with Tom Grim.	Comply as written in vendors comments
General AMI	14	Be capable of obtaining interval data and event logs from communications network components at a configurable frequency, but at least 4x per day	Current Base	Using TRUPush technology, interval and log data are pushed from the meters to the network and head end at the end of every interval as configured for TUNet-enabled endpoints, as frequently as every 5 minutes. Electricity ERT data is pushed once a day, and water ERT data is normally pushed every 4 hours	N	Applies for electric, not currently applicable for water. Not stated in agreement - Confirm with Tom Grim if needed for inclusion in agreement.	Comply as written in vendors comments
General AMI	15	Support interval data collection for measured product in 5, 15, 30 and 60 minute intervals	Current Base	Supported electric metering intervals for TUNet-enabled electric meters include 5, 10, 15, 30 or 60 minutes. Water delivers 1 reading for every hour ERT electric endpoints deliver daily readings.	N	Not currently applicable - water. agreement does not state 1 daily read for electric ERTS. agreement states a read rate of 98.5% over a rolling three (3) day period for all Available Meters and 97% daily read rate for electric ERT meters installed within the Coverage Area per the Final Network System Design and Plan.	Electric - Comply as written in vendors comments. For additional clarification, please note reference to ERT electric endpoints means and applies to 100 series ERT devices only. Water - Not applicable to the project and accordingly not incorporated into the Agreement
General AMI	16	Support interval data collection for all of the measured commodities in 'Electric Meters' and 'Water Meters' section below:	Current Base	Supported electric metering intervals for TUNet-enabled electric meters include 5, 10, 15, 30 or 60 minutes. Water delivers 1 reading for every hour ERT electric endpoints deliver daily readings	N	Not currently applicable - water. agreement does not state 1 daily read for electric ERTS. agreement states a read rate of 98.5% over a rolling three (3) day period for all Available Meters and 97% daily read rate for electric ERT meters installed within the Coverage Area per the Final Network System Design and Plan.	Electric - Comply as written in vendors comments. For additional clarification, please note reference to ERT electric endpoints means and applies to 100 series ERT devices only. Water - Not applicable to the project and accordingly not incorporated into the Agreement
General AMI	17	The AMI head-end system must be able to store at least 30 days of hourly interval data	Current Base	TUNet is designed to store 14 months of data as detailed in this request	N	Not in agreement, ensure inclusion.	TUNet will store 14 months of data
General AMI	18	The AMI head-end must distinguish between a missing interval and zero consumption and provide reporting capability with specifics for missing data or gaps.	Current Base	The TCC (head-end) automatically detects any gaps in meter data (i.e. missing data), and automatically backfills said gaps by initiating a query to the specific meter(s) for the missing data. Zero consumption intervals read are not treated as missing data	O	Not in the agreement, but isn't backfill and gap filling a function of the MDMS?	Comply as written in vendors comments Clarification - gap detection kicks does not begin until "missing data" is at least 5 hours overdue
General AMI		The AMI head-end system must 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 both electric and water devices	Current Base	The TCC (head-end) automatically detects any gaps in meter data (i.e. missing data), and automatically backfills said gaps by initiating a query to the specific meter(s) for the missing data. This ensures the data is clean and complete before generating billing determinants from it	NA	Not current applicable for water.	Not applicable to the project and accordingly not incorporated into the Agreement.
General AMI	19	Can initiate an on-demand read request through a real-time interface from another authorized system (i.e., MDMS, CIS, OMS)	Current Base	With the interconnection of systems using the MultiSpeak connection.	Y	Addressed in agreement.	Included in SAT
General AMI	20	Time stamp 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		Y	Addressed in agreement.	Included in SAT Clarification - this data is retained for 7 days
General AMI	21	Log each instance when an event message has been sent to an AMI component when no acknowledgement is received within the configured time frame	Current Base		O	Not referenced in agreement.	Comply with requirement Clarification - this data is retained for 7 days
General AMI	22	Synchronize internal clock time for all meters and endpoints with a recognized external time source at least 1x per day	Current Base	Time synchronization messages are broadcast every 15 minutes, offset from interval boundaries	M	Addressed in Exhibit B, Attachment B-1 system acceptance test plan of Tantalus RFP response.	TUNet is synchronized to the NIST atomic clock, ensuring accuracy of readings to within +/- 1 second across the network. Time is broadcast to all network devices at least once every 15 minutes. Metering devices maintain +/- 1 second reporting accuracy. NIST always provides time accounting
General AMI	23	Process Daylight Savings time change	Current Base		O	Requirement has no detail. Not sure of response since blank.	TUNet is designed to make adjustments for daylight savings. and is checked by our Customer Service group
General AMI	24	Utilize two-way secure communications with all authorized systems and devices including the following (Req ID 25-27):	Current Base		O	Requirement has no detail. Not sure of response since blank.	See Req ID 25-27 below
General AMI	25	Provide optical ports on electric meters	Current Base		NA	Requirement has no detail. Not sure of response since blank. However, optical ports on meters is dependent upon which meters RPU decides to order.	Optical port only available with Aclara kV2c meter
General AMI	26	Handheld field tools	Current Base		O	Requirement has no detail. Not sure of response since blank.	Comply with requirement
General AMI	27	AMI network components (i.e. collectors and repeaters)	Current Base		Y	Number of collectors for alpha / beta are included in the agreement. including system acceptance test planning.	Comply with requirement
General AMI		Support communications technology between network devices and the AMI head-end including the following (Req ID 28-31):			Y	An adequate alpha / beta communications description is included in the agreement, including system acceptance test planning	See Req ID 28-31 below
General AMI	28	Cellular	Current Base		M	Use of cellular Backhaul is referenced in agreement	Included in Agreement
General AMI	29	Phone/Modem	Current Base		O	Requirement has no detail. Not sure of response since blank.	Included in Agreement
General AMI	30	Radio Frequency	Current Base		O	Requirement has no detail. Not sure of response since blank.	Included in Agreement
General AMI	31	Fiber	Current Base		O	Requirement has no detail. Not sure of response since blank.	Included in Agreement

Category	Req ID	Capability/Requirement	Vendor Response	Vendor Comment	Covered in Agreement	SOW / Contract Review Comment	Intended Vendor Response
General AMI	32	AMI communication system must support a platform that provides connectivity (status and control) to several third-party and Tantalus devices. This includes service switches in meters for remote disconnect/reconnect, sensors, remote disconnect meters, etc. Specify supported devices & manufacturer in comments	Current Base	TUNet supports connectivity and control to several third-party and Tantalus devices. This includes service switches in meters for remote disconnect/reconnect (Itron, Aclara currently supported, L+G in early 2019), IEDs such as FCIs, cap banks controllers, voltage regulators, and reclosers (nearly all manufacturers that support DNP3), load control/DR devices using ZigBee and TUNet (devices using SEP and TUNet)	O	Aclara / Itron meter connectivity is in agreement. Other devices are future.	Comply as written in vendor comments. TUNet supports connectivity to the Third-Party Products detailed in the Agreement.
General AMI	33	Support and provide backhaul communications for water pressure monitoring devices, including meters that incorporate pressure readings	Not Provided		NA	Not applicable water.	Not applicable to the project and accordingly not incorporated into the Agreement
General AMI	34	Support and provide backhaul communications for leak detection devices	Not Provided		NA	Not applicable water.	Not applicable to the project and accordingly not incorporated into the Agreement
General AMI	35	The AMI head-end system must provide context-sensitive system documentation for online user help	Current Base		N	Agreement doesn't specify any requirements on documentation. Documentation should be included in agreement in deliverables.	TUNet Insight provides context sensitive help (the legacy UI and TRUView do not – for which there are manuals) Documentation is available to download from Customer Community, which is detailed under "Community Access" in the Maintenance and Support Exhibit
General AMI	36	The AMI head-end system has the capability to assign internal user specific screen presentation criteria (i.e. personalized home dashboard) based on user sign-on (role-based presentation)	Current Base		N	Should be included in agreement in deliverables. Dashboard is referenced in Exhibit B, Attachment B-1 system acceptance test plan, item 10.	TUNet Insight provides a personalized home page based on roles and user preferences (configurable by user)
General AMI	37	Support user capability to export report and query data in SQL, Excel, XML, TXT, or other flat-file formats	Current Base		Y	Should be included in agreement in deliverables Referenced in Exhibit B, Attachment B-1 system acceptance test plan, section 1.1. Agreement indicates that Tantalus supports CMEP flat file format.	Comply as written in Vendor Comment
General AMI	38	Provide the capability to support a variety of number of dials that contain up to 9 digits on register read	Current Base	For TUNet-enabled electric meters, the number of digits reported matches the number of digits on the meter display. For ERT modules, this is configurable as TUNet provides the raw register reading to MVRS which does the conversion.	N	Agreement does not reference any requirements on matching / reporting of dials on register read. Specifications or Appendix do not reference capability to support 9 dials. Appendix H - Product specifications specifically point out in 2.3 page 13 that the proposed solution only support up to 6 digits. Therefore, vendor comment in cell E47 prior column needs clarification.	For TUNet-enabled electric meters, the number of digits reported matches the number of digits on the meter display. For ERT modules, this is configurable as TUNet provides the raw register reading to MVRS which does the conversion
General AMI	39	Water meter reads will be registered in cubic feet and transmitted in 100 cu	Current Base	Water meter reads are reported according to the meter and ERT configuration. Both MVRS and the TCC can scale raw reading to any measure required.	NA	Not applicable water.	Not applicable to the project and accordingly not incorporated into the Agreement
General AMI	40	Provide the capability to support 6-12 digit length serial number.	Current Base	Serial numbers may be up to 15 characters in length.	N	Agreement references meter serial numbers during Advanced Metering Setup and Activation in Exhibit B, Attachment B-1 system acceptance test plan. But it does not make any references to digit length support. This information is likely in Tantalus technical specifications but it is not in the contract agreement.	Comply as written in vendors comments
Remote Connect/ Disconnect	41	Provide the capability to perform a remote connect/disconnect for a electric meters.	Current Base		Y	Should be included in agreement in deliverables. Referenced in Exhibit B, Attachment B-1 system acceptance test plan, item 4.	Included in SAT
Remote Connect/ Disconnect	42	Provide the capability to perform a remote connect/disconnect for a water meter.	Future Base Release	The proposed solution does not currently support remote connect/disconnect for a water meter. This is on the roadmap.	NA	Not applicable water.	Not currently available or applicable and accordingly not incorporated into the Agreement
Remote Connect/ Disconnect	43	Provide the capability to prevent a remote reconnect when load side voltage is present on the meter	Current Base	TUNet supports remotely controllable 200A disconnect switch with load side voltage sensing capability under the meter cover.	N	Should be included in agreement in deliverables. Referenced in Exhibit B, Attachment B-1 system acceptance test plan, item 4. However, testing of prevention of re-connection when load side voltage is in place is not in agreement.	Comply as written in vendors comments
Remote Connect/ Disconnect	44	Allow for remote connect/disconnects to be automatically initiated based commands by an authorized application other than the AMI head-end (i.e. MDMS and CIS)	Current Base	Requires integration to the CIS and MDMS applications and may require additional licensing	NA	MDMS integration with CIS is not part of this agreement with Tantalus	Not applicable to the project and accordingly not incorporated into the Agreement
Remote Connect/ Disconnect	45	Provide the capability to schedule a remote connect/disconnect operation to be initiated at a specified time by an authorized application other than the AMI head-end (i.e. MDMS and CIS).	Current Base	TUNet supports this with integration to the 3rd-party system via MultiSpeak. Additional licensing fees may apply.	NA	MDMS integration with CIS is not part of this agreement with Tantalus	Not applicable to the project and accordingly not incorporated into the Agreement
Remote Connect/ Disconnect	46	Allow for remote connects/disconnects to be manually initiated by a user via AMI head-end GUI	Current Base		N	Should be included in agreement in deliverables. Referenced in Exhibit B, Attachment B-1 system acceptance test plan, item 4, although AMI user initiated via GUI is not specifically referenced	Most TUNet users reset demand using scheduled demand resets that are configurable in the TUNet GUI. Ad hoc demand resets can also be initiated by authorized users via the TUNet GUI as required. The demand reset also have a lockable local demand reset switch which, if unlocked, can also be used to reset demand on site. All local resets generate an alarm which is included in the TCC event monitor. Resets can be performed by authorized users mid billing cycle. Any demand reset, regardless of how it is initiated, produces a report of prior peak demand data (snapshot of the demand registers taken at the time of the reset) from the endpoint which is delivered and stored at the TCC for billing purposes and serves as verification that the reset was successful.

Category	Req ID	Capability/Requirement	Vendor Response	Vendor Comment	Covered in Agreement	SOW / Contract Review Comment	Intended Vendor Response
Remote Connect/Disconnect	47	Provide meter state (i.e. closed, open) and last read after remote connect/disconnect command is executed	Current Base	Remote disconnect capable meters on the TUNet network can receive connect/disconnect commands. When the device receives the message, it sends back confirmation along with any exceptions that may prevent safe operation of the switch, e.g. load side voltage detected	N	Post-disconnect meter state and last read capability not specifically referenced in agreement.	Comply as written in Vendor Comment
Remote Connect/Disconnect	48	Will retry on a configurable basis failed remote connect/disconnect operations at least 5 times over a 1 hour time period	Current Base		N	Not addressed in agreement or Section 10 - Product Specifications of Tantalus RFP response. Tantalus to advise capability and reference supporting documentation.	System attempts to operate RD the first time, then performs up to 3 retries at 15 minute intervals. This is from the TCC. On the network, each of these commands are retried along each segment of the routing path up to 12 times. Total retries over an hour via RF is actually 48 (in Modes 5 or 6), whereas the retries via the TCC is limited to 4.
Category	**Req ID**	**Capability/Requirement**	**Vendor Response**	**Vendor Comment**	**Covered in Agreement**	**SOW / Contract Review Comment**	**Intended Vendor Response**
Remote Connect/Disconnect	49	Identify and report failed remote connect/disconnect operations	Current Base		N	Not addressed in agreement or Section 10 - Product Specifications of Tantalus RFP response. Tantalus to advise capability and reference supporting documentation	Failed remote disconnect operations are logged and searchable using the TUNet Insight interface
Remote Connect/Disconnect	50	Support the ability to identify emergency and critical needs customers and prevent remote meter disconnect (Flag only - no customer medical condition data).	Third Party System	TUNet does not currently support the ability to flag specific disconnect-capable meters to prevent them from being disconnected. These customers could be identified in another system such as a CIS, and could meet this requirement by using that system to initiate remote disconnect commands. TUNet does offer a service limiting feature that could potentially be used for these customers as an alternative to full disconnection	NA	This capability requires integration with MDMS and CIS billing / customer information.	Third-Party System Requirement should be addressed in contract between City and applicable Third-Party and accordingly is not incorporated into Agreement. See Vendor Comment.
Events/Alarms	51	Detect and report all meter, endpoint and system alarms in near-real time (up to 30 seconds) to the AMI head-end.	Current Base		Y	Referenced in Exhibit B, Attachment B-1 system acceptance test plan, item 8.	Included in SAT
Events/Alarms	52	Events are transported with the next regularly scheduled readings (please list the events)	Current Base	Some events are pushed to the headend upon occurrence with others included with the next reading.	M	Alarms are referenced in Exhibit B, Attachment B-1 system acceptance test plan, item 8 as well as Section 10 - product specifications or Tantalus response. Timing of alarm / event transport needs to be clarified and included in test plans	Events are their own specific messages (outages, sags, swells, restorals, startups, etc.) and are sent immediately upon occurrence from the endpoint to the TCC. There are also metrology related events (meter tables or readings not accessible, metrology alarms) that will be transported with the next regularly scheduled reading.
Events/Alarms	53	Provide mechanism to automatically communicate specified events and/or alarms to designated recipients via email or SMS text message	Current Base	All alarms are pushed from the meter upon occurrence with text and email notification available	M	Alarms are referenced in Exhibit B, Attachment B-1 system acceptance test plan, item 8 as well as Section 10 - product specifications of Tantalus original RFP response. However, method of automated communication of events/alarms through email / text is not provided.	Events/alarms are pushed from the meter to the TCC (HES) and can be viewed with in the event monitor or dashboard. Notifications for outages and some meter alerts can be sent via email.
Events/Alarms	54	Detect and report meter removal for a water meter endpoint	Current Base	The software supports displaying ERT tampers that are sent from the ERT water module such as ERT Removal Tamper	NA	Not applicable water.	Propose Deletion
Events/Alarms	55	Detect and report meter tilt/tamper of a water meter register	Current Base		NA	Not applicable water.	Propose Deletion
Events/Alarms	56	Detect and report stopped/dead/non-registering meters	Current Base	The software has dashboards that report the health of all meters. It displays list of ERT meters that are Reporting, Not Reporting, Rediscovery, Waiting to Read, Not Authorized, and Reporting with Error. For TUNet meters the categories are Online, In outage, High Latency, No Response. Attempting association, and Failed to associate	M	Alarms are referenced in Exhibit B, Attachment B-1 system acceptance test plan, item 10. However, dashboard is not provided in this document or in Section 10 - product specifications or Section 15 - Appendix of Tantalus original RFP response.	Comply as written in vendors comments
Events/Alarms	57	Detect and log optical port access	Current Base	The Optical Port in Use event is displayed with a start time and end time in the event monitor for TUNet-enabled electric meters	N	Optical port in use is referenced in Section 15 - Riverside Appendix, Attachment 2, page 105 of original RFP response but not in agreement.	Comply as written in Vendor Comment with clarification - the optical port in use only applies to the Aclara KV2c meter. There is no optical port in use event for the Itron SENTINEL meter.
Events/Alarms	58	Automatically resend event notification until a message is acknowledged by the AMI head-end	Current Base		N	Wording is not in clear in agreement or specifications Will need to be confirmed with detailed test plan / results.	As all messages (regardless of type) are positively acknowledged along each segment of the routing path, the TCC does not need to acknowledge receipt of the message. There is an auditing process on the TCC that will re-request missing readings and/or events from an endpoint in the event that messages are lost (e.g. replacing a faulty collector).
Events/Alarms	59	Detect and report power quality excursions (IEEE 1159) for an electric meter	Current Base	Supported for TUNet-enabled endpoints	Y	Power Quality referenced in agreement Exhibit B, Attachment B-1 system acceptance test plan, item 3.	Included in SAT
Events/Alarms	60	Detect and report demand threshold reached for an electric meter	Current Base	Tantalus's Consumption Alarming feature actively monitors and alarms on meters that exceed a preset threshold for interval consumption. This is a licensed feature.	N	Not in agreement. Referenced as acquired capability of Energate acquisition in Product Specifications - RFP response	Comply as written in vendors comments
Events/Alarms	61	Detect and report load side voltage with service switch in OPEN state for an electric meter	Current Base	The meter will report a load side voltage alarm if it's detected while attempting to close the meter	N	Not in agreement. Referenced as acquired capability of Energate acquisition in Riverside Appendix, Attachment 2, page 105 of original RFP response, Product Specifications - RFP response.	Comply as written in vendors comments Clarification - the detection of load side voltage on an open meter is reported immediately when load side voltage is detected (not just when the user attempts to close the meter).
Events/Alarms	62	Detect and report loss of AC Power ("Last Gasp" Message) for an electric meter	Current Base	Supported for TUNet-enabled endpoints. ERT electric meters can report meter removal	N	Wording is not in clear in agreement or specifications Will need to be confirmed with detailed test plan / results.	Comply as written in vendors comments

Category	Req ID	Capability/Requirement	Vendor Response	Vendor Comment	Covered in Agreement	SOW/ Contract Review Comment	Intended Vendor Response
Events/Alarms	63	For "Last Gasp" messages, the ability to configure a delay in transmission of message to an OMS or other external system	Current Base	TUNet supports two levels of outage event filtering for TUNet-enabled endpoints, one in the endpoint and one in the headend (TCC). Filtering in the end device: The endpoint outage notification period can be programmed with a threshold of from 1 to 10 seconds. Outages less than this threshold are counted as blinks and reported with the PQM data (typically every 6 hours). Only outages of duration greater than or equal to this outage notification threshold result in outage messages. These messages, including timestamp and full-scale register read, are pushed to the TCC in near real-time. Filtering in the head-end: TUNet Control Center (TCC) can eliminate false positives by differentiating sustained outages from momentary outages TCC can be configured to only report outages that last longer than a specified amount of time. If the corresponding restoral message comes in within that time, the outage is not reported to the OMS. This eliminates nuisance calls and truck rolls for momentary outages. Additional licensing may apply for filtering in the head-end	N	Not in agreement. Referenced in Riverside Appendix, page 7, 'Supported Multispeak Integration' of original RFP response.	Comply as written in Vendor Comment
Events/Alarms	64	Detect and report loss of power on a single phase or all phases for an electric meter.	Current Base	Supported for TUNet-enabled endpoints. ERT electric meters can report meter removal.	N	Outages are referenced in Exhibit B, Attachment B-1 system acceptance test plan, item 7.	Included in SAT
Category	Req ID	Capability/Requirement	Vendor Response	Vendor Comment	Covered in Agreement	SOW/ Contract Review Comment	Intended Vendor Response
Events/Alarms	65	Detect and report meter removal for an electric meter and a water meter.	Current Base	TUNet-enabled meters and ERT water and electric modules support this requirement	N	Meter Removal is referenced in Section 15 - Riverside Appendix, Attachment 2, page 105 of original RFP response but not in agreement.	Comply as written in Vendor Comment
Events/Alarms	66	Detect and report meter tilt of an electric meter	Current Base	For ERT Electric meters the software supports ERT Tilt Tampers. For TUNet-enabled electric meters the software supports outage alarms.	N	Meter Tilt is referenced in Section 15 - Riverside Appendix, Attachment 2, page 105 of original RFP response but not in agreement.	Comply as written in Vendor Comment
Events/Alarms	67	Detect and report max amps for an electric meter has been reached.	Not Provided		NA	Not applicable	Not applicable to the project and accordingly not incorporated into the Agreement
Events/Alarms	68	Detect and report reverse power flow for non-net electric meters or not programmed for kWh received	Current Base	Supported for TUNet-enabled endpoints. ERT electric meters support reporting of meter inversion and removal.	N	Reverse flow tamper is referenced in Section 15 - Riverside Appendix, Attachment 2, page 105 of original RFP response but not in agreement.	Comply as written in Vendor Comment
Events/Alarms	69	Detect and report restoration of power ("power on") for an electric meter	Current Base	Supported for TUNet-enabled endpoints	Y	Restoration detection is referenced in agreement Exhibit B, Attachment B-1 system acceptance test plan, item 7.	Included in SAT
Events/Alarms	70	Detect and log pulse over flow check for an electric meter.	Not Provided	Not applicable. Pulse overflow cannot occur with TUNet.	NA	Not applicable	Not applicable to the project and accordingly not incorporated into the Agreement
Events/Alarms	71	Detect and log test mode check for an electric meter	Not Provided		NA	Not applicable	Not applicable to the project and accordingly not incorporated into the Agreement
Events/Alarms	72	Perform and log on meter diagnostic check for an electric meter	Current Base		N	Not referenced in any TUNet documentation or current draft agreement	Comply as written in Vendor Comment
Events/Alarms	73	Detect and log stopped water and electric meters	Current Base		NA	Not applicable water	Not applicable to the project and accordingly not incorporated into the Agreement
Events/Alarms	74	Perform and log on time change check for an electric meter	Current Base	Time synchronization is a broadcast message without acknowledgements. Logging is not required as time synchronization is provided every 15 minutes, as opposed to once a day. This increases the ability to adjust meters that are out of synch. Thus, TUNet complies with performing the time check but not the logging	N	Not referenced in any TUNet documentation or current draft agreement	Comply as written in Vendor Comment
Events/Alarms	75	Detect and log optical port access.	Current Base	An alarm is raised and displayed in the Event Log when the optical port is in use.	N	Optical port in use is referenced in Section 15 - Riverside Appendix, Attachment 2, page 105 of original RFP response but not in agreement.	Comply as written in Vendor Comment. Clarification - the optical port in use only applies to the Aclara kV2c meter. There is no optical port in use event for the Itron SENTINEL meter
Events/Alarms	76	Detect and report as an alarm on a near real time basis a hot meter base or bot meter base or socket	Future Base Release	This functionality is on the roadmap for 2019	NA	Not applicable - future release	Not currently available and accordingly not incorporated into the Agreement
Events/Alarms	77	Automatically resend event notification until a message is acknowledged by the AMI head-end	Current Base		N	Not referenced in any TUNet documentation or current draft agreement	Duplicate Requirement - See #58 also. As all messages (regardless of type) are positively acknowledged along each segment of the routing path, the TCC does not need to acknowledge receipt of the message. There is an auditing process on the TCC that will re-request missing readings and/or events from an endpoint in the event that messages are lost (e.g. replacing a faulty collector)
Security	78	Receive and process requests from other systems (such as an MDMS, CIS, or OMS)	Current Base	TUNet supports this requirement. TUNet has been integrated to EnQuesta at several utilities including EPB Chattanooga. EPB has one of the most advanced smart grid networks in the country. They have more than 180,000 meters on their network. We have integrated to many different MDMS and OMS and can integrate to the application of your choice	M	Referenced in Tantalus agreement. Will require some development to process requests	Comply as written in vendors comments
Security	79	Transmit specified data received from network devices to the MDMS (e.g. usage, logs, alerts, receipts etc.)	Current Base	TUNet supports this requirement. Integration to the EnQuesta CIS has been included and integration to an MDMS is available at an additional cost. Tantalus has substantial experience integrating to MDMS and are confident we can integrate to the MDMS of your choice.	M	Referenced in Tantalus agreement. Will require some development to transmit specified data.	Comply as written in vendors comments

Category	Req ID	Capability/Requirement	Vendor Response	Vendor Comment	Covered in Agreement	SOW / Contract Review Comment	Intended Vendor Response
Security	80	Satisfy retail security and personal information protection requirements established by the Federal government and by the State of California	Current Base	The Tantalus network does not transmit any customer identifying information Messages originate using a MAC address, which in turn is encrypted using industry standard security methods to guarantee identification, authentication and authorization. The Tantalus head end software also does not contain any customer identifying data unless the utility decides to import such on a meter by meter basis. As the Tantalus software is run behind the utility's firewall, any data stored and presented is protected by the utility company's existing IT security infrastructure	N	Not referenced in any TUNet documentation or current draft agreement	Comply as written in Vendor Comment
Security	81	Log invalid login attempts; retain 12 months of authentication logs success and failure (please include where they are retained)	Current Base	Invalid login attempts are retained in a log that is accessible to the utility for download	N	Not referenced in any TUNet documentation or current draft agreement	Comply as written in Vendor Comment
Security	82	Support a lockout for a configurable number of failed login/access attempts. This applies to the 'head-end' application, meter and endpoint configuration products, all field tool applications, meters and endpoints	Current Base	TUNet support this requirement by utilizing LDAP services as provided by the utility	N	Not referenced in any TUNet documentation or current draft agreement	Comply as written in Vendor Comment
Security	83	Comply with FIPS 140-2 (Level 1) Security Requirements for Cryptographic Modules	Current Base	NIST IR 7628, 800-53, 800-82 and FIPS 140-2, FIPS 197 and FIPS 198 are principle standards that drive the Tantalus security framework is designed to be compliant with	N	Referenced on page 1 of Appendix H Product Specifications of Tantalus RFP response but not in agreement.	Comply as written in Vendor Comment
Security	84	Support Advanced Encryption Standard for 256 bit encryption	Current Base	All TUNet communications utilize AES 256 bit encryption (on the LAN and over IP)	N	Referenced on page 1 of Appendix H Product Specifications of Tantalus RFP response but not in agreement.	Comply as written in Vendor Comment
Security	85	Support C12.19/C12.18/C12.22 cryptographic solutions	Not Provided	While TUNet does not directly comply with ANSI C12.22 cryptography standards, TUNet does provide ciphered message security, and authentication in specific connections that are analogous to ANSI C12.22 security levels 2 and 3	NA	Not applicable	Not applicable to the project and accordingly not incorporated into the Agreement
Category	Req ID	Capability/Requirement	Vendor Response	Vendor Comment	Covered in Agreement	SOW / Contract Review Comment	Intended Vendor Response
Security	86	Support functions which allow for secure device authentication, registration, and revocation of registration.	Current Base	During the manufacturing process, a registration file for each meter, including a meter serial number paired with a network ID, is created. This file is automatically imported into Tantalus' certificate server where the corresponding certificates are pulled from Tantalus' manufacturing database and delivered to the customer's TCC via a secure connection. When a meter is installed in the field, the TCC allows it to join the network only if it has received the matching information. The Tantalus head end software also provides a mechanism to revoke a device's certificate – effectively quarantining it from the network and disallowing it to either connect or transmit data	N	Not referenced in any TUNet documentation or current draft agreement	Comply as written in Vendor Comment
Security	87	Supply mechanisms which audit and and store all security related events including all messages, access, and modification events within the system for 90 days	Not Provided	User initiated messages to meters and security related events are stored for 45 days.	NA	Not applicable	Not applicable to the project and accordingly not incorporated into the Agreement
Security	88	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.	Future Release	Tantalus receives direction on it's security program from an IT steering committee that meets on a quarterly basis and is comprised of Tantalus customers, product managers and technical experts. The goal is to continually improve our security offering with each software release. This requirement has been identified by the committee and is currently in our development queue	NA	Not applicable - future release	Not currently available and accordingly not incorporated into the Agreement
Security	89	Supply access control mechanisms (i.e., Identification & Authentication mechanisms) which prevent unauthorized access of information and resource.	Current Base	Role based security is supported	N	Active Directory / LDAP validation requirements included in agreement.	Included in Agreement
Security	90	Restrict access to reconfiguration commands based upon user role.	Current Base	The Tantalus Control Center is role based. An authorized system administrator may assign one or more roles (CSR, Network Admin, Billing Supervisor, etc.) to specific user(s). Some roles are read-only	N	Details on administrative access security including passwords, privileges, security alert notifications & restrictions are not part of current agreement. Tantalus should provide technical document on access security that includes this information.	Documentation available in Customer Community
Security	91	Reject messages/requests that are received from unauthorized systems or devices	Current Base	All TUNet devices have unique certificates containing PKI technology that are used to authenticate the device before it is allowed to connect to the network.	N	Details on administrative access security including passwords, privileges, security alert notifications & restrictions are not part of current agreement. Tantalus should provide technical document on access security that includes this information.	Documentation available in Customer Community

Category	#	Requirement	Type	Response	Y/N	Comment
Security	92	Provide password security for access via the Optical port and ability to change the password	Current Base	Communications between the Tantalus DT-4xxx field support tool and the Tantalus Centron II personality module are only possible using a unique certificate that identifies both the field support tool and the meter. Before accessing the optical port remotely in the field, the DT-400 must have the security certificate that identifies both the field tool and the meter. These certificates have an expiry date as well, so change is required. All other optical ports use vendor supplied software with respect to password management	N	Details on administrative access security including passwords, privileges, security alert notifications & restrictions are not part of current agreement. Tantalus should provide technical document on access security that includes this information
Security	93	Provide a configurable 'choke' to restrict the maximum number of disconnect operations allowed at once or on a daily basis including those disconnect requests transmitted via MDMS.	Third Party System	TUNet services bulk operations through web services. For example, the controlling application for disconnects (whether it is a CIS or MDMS) will determine when the operations take place and TUNet executes the request. The MDMS would provide the "choke" restriction for bulk disconnect operations	NA	Not applicable - indicate that this is MDMS functionality
Configuration	94	Capable of reconfiguring and reading measured products within the limits of its configuration registers	Current Base		Y	B-1 System Acceptance Plan of agreement indicates that for 'Readings from ERT meter's (test 9) that RPU will be able to 'Demonstrate TUNet capabilities for retrieval of registers' and 'validate a measurement value reported in TUNet'. Included in SAT
Configuration	95	Critical failures shall be reported to AMI head-end immediately including as follows (Req ID 94-97):	Current Base	Failures are logged in the end devices and critical failures are communicated to the headend after association with the network.	Y	B-1 System Acceptance Plan of agreement indicates in Item 8 'Events and Alarms' indicates that all meter alarms and events supported by TUNet can be tested and demonstrated to work...' It does specify in the agreement which alarms and events are supported. This list is in Appendix H, Product Specifications' of the Tantalus RFP response in Section 2 g page 13-14. *This response applies to Req ID 94-97:* Reported Meter Events You can create these for a meter or get them from the Event Monitor • Meter Programming not supported • Power Outage • Voltage Sag • Voltage Swell • Poly-Phase Session • Bad Metrology • Meter Misconfigured • PP Meter Missing Calendar • kV2C Voltage Event Log Full • PP Reading/Password Failure
Configuration	96	Endpoint device failure	Current Base		Y	B-1 System Acceptance Plan of agreement indicates in Item 8 'Events and Alarms' indicates that all meter alarms and events supported by TUNet can be tested and demonstrated to work...' It does specify in the agreement which alarms and events are supported. This list is in Appendix H, Product Specifications' of the Tantalus RFP response in Section 2 g page 13-14 • PP Master Password Failure • kV2C Legacy Program • kV2C Optical Port In Use • Metermate Session
Configuration	97	Endpoint firmware upgrade failure	Current Base		Y	B-1 System Acceptance Plan of agreement indicates in Item 8 'Events and Alarms' indicates that all meter alarms and events supported by TUNet can be tested and demonstrated to work...' It does specify in the agreement which alarms and events are supported. This list is in Appendix H, Product Specifications' of the Tantalus RFP response in Section 2 g page 13-14. • PP Internal Meter Communication Error • TUNet EDG Module Error • TUNet PP Module Download Error • External Demand Reset • ONT Power Failure

Third-Party System Requirement should be addressed in contract between City and applicable Third-Party and accordingly is not incorporated into Agreement. See Vendor Comment.

Comply to extent written in vendor comment. Documentation available in Customer Community

Category	Req ID	Capability/Requirement	Vendor Response	Vendor Comment	Covered in Agreement	SOW / Contract Review Comment	Intended Vendor Response
Configuration	98	Time synchronization failure	Current Base		Y	B-1 System Acceptance Plan of agreement indicates in Item 8 'Events and Alarms' indicates that all meter alarms and events supported by TUNet can be tested and demonstrated to work...' It does specify in the agreement which alarms and events are supported. This list is in Appendix H, Product Specifications' of the Tantalus RFP response in Section 2.g page 13-14.	• ONT AC Failure • ONT Communication Failure • Sentinel Mis-configuration • Sealed Meter • Load Side Voltage Present • No Metrology Communication • ERT Inversion Tamper • ERT Removal Tamper
Configuration	99	Metrology failure	Current Base		Y	B-1 System Acceptance Plan of agreement indicates in Item 8 'Events and Alarms' indicates that all meter alarms and events supported by TUNet. It does specify in the agreement which alarms and events are supported. This list is in Appendix H, Product Specifications' of the Tantalus RFP response in Section 2.g page 13-14.	• ERT Tilt Tamper • ERT Magnetic Tamper • ERT Cut Cable Tamper • ERT Stale Read Tamper • ERT Leak Tamper • ERT Reverse Flow Tamper • ERT Low Battery Tamper
Configuration	100	Display and log configuration parameters.	Current Base		Y	Agreement references ability to display kWh readings, consumption and voltage profiles in B-1 System Acceptance Test Plan. Also referenced in B-1 is meter configuration setup / review.	
Configuration	101	Display and log communications network check results on all installed interfaces	Current Base		Y	Network check results is not specifically outlined in agreement or proposal Product Specifications or Appendix	All TUNet RF devices deliver communications statistics which are viewable and searchable via the TCC. Using the TCC, a network administrator can quickly find and map communications links that are not performing as expected. The TCC also stores the last 7 days of RF traffic for each device for reporting and analysis. For non-RF interfaces (such as multispeak interfaces), there are communications logs stored on the TCC, many of which can be examined and viewed by trained utility staff (Tantalus will be working on providing additional access to server logs with successive releases).
Configuration	102	The capability to change configuration settings of the endpoint shall be available via a remote action without removing device	Current Base		Y	Appendix H, Product Specifications' of the Tantalus RFP response page 4 on 'Software release policy' indicates the ability to modify operating parameters and upgrade functions/features over the air. Agreement does not reference the ability to perform OTA upgrades / modifications to the meter / endpoint devices.	Clarification - Distinction to be noted between 3rd Party AMI Meters and Tantalus TUNet modules. We do not update firmware in meters. We can reconfigure the Aclara KV2c over the air, but cannot do the same with the SENTINEL. The Itron single phase meters can be reconfigured for different measures, but the Aclara I-210+ must be reconfigured using the MeterMate application locally using an optical connection. The firmware for all TUNet modules currently in production can be remotely upgraded via over-the-air programming. Firmware upgrades occur during normal operations and do not impact ongoing functionality. New firmware is transmitted using a broadcast mechanism to all (or a subset of) devices at the same time. The broadcast mechanism ensures that the upgrade is done as efficiently as possible by upgrading many devices at the same time instead of serially or sequentially. This greatly reduces the time required to upgrade the entire population of devices. Once the new firmware is activated, the device monitors that the firmware is working
Configuration	103	Full capability for reprogramming meters and endpoint configurations via an over the air process from the AMI head-end	Current Base	The proposed solution supports this requirement for TUNet-enabled devices.	Y	Appendix H, Product Specifications' of the Tantalus RFP response page 4 on 'Software release policy' indicates the ability to modify operating parameters and upgrade functions/features over the air. Agreement does not reference the ability to perform OTA upgrades / modifications to the meter / endpoint devices.	
Configuration	104	Allow for user defined communication prioritization for certain customers	Not Provided	Communication prioritization is based on the application rather than the user. For example, messages of a more urgent nature such as outage reporting, load management commands, and remote disconnect & reconnect are prioritized higher than routine scheduled meter reads	NA	Not applicable	Not applicable to the project and accordingly not incorporated into the Agreement
System Performance and Reliability	105	Deliver the results of all received alarms, outages and remote testing and diagnostic results to the MDMS in near-real time	Current Base	TUNet can support this requirement.	Y	B-1 System Acceptance Plan of agreement indicates in Item 8 'Events and Alarms' indicates that all meter alarms and events supported by TUNet can be tested and demonstrated to work...' It does specify in the agreement which alarms and events are supported. This list is in Appendix H, Product Specifications' of the Tantalus RFP response in Section 2.g page 13-14.	Comply as written in vendors comments - this assumes a Ms 4.1 OMS connection
System Performance and Reliability	106	Be capable of securing an overall 99% success rate of all expected reads (interval and register) transmitted within 72 hours of read timestamp, processed at the head-end and available for analysis/billing	Current Base	In a network deployed according to Tantalus' recommendations, the expected success rate meets this requirement. Performance measurements and guarantee language will be defined during contracting.	Y	Agreement wording is as follows - "Coverage Commitment" means a read rate of 98.5% over a rolling three (3) day period for all Available Meters and 97% daily read rate for electric ERT meters installed within the Coverage Area per the Final Network System Design and Plan."	Coverage Commitment means a read rate of 99.0% over a rolling three (3) day period for electric ERT meters installed within the Available Meters and 97% daily read rate for electric ERT meters installed within the Coverage Area per the Final Network System Design and Plan Performance criteria will be deemed met once Tantalus has validated that the TUNet is capable of establishing and maintaining network connectivity in the Coverage Area.
System Performance and Reliability	107	The AMI System and network design shall be capable of securing 100% of all expected billing and interval reads for 100% of deployed meters by the end of a 30-day billing period (only exceptions are for variables outside of the vendors control)	Current Base	The system is designed to support this requirement. Performance measurements and guarantee language will be defined during contracting.	Y	Agreement wording is as follows - "Coverage Commitment" means a read rate of 98.5% over a rolling three (3) day period for all Available Meters and 97% daily read rate for electric ERT meters installed within the Coverage Area per the Final Network System Design and Plan."	
System Performance and Reliability	108	The AMI head-end shall be capable of receiving and processing incoming meter data on a continuous basis	Current Base		??	To be covered in agreement in pending SLA / DR language.	Included in SLA Exhibit to Agreement

Category	Req ID	Capability/Requirement	Vendor Response	Vendor Comment	Covered in Agreement	SOW / Contract Review Comment	Intended Vendor Response
System Performance and Reliability	109	Automatically select from redundant communications paths if available	Current Base	The LAN is self-initializing, self-healing and self-optimizing. Upon initial power-up, the meters find an optimal path to the TCC and several alternate paths. Up to seven paths are stored in the TUNet communication module in the meter. If the primary path is not viable (loss of communication between the meter and the head-end), the meter will utilize one of its alternate paths to push data to the head-end	M	B-1, System Acceptance Test Plan test #1 will test the association of network devices with the head end. However, it does not outline or test what happens if the primary communication path is lost.	The LAN is self-initializing, self-healing and self-optimizing. Upon initial power-up, the meters find an optimal path to the TCC and several alternate paths. Up to seven paths are stored in the TUNet communication module in the meter. If the primary path is not viable (loss of communication between the meter and the head-end), the meter will utilize one of its alternate paths to push data to the head-end. In the even the alternate path is unavailable, the meter will seek continue to seek a path to the headend. In the meantime, it stores its data in non-volatile memory so no data is lost The alternate path from any one meter to the TCC may be through the same VC as its primary path or may be through a different VC depending on where in the network the communication is lost or if the VC in the primary path is not communicating. This self-healing feature does not require any manual intervention During the design process, the capacity of the VCs is taken into consideration to ensure path redundancy. Upon restoration of communication, the data is immediately sent to the TCC. The LAN does not need to configure itself. With TUNet's TRUPush technology, data from the meter is pushed to the head-end within the next interval period. For example, 15-minute interval data is sent within the next 15 minutes. The data is routed through the WAN and back-haul to the head-end. The TCC (head-end) automatically detects any gaps in meter data (i.e. missing data), and automatically backfills said gaps by initiating a query to the specific meter(s) for the missing data. When communication is restored, the data is sent to the TCC.
System Performance and Reliability	110	Perform data flow control after communication outages to prevent network resources from being overloaded	Current Base	The TUNet headend filters outage messages going to the OMS such that the OMS receives the necessary outage information with overloading	M	B-1, System Acceptance Test Plan of agreement references 'Outage and restoration detection' but does not specifically reference data flow control overload.	Comply as written in vendors comments
System Performance and Reliability	111	Critical messages exchanged between the AMI head-end and premise and/or field devices will be delivered in 90 seconds 90 percent of the time (all commodities)	Current Base	Command and alarm messages are delivered within 90 seconds 90 percent of the time.	N	There is no message exchange commitment in the agreement.	Comply as written in vendors comments
System Performance and Reliability	112	Transmit lower priority events to the AMI head-end during the next available transmission cycle	Current Base		Y	B-1, System Acceptance Test Plan of agreement outlines 'Alarms and Events', 'Outage Restoration Detection'	Included in SAT
System Performance and Reliability	113	Transmit and log, at a minimum, the following information for each event: Event Timestamp, Event Type, AMI RF endpoint, signal strength, and/or meter ID	Current Base		Y	B-1, System Acceptance Test Plan of agreement outlines 'Alarms and Events', 'Outage Restoration Detection'	Included in SAT Clarification - See #123 below. RSSI is only one aspect of LAN/NAN signal quality measured and reported by the Tantalus system. Tantalus uses a number of metrics - including signal to noise, received signal, packet error rate and relative bit strength and combines these into a single metric used to manage the network (called Link Quality or LQ for short). In Tantalus' experience, received signal does not tell the whole story as background noise must be taken into consideration and at the end of the day, it is the packet success rate that measures the effectiveness of a communications channel
System Performance and Reliability	114	Transmit high priority alarms from meters and/or endpoints to the AMI head-end upon occurrence	Current Base		Y	B-1, System Acceptance Test Plan of agreement outlines 'Alarms and Events', 'Outage Restoration Detection'	Included in SAT
System Performance and Reliability	115	Support user-defined prioritization of events to allow critical traffic to have priority	Current Base	The TUNet system utilizes priority messaging to provide efficient use of the network and timely data. TUNet supports multiple levels of message priority with the highest level reserved for DA, followed by outages, then alarms. Interval data is delivered with the lowest priority. When meters generate high priority data, the data is immediately pushed to the VC and on to the head-end	Y	B-1, System Acceptance Test Plan of agreement outlines 'Advanced Metering, Metering Configuration Setup' to determine the events and alarms to be enabled.	Included in SAT
System Performance and Reliability	116	Support remote configuration of all user-controllable parameters	Current Base		N	Feature is not referenced in agreement language or in product specifications / appendix of RFP response.	Comply with requirement
System Performance and Reliability	117	Support remote configuration of multiple devices in a batched mode.	Current Base	This is supported through the use of contextual addressing which allows the utility to group devices	N	Feature is not referenced in agreement language or in product specifications / appendix of RFP response.	Comply as written in Vendor Comment
System Performance and Reliability	118	Log all configuration commands and results	Current Base				Comply with requirement
System Diagnostics	119	Respond to requests for on-demand access to meter and log data	Current Base		N	On-demand access is not referenced in agreement. Not addressed in RFP response product specifications but is mentioned in Proposal Response appendix on Multispeak Integration.	Comply per Supported MultiSpeak Integration Table
System Diagnostics	120	Send non-usage messages and alarms to the AMI head-end that contain date/time stamp from internal meter clock, message code/type, and meter identifier	Current Base				Comply with requirement
System Diagnostics	121	Detect, log, and report program or memory failure.	Current Base		N	Detection, log and reporting of failures are not referenced in agreement.	Comply with requirement
System Diagnostics	122	Detect, log and report communications link failures	Current Base		N	Detection, log and reporting of failures are not referenced in agreement.	Comply with requirement

Category	Req ID	Capability/Requirement	Vendor Response	Vendor Comment	Covered in Agreement	SOW / Contract Review Comment	Intended Vendor Response
System Diagnostics	123	Log the communication signal strength (RSSI) and report it back to the AMI head-end with every transmission	Current Base	RSSI is only one aspect of LAN/NAN signal quality measured and reported by the Tantalus system. Tantalus uses a number of metrics - including signal to noise, received signal, packet error rate and relative bit strength and combines these into a single metric used to manage the network (called Link Quality or LQ for short). In Tantalus' experience, received signal does not tell the whole story as background noise must be taken into consideration and at the end of the day, it is the packet success rate that measures the effectiveness of a communications channel	N	Neither signal strength or link quality are referenced in the agreement. RFP response specifications or proposal response appendix.	Comply as written in vendors comments
System Diagnostics	124	Provide diagnostic log information on-demand from AMI head-end	Current Base	Diagnostic log information is part of the PQM reports which are sent automatically to the headend several times a day. They can also be provided on-demand			Comply as written in Vendor Comment
System Diagnostics	125	Support a remotely and locally initiated meter test for internal meter timekeeping accuracy	Not Provided	We do not set time in the meter. The TUNet system provides timekeeping functionality automatically so initiating time tests locally is not required	NA	Not applicable	Not applicable to the project and accordingly not incorporated into the Agreement
System Diagnostics	126	Automatically issue a remote meter test upon on-demand read request failure	Not Provided	The communication module in the Itron Centron II meter provides an alarm if delivery of meter readings is interrupted	NA	Not applicable	Not applicable to the project and accordingly not incorporated into the Agreement
System Diagnostics	127	Remotely detect network communications problems including loss of redundant communications pathways, diminishing signal strength, or poor interval performance	Current Base				Comply with requirement
System Diagnostics	128	Log results of all remote testing and diagnostics activities and any automatic actions taken based on those results	Current Base				Partially comply as we don't really log what remote diagnostics were performed on a meter and then upload those to the TCC
System Diagnostics	129	Support configurable alert levels and notifications based on the severity of a problem detected and the number of endpoints affected	Not Provided		NA	Not applicable	Not applicable to the project and accordingly not incorporated into the Agreement
System Diagnostics	130	Support classification of specific testing/diagnostic results to either require or not require human intervention (configurable)	Not Provided		NA	Not applicable	Not applicable to the project and accordingly not incorporated into the Agreement
System Diagnostics	131	Provide reports/views that contain key diagnostics and statistics from all AMI meters, devices, and field communication network elements. Reports shall include (at a minimum) meter read status reports, event/transaction status reports, trouble reports, and meter additions/removals	Modification	This requirement is supported with the exception of meter additions/removals. A modification to the existing reporting is required to support the additions/removals			Comply to the extent written in Vendor Comment
System Diagnostics	132	System will provide a display map of Utility-designated infrastructure components (e.g., meters, pump stations, pressure zones, etc.)	Not Provided		NA	Not applicable	Not applicable to the project and accordingly not incorporated into the Agreement
System Diagnostics	133	System will support requests for on-demand reading and pinging of meters from users directly or from other departmental applications such as CIS or MDMS	Current Base	TUNet can be integrated to the CIS and MDMS to support this requirement. This enables authorized personnel to request reads from multiple applications			Comply as written in Vendor Comment
Software/Firmware Releases	134	Upgrades and enhancements shall be backwards compatible for at least three (3) major releases	Current Base		N	Backward compatibility between TUNET NCC headend and meters is not addressed in agreement	Clarifications - Distinction to be noted between 3rd Party AMI Meters and Tantalus's TUNet modules. We do not update firmware in meters. We can reconfigure the Aclara kV2a over the air, but cannot do the same with the SENTINEL. The Itron single phase meters can be reconfigured for different measures, but the Aclara I-210+ must be reconfigured using the MeterMate application locally using an optical connection
Software/Firmware Releases	135	All upgrades and software releases shall be identifiable by release number	Current Base		N	Tantalus current release number is not in agreement nor is description / understanding of current release nomenclature.	
Software/Firmware Releases	136	Release notes to be provided to customers	Current Base	Release notes are provided to the utility	N	Release notes are not referenced in agreement. Release methodology and release notes are referenced in Product Specifications page 5 under "Releasing a Product or Revision".	Tantalus AMI modules support over-the-air upgrades which ensure compatibility with future software. Tantalus' design philosophy ensures future releases of communication modules and TCC headend software will be backwards compatible with previous releases. Compatibility does not guarantee support for all future functionality. Two major software releases are planned for each year which include full regression testing for compatibility. Patches are released as required
Software/Firmware Releases	137	Upgrades and enhancements shall be thoroughly tested and pass Quality Assurance review (Unit Testing, Systems Acceptance Testing) before being released to the customer.	Current Base		N	Upgrades are not mentioned in agreement. Section 1.e of RFP proposal response Product Specifications (H), indicates that for upgrades that 'e. Provide the implementation process for releasing and applying software and firmware upgrades, bug fixes, and patches. Include overall implementation timeframe, vendor effort /time /resources, and client effort /time /resources. Discuss the quality assurance (QA) procedures currently in place to ensure bug fixes, patches, and upgrades are fully tested and validated prior to release. Discuss QA procedures currently in place to ensure the identification and correction of system security vulnerability.	Phased Life Cycle Development and Quality Assurance at Tantalus are driven by our phased life cycle approach. The output of each phase is a suite of documents or other deliverables. Review and approval of this output gates the next phase of the life cycle 1. Our initial "Planning and Specification" phase defines the scope of the project, including feature set and associated test plans. 2. Successfully meeting the gating criteria for this phase promotes the development to a combined agile "Test + Development" phase where Development, QA Test and Manufacturing specifications are met and documented 3. The final "Product Release" phase introduces the product into Manufacturing and into the Field, using a rigorous Engineering Change Order (ECO) process. Tantalus manages these phases using an open source issue tracker called JIRA to capture all requirements, defects, test results and tasks related to each product and its development. JIRA: Workflow Management Tool All issues are visible to all personnel within Tantalus Secure, project-limited views of our key operations tools are also available to our third party partners. This approach ensures that both internal and external contributors can work effectively as part of our Tantalus technical team JIRA issues are reviewed daily by the project teams, and weekly by a change control
Software/Firmware Releases	138	All upgrades and software releases must be scheduled at Utility's discretion.	Current Base	Upgrades and patches are managed by the Tantalus Support team per the Technical Support Agreement. Their is little impact on utility personnel and no impact on operation of the system. All upgrades are coordinated with utility	N	FW upgrades are not discussed in agreement but scheduling methodologies are outlined in "Product Specifications - item 10 of RFP response.	
Software/Firmware Releases	139	A rollback plan must be in place and be communicated to the Utility prior to any upgrades to the software	Current Base	All Tantalus firmware updates are authenticated and will automatically roll back should the new firmware not operate correctly. Furthermore, firmware updates can be rolled back manually if required. We will communicate the process to the utility.	N	FW upgrades are not discussed in agreement but scheduling methodologies are outlined in "Product Specifications - item 10 of RFP response.	

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Software/Firmware Releases	140	Provide corrections (e.g., patches) for AMI application software if program errors are discovered at another user's site	Current Base	Software quality problems that are detected in the field are captured in our issue tracking system with details of the environment and circumstances of the issue. We assess which customers may be impacted and communicate the resolution to them. Each issue is reviewed and assigned a priority. Field issues that are not Critical are scheduled for inclusion in an upcoming product release. Critical issues are addressed as soon as possible via a work-around followed by release of a software patch	N	FW corrections are not discussed in agreement but scheduling methodologies are outlined in Product Specifications - item 10 of RFPresponse.	committee. Actions are assigned based on the criticality and priority of the issue. Scheduling decisions are made by consensus of the key stakeholders, including Product Development, QA, Field Ops and Product Marketing. Agile Methodology Our software developers are guided by an agile methodology that ensures close synchronization between our developers and testers. With each development phase, our work cycles are defined by bi-monthly sprints to address issues towards our product release. At the end of each day, the code modifications and enhancements committed to our code revision system are put in an automated build, which is deployed onto our test targets and regression tested overnight. New features are first tested manually and then those tests are automated and added to the nightly process to constantly build out our regression tests
Software/Firmware Releases	141	All point releases for AMI Software are made available to all customers	Current Base	Software releases are made available to customers based to Technical Support Agreement.	N	FW upgrades are not discussed in agreement but methodologies are outlined in Product Specifications - item 10 of RFP response.	
Software/Firmware Releases	142	Accept and install firmware upgrades remotely (over-the-air) via the AMI network	Current Base		N	FW upgrades are not discussed in agreement but methodologies are outlined in Product Specifications - item 10 of RFP response.	Tantalus performs product and system testing with simulated loading. Our test infrastructure includes the ability to simulate 300K meters over the RF in our lab environment
Software/Firmware Releases	143	Firmware upgrades shall also be able to be accomplished in the field at the meter location	Not Provided		N	FW upgrades are not discussed in agreement but methodologies are outlined in Product Specifications - item 10 of RFP response.	Test and Development The majority of the issues for each release correspond to our implementation strategy and test cases. Implementation output is committed to our Mercurial code revision system and
Software/Firmware Releases	144	Continue normal operation while downloading software/firmware upgrades until instructed to switch to the new version	Current Base		N	FW upgrades are not discussed in agreement but methodologies are outlined in Product Specifications - item 10 of RFP response.	specific test cases are captured in our Test Case management system, TestLog. During our Test + Development phase, Tantalus adds any new issues against that release to the JIRA tracking system, and updates the test cases as required.
Software/Firmware Releases	145	Automatically revert to the previous version if a failed firmware upgrade is detected	Current Base		N	FW upgrades are not discussed in agreement but methodologies are outlined in Product Specifications - item 10 of RFP response.	Our software developers are guided by an agile methodology that ensures close synchronization between our developers and testers. With each development phase, our
Software/Firmware Releases	146	Support remote and local reading of a system device's current software/firmware version	Current Base		N	FW upgrades are not discussed in agreement but methodologies are outlined in Product Specifications - item 10 of RFP response.	work cycles are defined by bi-monthly sprints to address issues towards our product release
Software/Firmware Releases	147	Be configurable to retain stored register reads over a full software/firmware upgrade	Current Base		N	FW upgrades are not discussed in agreement but methodologies are outlined in Product Specifications - item 10 of RFP response.	At the end of each day, the code modifications and enhancements committed to our code revision system are put in an automated build, which is deployed onto our test targets and regression tested overnight. New features are first tested manually and then those tests are automated and added to the nightly process to constantly build out our regression tests
Software/Firmware Releases	148	Be configurable to reset stored register reads over a full software/firmware upgrade.	Not Provided	Registers reads can be reset locally using the DT-400 software	NA	Not applicable	
Software/Firmware Releases	149	Retain all AMI meter configuration settings, statuses, customer information, and event logs over a full software/firmware upgrade	Current Base		N	FW upgrades are not discussed in agreement but methodologies are outlined in Product Specifications - item 10 of RFP response.	Software Release Policy Being a wireless solution, TUNet has the capacity and ability to modify operating parameters and upgrade functions/features as they become available over time. Tantalus utilizes a NIST compliant "over-the-air" upgrade (TUNup) protocol to securely download
Software/Firmware Releases	150	Allow reprogramming of meters remotely (over-the-air) via the AMI network	Current Base	TUNet supports remote over the air firmware upgrades for electric modules	N	FW upgrades are not discussed in agreement but methodologies are outlined in Product Specifications - item 10 of RFP response.	new firmware on all products (e.g. NS, NC, C&I meters. ST, LM devices. RT, XR, and DA devices). This allows utilities to remotely (over-the-air) upgrade firmware of deployed TUNet devices when new functions and features become available. All deployed meters can be upgraded at the same time or ingroups
Software/Firmware Releases	151	Log firmware download and show success statistics (including upgrade attempts, failures, successes, reversions with timestamp)	Current Base	Firmware statistics are logged	N	FW upgrades are not discussed in agreement but methodologies are outlined in Product Specifications - item 10 of RFP response.	The TUNet TUNup process is initiated by an authorized operator (Tantalus Field
Software/Firmware Releases	152	Report firmware upgrade status (successful or unsuccessful) to the AMI head-end	Current Base	The successful upgrade is reported immediately. We do not wait for the next scheduled read	N	FW upgrades are not discussed in agreement but methodologies are outlined in Product Specifications - item 10 of RFP response.	Operations) from the TCC (TUNet Control Center) and all communications between the TCC and the endpoint devices require valid security certificates to prevent unauthorized communications
Software/Firmware Releases	153	Propagate commands and manage firmware upgrades through the AMI head-end	Current Base	Meter firmware upgrades are initiated, monitored, and managed by Tantalus personnel per the Technical Support Agreement	N	FW upgrades are not discussed in agreement but methodologies are outlined in Product Specifications - item 10 of RFP response.	Our software developers are guided by an agile methodology that ensures close synchronization between our developers and testers. With each development phase, our work cycles are defined by bi-monthly sprints to address issues towards our product release.
Software/Firmware Releases	154	Support group firmware updates to reduce system maintenance time	Current Base		N	FW upgrades are not discussed in agreement but methodologies are outlined in Product Specifications - item 10 of RFP response.	
Water Endpoints		**The AMI Endpoint Shall:**					
Water Endpoints	155	Be capable of communicating bi-directionally with a field programming tool without use of the AMI Network	Current Base		NA	Not applicable water	
Water Endpoints	156	Be supplied with a scannable bar code label affixed to the endpoint	Current Base		NA	Not applicable water	
Water Endpoints	157	For meter pit installations, the endpoint must be capable of continuous operation in a submerged environment	Current Base	The proposed water module meets this requirement	NA	Not applicable water	
Water Endpoints	158	Support local data exchange with a field programming tool of all AMI Meter and communications data and logs	Current Base		NA	Not applicable water	
Water Endpoints	159	Provide security / authentication for local AMI Meter data exchange to ensure that data exchanges can only be executed by authorized Utility users or users authorized by the Utility with designated field tools.	Current Base	A vendor ID is required to command the 100W device. Note that the only data being transmitted is what can be read manually by looking at the dials	NA	Not applicable water	
Water Endpoints	160	Collect and log non-usage data (i.e. battery level, alarms, temperature, pressure, etc.)	Current Base	Reverse flow, leak detect, cut cable, low battery, state read.	NA	Not applicable water.	
Water Endpoints	161	Prevent time synchronization that crosses an interval boundary	Current Base		NA	Not applicable water	

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Water Endpoints	162	Have storage capacity at the meter for 45 days, which includes meter read and event data for purposes of disaster recovery	Current Base	The 100W ERT module stores 40 days of hourly consumption information, which can be collected by the fixed network system to leverage real time data collection. However the TUNet meets this requirement as water meter data is also stored in the TUNet-enabled electric meter and/or VC for 45 days	NA	Not applicable water.	Not applicable to the project and accordingly not incorporated into the Agreement
Water Endpoints	163	Log all successful and failed internal clock time corrections or adjustments	Current Base		NA	Not applicable water.	
Water Endpoints	164	Keep time even if there is no communication with the AMI network.	Current Base		NA	Not applicable water.	
Water Endpoints	165	Be equipped with a diagnostic self-test and transmits an alarm to the AMI head-end if unsuccessful	Current Base	Water modules report reverse flow, leak detect, cut cable, low battery and state reads	NA	Not applicable water.	
Water Endpoints	166	Have a unique identification number that can be read electronically when the meter is interrogated and transmitted to or stored in the AMI Endpoint	Current Base		NA	Not applicable water.	
Water Endpoints	167	Radio battery enclosure on endpoints for water meters shall be fully sealed and waterproof	Current Base		NA	Not applicable water.	
Category	Req ID	Capability/Requirement	Vendor Response	Vendor Comment	Covered in Agreement	SOW / Contract Review Comment	Intended Vendor Response
Water Endpoints	168	Have an option to be wall mounted	Current Base		NA	Not applicable water.	
Water Endpoints	169	Have an option to be pit mounted (under the lid)	Current Base		NA	Not applicable water.	
Water Endpoints	170	Have an option to be mounted through the lid via a pit mount interface device	Current Base		NA	Not applicable water.	
Water Endpoints	171	Through the lid endpoint antenna devices must recessed in order to be flush with the lid	Current Base	The 100W ERT has an optional TTL (through the lid) antenna (included) which is ADA compliant and does not present a trip hazard	NA	Not applicable water.	
Water Endpoints	172	Have an option for two or more register inputs from one endpoint (water meters).	Current Base	In the case of meters with two registers, daily reads are provided.	NA	Not applicable water.	
Water Endpoints	173	Have an option to be remote mounted outdoors if a non-pit mounted product	Current Base	Remote mount versions of the 100W are available.	NA	Not applicable water.	
Water Endpoints	174	Be capable of providing load profile data intervals in 15, 30, 60 minute intervals	Not Provided	The 100W ERT provides 60 minute interval data	NA	Not applicable water.	
Electric Meters	175	Be supplied with a scanable AEP bar code label including the electric meter number affixed to the meter faceplate.	Current Base		N	Not in agreement or in Product Specifications of RFP response.	*Tantalus's Responses to Electric Meter Req. 175-219 assume TUNet enabled meters.* Comply with requirement
Electric Meters	176	Support configurable display registers with at least 6 (digits) plus 2 decimals	Current Base	Some residential meters are limited to 5 digits	N	Not in agreement, but digit displays are also is a function of the meter output in terms of digits.	Comply as written in vendors comments
Electric Meters	177	Provide an electronic file containing all meter characteristics, factory test data, and initial reads for all AMI devices. The file will be capable of direct import to CIS	Current Base	This file is normally provided by the meter manufacturer.	N	Not in agreement or in Product Specifications of RFP response.	Provided by Third-Party Meter Manufacturer
Electric Meters	178	Accept remote configuration changes via the AMI head-end	Current Base		Y	Agreement lists remote connect / disconnect and on-request reading functionality.	Included in Agreement
Electric Meters	179	Be equipped with a diagnostic self-test of the register software in the event of errors or warning displays and provide notification back to the AMI head-end	Current Base	The meter initiates diagnostic self-tests periodically. Depending on the results of these tests, errors or warnings may be displayed	N	Self-test not in agreement or product specifications.	Comply as written in Vendor Comment
Electric Meters	180	Must meet or exceed the accuracy specifications contained in ANSI specifications over its entire service file without the need for adjustment.	Current Base		N		Third-Party Products Comply with ANSI C12.18, 19, 21. Metering protocol standards.
Electric Meters	181	Documentation of meter programming parameters and procedures must be provided for each distinct meter type.	Current Base	This is normally provided by the meter manufacturer.	N	List of documentation to be provided is not (but should be) in agreement. Product specifications do list some documentation.	See Vendor Comment. Third-Party Products - See Product Specifications in Appendix. Additional documentation available from Third-Party manufacturer.
Electric Meters	182	Be supplied with a full, non-prorated, 3-year warranty supporting full meter and endpoint replacement at vendor cost	Current Base	Tantalus has included a 3-year warranty for Tantalus modules and communication infrastructure. Please see the warranty provisions in the attached Network Systems Agreement. Warranty for meters and ERT modules is provided by the manufacturer (Itron). Itron offers a 3-year warranty on the proposed meters and a 10-year warranty on the proposed water modules. Please see details at https://www.itron.com/na/search-results#q=warranty&t=All In and Out charges are not included	N	Applicable for all Tantalus provided components / modules and Itron / Aclara electric meters - covered in agreement. Not applicable water.	See warranty terms in Agreement and Pricing Exhibit. 3-year warranty for Tantalus communications modules included; however, 3-year warranty on collectors/repeaters is optional per Exhibit C.
Electric Meters	183	Vendor shall replace the meter and endpoint at its cost and reimburse the City for labor and materials for failure rates exceeding 1.5% during the 3-year warranty period	Modification	Meters are subject to the manufacturer's warranty, viewable at https://www.itron.com/na/search-results#q=warranty&t=All. Meter related contractual commitments are direct between Customer and the third party meter manufacturer. With regards to Tantalus's communications modules, final commitments including failure percentage and in/out charges will be discussed and mutually agreed to during contracting with input from all parties, as appropriate.	N	Recommend inclusion in agreement: Labor and materials reimbursement for failure rates exceeding 1.5% are not addressed.	Warranty terms are per the Agreement and do not include in and out charges. Third-Party Products are subject to manufacturers warranty terms as per the applicable Exhibit in the Agreement

Category	Req ID	Capability/Requirement	Vendor Response	Vendor Comment	Covered in Agreement	SOW / Contract Review Comment	Intended Vendor Response
Electric Meters	184	The 3-year warranty shall apply to the whole electric meter and endpoint including, but not limited to, meter body, metrology, communications, display, etc	Current Base	The proposed solution includes meters from Itron with integrated modules from TUNet. The meters are warranted per Itron terms (https://www.itron.com/na/search-results#q=warranty&t=All) and the modules per the Tantalus Network System Agreement included with this proposal. If an extended warranty had been provided, it will be listed in the Price Sheet attached to this proposal.	Y	The 3-year warranty for Tantalus components as well as Itron and Aclara devices is in the agreement	See warranty terms in Agreement and Pricing Exhibit. 3-year warranty for Tantalus communications modules included; however, 3-year warranty on collectors/repeaters is optional per Exhibit C.
Electric Meters	185	Be able to accept and process a manual or automated demand reset command from the AMI head-end system >98% of the time.	Current Base		N	Agreement does not reference demand reset.	TUNet enabled meters - comply with requirement
Electric Meters	186	Send acknowledgement to head-end that demand reset function has been performed, along with date and time stamp of reset.	Current Base		N	Agreement does not reference demand reset.	TUNet enabled meters - comply with requirement
Electric Meters	187	Be configurable to capture 5-minute, 15-minute, 30-minute and 60-minute kW demand readings	Current Base	The proposed solution meets this requirement for all TUNet-enabled meters	N	Agreement does not reference demand readings.	Comply as written in Vendor Comment
Electric Meters	188	Demand electric meters shall be configurable with rolling or block intervals	Current Base		N	Agreement does not reference demand readings.	TUNet enabled Poly Phase meters can be programmed for block or rolling demand. Single
Electric Meters	189	All demand enabled meters must provide a time stamp with the peak demand recorded for the period set in the metrology of the meter	Current Base		N	Agreement does not reference demand readings.	TUNet enabled meters - comply with requirement
Category	Req ID	Capability/Requirement	Vendor Response	Vendor Comment	Covered in Agreement	SOW / Contract Review Comment	Intended Vendor Response
Electric Meters	190	All demand meters must allow for auto-demand reset at a predefined time/interval period (e.g. tied to billing date)	Current Base	Scheduled demand resets are done automatically within the meter based on a schedule stored in the meter. Tantalus offers two levels of demand reset scheduling capability for C&I meters. Included with the system is standard repeat demand resets, such as Daily (at time), Weekly (Day, time) or Monthly (Date, time). We also offer an optional more advanced demand reset scheduling capability that is calendar-based. For example, the reset can default to Mondays but move to Tuesdays for a long weekend, or shorter billing period (28 days) in peak times . Either can be set per meter. The system can also do on-request demand resets.	N	Agreement does not reference demand readings.	TUNet enabled meters - comply as written in Vendor Comment
Electric Meters	191	Residential disconnect meters shall have the ability to support current/load limiting functionality.	Future Base Release	Load limiting is the Tantalus roadmap and anticipated to be available 3Q 2019. Tantalus currently supports Service Limiting. This feature enables a utility to reduce accounts receivable while avoiding public relations nightmares. Service Limiting makes use of a residential meter's remote service disconnect capability to provide an alternative to full disconnection for non-paying customers, when local regulations or company policies prohibit disconnection for non-payment, or when disconnecting for an indefinite time might endanger the customer's health. Service Limiting provides the ability to place a customer into Service Limiting mode, which will cause their service to be alternately disconnected and reconnected every 30 minutes automatically, until the utility takes them out of Service Limiting mode by either fully reconnecting or fully disconnecting them. The cycling occurs at 15 and 45 minutes past the hour, so that the customer cannot watch a complete TV show. Utilities who are using this feature have found that most customers pay in less than a month	NA	Not applicable - future release.	Future release not applicable to the current project and accordingly not incorporated into the Agreement.
Electric Meters	192	Load limiting supported meters shall be able to accept and process a remote load limiting commands from the AMI head-end system.	Future Base Release		NA	Not applicable - future release.	Future release not applicable to the current project and accordingly not incorporated into the Agreement
Electric Meters	193	Load limiting meters shall be able to send an acknowledgement of the current state of load limiting status	Future Base Release		NA	Not applicable - future release.	Future release not applicable to the current project and accordingly not incorporated into the Agreement
Electric Meters	194	Allow for remote disconnect and reconnect functionality for any residential 200 amp meters. Allow for remote disconnect and reconnect functionality for all meters equipped with a service disconnect	Current Base		Y	Meter disconnect functionality is in agreement in B-1 system acceptance test plan.	
Electric Meters	195	Meter must send acknowledgement to head-end of disconnect/reconnect function has been performed, along with time stamp of action performed.	Current Base		Y	Meter disconnect functionality is in agreement in B-1 system acceptance test plan.	
Electric Meters	196	Be able to supply 1-hour interval kWh reads to the AMI endpoint for residential and 15-minute interval kWh reads to the AMI endpoint for C&I	Current Base	This data is pushed to the head end every interval	Y	Agreement indicates in B-1 system acceptance test plan that C&I meters can provide 5 min interval data and 15 min residential meter data.	
Electric Meters	197	Be configurable to provide interval data for all measured commodities in 5, 15, 30 & 60 minute intervals	Current Base		Y	Agreement indicates in B-1 system acceptance test plan that C&I meters can be changed and can be graphed in 15 min intervals (grouped hourly)	Included in SAT

Category	Req ID	Capability/Requirement	Vendor Response	Vendor Comment	Covered in Agreement	SOW / Contract Review Comment	Intended Vendor Response
Electric Meters	198	Be able to support remote configuration of the kWh read interval	Current Base		Y	Agreement indicates in B-1 system acceptance test plan that C&I meters can be changed using the Network Server Utility Administrator web interface.	
Electric Meters	199	Be able to support remote configuration of the kW read interval	Current Base		Y	Agreement indicates in B-1 system acceptance test plan that C&I meters can be changed using the Network Server Utility Administrator web interface.	
Electric Meters	200	Be able to support net metering functionality.	Current Base				Comply with requirement
Electric Meters	201	All three phase meters shall allow for the addition of a KYZ pulse output board to be installed without limiting the functionality of the AMI meter	Modification	This requirement can be supported via the Aclara kV2c polyphase meter. The proposed polyphase meters do not support this requirement. TUNet supports this attribute with the GE kV2c meter which is available but not included in the proposal. If this is an important feature for you, please ask us and we will be happy to provide this option			Comply to the extent written in Vendor Comment; however, reference to GE should be changed to Aclara
Electric Meters	202	Three phase meters must allow an option for providing KYZ pulse outputs as required by the Utility	Modification	This requirement can be supported via the Aclara kV2c polyphase meter. The proposed polyphase meters do not support this requirement			Comply to the extent written in Vendor Comment
Electric Meters	203	All three phase meter must be able to report amps per phase	Current Base				Comply with requirement
Electric Meters	204	Be able to supply the following metering units	Current Base				Lead in to 205-210 below
Electric Meters	205	kWh delivered	Current Base		Y	B-1, System Acceptance Test Plan, section 6 - Consumption and voltage Profiles.	
Electric Meters	206	kWh received	Current Base	Sentinel meters require the bi-directional for kWh received	Y	B-1, System Acceptance Test Plan, section 6 - Consumption and voltage Profiles	
Electric Meters	207	kW	Current Base		Y	B-1, System Acceptance Test Plan, section 6 - Consumption and voltage Profiles.	
Electric Meters	208	kVar/hour lagging (for large C&I)	Current Base	Requires Measurement Level (ML) 2 or higher Sentinel Please see the Price Sheet for ML 2 adder	Y	B-1, System Acceptance Test Plan, section 6 - Consumption and voltage Profiles	
Electric Meters	209	Timestamp	Current Base		Y	B-1, System Acceptance Test Plan, section 6 - Consumption and voltage Profiles.	Included in SAT
Category	Req ID	Capability/Requirement	Vendor Response	Vendor Comment	Covered in Agreement	SOW / Contract Review Comment	Intended Vendor Response
Electric Meters	210	kVA	Current Base	Requires Measurement Level (ML) 2 or higher Sentinel. Please see the Price Sheet for ML 2 adder Measurement Level 3 is required if the meter must provide both kVA and kVAR	Y	B-1, System Acceptance Test Plan, section 6 - Consumption and voltage Profiles	
Electric Meters	211	Per phase voltage:	Current Base		Y	B-1, System Acceptance Test Plan, section 6 - Consumption and voltage Profiles	
Electric Meters	212	All meters (single and three phase) must provide voltage per phase	Current Base				Comply with requirement
Electric Meters	213	All three phase meters must provide a measurement of VAR (and calculation of VA) for each billing interval	Current Base	VAR requires Measurement Level (ML) 2 or higher Sentinel. Please see the Price Sheet for ML 2 adder. Measurement Level 3 is required if the meter must provide both kVA and kVAR			Comply as written in Vendor Comment.
Electric Meters	214	All three phase meters must provide a phase angle measurement both positive (leading angle) and negative (lagging angle)	Current Base	Supported by the meter but not read by TUNet			Comply as written in Vendor Comment
Electric Meters	215	All meters must be capable of providing an instantaneous amperage and voltage reading.	Current Base				Comply with requirement
Electric Meters	216	All meters must provide a maximum amperage and max/min voltage reading for interval readings	Future Base Release	Residential meters provide minimum & maximum voltage over the power quality interval, which is configurable from 1 to 24 hours but do not provide amperage. At present, C&I meters do not provide minimum and maximum voltage and current, but this could potentially be added in a future release via an over the air firmware update	NA	Not applicable – future release	Future release not applicable to the current project and accordingly not incorporated into the Agreement.
Electric Meters	217	Be capable of providing alert for optical port access	Current Base	The Optical Port in Use event is displayed with a start time and end time in the event monitor for TUNet-enabled electric meters.	N	Not Addressed in agreement.	Comply as written in Vendor Comment; provided however that this feature only applies to the Aclara kV2c meter
Electric Meters	218	Meters with optical ports shall support optical port passwords	Current Base		N	Not Addressed in agreement.	Comply with requirement
Electric & Water Meters	219	Electronic Vendor Meter Inventory file ('Electronic Packing Slip') to be provided with all electric and water meter deliveries	Current Base		N	Not Addressed in agreement.	Comply with requirement

Total Requirements	219
Requirements Categorized	206
Requirements Not Categorized	13
Items covered in agreement	42
Items NOT covered in agreement	87
Items partially covered in agreement	9
Items not applicable to agreement or listed in a future release	53

Riverside Public Utilities, CA
Technical Requirements Questionnaire
General Instructions

Vendor Response	Description
Yes	Requirement is available (Yes).
No	Requirement is Not Available (No).
Not Applicable	Y/N response is Not Applicable – enter explanation only.

No.	REQUIREMENT		
GENERAL TECHNICAL			
1.	Indicate current AMI software version.	Not Applicable	Current version is 4.03.23590.
2.	Describe product licensing policy.	Not Applicable	Please see the attached TUNet Network System Agreement. There is no limit on the number of TUNet users the utility can have. This is not a "per seat" license.
3.	What operating systems are fully tested and supported in what virtual environments? *(Oracle VM 3.6 is the City of Riverside's preferred VM platform for Linux servers. VMWare 6.x is the City of Riverside's preferred VM platform for Microsoft Windows servers.)*	Not Applicable	Tantalus supplies a VM image that has Linux operating system and TCC fully installed. The VM image is supported in both VMWare VSphere/ESXi and Microsoft Hyper-V Server.
4.	Does the proposed solution support application active/active high availability in a VM environment?	Yes	The solution supports real-time redundancy using the native VM cluster capabilities. Alternatively the VM image can be backed up using a software similar to Veeam and restored to a different VM host system.
5.	What database platform is required to support the solution? Include roadmap/dates for updates to latest versions. *(Minimum acceptable database platform is Oracle Database 11.2.0.4 or MS-SQL 2014; preferred platform is Oracle Database 12.x or MS-SQL 2016)*	Not Applicable	The software solution is sold as an appliance without 3rd party access to the Oracle database. The TCC does support a licensed feature called Data Extraction that converts customer data to a SQLite database to allow the customer to create business reports and do technical analysis on the data.
6.	What operating systems are required to support the solution? Include roadmap/dates for updates to latest versions. *(Minimum acceptable operating system is Window Server 2012 R2 or Linux 6; preferred is Oracle Linux 7)*	Not Applicable	The TCC is sold as an appliance, there is no access to the operating system. The operating system is Oracle Linux Server 6.6.
7.	Is the proposed solution scalable in terms of meters, services, and interval data?	Yes	The proposed system is designed based on the requirements specified in the RFP with additional capacity for redundancy and some increase in requirements. For example, significant meter growth within the current footprint may require additional server capacity while growth outside the current footprint may require additional VC Gateways.

8.	Based on RPU's installed base (approximately 115,000 electric meters and 65,000 water meters), provide recommended system specifications for:		

	a) Database server and application server(s) and number required	Not Applicable	The TCC is a 3 tier solution which includes a DB server, an application server, and a presentation server.
	b) Processors/cores (virtual or otherwise) including performance level.	Not Applicable	See attached file, "Attachment 1: Processors and Memory" in Attachment 3 Supporting Documents.
	c) Memory requirements in gigabytes (GB)	Not Applicable	See attached file, "Attachment 1: Processors and Memory" in Attachment 3 Supporting Documents.
	d) Storage requirements for up to 90 days of interval data based on hourly reads for water meters, hourly reads for residential electric meters (approximately 110,000), and 15 minute reads for commercial/ industrial polyphase meters (approximately 12,000), including alert and alarm data	Not Applicable	Four (4) Terabyte RAID 10 Disk Array for 14 months of data. If only 90 days are required, it can be reduced.
	e) Third party licensing including server operating system and database for each server	Not Applicable	The TCC is supplied as an appliance including OS and database. The cost of which is included in the cost of the server and the TUNet software licensing fee.
9.	What application development languages are used?	Not Applicable	TUNet application software is written in a variety of high level languages, including but not limited to ANSI C and SQL. Other high level languages include Java, Python.
10.	Provide an overall system architecture diagram as an attachment.	Not Applicable	Please see "Attachment 2: TUNet Network Diagram" in Attachment 3 Supporting Documents.
11.	What platform is the proposed system developed on? Include the latest supported version of all components (i.e. Java, .net, application, web servers, etc.)	Not Applicable	The TCC is a Linux Oracle system. The component versions are the following: Java = 1.8.0_121, OS = Oracle Linux Server release 6.6, Apache Web server = 2.2, Oracle = 11.2.0.3.0, Tomcat = 7.0.55.

12.	Does the proposed solution allow for utilization of APIs and web services?	Yes	The TCC supports MultiSpeak 3 and 4.1.
13.	Does the proposed solution support Oracle SOA and data warehousing?	No	The TUNet TCC system does not support Oracle SOA as Oracle is not accessible. The TCC does support storing meter readings for 14 months. Using the licensed Data Extraction feature
			meters readings can be saved in a SQLite database and then warehoused to any location or data format.
14.	Does the platform support utility services other than commodity meters?	Yes	TUNet supports DNP3 messaging for Grid Optimization, Load Management with Measurement and Verification, Streetlight Control, and Prepayment to name a few.
15.	Does the platform support highly secure inter-application communications? If so, how (https, SFTP, other)?	Yes	The TCC supports https. MultiSpeak support user name and password authentication. MultiSpeak 4.1 supports https.
16.	What client resources will be required to support the system? Please include minimum and recommended number of staff, qualifications, and roles recommended for a client the size of RPU.	Not Applicable	The Utility should appoint 2 AMI Administrators with cross functional authority within departments for prioritizing worked to be performed. The scope of the AMI Admin will be more involved during the deployment and reduces as the system is deployed. It is also recommend the AMI Administrators attend the Tantalus University Network Admin class annually.
	SOFTWARE AS A SERVICE (SAAS) SPECIFIC		
17.	Explain service levels supported for system uptime.	Not Applicable	Server infrastructure uptime is 99.999%. This is supported by our Cloud Infrastructure as a Service provider HostedBizz. Their SLA is attached in Attachment 3 Supporting Documents labeled "Attachment 3: HostedBizz Cloud Technology Service Level Agreement".
18.	Explain service levels supported for number of records to be processed per a specified time period.	Not Applicable	The Network Server for Riverside has been specified to support the proposed solution with near real time command-and-control which is capable of delivering constant streams of meter interval data, alarms, and power quality data without losing data or falling into an unrecoverable backlog.

19.	Explain service levels supported for maximum processing time.	Not Applicable	The Network Server for Riverside has been specified to support the proposed solution with near real time command-and-control which is capable of delivering constant streams of meter interval data, alarms, and power quality data without losing data or falling into an unrecoverable backlog.
20.	Is the proposed solution scalable? Explain.	Yes	Please see our response to #7 above. Our Cloud Infrastructure as a Service provider HostedBizz has a full cloud infrastructure that can be scaled to accommodate any additional requirements outlined by Riverside Public Utilities.
21.	Explain intellectual property rights for data ownership.	Not Applicable	The utility owns all data.
22.	Is external publishing of data allowed? *(External publishing is not acceptable per Riverside's IT policy)*	No	The utility has control of all data which is stored in the TCC. Our Cloud Infrastructure as a Service provider HostedBizz does not allow any client data to be accessed by any 3rd parties. A data privacy and security document is attached.
23.	Explain how requests for information stored in the system are handled.	Not Applicable	The utility has control of all data which is stored in the TCC. We have not had a 3rd party request data from Tantalus in the past and do not anticipate it in the future. If you have a specific use case in mind, please provide details and we will address the question.

| 24. | Is the proposed solution complaint with Federal Information Security Management Act (FISMA)? | Yes | TUNet security architecture is robust and broad incorporating Integrity, Availability, Confidentiality, and Access & Trust. The framework is based on NIST IR 7628, 800-53, 800-82; FIPS 140-2, FIPS 197 and role based AAA Security framework. It provides complete access logging and audit records and a fully automated system-wide M2M endpoint authentication and key management. All human machine interface (HMI) access to the TUNet Control Center requires 2-factor authentication and fully encrypted interfaces. TUNet can be integrated with third party threat management applications.

The security framework model for the TUNet system is currently guided by the following six broad form standard suites namely;

• NIST IR 7628 Volumes 1,2, and 3
• AMI-SEC System Security Requirements v1.01 with AMI-SEC Security Profile v2.0 |
| | | | • NIST 800-82 Guide to SCADA and Industrial Control Systems Security
• NIST 800-53 Recommended Security Controls for Federal Information Systems and Organizations
• NIST 800-14 Principles and Practices for Securing Information Technology Systems
• The Information Security Forum's "Standards for Good Practice"

Additionally the TUNet system utilizes specific subcomponents of the following standards with respect to security, authentication and encryption;

• NERC CIP-005-3
• NERC CIP-007-3
• ANSI C12.18, C12.19, C12.21, Metering protocol standards.
• SHA-2 Secure Hash Standard
• AES symmetrical encryption standard
• RSA asymmetrical encryption standard
• Secure Shell SSH-2

TUNet makes particularly heavy use of Secure |

			Shell SSH-2 with extended feature sets to form highly secure tunneled connections for user access complete with key management, authentication services and management of digital certificates etc. Data transfer to the Network Server is via TCP/IP, utilizing SSH (AES) and PKI for data security. TUNet LAN communications security utilizes AES 256, RSA and SHA-2 technologies and is further enhanced at the physical layer during the 2 dimension pseudo random encoding of the data, this provides best in class anti interception and anti-jamming immunity. The technique, which is modeled after military applications, provides deep parallelism of communications and provides superior security with profound immunity to both interference and interception. The interception immunity provides a steep barrier to access to the system on even the most basic of levels.
			Additional information can be provided under NDA and made available to specific personnel. Our Cloud Infrastructure as a Service provider HostedBizz has a number of compliances, they have self-attested to FISMA but are Controlled Goods Certified (American Military data handling)

25.	What backup software is used and on what schedule?	Not Applicable	TUNet is configured to automatically provide a full backup of the Oracle database periodically. The full back up is typically configured for weekly, supplemented by incremental backups and transaction-aware archive log. This is stored on a separate partition. TUNET1/backupset poll hourly retention 14 days, TUNET1/autobackup poll hourly retention 14 days, TUNET1/datafile poll daily retention most recent backup only, TUNET1/archivelog poll every 15 min retention 1 day. The Cloud Infrastructure by Service provider HostedBizz leverages Veeam Backup & Replication to backup all Tantalus servers. Unique retention and frequency policies are created for each client to ensure compliance with requirements. Each client has different requirements associated with their data and therefore we do not advertise a default policy, HostedBizz is able to accommodate a continuous frequency as well as any retention policy desired. Please see Attachment 3 Supporting Documents attachment labeled "Attachment 5: TUNet Database Backups".
26.	What is the recovery time for a critical SaaS application including Recovery Time Objective (time and service level within which a business process must be restored to avoid unacceptable consequences associated with a break in continuity) and Recovery Point Objective (maximum targeted period in which IT data might be lost due to an incident?	Not Applicable	Our Cloud Infrastructure as a Service provider HostedBizz will provide a recovery rate for the Server infrastructure of 300 GB per hour, the additional time associated with restoring the application will be completed by Tantalus. For a RPO, this will solely depend on the backup frequency desired by Riverside Public Utilities, if desired HostedBizz can accommodate continuous backup to support near zero data loss and an RPO of less than five minutes.
27.	Can the system be rolled back to a given point in time? To what point in time can the system be rolled back to?	Yes	All Tantalus firmware updates are authenticated and will automatically roll back should the new firmware not operate correctly. Furthermore, firmware updates can be rolled back manually if

			required. Another variable that can be chosen by Riverside Public Utilities, once we have an understanding of the desired backup frequency and retention settings we can configure the job(s) to support any desired requirement set out by RPU.
28.	For company failure or acquisition, or contract termination, what is the process for data retrieval?	Not Applicable	Data retrieval from HostedBizz will be the responsibility of Tantalus, we will provide Tantalus with the ability to retrieve data via download from source, ftp or on a customer supplied storage media.
29.	Can the system be moved 'on-premise' if required? Specify costs associated.	Yes	TUNet supports both on-premise and hosted solutions. We have included pricing for both options. Tantalus can easily set up the initial deployment as a hosted solution in our data center and transition it to an on-premise solution when desired. The system can be migrated to an on premise solution. Additional information would be required to quote a migration price. We would need to understand what type of infrastructure is being leveraged on premise (physical vs virtual), what hypervisor is being used, is the infrastructure in working order, is the infrastructure properly licensed, what type of access to the on premise infrastructure would be available etc. We would expect the migration would not take more than 12 hours' worth of effort as long as RPU would be using established best practices. Our rate would be $150 per hour, billed by the hour based on actual consumption. Any additional licensing/hardware/shipping costs would be the responsibility of RPU.
30.	What is your outsourcing practice/policy?	Not Applicable	Currently all core application development is done in house. We leverage our partner HostedBizz for server infrastructure requirements.
	a) Are services contracted off-shore?	No	HostedBizz offers services in US data centers.
	b) What are partner's security policies?	Not Applicable	Our Cloud Infrastructure as a Service provider HostedBizz have provided their security documentation associated with their personnel and infrastructure.

31.	What hosting stack is used?	Not Applicable	HostedBizz leverages best of breed hardware including Dell, NetApp, Cisco, and Fortinet. Arista, Juniper, Aruba for all physical infrastructure. For the virtualization platform HostedBizz uses VMware leveraging all elements of high availability. HostedBizz is the sole owner of all infrastructure that is leveraged. All infrastructure is co-located in tier 3 certified data centers.
32.	Does the software support Single Sign On (SSO)/Active Directory Integration?	Yes	The TCC supports LDAP. This can allows authentication to be handled by SSO.
33.	Do you have open data publishing features?	No	The utility has control of all data which is stored in the TCC. Our Cloud Infrastructure as a Service provider HostedBizz does not allow any client data to be accessed by any 3rd parties. A data privacy and security document is attached.
34.	What Application Programming Interfaces (APIs) or Web Services are available for integration? *(City of Riverside employs Oracle Fusion and SOA Suite. RPU would like to use MultiSpeak for system integrations)*	Not Applicable	The TCC supports both MultiSpeak 3 and MultiSpeak 4.1 for integration. The MDM may support additional Oracle features.
35.	Do you support Rich Site Summary (RSS) feed capabilities? If so, provide examples and include integration points offered.	No	The TCC supports limited SNMP integration at the moment with enhancements planned for the future.
36.	What is your records retention policy? *(Per functional requirements – 3 years on-line and 10 years archived is required)*	Not Applicable	TUNet stores 14-months of data online which can be archived to other storage to meet the utility's requirement. In addition, longer term storage is typically available with the MDMS as well as from the data center. Records retention from a backup perspective is largely variable and customized to the clients requirements, we can accommodate any desired retention policy outlined by RPU. We have the ability through HostedBizz to set this up uniquely for each client.
37.	What client resources will be required to support the system (SAAS)? Please include minimum and recommended number of staff, qualifications, and roles recommended for a client the size of RPU.	Not Applicable	All TCC maintenance will be done by Tantalus personnel. For TCC upgrade, these are all performed remotely by Tantalus personnel. Upgrades depending on size can range for 30 minutes to 4 hours. During the upgrades, there

			is no effect required form the utility other than access to IT staff as required.
GENERAL SECURITY (SAAS OR ON-PREM)			
38.	Is there a documented security policy for the proposed solution? If yes, please provide as an attachment.	Yes	Please see "Attachment 4: HostedBizz Data Management, Risk, Security and Storage Policy" in Attachment 3 Supporting Documents.
39.	Is there a documented incident response policy for the proposed solution? If yes, please provide as an attachment.	Yes	Please see "Attachment 4: HostedBizz Data Management, Risk, Security and Storage Policy" in Attachment 3 Supporting Documents.
40.	Is cyber security breach liability insurance available for the proposed solution? If yes, please provide as an attachment. If yes:	Yes	Our Cloud Infrastructure as a Service provider HostedBizz has provided their liability document. The insurance document is included in the Appendix.
	a) Can the City be named as an additional insured?	Not Applicable	Tantalus will be named as the insured on the HostedBizz insurance policy. We can investigate other options.
	b) What are the liability limits of the policy?	Not Applicable	Please see insurance document is included in the Appendix.
41.	As proof of security, is City of Riverside/RPU allowed to conduct an audit?	Yes	Yes, all audit associated costs would be the responsibility of RPU and HostedBizz would require sufficient notice. If HostedBizz employees are required to assist with the audit all costs associated would be the responsibility of RPU.
42.	Is the proposed solution compliant with Standards for Attestation Engagements 16 (SSAE 16)? Please provide copy of annual certification.	Yes	Yes, security specification documents are attached. For the actual certificate an NDA document must be signed.
43.	Is the proposed solution compliant with International Standards Organization (ISO) 20071?	Yes	Yes, security specification documents are attached. For the actual certificate an NDA document must be signed.
44.	With cellular backhaul to the headend, what data security considerations are incorporated?	Not Applicable	It is encrypted with AES256 at the IP Gateway.
45.	What encryption is supported?	Not Applicable	Please see TUNet Overview.
46.	Does the application encrypt all confidential data at rest and in transit?	Not Applicable	Data in transit is encrypted, please see TUNet Overview. Access to server requires dual authentication, private key and username and password. Access to web server requires username and password and recommend using private internet access.

47.	Does the vendor conduct 3rd party vulnerability scans and penetration testing? If yes, what frequency? If yes, can results be provided to client upon request?	Yes	Our Cloud Infrastructure as a Service provider HostedBizz has a number of different certifications that require this type of testing to be completed on a regular including but not limited to Controlled Goods and PCI certification. The resulting documents can be provided under NDA.
48.	For company failure or acquisition, or contract termination, what steps does the provider take to ensure that the client has access to software code and stored data should the provider go out of business – this can include 'escrow' and data storage?	Yes	Data retrieval from HostedBizz will be the responsibility of Tantalus, we will provide Tantalus with the ability to retrieve data via download from source, ftp or on a customer supplied storage media
AMI STRATEGIC PRODUCT DIRECTION / ROADMAP			
49.	What is the date of next planned application upgrade?	Not Applicable	Tantalus releases an upgrade approximately every two months. The next one is anticipated early September. The frequency of updates allows us to add incremental improvements. Tantalus utilizes an agile development methodology which enables us to quickly address customer needs.
50.	How often do you provide new product version releases? Is this on a scheduled or flexible basis?	Not Applicable	TUNet Insight is updated every 2 months. The releases include new features plus bug fixes.
51.	What is the length of time each version is supported?	Not Applicable	Tantalus encourages all customers to upgrade to the latest version and manages the upgrade process, so end of support for a particular version normally occurs when all customers have upgraded beyond that version. We currently test for compatibility with all major releases since June 2016.
52.	Is there a User Group with paid membership that contributed to product enhancements?	Yes	Customers have several opportunities to provide input into product enhancements. With a focus on municipal and cooperative utilities, our User base is very similar to Riverside. As a result our product and its enhancements reflect the needs of utilities such as Riverside. Tantalus includes its customers in decisions for future development through several committees made up of customers and key Tantalus personnel. The communication among these committees is invaluable is giving our customers a voice that drives our product enhancements. The annual Tantalus User Conference (TUC) provides an extensive selection of instructional

			and discussion-based sessions which are designed based on feedback from our current customers. They focus on the topics that you want to learn about, in addition to providing valuable information on future enhancements. In addition to providing knowledge sharing, TUC provides an opportunity for our user base to put forth ideas on product enhancements both in a formal setting (group sessions and survey input) as well as informally through discussion with key Tantalus personnel.
53.	Do you have a documented policy for updating the application? If yes, include as an attachment.	Yes	This is covered by our Technical support agreement. As each release comes out we notify the customer via release notes, and then contact them directly to schedule the upgrade.
54.	What is the policy for updating and/or certifying the application when new releases of system software become available (e.g., new releases of SQL, Oracle, Windows, UNIX).	Not Applicable	With Linux, we move to the latest version as quickly as possible. With Oracle we may not necessarily support each new version as it comes out, but Oracle is embedded in our product so this is transparent to the user.
55.	What is the policy for updating and/or certifying the application when new releases of third party application/integration software becomes available (e.g. MultiSpeak 4.0)?	Not Applicable	For MultiSpeak and other key applications, we typically update to support the new release as quickly as possible. There is an attestation process we go through with MultiSpeak to certify our application to the new release. As part of this process, we also work with partners (e.g. NISC, Milsoft, prepay system and MDM vendors) to verify the integrations.
56.	Describe how new versions/releases of the product are implemented.	Not Applicable	Depending on the extent of the changes in the release, they could be delivered via a software patch or a new installation. If a new installation is used on an existing system, the configuration is backed up prior to the installation to ensure that it is preserved across the upgrade.
57.	Provide a detailed explanation of the upgrade process (e.g., overall implementation timeframe, vendor effort/time/resources, and client effort/time/resources).	Not Applicable	Timeframe is typically 15 minutes to 4 hours, depending on the scope of the upgrade. Upgrade process is managed by Tantalus and requires very little effort on the part of the customer. The upgrade is done remotely; Tantalus employees do not need to be on site.
58.	What are the costs to customers when an application undergoes a major redesign or upgrade? Specific to additional fees, the client understands that there will be internal costs for testing and 'cutover'.	Not Applicable	All upgrades are provided per the TUNet Support Agreement. There is no additional fee for upgrades that enhance performance and efficiency of the system. Some new features and functionality may incur a fee.

59.	What are the procedures to retrofit all customizations if any were made by the Implementation Vendor, for the Utility, into new releases of the application?	Not Applicable	If a customization is thought to be beneficial to other customers, it will be rolled into a future standard release. In some cases, the customization may not be rolled into the standard release. Customizations are implemented in a way that the main application can be upgraded while maintaining the customization for the specific customer.
60.	What regression testing procedures are used to ensure previous changes are not impacted by the new release?	Not Applicable	Our development process includes a regression phase for each release, which is driven by a regression test suite that has been built up over time to cover existing features. New features & other changes (e.g. bug fixes) are added to the existing regression suite on each release, so that those will be re-tested in future releases.
	CUSTOMER SUPPORT		
61.	During what hours does your company provide telephone technical and customer service support? (e.g. 0800 to 1700 M-F, PST).	Yes	The Tantalus Technical Support Agreement, including details of each support level, is included in the Appendix. Tantalus offer two level of Support; Standard and Premium. Standard Support hours are 5x12 (7AM-7PM EST, 5 days per week excluding US or CAN holidays) and Premium Support is 7x24.
62.	Is the cost of the telephone support included in the proposed maintenance costs?	Yes	
63.	What is the average response time and the guaranteed response time for support calls: during work hours (6 a.m. to 7 p.m. PST)?	Not Applicable	For customers with Premium Support, the response time is 4 hours. For urgent issues requiring immediate attention, the Project Manager can typically assist and or engage additional resources as required. Guarantees will be discussed during contracting.
64.	What is the average response time and the guaranteed response time for support calls off-hours (7 p.m. to 6 a.m. PST)?	Not Applicable	After hours are typically responded to the next business day. Our support team is distributed across the US, the typical after hours could be considered 8PM to 4AM PST. Guarantees will be discussed during contracting.
65.	What is the service level agreement and procedure to provide on-site support if there is a "production down" situation and the remote diagnostics prove inconclusive?	Not Applicable	If the situation warrants field support, Tantalus will provide on-site support from our Field Operations team within one business day of receiving a request for assistance. Fees may apply.
66.	What services and support features are available on the company website?	Not Applicable	Please see www.tantalus.com. Through the company website there are product brochures available.

			However Tantalus offers an online customer portal. Via the portal, manuals, guides and release notes can be downloaded. Additionally, there are discussion forums, the ability to create cases (issue, feature request or RMAs). For Premium Support customers a Live Agent chat feature is also available.
67.	How are problems prioritized according to degree of urgency (for example: "very urgent" = response within x hours; "urgent" = within x hours; "somewhat urgent" within x hours; and, "not critical" within x hours / working days)?	Not Applicable	Lack of access to the head-end or billing process problems are handled as priorities, very urgent. All other issues are handled typically within the next business day unless scheduling of resources is required for specific tasks.
68.	How is the priority of the problem determined?	Not Applicable	Head-end accessibility and billing process issues are very urgent issues. Infrastructure equipment can be rectified by advanced RMA's depending on the level of the TSA. All other issues are reviewed and assessed based on the impact to the business process.
69.	What is the escalation process if vendor is unable to resolve a problem within the established resolution times?	Not Applicable	All problems are handled via the customer support team and escalated internally to tiered (1-3) Technical Support Engineers. In the event the Customer Operations team requires additionally resources from the Engineering team or other in the organization, Tantalus has a Key Customer Issue team, KCI where is the issue is reviewed, prioritized and additional team members are allocated.
70.	What client resources will be required to support the system? Please include minimum and recommended number of staff, qualifications, and roles recommended for a client the size of RPU.	Not Applicable	The Utility should appoint 2 AMI Administrators with cross functional authority within departments for prioritizing worked to be performed. The scope of the AMI Admin will be more involved during the deployment and reduces as the system is deployed. It is also recommend the AMI Administrators attend the Tantalus University Network Admin class annually.
71.	Provide verification that the vendor will provide product corrections, without charge, for any implementation/data errors including but not limited to programs, configuration, data, objects, interfaces, etc. discovered after deployment of the application. Indicate that this support will continue for the contracted warranty period and as long as the Utility maintains an active Maintenance/ Support Agreement with Vendor?	Not Applicable	Tantalus head-end software upgrades and endpoint FW are covered by the Technical Services Agreement.

72.	List all known outstanding errors/system deficiencies and the anticipated schedule for their resolution.	Not Applicable	Tantalus utilizes an Agile development methodology which results in releases approximately every 2 months. This ensures that we promptly address known deficiencies as well as releasing enhanced functionality. For deficiencies that require a longer time to resolve, Tantalus provides work-arounds to the extent possible. Tantalus is not aware of significant systemic deficiencies at this time.
73.	Do you offer an online system for the Utility to log issues and defects?	Yes	Tantalus offers a customer portal. Via the portal, manuals, guides and release notes can be downloaded. Additionally, there are discussion forums, the ability to create cases (issue, feature request or RMA's). For Premium Support customers, a Live Agent chat feature is also available.
74.	Do you offer an online knowledge base?	Yes	Tantalus offers a customer portal. Via the portal, manuals, guides and release notes can be downloaded. Additionally, there are discussion forums, the ability to create cases (issue, feature request or RMA's).