Meeting Date: **12/10/2013**

Report Type: Consent

Report ID: 2013-00806

City of SACRAMENTO

City Council Report
915 I Street, 1st Floor
www.CityofSacramento.org

Title: Contract: Water Meter Reading Automation Project Agreement Amendments and Agreements (Reviewed 12/03/2013)

Location: Citywide

Issue: Due to problems with the City's water meter reading hardware, and the financial condition of the hardware provider, it is recommended the City replace its automated meter infrastructure (AMI) with a different AMI system.

Recommendation: Pass a Motion authorizing the City Manager or the City Manager's designee to execute 1) Contract Supplement No. 4 to City Agreement No. 2009-0733 with Ferguson Enterprises, Inc., to purchase Badger Meter Automated Meter Infrastructure (AMI) hardware instead of Datamatic AMI hardware, with no change to the Agreement amount; 2) Supplemental Agreement No. 1 to City Agreement No. 2009-730 with Ferguson Enterprises, Inc., to revise the scope of services to apply to the Badger Meter AMI system instead of the Datamatic AMI system, with no change to the Agreement amount; 3) a Software License Agreement with Badger Meter, Inc., authorizing use of the Badger Meter AMI software, for the amount of $90,000; 4) a Software and Hardware Support Services Maintenance Agreement with Badger Meter, Inc., with an initial one-year term and renewable for successive one-year terms, for a total amount not-to-exceed $512,249.00 for the initial term and up to four one-year term renewals; and 5) the one-year term renewals of the Software and Hardware Support Services Maintenance Agreement with Badger Meter, Inc., provided that sufficient funding is available in the budget approved for the applicable fiscal year(s).

Contact: Michael Malone, Operations & Maintenance Manager, (916) 808-6226; Elsie Fong, Program Specialist, (916) 808-4079, Department of Utilities

Presenter: None

Department: Department Of Utilities

Division: Operations & Maintenance Admin

Dept ID: 14001211

Attachments:

1-Description/Analysis

2-Background

3-Exhibit A (Ferguson Hardware Supplemental Agreement)

4-Exhibit B (Ferguson Training and Support Supplemental Agreement)

5-Exhibit C (Badger Meter Maintenance Agreement)

6-Exhibit D (Badger Meter Maintenance Schedule)

City Attorney Review

Approved as to Form
Joe Robinson
12/3/2013 5:24:15 PM

City Treasurer Review

Reviewed for Impact on Cash and Debt
Russell Fehr
11/26/2013 11:37:09 AM

Approvals/Acknowledgements

Department Director or Designee: Dave Brent - 11/27/2013 12:57:01 PM

Back to Report Table of Contents

Description/Analysis:

Issue In 2009, the City Council approved several related agreements to implement the Water Meter Reading Automation (WMRA) Project and begin installing Automated Meter Infrastructure (AMI) on the City's water meters. The largest of these agreements was a hardware purchase agreement with Ferguson Enterprises (Ferguson) to supply AMI hardware manufactured by Datamatic, Ltd, with a not-to-exceed amount of approximately $13.7 million over a potential 15-year time frame.

Due to problems with the Datamatic AMI hardware, and the financial condition of Datamatic that culminated in Datamatic's recent bankruptcy filing, the Department of Utilities (DOU) has negotiated with Ferguson to replace the Datamatic AMI system with a different AMI system providing the features and functions required by the City. To implement this change, City staff is recommending approval of: (1) amendments to the City's two current agreements with Ferguson to replace the Datamatic AMI system with the Badger Meter AMI system, with no change to the agreements' not-to-exceed amounts; and (2) a Software License agreement and a Software and Hardware Support Services Maintenance agreement with Badger Meter for the operation and ongoing support of the Badger Meter AMI system. There will be no change in the overall project cost to the City.

Policy Considerations: The ongoing WMRA project promotes the City's strategic goal to implement strategies to improve overall operational efficiency, and is a critical component of the City's water conservation efforts. Prior to awarding the AMI hardware purchase agreement to Ferguson in 2009, the City Council suspended competitive bidding, in the best interests of the City, for the purchase of the hardware and equipment for the WMRA system (Resolution No. 2009-501). Although the proposed contract supplement to replace the Datamatic AMI system with the Badger Meter AMI system is not subject to a competitive bidding requirement, since this action simply amends the existing contract with no change to the contract price or project scope, Ferguson did conduct a competitive process to select an alternate AMI vendor. DOU evaluated Ferguson's top two vendor candidates through a Proof of Concept process, and supports the selection of Badger Meter as Ferguson's vendor under the hardware purchase agreement. Badger Meter is a large and very reputable company with many years of experience providing meter reading equipment and technology, and with a reputation for good customer service. Replacing the Datamatic AMI system with the Badger Meter AMI system will allow the WMRA project to continue without further delay and at no increased cost to the City.

Economic Impacts: None

Committee/Commission Action: Not applicable.

Environmental Considerations:

California Environmental Quality Act (CEQA): The Community Development Department, Environmental Services Manager has determined that the proposed actions are exempt from the CEQA under Section Number 15061(b)(3) of the CEQA Guidelines. These actions are covered by the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA. In this case, it can be seen with certainty that replacing the AMI system used in the City's WMRA project will not have any significant effect on the environment.

Sustainability Considerations: The ongoing implementation of the WMRA project together with the installation of water meters promotes sustainability by allowing the City to collect meter reads accurately and charge customers based on water consumption, thereby providing an incentive for City customers to use water more efficiently and enabling the City to enforce water conservation programs. In addition, the AMI technology provides a better means of monitoring water usage and reducing leakage, both for the City and its customers.

Rationale for Recommendation: The City's approval of agreements with Ferguson and Datamatic in 2009 was the culmination of a lengthy process that preceded approval and implementation of the WMRA project. When the problems with Datamatic first became apparent, City staff considered the City's options, including terminating its existing contracts with Ferguson and initiating a new WMRA project selection process, which would have resulted in additional delay without any certainty whether or when the City would be able to recover the significant expenditure of funds already incurred for Datamatic hardware. This option was not pursued due to Ferguson's proactive response to address the problem by providing an alternate AMI system that offers the features and functions required by the City without increasing the City's project costs. Allowing Ferguson to provide an alternate AMI system that meets the City's operating requirements will keep implementation of the WMRA project on track without changing the overall cost of the project to the City.

Financial Considerations: The contract amounts for the hardware purchase agreement and software installation and training agreement with Ferguson will not be changed by the proposed amendments. To date, DOU has expended

approximately $6,830,632 for Datamatic AMI infrastructure components supplied by Ferguson under agreement 2009-0733. The DOU has been reimbursed $590,966 for returned inventory by Ferguson, and the balance of stock on hand, estimated to be worth approximately $816,979, is being prepared for return and reimbursement by Ferguson. After final verification of the above amounts by DOU and Ferguson, the remaining balance that has been expended by the City to date for the Datamatic hardware will be either credited or reimbursed to the City by Ferguson to offset the future cost of the purchases of the Badger Meter AMI hardware, as provided in the amended hardware purchase agreement. The net cost of the two new agreements with Badger Meter agreements will be approximately the same as what the City would have paid for the same time period under the Datamatic Software License and Maintenance Agreement that the Badger Meter agreements are replacing.

The Department of Utilities has sufficient water funding (Fund 6005) in the Residential Water Meter Program (Z14010000) for the continued purchases of AMI infrastructure hardware and services as previously authorized by City Council for the WMRA project.

Maintenance on the equipment will be funded from the Water Distribution (Fund 6005) operating budget. Sufficient resources have been budgeted for these costs.

Emerging Small Business Development (ESBD): Neither Ferguson Enterprises nor Badger Meter, Inc. are certified with the City of Sacramento as an Emerging or Small Business Enterprise.

Back to Report Table of Contents

Background

Since 2009, over 37,000 water meters have been equipped with the Datamatic AMI hardware. Beginning in June 2010, the failure rate for this hardware was higher than expected, which ultimately was attributed, in part, to a flawed overseas manufacturing process for some of the Datamatic components. In September of 2012, Ferguson notified the Department of Utilities (DOU) management that Datamatic was experiencing significant financial difficulties, in part due to widespread problems caused by the same hardware failures the City was observing, and that Datamatic was considering bankruptcy. Datamatic subsequently stopped repairing failed Datamatic hardware, and filed for Chapter 7 bankruptcy on September 26, 2013.

When the problem posed by Datamatic's hardware failures and financial condition first became apparent, Ferguson proposed to address this problem by replacing the Datamatic AMI system with a different AMI system providing the features and functions required by the City. Ferguson's proposal included replacement of the Datamatic hardware already purchased at no additional cost to the City. DOU management supported that approach because it was the best way to keep implementation of the WMRA project on track under the City's existing contract with Ferguson, without changing the overall project cost to the City. Ferguson subsequently solicited proposals from AMI suppliers, and selected two of these suppliers, Aclara Technologies and Badger Meter, to perform a 90-day proof of concept (POC) to allow Ferguson and the DOU to evaluate the performance of their AMI systems in accordance with DOU-approved criteria.

Based on the POC evaluation, a committee of thirteen DOU staff who work with the current AMI system selected Badger Meter's AMI system as the system which best meets the City's requirements.

This report recommends approval of a supplemental agreement amending Agreement 2009-0730 (Software Installation & Training), so that Ferguson will provide training on the new Badger Meter AMI system, with no change to the agreement amount. Badger Meter has agreed to provide the software installation at no additional cost to the City.

This report also recommends approval of a contract supplement amending Agreement 2009-0733 (Hardware Purchase Agreement), to require Ferguson to provide the Badger Meter AMI hardware to replace the Datamatic hardware, with no change to the agreement amount.

Staff also is recommending approval of two new agreements with Badger Meter, a software license agreement and a hardware and software maintenance agreement. Together these two agreements with Badger Meter provide for the use and ongoing support of the Badger Meter AMI system. As noted above, the Badger Meter maintenance agreement includes the necessary software installation at no additional cost to the City.

The Badger Meter software license agreement has a one-time cost of $90,000, and the Badger Meter maintenance agreement is expected to cost approximately $512,249 over the next 5 years; it is not possible to provide an exact cost for the latter agreement, as the annual cost is based on the number of units actually installed in the field during the previous year. The net cost of the Badger Meter agreements will be approximately the same as what the City would have paid for the same time period under the Datamatic Software License and Maintenance Agreement that the Badger Meter agreements are replacing.

The remaining existing agreement with Datamatic, for web hosting the City's meter data (Agreement 2009-0732), expires on June 30, 2014 and has already been paid through that date. Third party web hosting will not be needed for the Badger Meter AMI system, because City staff intends to self-host the Badger Meter AMI data.

Back to Report Table of Contents

CONTRACT SUPPLEMENT
(Supplies)

Project Title and Job #: Water Meter Reading Automation Z14009300 **Date: November __, 2013**
Purchase Order #: 0000014257 **Contract Supplement #: 4**

The City of Sacramento ("Purchaser") and Ferguson Enterprises, Inc., d/b/a Ferguson Waterworks ("Vendor") as parties to that certain Purchase Agreement for Hardware, WMRA Project, dated July 28, 2009, and designated as City of Sacramento Agreement Number 2009-0733, as amended by Contract Supplement Numbers 1, 2, and 3, designated as City of Sacramento Agreement Numbers 2009-0733-1, 2009-0733-2, and 2009-0733-3 (collectively referred to herein as the "Agreement"), hereby amend the Agreement as follows:

1. All references in the Agreement to "EXHIBIT 1.3" are amended to refer instead to "EXHIBIT 1.4".

2. Section 2 of ARTICLE 2 of the Agreement is amended to read as follows:

   2. WARRANTY. Vendor shall provide to Purchaser, at no charge, the prompt repair or replacement of any Hardware purchased by Purchaser during the respective warranty periods below:

   A. All Hardware (excluding Orion Smart Endpoints) is warranted for 12 months from the date of acceptance of the Hardware by Purchaser

   B. Orion Smart Endpoints are warranted according to the terms set forth under Section 1.1 of Amended Attachment 2 to Exhibit A of the Purchaser's Professional Services Agreement for Software Installation/Training with Vendor dated July 30, 2009 (City of Sacramento Agreement No. 2009-0730), as amended.

3. EXHIBIT 1.3 to the Agreement is deleted and replaced with EXHIBIT 1.4 attached hereto and incorporated herein by this reference.

4. The maximum not-to-exceed amount of $13,772,000.00 that is specified in Section 1 of ARTICLE 2 of the Agreement **is not changed.**

5. Vendor agrees that the compensation specified in the Agreement, as supplemented and modified by this contract supplement, shall constitute full compensation for the revisions specified in sections 1, 2, and 3, above, and shall fully compensate Vendor for any and all direct and indirect costs that may be incurred by Vendor in connection with such revisions.

6. Prior to this contract supplement, the City purchased Datamatic hardware under the Agreement. To date, the City has returned a portion of this Datamatic hardware and Vendor has refunded to the City the cost of the returned hardware. Vendor agrees to provide the City cash reimbursement or credits for 100% of the City's cost to purchase the balance of the Datamatic hardware that was purchased but not yet returned. The Vendor's allocation of the City's cost to purchase this Datamic hardware between cash reimbursement and credits shall be subject to approval by City; cash reimbursement shall be provided when hardware is returned and credits shall be applied against the City's cost of future purchases of Badger Meter hardware under this Agreement, as amended by this contract supplement.

If any such credits have not been applied as of August 31, 2015, Vendor shall provide City with a cash reimbursement for the amount of the credits not applied as of that date.

7. Vendor warrants and represents that person or persons executing this contract supplement on behalf of Vendor has or have been duly authorized by Vendor to sign this contract supplement and bind Vendor to the terms hereof.

8. Except as specifically revised herein, all terms and conditions of the Agreement shall remain in full force and effect, and Vendor shall provide all of the Hardware and perform all of the services, duties, obligations, and conditions required under the Agreement, as supplemented and modified by this contract supplement.

Approval Recommended By:

_____
Project Manager

Approved As To Form By:

_____
City Attorney

Approved By:

_____
Ferguson Enterprises, Inc.

Approved By:

_____
City of Sacramento

Attested To By:

_____
City Clerk

EXHIBIT 1.4
Hardware, Unit Prices, Schedule

QTY	Item Description	Unit Price	Unit Price With Tax*	Extended Price	Scheduled Delivery
1	ORION Mobile Reading System and Toughbook Laptop	$23,995.00	$26,034.57	$26,034.57	Within 30 days upon receipt of purchase order
4	Trimble Ranger 3 Handheld Kits (Includes cradle)	$6,699.00	$7,268.41	$29,073.64	Within 30 days upon receipt of purchase order
4	Trimble Ranger 3 Cradle Kits (Optional)	$495.00	$537.07	$2,148.28	Within 30 days upon receipt of purchase order
61,207	ORION Smart Endpoint – **see Note A**	$98.00	$106.33	$6,508,140.30	Mutually agreed upon schedule
200	ORION SE Network Gateway– **see Note B**	$4,100.00	$4,448.50	$889,700.00	Mutually agreed upon schedule
30,000	Splice Kits – **see Note C**	No Charge	N/A	No Charge	Mutually agreed upon schedule

***** Includes 8.50% Sales Tax and includes all Shipping and Delivery Charges

Note A The Vendor shall provide ORION Smart Endpoints to replace all Mosaic Firefly Endpoints presently installed on Purchaser's water distribution system at no charge to the Purchaser. The Vendor shall provide Badger Meter, Incorporated AMI product pricing to the Purchaser for deployment throughout the City of Sacramento equal to or better than any other pricing for a similar proposal combining ORION Endpoint and Gateway pricing that Vendor supplies to any other public or private utility systems in the State of California; and Vendor shall provide the ORION Endpoints at a price lower than specified above when and as necessary to comply with this requirement. This provision does not include trade-in, make right, legal settlements, reference centers, development centers or other non-commercial applications. After the initial 12 months following the approval and execution of Contract Supplement No. 4, in the event of changes in manufacturing costs that affect the pricing of an ORION Endpoint, Vendor shall notify and provide the Purchaser with detailed data for a pricing review. If the Purchaser's review shows that the total costs to produce and transport an ORION Endpoint will actually boost the market price of the product, Vendor and the Purchaser shall mutually agree on a price increase that shall be capped at 3% per year of the current pricing after such initial 12 month period. This price will remain in effect for the remaining term of the Agreement, subject to the provisions of this Note A.

Note B Based on Badger Meter, Incorporated's propagation study, the number of Gateways required by Purchaser is not expected to exceed 260 units at full deployment. Vendor shall be responsible for providing at no additional cost to Purchaser any additional Gateways needed in a given project area to meet the 99.95% read retrieval requirement during a billing cycle, if the 260 Gateway threshold is reached after full deployment.

Note C Vendor shall supply a maximum of 30,000 field splice kits free of charge to the Purchaser for wired end product used to replace the Purchaser's current AMR endpoints. All field splice kits used for repairs or for other reasons may be purchased by Purchaser for the unit price of $2.50 each.

Back to Report Table of Contents

SUPPLEMENTAL AGREEMENT

Project Title: WMRA Software Installation & Training **Date: November 5, 2013**
Purchase Order #: **Supplemental Agreement No.: 1**

The City of Sacramento ("City") and Ferguson Enterprises, Inc., d/b/a Ferguson Waterworks ("Contractor"), as parties to that certain Professional Services Agreement for Software Installation/Training, dated July 30, 2009, and designated as City Agreement Number 2009-0730 (the "Agreement"), hereby supplement and modify the Agreement as follows:

1. The Scope of Services specified in Exhibit A of the Agreement is amended as follows:

   A. Section 4 (Scope of Services) of Exhibit A to the Agreement is amended to read as follows:

      4. Scope of Services

         Contractor shall perform and cause to be performed the services set forth in Amended Attachment 1 to Exhibit A – Statement of Work (SOW), and in Amended Attachment 2 to Exhibit A, both attached hereto and incorporated herein.

   B. Attachment 1 to Exhibit A of the Agreement is deleted and replaced with Amended Attachment 1 to Exhibit A, attached hereto and incorporated herein.

   C. Attachment 2 to Exhibit A of the Agreement is deleted and replaced with Amended Attachment 2 to Exhibit A, attached hereto and incorporated herein.

2. The maximum not-to-exceed amount of $35,000 that is specified in Exhibit B of the Agreement for payment of Contractor's fees and expenses, **is not changed**.

3. Contractor agrees that the not-to-exceed amount specified in section 2, above, shall constitute full compensation for the additional and/or revised services specified in section 1, above, and shall fully compensate Contractor for any and all direct and indirect costs that may be incurred by Contractor in connection with such additional and/or revised services, including costs associated with any changes and/or delays in work schedules or in the performance of other services or work by Contractor.

4. Contractor warrants and represents that the person or persons executing this supplemental agreement on behalf of Contractor has or have been duly authorized by Contractor to sign this supplemental agreement and bind Contractor to the terms hereof.

5. Except as specifically revised herein, all terms and conditions of the Agreement shall remain in full force and effect, and Contractor shall perform all of the services, duties, obligations, and conditions required under the Agreement, as supplemented and modified by this supplemental agreement.

Approval Recommended By:

_____
Project Manager

Approved By:

_____
Contractor

Approved By:

_____
City of Sacramento

Approved As To Form By:

_____
City Attorney

Attested To By:

_____
City Clerk

(Rev. 9-17-12)

STATEMENT OF WORK (SOW)

City of Sacramento and Ferguson Waterworks

Water Meter Reading Automation Project

1. Project Scope

1.1 The primary goals for the Water Meter Reading Automation (**WMRA**) project are collecting accurate meter readings, reducing data collection costs and capturing meter information. Through advanced metering and communications technology, the City of Sacramento ("**the City**") wants to collect meter readings and additional data such as water leak, low battery, tamper, or reverse flow, which could then transmitted to its back office for electronic storage. The City also wants to capture interval data and log meter events that can be used for water usage profiling, demand forecasting, demand response, rate of flow recording, flow monitoring, time of use billing, and water conservation enforcement. The City is implementing a Two-way Communication, Fixed Network Wireless system to achieve these goals.

1.2 Ferguson Enterprises, Inc., d/b/a Ferguson Waterworks ("**FW**") will provide professional services to install, configure, and test Badger Meter, Incorporated ("BMI") Badger Meter Analytics Pro Software ("**Analytics Software**") and ORION Mobile Reading System ("**OMRS**") and train/provide knowledge transfer to City staff. FW will work with the City to develop a detailed specification, workflows and project plan before beginning implementation.

2. Pre-Installation Requirements

2.1 In order for FW to meet the deliverables requirement in and cost estimates for this SOW, the City shall address the items in this section prior to FW's arrival at the City site.

2.2 City and FW agree that failure to meet these requirements may result in an adjustment in the pricing provided herein, and shall be managed through the Change Management Process specified in Section 6.

This Statement of Work requires the following:

2.2.1 All hardware and software specified for the Analytics Software must meet minimum requirements, as defined in the Badger Installation and Configuration Guide.

2.2.2 All hardware and software must be installed and prepared, as defined by the minimum requirements, by the City prior to the on-site installation by FW.

2.2.3 The FW personnel must have the appropriate system and network access during the implementation.

2.2.4 City will procure all related hardware, operating systems and DBMS products relative to the project, as defined in the Analytics Software Installation and Configuration Guide.

2.2.5 City is responsible for the physical installation of related hardware, operating systems and DBMS products, including racking, power, security, patches, and LAN connectivity.

2.2.6 City is responsible for coding and/or modifications necessary to its Oracle/PeopleSoft Utility Customer Information System (CIS), Cityworks software – the so-called

Computerized Maintenance Management System (CMMS) and related processes. All coding and/or modifications must be completed per predefined schedule with BMI.

2.2.7 City shall work with BMI to ensure its LAN/WAN complies with the City's IT Security Policy and properly architected to handle Analytics Software traffic and features and is in place. BMI shall provide the City with specifications.

2.2.8 BMI will certify all solution hardware, operating system, and DBMS components prior to on-site installation.

3. Implementation

3.1 Implementation will take place in City facilities located in Sacramento, CA.

4. Professional Services

FW will provide the following services to implement the Analytics Software and OMRS system and to train/provide knowledge transfer to City staff at no charge to the City.

4.1 Gateways/Fixed Network Design Services

FW shall conduct a comprehensive site survey and be responsible for a proper Gateways/Fixed Network design to ensure sufficient coverage for each ORION Smart Endpoint ("**ORION Endpoint**"). FW shall provide quality assurance services to ensure that the Gateways/Fixed Network infrastructure provided by the City is properly sized, installed and configured. The City will be responsible for procuring and installing required Gateways. FW shall provide maintenance and support for the Gateways during the implementation. FW Gateways/Fixed Network Design Services include the following components:

4.1.1 FW shall ensure all ORION Endpoint units will reach the City's Fixed Network.

4.1.2 FW shall confirm the availability and ability to comply with FCC's regulations for the use of City's Fixed Network, including required radio frequency licenses.

4.1.3 FW must ensure how meters can effectively be configured to transmit over a fixed network to maintain a twenty (20) (10/10) year warranty battery life, per manufacturer's warranty, for each ORION Endpoint unit.

4.1.4 FW is responsible for obtaining all necessary information to design the correct number of Gateways required in the field, covering the entire City's service areas.

4.1.5 FW is responsible for determining the number of Gateways, including redundant Gateways, needed to achieve access to all meters in the City's service territory and ensure that the City's minimum required ninety eight point five percent (**98.5%**) read retrieval of **twenty four reads per day**, or better, from all meters daily is successful.

4.1.6 FW is responsible for specifying the correct number of Gateways, including redundant Gateways, that are required to achieve reliable access to all ORION Endpoint units in the City's service territory and minimize latency between a Gateway and its ORION Endpoint.

4.1.7 FW shall provide reporting charts that show where the endpoints are reporting and which path the Gateway chose to send it.

4.1.8 FW shall provide a map, showing where these Gateways are and would be placed in the City's service territory.

4.1.9 FW is responsible for the functionality and storage capacity of each Gateway in accordance with FW response to the City's RFP P081312006.

4.1.10 FW shall describe what procedure the City must take when a Gateway's capacity is reached to ensure reads are not lost.

4.1.11 FW shall ensure redundancy measures for the storage of the data at each gateway in order to achieve a minimum of ninety eight point five percent (**98.5%**) read retrieval of **twenty four reads per day** from all meters in the City's service territory.

4.1.12 FW shall develop and confirm that the Analytics Software fixed network topology and configuration for the City's service territory is based on standard guaranteed transmission ranges for both the LAN and WAN components and meet the WMRA Functional Specifications specified in the City Request for Proposals (RFP) # P081312006.

4.2 Project Implementation and Training Services/Deliverables

4.2.1 Services/Deliverables

4.2.1.1 FW shall ensure its services and deliverables meet City's business requirements as specified in Attachment 2 to Exhibit A pertinent to but are not limited to the following sections:

2. Fixed Networks
3. Read Retrieval
4. Delivery of Meter Reads to the WMRA Data Collection Engine / Analytics Software / OMRS
5. Delivery of Billing Reads to the City CIS System
6. Meter Read Precision
7. Outage Notifying & Reporting
8. Lost or Missed Reads
9. Connections to Meter Registers
10. The City Meter Pits
11. Meter Manufacturer Certifications
16. Mounting
19. LAN/WAN Configuration
21. LAN Expansion
22. Connection to the WAN
23. Gateways and Redundancy
24. Gateways Power Supply

25. Gateways Pre-programming for field installation
26. ORION Endpoint Programmability
28. Field Test Applications
29. Interface/Integration
30. Updating meter accounts in Analytics Software
31. Recovery/Restart
32. Reports
37. Training
38. Installation/Deployment
41 Quality Assurance

4.2.2 Planning, Design and Project Management:

a. Meet with appropriate stakeholders/project manager to define/refine goals & objectives
b. Review project plan, roles and responsibilities
c. Review City's defined application/job migration strategy
d. Develop Risk Analysis and Quality Assurance Process Definition
e. Assist City staff in developing a test plan for the Analytics Software
f. Develop an installation schedule in coordination with the City deployment strategy
g. Provide deliverable and sign-off documentations

4.2.3 Blueprint/Roadmap Development:

a. Build successful work processes for the on-going installation and operation processes associated with the WMRA
b. Establish WMRA system performance testing procedures
c. Validate delivery of Analytics Software functions and features in accordance with FW responses to the City RFP P081312006
d. Address the replacement of TRACE transponders and Datamatic Fireflys (replacement hardware for Fireflys provided by FW at no cost to City)
e. Handle metal lid issues in the downtown area
f. Cope with challenging areas that will confirm the ability of the WMRA System to address heavy urban areas, topographical interference, large sub-basement vaults in addition multi-residential locations, basement meters, significant pedestrian and vehicular traffic including delivery trucks, buses, and narrow streets and/or alleys and lack of parking
g. Develop an installation process by which the WMRA System is easily installed and initialized in the field. Installations shall take place in a systematic manner, phased approach following meter reading routes as provisioned and planned jointly between FW and the City
h. Develop a detailed deployment plan based on the given locations provided by the City as to how FW would schedule and deploy each Phase, including optional methods for deploying the WMRA System other than according to the locations provided by the City but FW must provide rational for recommending the alternative(s)

4.2.4 Architectural Design:

a. Propose Gateways/Fixed Network and Analytics Software Infrastructure

b. Review the City Business Processes specific to batch processing, leveraging the Analytics Software Technology Infrastructure & City standards
c. Validate proposed Architecture solution plan with City staff
d. Assist with testing/QA the newly installed RCA Pro Technology Architecture

4.2.5 ReadCenter Analytics Pro System support for installation & configuration:

BMI shall provide the installation and configuration of Analytics Software at no charge to the City for the following:

4.2.5.1 **For City WMRA Dev/Test, Training and Production Environments**

a. Install Analytics Software up to 6 Windows Servers
b. Install Web Clients, if needed
c. Configure and set up Analytics Software for loading meter reads/information and event logs collected from OMRS mobile and handheld devices.

4.2.5.2 **For Interface with the City Oracle/PeopleSoft CIS Environment**

a. Configure the Analytics Software for importing customer information and meter specifications from the City's CIS into the Analytics Software for updating and billing purposes
b. Configure the Analytics Software for collecting Read Type codes, Meter Type and Meter Resolution per meter, which associates to a specified customer with location and billing information
c. Configure and set up the Analytics Software for exporting final reads and billing data per City's specified format (by cycle, route, specified groups of meters, etc.) and correct read resolutions per meter based on City's requirements

4.2.5.3 **For Interface with the City CMMS system**

a. Configure and set up the Analytics Software for extracting/generating required work order data per City's format for specified audit failure and/or trouble codes (e.g. leak, hi-low audit, unread, etc.)

4.2.5.4 **For Interface with the City GIS system**

a. Configure/set up ORION Endpoints to include GPS coordinates (when the new firmware is available) and in the Analytics Software

b. Assist City staff in interfacing with the City's GIS

4.2.5.5 **For Interface with the City Web Site**

a. Assist City staff in developing an interface for the city web site so the city can offer its customers accessibility to their meter consumption data via internet, including graphics capability, which can be securely accessed by the individual customers and the City staff, to view usage on a daily, monthly or yearly basis

4.2.6 BMI and FW shall provide knowledge transfer/working sessions to City staff designated by City specific to installation configuration and basic troubleshooting of Analytics Software Architecture Design at no charge to the City for the following:

4.2.6.1 Provide all necessary training for City staff, including but not limited to:

a. Analytics Software Installation Training
b. ORION Endpoint Training – how to program each ORION Smart Endpoint properly per meter size type, meeting City's read resolution specifications; and how to splice ORION Endpoints to existing meters that are not equipped with Nicor Connectors
c. OMRS System Installation Training
d. Handheld Training – how to use the handheld device, including the process for loading CIS information into the device and the steps and number of keystrokes required to complete a successful initialization of the ORION Endpoint in the field; and how City staff can accurately confirm each ORION Endpoint is linked to the correct customer account
e. Knowledge transfer/best practices sessions
f. On the job training sessions to assist City staffs in Analytics Software setup, testing, creation of customized reports, and accessing to the Analytics Software database for reporting with standard industry reporting tools such as SQL and Crystal Report.

4.2.6.2 Build the following reports

a. Leak, misreads, no usage or late data
b. Trouble codes, errors, tamper, theft, and failed audits
c. Communication anomalies and alarm conditions
d. Data transfer issues and impediments
e. Management and administration (e.g. users, roles, configurations, etc.)
f. Consumption analysis by an individual customer or a group of customers
g. Usage anomalies, consumption when account is defined as inactive, unusually high or low readings and meter rollovers
h. High/low audits, virtual/soft connect/disconnect, tamper trending
i. Meter failure, read access failure, and communication link failures/issues
j. The health of the fixed network, Gateways, and ORION Endpoints
k. Instances that impact network/meter ability to acquire reads (WAN issues/interruptions, etc.)
l. Flagging of potential network, meter, and ORION Endpoint issues
m. Power, meter operation, communication link
n. ORION Endpoint installation, exchange, troubleshooting, maintenance, etc.
o. ORION Endpoint failure, capacity issues, power and battery failures
p. Period of hourly reads from an individual water customer account is accessed by a City's Customer Service Representative
q. Reports of the current status and reading history of individual accounts and selectable groups of accounts
r. Sort and list accounts per user-defined account groups

4.3 Testing

FW will use the test plan developed during project planning to verify installation and configuration of the newly installed Analytics Software and to test specific functionality and document the system configuration and deliverables in section 4.1 and 4.2 of this SOW before turning the system over to the City.

In general, the test plan will cover the Functional/Technical Requirements as set forth in Attachment 9 of the RFP P081312006.

5. City Responsibilities

5.1 Throughout the Project

The City will:

a. Designate a person to whom all FW communications may be addressed and who has the authority to act on all aspects of the project, subject to any limitations specified in the Sacramento City Code and applicable City policies and procedures. Such person shall be identified as the City Project Manager and shall designate a backup for when the primary City project manager is not available.
b. Provide adequate workspace for all FW project personnel, reasonable access to City facilities, and remote access, if needed, during the project.
c. Provide subject matter experts (SMEs) when required by FW project personnel and/or project activities.
d. Respond within 24 hours to FW's request for information required for the project.
e. Notify the FW project manager of any installation scheduling changes within 72 hours prior to the published installation event as indicated by the project plan.
f. Notify the FW project manager of any schedule changes within 72 hours prior to the scheduled activity. Schedule changes and/or cancellations made after this 72-hour window shall be subject to FW's cancellation/re-visit charge.

5.2 Installation and Testing

The City will:

a. Provide network physical and logical schematics, when requested by FW.
b. Provide required physical system configurations, as determined by FW project manager, within one (1) week before the commencement of the project.
c. Provide required information and assistance including coding and scripting modifications necessary to existing jobs and processes.
d. Coordinate the delivery and configuration of all equipment not provided by FW.
e. Install and verify the operation of all external communications hardware, software, and network equipment not provided by FW as defined by the SOW.
f. Ensure that all prerequisite hardware, software, network and connectivity configurations are acquired and available in the development, test, and production environment in support of the activities under this SOW.
g. Ensure that all prerequisite software and hardware products, e.g. Windows, Linux, required database, Web servers, and so on are acquired and fully licensed for the use of project personnel.

h. Provide the appropriate SMEs, who can support the configuration and connectivity to the local area network/wide area network/database/content servers in order that the services included in this SOW can be delivered.
i. Coordinate the technical support resources for the connectivity of these systems in conjunction with FW project personnel.
j. Ensure that any City-provided hardware is certified for Analytics Software component.
k. Support any database interface or database applications that are outside the scope of this SOW.
l. Verify the accuracy, correctness and the functionality of the information content of any applications that may interface with the Analytics Software components, such as any information residing in other legacy applications, Web applications, and databases.
m. Support any business process changes, and/or operational and procedural changes as the result of this project.
n. Retain the responsibility for any impact to business operations as the result of the consolidation activities.

5.4 Resources

Sufficient CITY resources must be available to supply the FW team with all the required support throughout the on-site engagement. This includes, but is not limited to:

- Database Administrator
- Windows, Unix, Linux, Z/OS Administrators
- CIS and CMMS System Administrators
- WMRA Application Owner
- AMI Operations, First Responders, Meter Shop, Meter Reading, and Water Conservations Groups
- DOU IT staffs
- DOU SCADA System Support Staffs

5.5 Roles & Responsibility Matrix

Milestones	Activity	FW	City
Planning, Design, and Project Management	Meet with appropriate stakeholders/project manager to review project plan, roles and responsibilities, City's defined application/job migration strategy. Develop Risk Analysis and Quality Assurance Process Definition	Lead	Project manager, DOU System Support, SCADA System Support and Application Owners
Architectural Design	Propose WMRA Infrastructure. Review the Processes specific to Analytics Software Technology Infrastructure & City standards. Develop implementation and deployment strategy specific to	Lead	Project manager, DBA, Network Engineers, IT Security, DOU System Support, SCADA System

	FW's support & training schedule. Validate proposed Architecture solution plan with stakeholders.		Support and Application Owners
Milestones	**Activity**	**FW**	**City**
Support the deployment, product install, and configuration	Perform and assist with Installation and Configuration of Analytics Software components	Lead and Own	Project manager, DOU System Support, SCADA System Support and Application Owners
Knowledge transfer and training	Implementation training	Lead	Meter Shop, Water Conservations, Meter Reading Group, SCADA System Support and Application Owner

6. Change Management Process

In the event that it may become necessary to amend this Statement of Work, this change management process shall apply.

6.1 Types of Change

Changes to the project may be made for reasons including, but not limited to, the following:

a. Scope of work
b. Specifications of the deliverables
c. Non-functioning or non-availability of materials that is beyond either party's control
d. Non-availability of resources that is beyond either party's control
e. Environmental or architectural impediments not previously identified.

6.2 Change Initiation

Either party of the project, FW or the City, may initiate a change by completing the project's Change Request form. The initiator gives the Change Request to the FW and City project managers to review and process.

6.3 Change Review and Approval

The City project manager and the FW project manager are responsible for:

a. Tracking the change requests
b. Evaluating the changes
c. Negotiating what the final changes will be
d. Obtaining the appropriate approvals for each change
e. Adding changes to the Statement of Work

f. Implementing approved changes.

The City project manager is responsible for obtaining budgetary approval, if needed, for the change.

6.4 Conflict of Terms and Conditions

Whenever there is a conflict between the terms and conditions set forth in a fully executed Change Request and those set forth in the original project, or previous fully executed Change Request, the terms and conditions of the most recent fully executed Change Request shall prevail.

7. Project Completion

7.1 The Project will be deemed complete at the completion of either of the following milestones, whichever occurs later:

a. Completion of the Test Plan with no FW-owned outstanding issues
b. The system has been live for 30 calendar days.

1. GENERAL

1.1 Warranty for WMRA Endpoints – This Agreement and the Purchase Agreement for Hardware, as amended, between the City of Sacramento ("**City**") and Ferguson Enterprises, Inc., d/b/a Ferguson Waterworks ("**FW**") shall supplement the warranty(ies) provided by Badger Meter, Inc. ("**BMI**"). In the event Badger fails to repair or replace products under its warranty, FW shall be financially responsible for replacement and shipping costs, including labor, of ORION Smart Endpoints ("ORION Endpoints"), should more than 10% of total ORION Endpoints fail in any twelve month period, for a period of 10 years after the date the applicable Orion Endpoints are installed.

If a catastrophic failure rate of 10% or more of the installed ORION Endpoints in the City of Sacramento occurs in any twelve (12) month period during the first ten (10) years covered under the Standard BMI Warranty, and provided that the product is used in accordance with BMI's standard transmission cycle of operation of the ORION Endpoints, BMI, facilitated by FW, shall launch a full investigation and cooperate fully with the City of Sacramento to find a solution. If the catastrophic failure rate was due to causes covered by the BMI Standard Warranty, BMI and FW will repair or replace any failed units and shall participate in a mutually beneficial resolution for re-installation of the failed warranted product. FW shall be responsible for the cost and completion of any of the above actions if not taken by BMI. However, BMI will not be responsible for any malfunctions due to installation or meter issues. In addition, this clause does not cover any maintenance or repair resulting in whole or in part from any of the following events caused by persons or entities other than BMI, FW and/or its agents:

- Willful damage, misconduct, or vandalism acts;
- Fire, theft, war, riots, civil commotion, or earthquake;
- Any alteration, addition to or subtraction from, substitution, repair, service or replacement of any part of the Badger Meter Analytics Pro Software ("**Analytics Software**") that were not authorized and/or performed by BMI, FW and/or its agents;
- Use of or malfunction of equipment installed by or at the direction of the City of Sacramento, which is not covered by this Agreement; or
- Operation of the equipment to install the ORION Endpoint that did not comply with Manufacturer's Standard Operating Parameters.

1.2 FW shall be financially responsible for the battery warranty for any WMRA devices in the event BMI fails to honor the warranty. The agreements between the City and FW shall supplement the warranty certificate from BMI.

FW shall ensure that the ORION Endpoints must work with all nationally available meters that utilize the Nicor connector and/or 3-wire, field splice kits with a digital pulse or absolute encoded register; however, the meter manufacturer is responsible for matching BMI's NICOR wiring scheme. Meters not currently approved by BMI must be tested for compatibility.

2. Fixed Network FW shall be responsible for a proper design of ORION Fixed Network Gateway Transceiver locations to ensure sufficient coverage for each ORION Endpoint. In addition, FW must state all issues and options for meter distance and proximity considerations for any combination of ORION Endpoints and any other device that is connected to the same network.

FW shall confirm the availability and ability to comply with FCC's regulations for the use of the ORION Fixed Network that FW has proposed and City has accepted, including required radio frequency licenses.

a) FW shall ensure all endpoints will be reaching the City's ORION Fixed Network.
b) FW must ensure that meters can effectively be configured to transmit over an ORION Fixed network to maintain BMI's twenty year warranty on battery life.

d) FW shall define how devices are initialized onto the system and the recommended process for tracking and confirming the correct units are matched to the correct customer accounts.

3. Read Retrieval

a) FW shall configure the Analytics Software and ORION Endpoints to enable water meters to be read twenty four (24) times daily and transmit the reads in the most optimum way, meeting the City's read retrieval requirements. Each ORION Endpoint is programmed to collect usage profile data as required to meet the WMRA Functional Specifications per the City's Request for Proposal ("RFP") # P081312006. The City shall have the ability to remotely reconfigure and/or obtain reads from a specified ORION Endpoint on demand.
b) FW shall ensure the City can easily obtain "off-cycle" or on demand readings from a particular meter through a handheld device or the ORION Fixed Network
c) FW shall state how this on demand read is achieved, and how authorized City staff would perform this task and the time it takes for acquiring this read.

4. Delivery of Meter Reads to the WMRA Data Collection Engine ReadCenter Analytics Pro Software

Daily: The Analytics Software shall collect a minimum of ninety-eight point five percent (**98.5%**) read retrieval of **twenty four reads per day**. FW and BMI will make best efforts to resolve any issues as soon as reasonably possible so that the City can collect meter reads from ninety-nine point nine five percent (99.95%) of the fully operational ORION Endpoints at the end of each Daily Read Period.

a) FW shall state how the ninety eight point five (**98.5%**) of the required reads are obtained and in what time frame these reads are retrieved from the ORION Endpoints at the end of each daily read period.
b) FW shall state how the **98.5%** can be measured and how they monitor performance levels to ensure the required reads have been achieved.

5. Delivery of Billing Reads to the City CIS system

Per Billing Cycle: FW shall be responsible for ensuring the BMI Analytics Software supports a ninety-nine point nine five percent (**99.95%**) read retrieval of all billing cycle consumption data for one hundred percent (100%) of all fully operational meters/endpoints by the end of each billing cycle, which consists of seven (**7**) calendar days from the City's billing schedule date.

a) FW shall state how ninety-nine point nine five percent (**99.95%**) of the required billing reads is obtained and in what time frame these reads are retrieved from the BMI Analytics Software.
b) FW shall provide a means and solution enabling the City to obtain ninety-nine point nine five percent (**99.95%**) of all meter reads for billing purposes within each billing cycle as above mentioned.

c) In the event FW did not meet this requirement, FW shall supply and install an additional gateway(s) at no charge (the City shall provide electricity and communication to the gateway location) to the City for providing sufficient coverage to the area that did not meet this "**Delivery of Billing Reads to the City CIS system**" requirement

6. Meter Read Precision

a) FW must confirm read resolution acquired by the ORION Endpoints meet City's requirements, as long as read resolution does not exceed the register resolution.
b) FW is responsible for ensuring the Analytics Software provides correct read resolutions per City's requirements.

7. Outage Notifying & Reporting

a) FW shall ensure reports in the Analytics Software show alarm flags on non-reporting Gateways units and can alert users based on customer's parameters. In addition, ORION Endpoints and Gateways will automatically show up non-functioning in exception reports.
b) FW shall ensure its Gateways reports in Analytics Software show that there is no communication to a Gateway, through normal alert notifications such as power flags and non-communication alerts, for any power outages occurred to its Gateways on the City's ORION Fixed Network.
c) FW shall provide reports in Analytics Software that show historical outages data for tracking and analysis purpose.

8. Lost or Missed Reads

FW is responsible for ensuring the Analytics Software delivers a minimum of ninety eight point five percent (**98.5%**) read retrieval of **twenty four reads per day** for any daily read period. The allowable one point five percent (1.5%) of the meter reads not received by the Analytics Software shall not be due to the unsuccessful transmission of meter reads from the same ORION Endpoint during any **20-day** period.

While a threshold of ninety eight point five percent (**98.5%)** of **twenty four reads per day** is required for both daily and billing cycle reads, the City expects to be able to complete a customer bill on any given completion of daily read retrieval. Therefore, the one point five percent (**1.5%**) of meters that may not have responded with ninety-nine point nine five percent (99.95%) of their reads on one day cannot consistently be part of the one point five percent (1.5%) that does not fully respond over a **20-day period**.

9. Connections to Meter Registers

FW shall supply the BMI Analytics Software ORION Endpoint with the Nicor Connector for connection between the ORION Endpoints and the meter registers. During the transition period, in which the City may use its existing meters without the Nicor Connectors, FW shall train city staff to ensure good connection techniques between the ORION Endpoint and the meter register, preventing incorrect wiring, corrosion or shorting of any electrical connections and the extent that may compromises the performance or features of the endpoint functionality. The City, its contractor (s) or agents will install all ORION Endpoints to the city meters in accordance to BMI standards and specifications.

10. The City Meter Pits

FW shall confirm their ability to read inside the City meter pits and state any modifications that deems necessary in order to enhance reception and range of read transmissions.

FW shall confirm their ability to transmit reads from the City's meter pits and the minimum read transmission range as stated in its response to the City RFP# P081312006.

FW shall define when a repeater or an external device is required to connect to the ORION SE unit to enhance or augment data transmission to the data collection unit/Gateway.

11. Meter Manufacturer Certifications

a) FW shall ensure the compatibility among the Analytics Software, the ORION Endpoints and the meters with meters that are certified and/or can be certified by BMI.
b) FW shall provide clear, sufficient explanations of the reasons why the Analytics Software is unable to read any particular meter makes and models sold in The United States.

12. Standards Compliance

a) FW shall ensure their ORION Endpoints and Gateways comply with industry standards
b) FW shall ensure their auxiliary devices comply with FCC standards

13. Electrical Isolation

FW shall ensure the ORION Endpoint and Gateway will protect itself, the meter, and the customer's premises against electrical surges.

14. Environmental Tolerance

a) FW must guarantee that their ORION Endpoints, DCUs/Gateways, and auxiliary devices are permanently sealed in housings that are water resistance
b) FW shall ensure the range of operating temperature and humidity range for their ORION Endpoints, Gateways, and auxiliary devices meets City's requirements
c) FW shall provide all information associated with the factory potting tolerance in addition to tolerance levels for repair or in field connection of the ORION Endpoints to the water meter registers

15. Labeling

The ORION Endpoints shall be permanently labeled with manufacturer's name, model number, date of manufacture, and Identification/Serial Number (including a barcode).

16. Mounting

a) FW shall describe specifications to facilitate mounting Gateways, including but not limited to masonry, wood, pipe or any other building materials.
b) FW shall train City staff on how to mount intermediary devices required assisting in the transport of the reads and meter data values from the ORION Endpoint to the Gateway.

17. Battery

a) FW shall disclose any issues that would cause the battery to require a change out over the life of the associated device.
b) FW shall repair or replace, at its discretion, any non-performing ORION Endpoint at no cost to the City during the first ten (10) years after installation of the Endpoint, and at a prorated price during the next ten (10) years. FW shall apply prorated price discounts to the

ORION Endpoint price at the time of the ORION Endpoints return and according to the following prorated price discount schedule: Years 11 through 12 – 75% discount; Years 13 through 15 – 50% discount; Year 16 – 40% discount; Year 17 – 30 % discount; Year 18 – 20% discount; and Years 19 through 20 – 10% discount.

c) Warranted life of all batteries in the ORION Endpoints must start on the installation date NOT on the manufacture or delivery date.

18. Battery Life Indicator/Report

FW shall provide the City an ability to monitor the ORION Endpoint battery voltage and the remaining power via the Analytics Software, including an alarm for a minimum of three months before battery is dead.

19. LAN/WAN Configuration

a) FW is responsible for obtaining all necessary information to design the correct number of Gateways required in the field, covering the entire City's service areas.
b) FW shall develop and confirm that the ORION Fixed Network topology and configuration for the City's service territory is based on standard guaranteed transmission ranges for both the LAN and WAN components in the WMRA proposal and to meet the WMRA Functional Specifications per RPF# P081312006.

20. Fixed Networks Frequency Allocation and Interference

a) FW shall disclose what radio frequencies and channels will be used for transmitting signals between the ORION Endpoints and Gateways, avoiding interference with the City's Systems.
b) FW shall describe the mode of data transmission between the ORION Endpoint and the Gateways necessary to comply with data collection and time synchronization as specified in the RFP# P081312006
c) FW shall supply maps indicating coverage and signal strength of their ORION Fixed Network to operate, as specified, within the City's service territory.
d) FW shall ensure the configuration of their ORION Fixed Network is built and based upon approved and warranted transmission ranges that comply with FCC spectrum allocation and wattage of radio signal for optimal battery life as warranted by the manufacturer.
e) FW shall state approved and warranted transmission ranges
f) FW shall ensure and address signal impedance issues, including what additional equipment shall be used, signal modulation, etc. and what solution is necessary in order that impedance issues be solved.
g) FW shall state where and if alternative means or modifications to the base WMRA communication network are available to improve transmission of the reads where transient issues continually occur. FW shall also disclose if there any RF options that may prove to be a good alternative where transient issues cannot be resolved.

21. LAN Expansion

FW shall supply information regarding the options and costs associated with what is required should the LAN infrastructure need to be expanded to consistently meet and maintain the performance levels over the life of the system, covering approximately 140,000 meters within the City's service territory.

22. Connection to the WAN

a) BMI shall include both public and private WAN for interfacing with the Analytics Software.
b) FW shall disclose which WAN interfaces are built into each Gateway and which are external connections through an RS 232 connection or other external hardwire solution.

23. Gateways and Redundancy

a) FW is responsible for determining the number of Gateways, including redundant Gateways, needed to achieve access to all meters in the City's service territory and ensure that the City's minimum required ninety eight point five percent (**98.5%**) read retrieval of **twenty four reads per day**, or better, from all meters daily is successful.
b) FW is responsible for the correct number of Gateways, including redundant Gateways that are required to achieve reliable access to all ORION Endpoints in the City's service territory and minimize latency between a gateway and its ORION Endpoints. FW shall provide reporting charts that show where the endpoints are reporting and which path the Gateway chose to send it.
c) FW shall define the number of Gateways that are required to read the City's entire meter population and provide a map, showing where these Gateways would be placed in the City's service territory.
d) FW is responsible for the functionality and storage capacity of each Gateway in reference to their response to the City's RFP.
e) FW shall describe what procedure the City must take, when a Gateway's capacity is reached to ensure reads are not lost.
f) FW shall ensure redundancy measures for the storage of the data at each gateway in order to achieve a minimum of ninety eight point five percent (**98.5%**) read retrieval of **twenty four reads per day** from all meters in the City's service territory.

24. Gateways Power Supply

a) FW shall describe primary powering options for powering the Gateways, as well as alternate and/or back up methods.
b) FW shall describe what purpose a battery in the Gateways serves, including the lifespan of the battery and on-going maintenance required.

25. Gateways Pre-programming for Field Installation

a) FW shall specify if the Gateways shall be programmed prior to or during field installation.
b) FW shall describe all Gateways programmable options, features and procedures.

26. ORION Smart Endpoint Programmability

a) The ORION Endpoint shall be able to be initialized or programmed during or prior to field installation.
b) FW shall describe if any other additional programming of the ORION Endpoint is required in order to acquire the full range of functions and features
c) FW shall describe all other ORION Endpoint initialization processes that shall take place when the device is installed in the field.
d) FW shall provide, in detail, the followings:
   - **A process the installer must follow to make sure the right Read Type codes, Meter Type and resolution is applied on the meter at the correct customer location with the correct account number**
   - **A process to ensure the final read on the existing meter is recorded and able to be updated into the City's CIS**

- **Process to ensure all ORION Endpoints are activated and connected to meter registers properly and each ORION Endpoint has sufficient signal strength to transmit signals to a minimum of two (2) Gateways**
- **A process to ensure all ORION Endpoints are reading consistently through the paths established to the ORION Fixed Network and to the required levels to meet the minimum ninety eight point five percent (98.5%) read retrieval of <u>twenty four reads per day</u> requirements.**

e) FW shall supply test equipment, which uses to monitor the Analytics Software to ensure end-to-end connectivity to the level it was at acceptance test sign off.
f) FW shall specify how many test units are required by the City to maintain and test the system upon installation completion.
g) FW shall describe skill sets required for operating this test and monitoring equipment.
h) FW shall ensure signal strength, robust link and solid transmission paths from each ORION Endpoint to the selected DCUs/Gateways.

27. <u>Physical Characteristics and Functionalities of Field Devices</u>

a) FW shall describe the physical attributes of the devices and shall indicate unit weight and dimensions of all field installation and programming devices.
b) FW shall disclose any features, such as shoulder or belt strap, to facilitate carrying field devices and any options available to prevent field devices from being dropped.
c) FW shall supply all connecting hardware and software, including cables, modem, cradle, battery, charger, manuals, etc. that are required for each of the units in order to ensure they are fully functional.
d) FW shall include physical characteristics of field devices such as: characters are alphanumeric, easily readable in bright or dim light, the ability for adjusting angular range readability, audible tones used by the unit, and their functions (e.g., confirming a reading or successful programming, warning of an out-of-limits condition, low battery, etc.)
e) FW shall describe if any of the field tester/handheld units uses rechargeable batteries, the type used and the length of time to recharge after normal use (FW must define normal use of the unit). If other batteries are used, describe the type, lifespan, disposal requirements, etc.
f) FW shall disclose and explain whether the data, software programming, etc. is lost in the event of a dead battery.
g) FW shall ensure all required field devices such as Handheld and Toughbook laptop are capable of alerting and/or receiving the signals from ORION Endpoints and interrogating meter registers to acquire meter reads and/or data/event log information.
h) FW shall ensure that the handheld devices are capable of programming the ORION Endpoints with information required by the City for operation that has not been pre-programmed in the City's meter shop or when manufactured by the Badger. The portable handheld device shall be capable of providing instructions to the ORION Endpoint concerning the make, model, type, and data protocol of the meter and its register being connected.
i) FW shall describe how the handheld device is protected against unauthorized use, and what type of security has been instituted to ensure protection.
j) FW shall provide adequate training to City staff how to use the handheld device, including the process for loading CIS information into the device and the steps and number of keystrokes required to complete a successful initialization of the ORION Endpoint in the field.
k) FW shall indicate the maximum distance at which a handheld device will reliably receive the complete meter-reading signal from an ORION Endpoint or how this can be accomplished.

l) FW shall indicate how or if a meter read is accessed in the field from an ORION Endpoint if not facilitated through a Radio Frequency (RF) signal.
m) The handheld device shall permit manual entry of the meter readings and other information necessary to complete a meter or an ORION Endpoint investigation or a repair work order, including a capacity to record notes or comments.

28. Field Test Applications

a) FW shall supply any devices used to locate and diagnose problems with any WMRA System component unless the Analytics Software incorporates an alternate way to make such a diagnosis.
a) FW shall indicate and describe how the field test unit can:
   i) Communicate with a DCU/Gateway
   ii) Validate a clear and strong communication channel from the ORION Endpoint to the Gateways
   iii) Initiate a read that can be transmitted to the DCU/Gateway or can be acquired by the handheld device

29. Interface/Integration

a) BMI shall ensure that Analytics Software provides/equips with features for downloading customer information/work-order data from the City's CIS into the handheld device for installing and configuring ORION Endpoint.
b) FW shall ensure that Analytics Software provides/equips with features for collecting/uploading ORION Endpoint information and characteristics from the handheld device when ORION Endpoints configured in the field.
c) FW is responsible for ensuring the Analytics Software can import customer information from the City's CIS into the system for updating and billing purposes. The City shall provide FW with a list of data, which the City wants to store in Analytics Software.
d) FW is responsible for ensuring the Analytics Software can export billing data per City's specified format (by cycle, route, specified groups of meters, a particular meter, etc.) for loading into the City's CIS system for updating and billing purposes.
e) FW is responsible for extracting/generating required work order data per City's format for specified audit failure and/or trouble codes (e.g. leak, hi-low audit, unread, etc.). The City shall provide FW with a list of audit failure and trouble codes (including file format and a location where these files will be stored) that require FW to create work order files.
g) FW shall ensure the Analytics Software provides the functionality required by the City.
h) FW shall include GPS coordinates at the ORION Endpoint and in the database related to meter or premises location. FW shall provide interface to the City's GIS. The City will use ESRI's ArcIMS v10.1, ArcSDE v 10.1, and ArcGIS Server v 10.1.
i) FW shall ensure the Analytics Software has the ability to supply information/data to the City so the City can develop an interface for the City web site so the City can offer customers accessibility to their data via internet through an operational, secured data port. FW must detail if data viewing via internet includes graphics capability, which can be securely accessed by the individual customers and the City staff, to view usage on a daily, monthly or yearly basis.
j) FW shall ensure the OMRS interface with Analytics Software directly for loading meter reads and event logs collected from ORION Mobile Reading system and handheld devices to the Analytics Software.

30. Updating meter accounts in the ReadCenter Analytics Pro Software

a) BMI shall disclose what fields are used in the Analytics Software and how these fields are updated based on customer information changes and additions made to the City's CIS System during the Filter Development Phase.

b) BMI shall ensure the Analytics Software's ability to support water meter reads and event logs as it applies to the followings:
   a. Aggregate meter reads to weekly or monthly levels.
   b. The ability to read input files of different formats and as a result export meter reads specified in the input file.
   c. Handles, reports, retransmits or reconstructs gaps in meter reads

31. Recovery/Restart

a) BMI shall ensure the Analytics Software shall be easily recovered and restarted in the event of any interruption or software freeze within twenty four (24) hours of failure. If failure is caused by external issues, FW and BMI will make best efforts to resolve such issues as reasonable possible which may be beyond the 24 hr period.

b) BMI shall describe procedures for recovery.

32. Reports

a) BMI shall ensure a variety of standard reports and provide the City with ability to generate reports to track and monitor the followings:
   i. leak, misreads, no usage or late data
   ii. trouble codes, errors, tamper, theft, and failed audits
   iii. communication anomalies and alarm conditions
   iv. data transfer issues, impediments, etc.
   v. management and administration
   vi. consumption analysis by an individual customer or a group of customers
   vii. usage anomalies, consumption when account is defined as inactive, unusually high or low readings and meter rollovers
   viii. high/low audits, virtual/soft connect/disconnect, tamper trending
   ix. meter failure, read access failure, and communication link failures/issues
   x. the health of the ORION Fixed Network, Gateways, and ORION Endpoints
   xi. instances that impact network/meter ability to acquire reads (ORION Fixed Network/WAN issues/interruptions, etc.)
   xii. flagging of potential network, meter, ORION Endpoint issues
   xiii. power, meter operation, communication link.
   xiv. endpoint installation, exchange, troubleshooting, maintenance, etc.
   xv. meter failure, capacity issues, power and battery failures
   xvi. period of hourly reads from an individual water customer account is accessed by a City's Customer Service Representative
   xvii. reports of the current status and reading history of individual accounts and selectable groups of accounts
   xviii. sort and list accounts per user-defined account groups.

b) FW shall disclose the nature and extent to which standard reports can be customized. FW shall indicate what allowed customizations are that shall not void any software product warranties, nor prevent any overlay of future releases.

c) FW shall include a custom report generator or allow for open access to the databases for reporting with standard industry reporting tools such as Crystal Report

d) FW shall describe the procedure necessary to acquire customization beyond that provided by Badger's standard reports.
e) FW shall describe what reports may have been developed by utility customers that are available to other users and what system/software was used to create these reporting programs.

33. Upgrades

BMI shall ensure the following upgrades will be handled to ensure the required functionality as per the WMRA Functional Specifications per RFP# P081312006:

a. database upgrades
b. software upgrades
c. hardware upgrades (e.g. ORION Endpoints, Gateways, firmware, etc.)
d. fixes and patches for compatible with operating system upgrades

34. Software Documentation

BMI shall provide the City with software documents, including but are not limited to the followings:

- system overview description
- system flow charts
- files and tables descriptions, format and record details
- data dictionary and entity relationship diagrams
- description of program function and logic
- back-up and recovery procedures
- operating procedures,
- screens/pages
- data entry procedures
- report descriptions
- descriptions of all user options
- descriptions of all error messages
- manuals and customized written procedures sufficient for complete operation and maintenance, including diagnostics and repair, of the system, its software and its components
- new revisions or additions to the above manuals

35. Support

a) FW shall provide on-site maintenance/support during the first two (2) years deployment of the BMI Hardware and Software.
b) FW is responsible for telephone and on-site support after the first two (2) years deployment of the BMI Hardware and Software as follows:
   i. FW shall provide trained persons via a toll-free number to answer technical questions and guide the City employees through the use or diagnosis of the system.
   ii. Telephone support shall be available at a minimum from 8:00 a.m. through 6:00 p.m. Pacific Standard Time.
   iii. FW shall agree to provide on-site assistance at the request of the City. On-site support shall be rendered within forty eight (48) hours of receiving a request for this level of support.
   iv. This level of on-site support and associated cost are included in the annual maintenance support agreement and maintained if the City continues with the agreement.

c) FW shall describe how they will respond to calls on a twenty-four (24) hours per day basis from the City, concerning ORION Endpoints/Gateways/ ORION Fixed Network/Analytics Software/ functionality issues, loss of service and other problems associated with installations.
d) FW shall honor levels of support offered in its response to the City's RFP# P081312006, along with response times, based on the type of calls and issues that occur in the field resulting from installation problems such as loss of service, property damage, etc.
e) FW shall describe how FW will identify on site repair issues and state how a method can be put in place to facilitate those repairs, if the City so desires (i.e., if the task would require less than one (1) hour of labor).

36. Training

a) FW shall train all City staff designated by the City as being involved in the deployment and operation of the WMRA System at no charge. City staff responsible for ORION Endpoint installation and meter readings collection shall be trained immediately so that they may participate and play a hands-on role in the installation and day to day running of the WMRA System from day one.
b) FW is responsible for additional training at no charge required for City staff necessary to fulfill and adhere to the approved installation schedule required to deploy the WMRA.
c) FW shall describe the type of training that is required for City staff. In addition, FW shall describe and present their optimal recommendation on how best to incorporate City staff into the installation program successfully. Most Field Services staffs are unionized under Local 39 and/or Local 447.
d) FW shall identify the various positions required to run the WMRA System and how many City staff should be allocated to those positions, including specific skill-sets necessary for all operational positions as well as that for endpoints and Gateways installation.
e) FW is responsible for providing training to City staff at no cost to the City on the Analytics Software, Web Interface, and Database. All training shall be conducted at the City's arranged facilities.
f) FW shall provide at no cost to the City thorough training and describe the major sessions of training (e.g., Analytics Software operation, database, field installation and diagnostics, Gateway installation and maintenance, etc.); duration and number of trainees for each of these training sessions; detailed outlines including a list of all equipment and software requirements required for each training session. The description shall include documentation of each training session's objectives and the table of contents/agenda for each training session.
g) FW is responsible for an evaluation of trainees at no cost to the City to ensure that they have learned the course content and can perform all necessary functions related to the job they are being trained to perform. FW shall notify the City's Project Manager of any City employees who fail this evaluation, and provide them with additional training or offer alternative solutions for these trainees. FW shall provide certification or equivalent to City employees, who have met their training certification requirements.
h) FW shall repeat a training session at no additional cost to the City if a majority of the trainees lacks the skills or fails the evaluation at the end of the training.
i) FW shall provide the City with industry best practices, policy and procedures for endpoints and Gateways installations.
j) FW agrees to provide the City the right to review the training program to identify specific training and testing gaps. FW shall review City's suggestions and acknowledge that they will make any required modifications necessary to satisfy City's training requirements up to the level required by the City and specific training materials targeted at addressing the City's specified topics to insure successful deployment of the WMRA System.

k) FW is responsible for providing to the trainees workbooks, training aids (including videotapes, etc.), and system technical manuals prior to or during the training session.
l) FW agrees to supply qualified and knowledgeable instructor(s) for the training at no cost to the City.

37. Installation/Deployment

a) The City expects that full deployment will consist of the installation of the Fixed Network system and approximately 140,000 ORION Endpoints. Phase I will be focused on locations selected by the City for replacement of the end of life TRACE and Orion transponders and for replacement of all Datamatic Fireflies. Implementation of Phase 1 shall commence in the first quarter of 2014 with the completion of Phase 1 to be determined and scheduled at a later date upon the agreement of both parties. The installation of subsequent phases shall commence upon completion of Phase 1, in conjunction with the City's Meter Retrofit Program.
b) FW and the City shall work together to develop a blue print/road map for this project to:
   - build successful work processes for the on-going installation and operation processes associated with the WMRA;
   - establish WMRA system performance testing procedures;
   - validate delivery of Analytics Software functions and feature compliance with the WMRA Specification;
   - expeditiously replace TRACE and Orion transponders and Datamatic Fireflies;
   - handle metal lid issues; and
   - cope with challenging areas that will confirm the ability of the Analytics Software to address heavy urban areas, topographical interference, large sub-basement vaults in addition multi-residential locations, basement meters, significant pedestrian and vehicular traffic including delivery trucks, buses, and narrow streets and/or alleys and lack of parking.
c) FW is responsible for transportation, computers, tools, equipment, and offices for its personnel, including warehouses, etc. required for a successful WMRA System deployment.
d) FW shall accommodate the City's WMRA deployment requirements and timeline.
e) FW is responsible for the design of the ORION Fixed Network, which shall be approved by the City, and shall establish communications over the ORION Fixed Network from ORION Endpoint to the required Gateways necessary to confirm reads transmission and meter data acquisition at the Analytics Software located at the City's main offices in Sacramento, California. The City is responsible for endpoint, Gateway and computer installation as well as all site selection.
f) FW shall provide the City the process to be used to confirm communications/ transmissions of the ORION Endpoints, Gateways, and Analytics Software.
g) FW shall describe the process by which the WMRA System is easily installed and initialized in the field. Installations shall take place in a systematic manner, phased approach following meter reading routes as provisioned and planned jointly between FW and the City. FW shall supply a detailed description based on the given locations provided by the City as to how they would schedule and deploy each Phase. FW may also suggest optional methods for deploying the WMRA System other than according to the locations provided by the City but must give valid reasoning for recommending the alternative.
h) FW must provide details into how they will accurately confirm ORION Endpoints are linked to the correct customer accounts and are providing reads per meter size type, meeting City's specifications. The City of Sacramento will install all endpoints, make sure data links to customer accounts and select the meter type and size at the time of installation.
i) FW shall describe in detail the process used for safely, correctly and effectively installing the ORION Endpoints. FW is responsible for proper training of wiring of the existing meters

(which are approved by BMI), which do not equip with Nicor Connectors to their ORION Endpoints.

j) FW shall adhere to the City's Policies and Procedures for construction works where applicable, but FW is not a construction company.

k) FW shall provide a standard working hours for the City to consider. FW shall accommodate the delivery/work schedule to best meet City's installation goals and project milestones.

l) FW and BMI will provide all documents and exchange "best practices" with the City of Sacramento for installation of ORION Endpoints and Gateways.

m) FW shall designate and name a Contract Manager, who will have the authority to handle and resolve any disputes or contract issues with the City Project Manager throughout the duration of the project. FW shall identify and include a sufficient number of permanent experienced staff that will be present and working on the City WMRA System throughout its deployment. FW shall provide the resume and references for the selected candidates to the City for review and approval. The Contract Manager may or may not be the same as the Account Manager assisting the City of Sacramento. The Project Manager will be on site at training sessions, during start up and initial deployment. In addition, the Product Manager can be present for ad hoc assistance, future training and impromptu training sessions. If the City of Sacramento would like to have a dedicated on site Product Manager for either part time or full time, one can be arranged with an additional agreement for the duration of the project or some other agreed to time frame.

n) FW's personnel shall be required to have the minimum competencies necessary and proper certification to accomplish the specific task or work requirements in this project

o) FW shall maintain adequate insurance and provide proof of insurance for staff and all aspects of the job, including when they will be on the customers' premises. FW must also maintain and provide proof of insurance for vehicles and warehousing of all equipment and WMRA components for completing the overall WMRA project.

p) FW shall train City staff in reviewing customers' water metering facilities and ORION Endpoints for signs of tampering, of by-pass, tampered meters, un-metered usage on the utility side of the meter, damage caused by apparent attempts to open the meter or any other tampering situation.

q) In the event of substantial billing errors (defined as errors causing billing inaccuracies that total $100,000 or more within a three (3) years period), due to incorrect programming from the Analytics Software, while the City completely followed with FW's specifications, training, and installation instructions, FW shall launch a full investigation, cooperate fully with the City to prevent the errors from occurring again in the future, and compensate the City on labor costs to recover any loss or refund any over-billing for a maximum of $10,000/event.

38. WMRA ORION SE units and Gateways Inventory Requirements

a) FW shall describe systems and processes will be used to ensure adequate inventory management per the City deployment schedule.

b) FW is responsible for all WMRA components and must provide warehousing of this equipment. FW shall retain ownership and custodial responsibility of all components (e.g. ORION Endpoints, Gateways and all associated devices/equipment) while they are in its warehouse throughout the course of the project until the ownership is transferred to the City. Transfer occurs upon delivery to the City of Sacramento facilities.

c) FW shall disclose its inventory control procedures, workflows for receipt, installation and transfer of all WMRA assets to the City throughout the course of the project.

39. Barcodes

a) FW shall support the City's barcode requirements in the inventory control process and tracking individual ORION Endpoints and Gateways from receipt through installation.
b) FW shall provide interface for bar coding on its Handhelds for collecting ORION Endpoint and meter serial numbers in the fields for inventory and installation tracking and management purposes.
c) FW shall disclose the type of information that should be located on the barcode sticker, number of stickers required to perform the installation and tracking and how all WMRA units are tracked in their warehouse.
d) FW shall state how all pertinent information regarding the receipt of equipment is tracked by FW and how this data is then transferred to the City following deployment of the units.

40. Quality Assurance

a) FW shall describe the approach they will use toward ensuring quality work and the quality assurance process. The City will determine the most suitable means for ensuring these quality levels are assured.
b) FW shall provide techniques/procedures to conduct communication/transmission checks on the installing ORION Endpoint prior to leaving the site to ensure the ORION Endpoint is successfully communicating over the ORION Fixed Network and being received by the Analytics Software. FW shall describe the process to be used and how validation of ORION Endpoint/Gateway communication is performed
c) FW shall describe how accuracy of the meter reads and ORION Endpoint location is verified to the correct customer account is assured.
d) FW shall note and describe all recommended installation and test equipment that will be used by City staff in order to monitor and manage the ORION Fixed Network and troubleshoot the ORION Endpoints.
e) FW shall ensure its personnel and City staff assigned to the deployment project are equipped with the necessary field equipment needed to perform the installations and on-going maintenance requirements.

41. WMRA Component Warranties

a) FW is responsible for the warranty offered on the Gateways and other WMRA devices (e.g. laptops, handhelds, etc.) necessary for proper system operation and installation as specified in its response to the RFP, as long as the City follows FW/BMI's parameters of use.
b) If the software or firmware for the Gateway, ORION Endpoint, Toughbook Laptop, Handheld or Cradle Kit is found to have a program bug, the software or firmware will be corrected at no charge to the City of Sacramento as specified in the Product License and Maintenance Agreement between the City and BMI.
c) FW shall state what is deemed a substantial failure on a "by WMRA component" basis or for the system in its totality.
d) FW shall provide any studies on the expected life in service of the batteries incorporated into ORION Endpoints and Gateways. The data/studies on expected battery life in service should be under various conditions and based on frequencies of transmission, outages and power loss at the Gateways, etc., including data on battery tests, battery failure and battery life from significant installations where the proposed ORION Endpoints and Gateways have been installed.

42. Dissemination of Information

a. FW and its partners (i.e. BMI) shall not at any time publicly disseminate any information concerning the Project without prior approval from the City. Such approval will not be unreasonably withheld but may be given with certain stipulations, such as the City's participation in creation of the public product or the City's review and option to refuse ultimate release of the final product should it fail to meet the City's standards and goals. Public dissemination includes but is not limited to electronic, video, audio, photographic or hard copy materials serving as, in whole or in part, professional papers or presentations, news releases, advertisements, articles, or other media products, and /or vendor's business collateral pieces. Additionally, FW and its affiliated partners/vendors shall not reproduce or use in any way the City's logo.

43. City of Sacramento's Water Conservation Criteria

FW and its partner, BMI, shall ensure Analytics Software support the following water conservation objectives:

a. Limitation of Water Use on Spare the Water Days
b. Enforce watering days per area/zone
c. Seasonal Watering Schedules
d. Limit residential and commercial in using water
e. Further Limitation During Declared Water Shortages

43.1.1. FW and its partner, BMI, shall support the City to

1. Configure in and capture all water conservation alerts/alarms from Analytics Software;
2. Be able to notify City staffs via email when violation and/or irregular usage occurred;
3. Run reports on meter event log, water conservation alert/alarm information/data, monthly consumption data and daily water meter readings;
4. Analyze flow rate vs. time water demands to identify typical water uses within a home (determine indoor vs. outdoor use: toilets, showers, clothes washers, irrigation, etc.);
5. Detect leak, reverse flow, and tampering;
6. Review the effectiveness of water rationing and other water use measurements via graphical and summary reports, including analysis of interval data, peak usage information by specified period, event reporting and usage, variance and trending data.

43.1.2. FW shall ensure the City can perform the following set up in Analytics Software:

1. Setting Alarms to reflect usage after the hour has passed
2. Configuring Alarms to clear after the violation or threshold is not exceeded
3. Setting the "Window" parameter for the usage threshold to be based off of the number of hours as a sum
4. Setting threshold per entire route

43.1.3. FW shall provide the City with specifications and training to perform the followings set up in Analytics Software and/or programming/installation on ORION Endpoints:

1. Setting profiling to hourly intervals
2. Configuring ORION Endpoints for raw cubic foot reading and transferring to City CIS system for billing per pre-defined resolution per meter type
3. Configuring ORION Endpoints for sending 24 hours of profile data on the next report so the violation data is sent to the database
4. Configuring ORION Endpoints so that each ORION Endpoint can only be set to one zone during programming/installation

5. Configuring ORION Endpoints so that each ORION Endpoint can hold two (2) conservation schedules but only one schedule will apply at a time based on the dates

44. PRICING

a) Hardware/Equipment Costs: Gateways; Trimble Ranger Handhelds (includes cradle); Optional Trimble Ranger Cradle; Orion Mobile Reading System Laptop; field splice kits: See Purchase Agreement for Hardware, WMRA Project, as amended. (FW shall provide hardware to replace all existing Datamatic Fireflys at no cost to the City.)

b) ReadCenter Analytics Pro Software, License, and Hardware and Software Support Services: See Badger Meter Software License Agreement and Software and Hardware Support Services Maintenance Agreement

c) Implementation at no cost to the City includes:
   1. On-site Survey
   2. Software Implementation
   3. Interface with CIS
   4. Customized reports

d) Optional Software Development: $125/hour.

e) All necessary training for City staff at no cost to the City includes:
   1. Analytics Software Installation Training
   2. ORION Mobile Reading System Installation Training
   3. ORION Endpoint Training
   4. Trimble Ranger 3 Handheld Training

Back to Report Table of Contents

SOFTWARE AND HARDWARE SUPPORT SERVICES MAINTENANCE AGREEMENT

This Software and Hardware Support Services Maintenance Agreement ("**Support Agreement**") is entered into effective this day of , **20** (the "**Effective Date**") by and between the City of Sacramento, a charter municipal corporation("**Customer**"), and Badger Meter, Inc., a Wisconsin corporation with its principal place of business located at 4545 West Brown Deer Road, Milwaukee, WI 53224 ("**Badger Meter**"). Under this Support Agreement, Customer and Badger Meter are referred to individually as a "**Party**" and collectively as the "**Parties**."

I. RECITALS

A. Customer has purchased Badger Meter Software **("Software")** and Badger Meter has granted Customer a license to use certain Badger Meter software pursuant to the terms of the Badger Meter Software License Agreement (the "**License Agreement**").

B. Customer also has purchased a Badger Meter mobile meter reading hardware system, such as handheld data collectors, laptop computers or other mobile reading equipment **("Hardware")** for use with the Software. The Software and Hardware are further described on **Schedule 4**, attached hereto and incorporated by this reference.

C. Customer desires to receive and Badger Meter agrees to provide certain support and maintenance services (collectively **"Support Services"**) for the Software and for the Hardware pursuant to the terms of this Support Agreement.

II. TERMS AND CONDITIONS

A. **Customer Software Support Services.** During the Term of this Support Agreement, Badger Meter agrees to provide Customer the support services ("**Software Support Services**") related to the Software and Hardware as set forth in **Schedule 2**, attached hereto and incorporated by this reference, and in accordance with the provisions of **Schedule 4**.

B. **Badger Meter Customer Hardware Support Services.**

1. <u>One Year Hardware Warranty</u>. Badger Meter agrees to provide Customer with support services for Hardware, as detailed in **Schedule 2**, under the one (1) year warranty included with the purchase of Hardware ("**Hardware Support Services**").

2. <u>Optional Extended Hardware Warranty</u>. Customer may elect to purchase up to four (4) years of extended warranty to cover the Hardware, for which Support Services will be provided according to **Schedule 2** ("**Extended Hardware Warranty**").

C. **Professional Services.** Upon mutual agreement of the parties, Badger Meter will provide certain additional Software Support professional services ("**Professional Services**") at Badger Meter's then standard hourly and expense reimbursement rates. If Customer elects to purchase Professional Services, the Parties will prepare a Statement of Work setting forth a description of the Professional Services, the timeline for performance of the Professional Services, and the cost for the Professional Services, which shall be included in the Customer's standard professional services agreement form. Each Statement of Work for Professional Services will incorporate all of the terms of this Support Agreement by reference.

D. **Effective Date.** This term of this Support Agreement will commence on the Effective Date and continue for a period of 1 (one) year ("**Initial Support Term**"). At the end of the Initial Support Term, if renewed and paid for by Customer as provided herein, the Support Agreement will renew for successive one-year terms, for Software Support Services as long as Badger Meter supports the Software, and for Hardware Support Services for up to an additional four years after the end of the

Initial Support Term ("**Renewal Support Term**") unless earlier terminated in accordance with Section J (collectively, the "**Term**"). If Customer does not renew, or terminates for convenience, and later requests Support Services, prior to being eligible for Support Services, Customer must: 1) Pay prior unpaid Renewal Support Term years in full; and 2) send all Hardware to Badger Meter (excluding Hardware physically installed in Customer's utility system), at Customer's cost, for Badger Meter evaluation to confirm the Hardware is operational before Support Services are made available on a go-forward basis.

E. **Payments to Badger Meter; Terms.**

1. Customer must pay all applicable fees as invoiced. The applicable fees shall be as specified in **Schedule 4**.

2. Payment of Fees for the Renewal Support Terms. Badger Meter will notify Customer of fees due for any subsequent Renewal Support Term on an annual basis approximately ninety (90) days prior to the commencement of the anniversary of the Effective Date. To renew Support Services, Customer must submit a purchase order to Badger Meter for the upcoming Renewal Support Term, prior to the commencement of the applicable Renewal Support Term, and must pay the applicable fees not later than 30 days after commencement of the applicable Renewal Support Term.

3. Interest. If Customer fails to pay an invoice when due, Badger Meter may charge interest on the unpaid balance at the rate of eighteen percent (18%) per annum or the maximum rate allowable by law, whichever is less.

4. Taxes and Charges. In addition to the Fees, Customer agrees that it will be responsible to pay any taxes, government charges, surcharges or fees related to the purchase of services under this Support Agreement, except for taxes on Badger Meter's income.

F. **Limitations on Support Services.** This Support Agreement does not include Support Services for:

1. Software, products, data, or features not provided by Badger Meter or by its authorized representatives to Customer;

2. Modifications or alterations to the Software by Customer or a third party without the prior written consent of Badger Meter;

3. Failure by Customer to install or use the Software in accordance with the Documentation as defined in the Software Agreement;

4. Failure to replace earlier versions of the Software with updates and improvements provided to Customer within a reasonable amount of time after receipt;

5. Repair or restoration of Customer' s data (unless the data loss is caused solely by Badger Meter while providing services to Customer and in such case, up to the point of the last Customer backup);

6. Software defects caused by Customer's negligence, misuse, misapplication, or use of the Software other than as specified in the Documentation; or

7. Using a version of the Software which is no longer supported by Badger Meter.

G. **Customer's Obligations.**

1. Access. During the Term of this Support Agreement, Customer will provide Badger Meter with reasonable access to Customer's copies of the Software to the extent necessary to enable Badger Meter to perform the Support Services.

2. Miscellaneous Costs. Customer will bear all reasonable costs associated with procuring, installing, and maintaining all equipment, telephone lines and communications interfaces necessary for Customer to obtain Support Services.

3. Customer Contacts. Customer will designate on **Schedule 3**, two (2) employees, including one primary contact, as its "**Customer Contacts**" to be generally available during the Coverage Hours defined in **Schedule 2**, in order to confer with

Badger Meter regarding support-related issues. Customer must provide Badger Meter with the full name, work and cell phone numbers and email addresses for each of its Support Contacts. Customer will notify Badger Meter promptly of any changes in the Support Contacts. Badger Meter will provide technical support only to Customer's Support Contacts.

H. **Express Limited Warranty.**

1. Express Limited Warranty. Badger Meter provides an express limited warranty that the Support Services will be performed in a professional manner consistent with industry standards, and this warranty shall extend for a period of one year after the performance of the specific Support Services to which the warranty applies. **EXCEPT FOR THIS EXPRESS LIMITED WARRANTY, Badger Meter MAKES NO OTHER EXPRESS OR IMPLIED REPRESENTATIONS OR WARRANTIES AS TO THE SUPPORT SERVICES. Badger Meter EXPRESSLY DISCLAIMS ANY OTHER EXPRESS OR IMPLIED WARRANTIES WITH REGARD TO THE SUPPORT SERVICES, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT, FITNESS FOR A PARTICULAR PURPOSE OR ARISING FROM A COURSE OF DEALING OR INDUSTRY PRACTICE. CUSTOMER ACKNOWLEDGES THAT NO THIRD PARTY, INCLUDING A Badger Meter DISTRIBUTOR, HAS THE AUTHORITY TO MAKE OR MODIFY THE TERMS OF THIS EXPRESS LIMITED WARRANTY ON BEHALF OF Badger Meter.**

2. **LIMITATION OF LIABILITY; REMEDIES**. **IN THE EVENT THAT Badger Meter FAILS TO PERFORM THE SUPPORT SERVICES IN ACCORDANCE WITH THE EXPRESS LIMITED WARRANTY, CUSTOMER'S EXCLUSIVE REMEDY WILL BE THAT Badger Meter WILL USE COMMERCIALLY REASONABLE EFFORTS TO RE-PERFORM THE SUPPORT SERVICES. IN THE EVENT THAT Badger Meter IS UNABLE TO CURE A DEFAULT UNDER THIS EXPRESS LIMITED WARRANTY, Badger Meter MAY CHOOSE TO REFUND ANY PAYMENTS RECEIVED BY CUSTOMER FOR THE DISPUTED SUPPORT SERVICES IN FULL SATISFACTION OF Badger Meter's OBLIGATIONS.**

IN NO EVENT WILL THE PARTIES BE LIABLE TO ONE ANOTHER OR ANY THIRD PARTY FOR ANY (i) DIRECT, INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE OR EXEMPLARY DAMAGES, EVEN IF ADVISED OF THE POSSIBILITY THEREOF, (ii) ANY DAMAGES RESULTING FROM LOSS OR INTERRUPTION OF DATA, EXCEPT AS DESCRIBED IN SECTION F(5), OR LOST PROFITS, OR (iii) ANY CLAIM WHETHER IN CONTRACT OR TORT OR OTHERWISE THAT AROSE MORE THAN ONE (1) YEAR PRIOR TO INSTITUTION OF SUIT.
THESE LIMITATIONS ARE INDEPENDENT FROM ALL OTHER PROVISIONS OF THIS SUPPORT AGREEMENT AND WILL APPLY NOTWITHSTANDING THAT A REMEDY FAILS OF ITS ESSENTIAL PURPOSE.

3. Essential Terms. The enforceability of this Section H is essential to Badger Meter's willingness to enter into this Support Agreement with Customer.

I. **Confidentiality.**

1. Protection of Confidential Information. The Parties agree that any non-public information shared between the Parties in connection with their performance under this Support Agreement will be deemed to be confidential and proprietary information if the Disclosing Party identifies that information as Proprietary and Confidential in writing prior to or at the time of disclosure to the other Party ("Confidential Information"). Each Party agrees to hold the other Party's Confidential Information in strict confidence and will not copy, reproduce, give, sell, assign, license, market, transfer or otherwise dispose of the Confidential Information to third parties or use the Confidential Information for any purposes whatsoever other than as contemplated by this Support Agreement, without the other Party's prior written consent.

2. Third Party Requests for Confidential Information. Neither Party may disclose the other Party's Confidential Information except as required by law, including but not limited to the California Public Records Act. If a Party receives a request for access to the other Party's Confidential Information, Party agrees to inform the Disclosing Party in writing within three (3) business days of receipt of the request unless prohibited by law. If Customer receives such a request for Badger Meter's Confidential Information and so informs Badger Meter, Badger Meter's failure to take timely steps to seek judicial protection from disclosure shall constitute a complete waiver by Badger Meter of any rights regarding such Confidential Information and such information shall be disclosed by Customer pursuant to applicable procedures under the California Public Records Act.

Under no circumstances will Customer have any obligation to seek judicial protection from disclosure for any Confidential Information received from Badger Meter in connection with this Agreement. Customer has no liability for any disclosure made as required by law, including the California Public Records Act, unless such disclosure is made in violation of a court order obtained by Badger Meter or pertains to Badger Meter's Confidential Information for which Customer failed to give the notice described herein.

3. Exclusions from Confidential Information. Confidential Information of a Party will not include information which (i) is in or becomes part of the public domain through no fault of the Receiving Party, (ii) the Receiving Party can prove was known to it prior to its receipt from the Disclosing Party, (iii) is independently developed by the Receiving Party outside of this Support Agreement without the use of the Disclosing Party's information, or (iv) is obtained by the Receiving Party from a third party which had no obligation of confidentiality to the Disclosing Party.

4. Equitable Relief. The Parties agree that in the event of a breach of this Section 9, money damages may be inadequate. Either Party may seek injunctive, declaratory or other equitable relief to prevent a breach of this Section 9.

J. **Termination.** This Support Agreement may be terminated for the following reasons:

1. Termination of License Agreement. This Support Agreement will immediately terminate upon the termination of the License Agreement.

2. For Breach. Either party may terminate this Support Agreement upon the occurrence of a material breach by the other Party if that breach has not been cured within thirty (30) days after the non-breaching Party has provided the breaching Party with written notice which contains a detailed explanation of the alleged breach.

3. Termination for Convenience. Customer may terminate this Support Agreement for convenience upon thirty (30) days prior written notice to Badger Meter.

K. **General.**

1. Binding Agreement. This Support Agreement is binding upon and will inure to the benefit of the Parties and their respective successors and assigns.

2. Assignment. Either party may assign its rights and obligations under this Support Agreement with the express written consent of the other party, which consent will not be unreasonably withheld or delayed, provided however that either party may assign its rights and obligations under this Support Agreement without the consent of the other party (i) upon a sale of a majority of its outstanding capital stock to an affiliate or third-party, (ii) if it sells all or substantially all of its assets, or (iii) in the event of a similar change of control.

3. No Waiver; Severability. All rights and remedies of the Parties are separate and cumulative. The waiver or failure of either Party to exercise any right or remedy provided under this Support Agreement will not be deemed a waiver of any further right or remedy.

4. Savings Clause. The invalidity of any provision of this Support Agreement will not affect the validity and binding effect of the remaining provisions; provided, however, that if the invalidity of any such provision results in material alteration of the terms of this Agreement, the remaining provisions of this Agreement shall be adjusted equitably so that no Party benefits disproportionately.

5. Notices. Any notice required under this Support Agreement must be sent by (i) an internationally recognized overnight delivery service, (ii) by facsimile with electronic confirmation of receipt or acknowledgement, or (iii) by electronic mail with electronic confirmation of receipt or acknowledgement. All written notices will be effective upon receipt.

6. Force Majeure. If, and to the extent that either party is precluded from performing its duties and obligations under this Agreement as the result of acts of God, authority of laws, strikes, lockouts, labor disputes, riots or other causes beyond its control, such non-performing party shall be excused to the extent that its performance continues to be precluded by such acts.

7. Indemnity for Personal Injury, Death, or Property Damage. Notwithstanding any other provision of this Agreement,

Badger Meter shall fully defend, indemnify and hold Customer harmless from any damage, loss, liability, claim or cause of action arising out of (i) personal injury or death, or (ii) damage to real property or tangible personal property, as a result of the negligent or willful misconduct of Badger Meter, its employees, agents, contractors or representatives in the course of performance of this Agreement. Badger Meter's obligations hereunder are contingent upon Customer providing Badger Meter written notice of such damage, loss, liability, claim or cause of action not later than 30 days after Customer receives any claim therefor. This section shall not apply to a warranty claim that is governed by the provisions of Article II (H), Express Limited Warranty.

8. Governing Law and Choice Of Venue. This agreement shall be construed, interpreted and enforced under the laws and statutes of the State of California without regard for any of said state's conflicts of law provisions. Any legal actions relating to this Agreement shall be brought in either a state court in Sacramento County, California or in a Federal court in the Eastern District of California.

9. Entire Agreement. This Support Agreement and the Schedules attached hereto constitutes the entire agreement between the Parties with regard to its subject matter and supersedes all prior or contemporaneous agreements, negotiations, representations or proposals, whether written or oral. This Agreement shall not be modified except by the written agreement of the Parties.

By executing this Support Agreement, the Parties acknowledge that they have reviewed the terms and conditions of this Support Agreement and agree to be legally bound by those terms.

BADGER METER, INCORPORATED,
a Wisconsin corporation

By: _____
Richard A. Meeusen
Chairman, President & CEO

By:_____
Theresa M. Szafranski
Assistant Secretary

CITY OF SACRAMENTO

By:_____
For John F. Shirey, City Manager

Approved as to Form:

_____
City Attorney

Attest:

_____
City Clerk

SCHEDULE 1

CONTACT INFORMATION

Badger Meter, Inc.
4545 W. Brown Deer Rd.
Milwaukee, WI 53223
1-800-876-3837
www.badgermeter.com/

SCHEDULE 2

SERVICE LEVELS

1. Service Hours. Badger Meter will provide the Support Services during the following hours:

(a) Normal Business Hours. Badger Meter will provide Support Services between the hours of 7:30 am and 5:00 pm Central Time, Monday thru Friday, excluding U.S. holidays ("Coverage Hours").

(b) Extended Coverage Hours. Badger Meter, in its discretion, may provide Customer with Support Services during hours extending beyond the Coverage Hours for customers with active customer support agreements [or license agreements].

2. Support Services Process and Procedures.

(a) Software Support Services--

Badger Meter will provide Customer with access to scheduled software releases, product update releases, engineering updates and related documentation on an as-available basis.

Upon experiencing a difficulty with the Software, Customer should do as follows:

Level 1: Check troubleshooting resources imbedded in the Software, instruction manuals, Badger Meter's self-service troubleshooting tips at www.badgermeter.com/ (includes informational materials, instructions and FAQs);

Level 2: Contact Badger Meter with a request for assistance. Contact information can be found on Schedule 1. Badger Meter will use all reasonable efforts to identify and resolve the problem(s).

(b) Hardware Support Services -- Upon experiencing a difficulty with the Hardware, Customer should do as follows:

Level 1: Check troubleshooting resources imbedded in the Hardware, instruction manuals, Badger Meter's self-service troubleshooting tips at www.badgermeter.com/ (includes informational materials, instructions and FAQs);

Level 2: Contact Badger Meter with a request for assistance. Contact information can be found on Schedule 1. Badger Meter will use all reasonable efforts to identify and resolve the problem(s).

If Hardware is covered under the Support Agreement and a Hardware issue cannot be resolved after a Level 1 and Level 2 troubleshooting assessment, Badger Meter will provide Customer with loaned replacement Hardware and Customer will promptly return the inoperable Hardware to Badger Meter at Customer's cost. Upon receipt of the Hardware from Customer, Badger Meter will verify the Hardware inoperability issue and will arrange for the repair or replacement of the inoperable Hardware at its sole discretion. Badger Meter will return the repaired or replaced Hardware to Customer at Badger Meter's cost. Customer consents to Badger Meter's use of third-party vendors in repairing or replacing the Hardware. During use, Customer is responsible for damages to and misuse of loaned Hardware, owned by Badger Meter.

3. Priority of Requests. Badger Meter will prioritize Customer requests for assistance based upon the following criteria:

(a) Priority I: *Work Stoppage*. Customer is unable to collect reading data or process reading data for billing purposes due to issues with Badger Meter Hardware or Software and a work-around is not available or is generally unacceptable.

(b) Priority II: *Loss of Software Function*. A major software function is inoperable but reading and billing work can continue without any significant impact to Customer.

(c) Priority III: *Minor Software Issue*. Loss of a function which does not seriously impact reading and billing.

(d) Response Requirements:

INCIDENT FIX		**INCIDENT SEVERITY**	
	Priority I	Priority II	Priority III
Initial Response	1 Business Hour	4 Business Hours	12 Business Hours
Response Update	Each Business Day	Each Week	Bi-Weekly
Relief	Immediate	As Soon as Possible	Reasonable Efforts

SCHEDULE 3

CUSTOMER CONTACTS

Primary Contact:

Name:
Title:
Address:
Phone Number
Fax Number
Email Address

Secondary Contact:

Name:
Title:
Address:
Phone Number
Fax Number
Email Address

SCHEDULE 4

(SENT AS A SEPARATE ATTACHMENT)

Back to Report Table of Contents

SCHEDULE 4

Software and Hardware Support Services Maintenance Agreement

SOFTWARE

Badger Meter, Inc. ("Badger Meter") is granting the City of Sacramento ("Customer") a license to use the Badger Meter software identified in the Software Schedule below, pursuant to the terms of the Badger Meter Software License Agreement (the "License Agreement"). Customer shall make the one-time payment identified in the Software Schedule below for this Software License. This payment constitutes the License Fees payable pursuant to Section 4(a) of the License Agreement, and includes delivery of the applicable Software to Customer. The Software License shall authorize the Purchaser's officers, employees, agents, contractors and other representatives to use the Software in connection with the operation of the Customer's metered water distribution system, and for purposes of Sections 4(a) and 4(b) of the License Agreement, any such use shall constitute use by an Authorized User that is covered by the one-time payment identified in the Software Schedule below. Badger Meter shall install the ReadCenter Analytics Pro Software ("Analytics Software") for Customer at no additional cost to Customer.

SOFTWARE SCHEDULE

Quantity	Description	Unit Price			Delivery
1	ReadCenter Analytics Pro and ORION Mobile Reading System Enterprise Software License	$90,000 (one-time payment)			Mutually agreed upon schedule

ANNUAL SUPPORT AND MAINTENANCE SERVICES AND FEES

Support and Maintenance Services	Annual Fee
ReadCenter Analytics Pro Software	$9,499.56
ORION Mobile Reading System Software	$3,208.68 per unit
Trimble Ranger 3 Handheld Kits (Includes Cradle)	$495.00 per handheld kit
ORION Gateways (Maintenance Only)	$300 per gateway

OPTIONAL:

ORION Gateways (Maintenance & Communication)	$487.20 per gateway

Annual Support & Maintenance Notes:

a) The Badger Meter Software and Hardware Support Services Maintenance Agreement between the City and Badger Meter covers all hardware and software, which includes Gateways, Handhelds and Cradles, ORION Mobile Reading System Laptop, ReadCenter Analytics Pro Software, and

ORION Mobile Reading Software.

b) Annual support and maintenance fees, and escrow fee, shall start in Year Two of the Agreement, and shall not be increased during Year Two through Year Five of the Agreement.

c) Annual support and maintenance fees for Analytics Software, 1 Orion Mobile Reading System Software, 1 Handheld (includes cradle), and 1 Gateway:

Year	**Annual Amount***	**ReadCenter Analytics Pro**	**ORION Mobile Reading System**	**Handheld with Cradle**	**Gateway**
Year One	No Charge**				
Year Two	$13,504	$9,500	$3,209	$495	$300
Year Three	$13,504	$9,500	$3,209	$495	$300
Year Four	$13,504	$9,500	$3,209	$495	$300
Year Five	$13,504	$9,500	$3,209	$495	$300

***Actual annual fees shall be based on the numbers of equipment actually deployed for the previous Agreement year.**
****All Year One costs are included in the $90,000 one-time payment for the ReadCenter Analytics Pro and ORION Mobile Reading System Enterprise Software License.**

d) Annual price increase: Beginning in Year Six of the Agreement, Badger Meter may increase the annual support and maintenance fee amounts on an annual basis, provided that (1) any such increase shall be equal to or less than the lowest price increase that Badger Meter applies to any other public or private utility system in California using the Orion Mobile Reading System that is subject to an increase for annual support and maintenance fees in the same year, and (2) in no event shall such annual price increase exceed 5% for any fee amount. If requested by City, Badger Meter shall provide documentation of annual price increases to the support and maintenance fees paid by such other utility systems.