

# RIVERSIDE PUBLIC UTILITIES

## Board Memorandum

**BOARD OF PUBLIC UTILITIES**

**DATE:** JUNE 12, 2017

**ITEM NO:** 12

**SUBJECT:** APPROVAL OF WORK ORDER NO. 1707248 IN THE AMOUNT OF \$3,000,000 AND PROFESSIONAL CONSULTANT SERVICES AGREEMENT WITH UTILIWORKS LLC FOR ADVANCED METERING INFRASTRUCTURE UPGRADE, FOR A TERM OF FIVE YEARS - IN THE AMOUNT OF \$ 2,756,360

**ISSUES:**

Approve Work Order No. 1707248 in the amount of \$3,000,000 and approve a Professional Consulting Services Agreement with Utiliworks Consulting, LLC for a term of five years, in the amount of \$2,756,360, to provide a range of Management Support Services and Expert Assistance to support the Advanced Metering Infrastructure initiative identified in the utility Technology Strategic Plan.

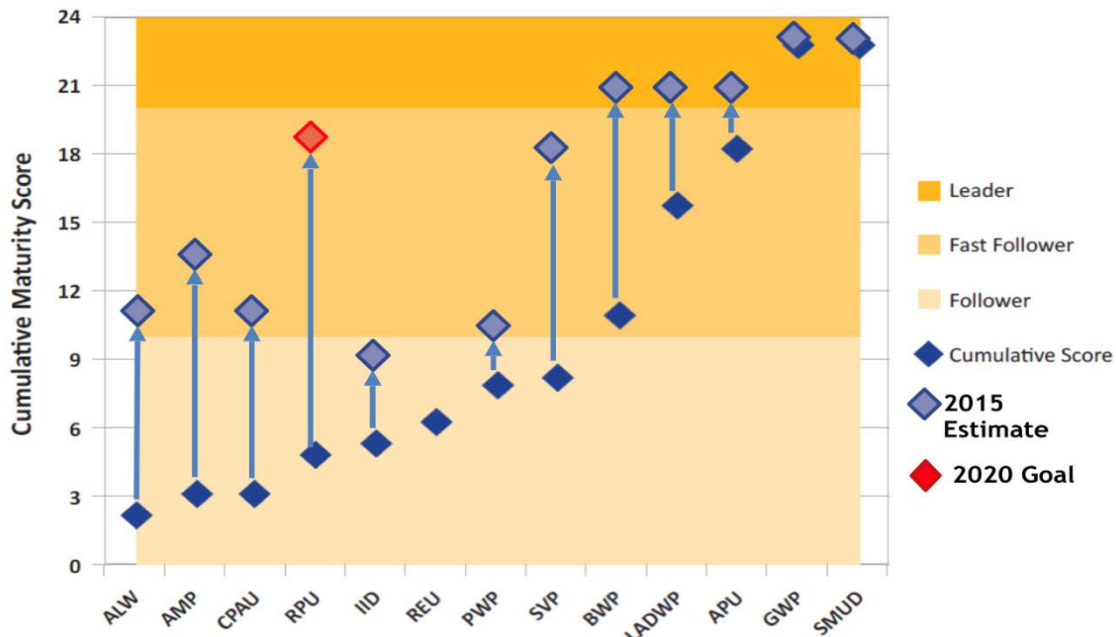
**RECOMMENDATIONS:**

That the Board of Public Utilities:

1. Approve Work Order No. 1707248 in the amount of \$3,000,000 for the Management Services and Expertise for the Advanced Metering Infrastructure Upgrade ;
2. Approve a Professional Consultant Services Agreement with Utiliworks Consulting for the Advanced Metering Infrastructure upgrade project in the amount of \$2,756,360 for a term of five years; and
3. Authorize the City Manager, or his designee, to execute the Professional Consultant Services Agreement with Utiliworks Consulting, including making minor, non-substantive changes, and to sign all documents and instruments necessary to complete the transactions.

**BACKGROUND:**

In 2012 RPU participated in the California Energy Commission research project, "Defining the pathway to California's 2020 Smart Grid" for Public Owned Utilities. Riverside Public Utilities (RPU) ranked among the "slow follower", utilities that are in early stages of planning for smart grid technology deployment with no or very limited deployment. RPU has historically adopted new technologies much later than comparable utilities. Because it has been slow to adopt new technologies, RPU was among the utilities at a lower level of smart grid maturity model (SGMM) (Figure 1.1).



RPU has committed itself to a new vision of a strong, efficient, customer-focused utility that effectively utilizes systems and technologies to deliver products and services more effectively than ever before. In order to deliver on this promise it needs to embark on streamlining, automating, and generally improving all of its key business processes.

RPU initiated the development of its Strategic Technology Plan (Plan) under the guidance of the General Manager and with the assistance of RPU consultants, Leidos, Inc. In 2015, the Plan was completed and adopted by the Board. The Plan outlines the strategic technology vision recognizing the crucial role of technology in improving operational efficiency, reliability, and customer satisfaction as well as supporting the broader initiatives in the area of economic development and community service to Riverside citizenry. Twenty-two advanced operational technology projects were envisioned in this Plan:

<b>CUSTOMER-FOCUSED</b>	Directly influence customer experience and provide customer interaction.
1. Customer Information System (CIS) 2. Customer Relationship Management (CRM)	3. Interactive Voice Response (IVR) 4. Customer Web Portal (CWP)
<b>INFORMATION-BASED</b>	Provide decision and analysis, data management and process implementation (primarily large databases).
5. Asset Management System (AMS) 6. Work Management System (WMS) 7. Warehouse Inventory System (WIS)	8. Geographic Information System (GIS) 9. Mobile Applications (Mobile Apps) 10. Operational Data Management System (ODMS)
<b>OPERATIONAL</b>	Provide real-time operation and control of water and energy delivery systems.
11. Network Communications System (NCS) 12. Land Mobile Radio (LMR) 13. Advanced Metering Infrastructure (AMI) 14. Meter Data Management System (MDMS) 15. Automatic Vehicle Location (AVL)	16. Distribution Automation (DA) 17. Substation Automation (SA) 18. Outage Management System (OMS) 19. Supervisory Control and Data Acquisition (SCADA) and Advanced Distribution Management System (ADMS)
<b>OTHER</b>	Additional projects identified after Strategic Technology Plan was issued.
20. Dark Fiber 21. Talent Management System	22. LED Street Lights

Figure 1.2

Each of these major technology projects will significantly contribute to RPU's overall strategic goals. For example, Advanced Metering Infrastructure (AMI) integrated with Customer Information System (CIS), Outage Management System (OMS), Geographic Information System (GIS); Distribution Management System (DMS) will deliver outstanding benefits in the area of operational efficiency, customer service, and reliability of operations (Figure 1.3).

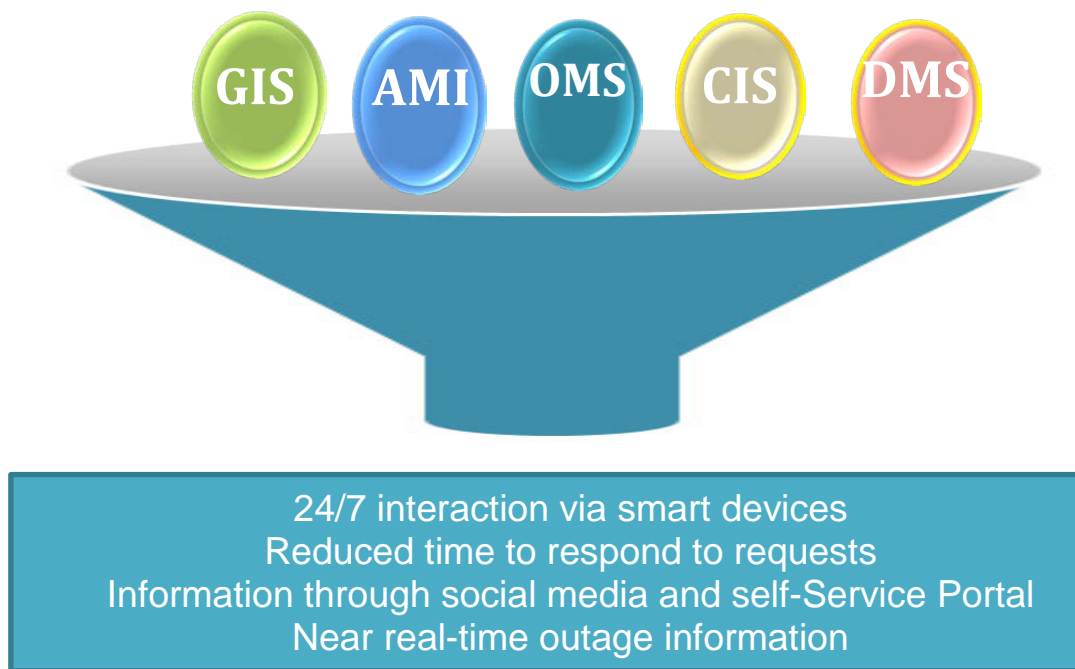


Figure 1.3

### **DISCUSSION:**

AMI will not only provide the platform for enhanced customer service options such as consumption management, utility's outage management process by providing real-time outage notification data from the customer/meter locations, but also will lay the foundation for other advanced technology initiatives outlined in the Plan.

RPU's current technology and business processes in the area of metering operations are rather antiquated under most standards. AMR is the metering technology currently utilized in the electric division of RPU. It requires meter readers to drive or walk by the meters with hand-held devices in order to extract the meter data needed for billing. This process occurs on a monthly basis and being a manual process is prone to errors. Customers receive the data on their bill following the monthly data collection. Currently, there is no way for RPU customers to review their meter data throughout the month to make decisions about usage or identify problems, such as a water leak, that may be causing a higher than usual bill. Errors in meter reads generate customer complaints, rework, and costs.

To automate, streamline and improve a major portion of metering operations, the Plan outlines high-level business cases for implementing AMR/AMI hybrid deployments and recommended the AMI/AMR hybrid solution, at an estimated cost of \$17.6 - \$26.4M.

Through this project, and with the support of an expert consultant in the field of AMI implementation, RPU will re-evaluate the return on investment for implementing a full AMI system using RPU data and use cases, current industry trends and utility's current and future needs. AMI will streamline, automate, and improve "meter-to-cash", one of the most important business processes both from the point of view of revenue impact as well as customer service. This is also an area, which is fraught with complexity, errors, and inefficiencies, and the most frequent source of customer dissatisfaction. Consequently, most modern utilities have invested and continue to invest big in this area because the payoff, historically, has been far bigger than the cost.

AMI will benefit customers and RPU by enhancing and optimizing operations with access to near real-time and accurate system data, improving reliability through more timely detection of problems and outages, and lowering costs of meter reading and outage detection. It will also improve customer service by providing customers with better data to make more informed decisions about water and energy usage (Figure 1.4).

The following are some of the major benefits expected from an AMI system:

1. Getting all the meter readings in every cycle quickly, so they can be billed immediately.
2. Making customers aware of abnormally high consumption sooner, before several weeks of consumption and enabling proactive customer service practices. For example, RPU could detect unusually high consumption that might be due to leaks and notify customers before they get the bill.
3. Raising the percentage of bills that are based on actual readings close to 100 percent, eliminating most estimated bills.
4. Reducing the cost of customer service operations, including regular meter reading, special meter reads and field investigations.
5. Reducing the volume of customer calls, since many are related to meter readings, estimates, concerns about high bills, and payment problems.
6. Reducing the number of field visits made by RPU field staff, since many are related to reading difficult to access meters, verifying meter readings, or investigating other problems related to meters, meter reading, and billing.
7. Improving the effectiveness of RPU's customer service representatives in dealing with customers by providing better analytical tools and estimate free consumption histories for customers. This would be manifested in part by increasing the percentage of customer inquiries that are resolved during the initial call ("first call resolution") as opposed to those needing to follow up research or field investigations.
8. Reducing adjustments, since bills are frequent and based on actual consumption.
9. More effective monitoring of conservation/efficiency programs, since customer consumption can be monitored at a granular level by the customer and can be quickly compared with past consumption practices.
10. Managing solar PV, electric, and energy storage impacts on the grid.

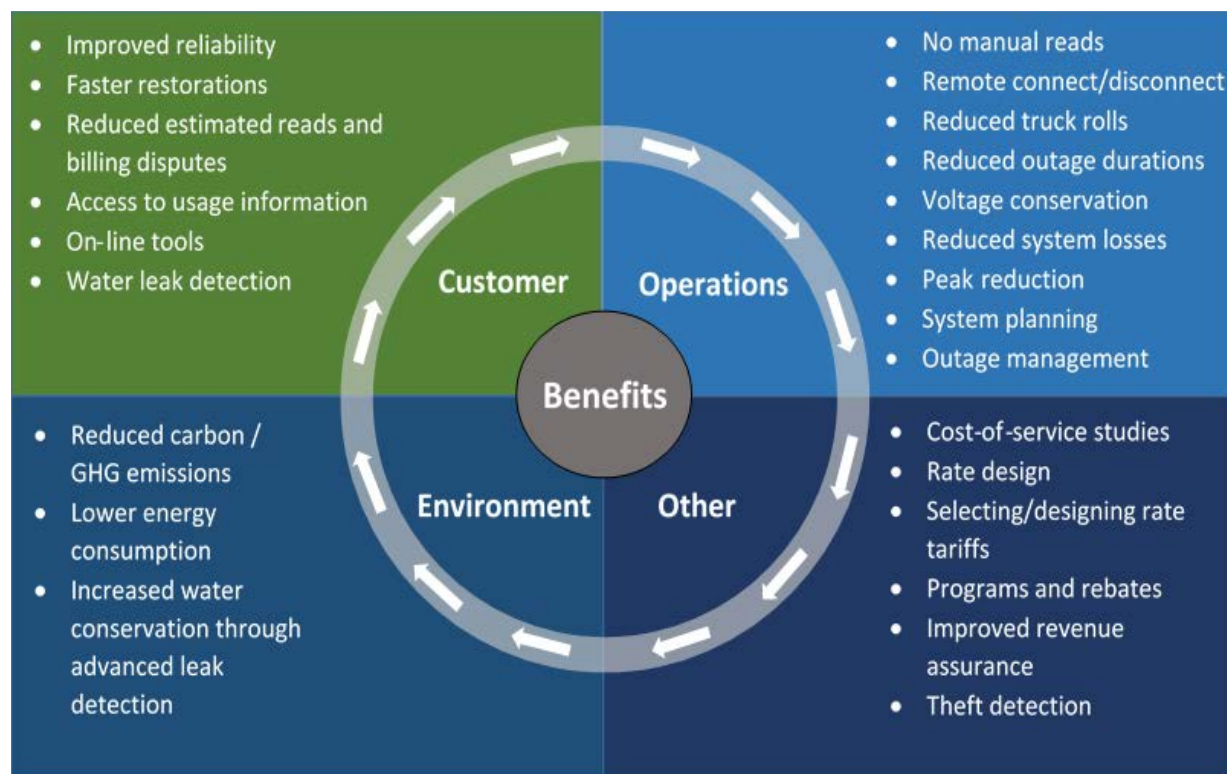


Figure 1.4

Key components of the AMI related IT systems will include:

- Fixed communications network data collector system and head-end system that remotely collects meter data and sends commands to the meters.
- Meter Data Management System (MDMS) to validate the data received against acceptance rules.
- Interfaces with the various existing and future utility information technology systems, Customer Information System (CIS) for billing, and Customer Analytics.
- Phased replacement and/or retrofit of electric and water meters, beginning with commercial and industrial customers.
- Customer self-service portal to provide useful and timely usage information to our customers.
- Security architecture of the AMI network/systems to protect customer data.

RPU's AMI deployment is also an integral part of the recently adopted Utility Strategic Plan 2017-2021 as strategic objective. The detailed planning phase of the AMI project will be initiated in Q1 FY2018 consistent with the schedule in the Utility Strategic Plan. The planning team will conduct internal data collection, vendor research, external benchmarking of similar utilities, and will create requirements and Request for Proposal (RFP) for the acquisition of AMI fixed network, metering, Meter Data Management System, and implementation services. An AMI system vendor is expected to be selected in FY2018 and presented to the Board for consideration with implementation to begin shortly after that. Because of the large physical area and the large number of installation points (approximately 175,000 meters) the implementation will continue until 2020. However, customers will be incrementally cutover during FY2018 through FY2020, with commercial and industrial customers being the first to benefit from this technology.

Because of the enormous complexity of the project and the associated execution risk we are proposing the engagement of an experienced consultant to assist us with, planning, architecting, engineering, providing day-to-day project management support services, and also provide needed hand-holding with the complex change management process associated with the kind of sea-change that we expect.

Implementing AMI and related technology components is more challenging than traditional information technology systems due to the complex nature of technologies involved, integration requirements, and organizational change management requirements. Common challenges for projects such as AMI include failure to meet schedule, budget commitments and expected benefits. A number of factors contribute towards unsuccessful or challenged Information technology projects similar to AMI, but major contributors are weak project management practices and poor execution, controls, and adoption.

The success of the AMI projects is much more than selecting and deploying technology-, it's a journey that involves making the right technology choices consistent with the organizational norms and objectives, ensuring that these choices are technologically and architecturally consistent, that they will integrate with existing investment of software, hardware, our meters, and electric and water infrastructure.

Sufficient forethought is also needed to ensure that the technologies deployed can leverage and be leveraged by Riverside's "Smart City" initiatives. The project has to ensure that we have engagement of technology planners throughout the city and that holistic planning decisions can be made.

There is also a lot of work in the area of organizational change management, employee and customer adoption, and customer engagement. Since project management, system engineering, testing, and change management services are a key to AMI implementation success, professionals providing support services in respective disciplines need to be seasoned and very experienced.

Recognizing the complexity of the AMI initiative staff is requesting approval of a professional consulting firm to provide project management, planning and acquisition support, system engineering, integration, security design, solution validation and implementation support.

Under the first task, the consultant will interview executive management, and key stakeholders to validate the project goals and objectives, technology positioning, and desired benefits. Informed by the results from these engagements, and by the Strategic Technology Plan, they will assess the existing meters, metering system and connected systems, such as the CIS, and will make recommendations for an AMI system technology and deployment approach that will best meet RPU's needs and desired benefits, at the greatest return on investment.

The second task will be to create a detailed System Implementation Plan, which will be the tactical plan for the overall project design and implementation, and will include specifics standards and plans for configurations, equipment change outs, pilot implementation, testing, training, security and all other pertinent components of the overall implementation.

After the implementation plan is accepted, the third task will be for the consultant to develop a comprehensive set of business requirements (functional, technical, and security), and to develop an RFP based on those needs. The consultant will also support the, solicitation, evaluations, selection and contract negotiation for the meters, meter installation, network/data collector system, and data management (MDMS) technology and implementation services. After the procurement of systems and implementation services, the consultant (under Task 3) will provide project management/implementation support services to test and deploy the new system. This task also includes preparing the customers and staff through training, outreach, and communications. During this phase of the project, the consultant will also provide integration support services (defined as Task 4 in the Scope of Work) to ensure seamless transfer of data between the metering system and CIS.

Staff will return to the Board in Q2 FY2018 to provide updated project cost estimates for full AMI system deployment (Cost ranges from \$250-300 per meter), projected schedule and overall implementation strategy to obtain approval of the Board to proceed with the next steps, AMI system, and implementation services procurement.

On September 29, 2016, staff issued RFP for consultant services to support the AMI project. Four (4) consultant firms submitted proposals on November 17, 2016.

The Evaluation Panel evaluated the proposals on the following Selection Criteria:

- A. Completeness and quality (10%)
- B. Clear, appropriate, and comprehensive approach (40%)
- C. Demonstrated competence (25%)
- D. Estimated Fees (25%)

The evaluation results are shown in the table below:

Proposer	Evaluation Result Ranking
Utiliworks	1
Excergy	2
Leidos	3
SL-serco	4

The two proposers receiving the highest-ranked scores, Utiliworks and Excergy, were invited to attend a mandatory oral presentations/interviews.

The evaluation panel selected Utiliworks Consulting, LLC (Utiliworks) to be the preferred consultant to support the project based on best overall value.

Utiliworks has extensive experience supporting electric and water utilities with end-to-end AMI deployments, using highly qualified technical and project management staff and a proven and repeatable methodology for implementing complex AMI solutions. Consultant's track record of successful implementations was also a consideration.

The basis of recommendation is the proposer receiving the highest-ranked score based on the evaluation criteria and oral interviews that is deemed in the best interest of the RPU. The proposals were evaluated on pre-established criteria.

The Purchasing Services Manager concurs that the recommended actions comply with the City of Riverside's Purchasing Resolution No. 22576.

#### **FISCAL IMPACT:**

The total professional services expenditure for Work Order No. 1707248 is estimated to be \$2,756,360 as summarized in the following table:

Task	Amount
Task 1 - Assessment/Project Plan Review	\$68,540
Task 2 - System Implementation Plan	\$139,445
Task 3A - Implementation Services	\$293,840
Task 3B - Implementation Services (Optional)	\$785,370
Task 4 - Integration Services (Optional)	\$351,950
Task 5 - Project Management Services	\$832,835
Travel & Expenses	\$284,380
<b>Not-to-Exceed Total</b>	<b>\$2,756,360</b>



The additional work order approval in the amount of \$243,640 is for internal RPU and Information & Technology Department labor.

Sufficient funds are available in the Public Utilities' Water Account No. 6210000-421005 (\$650,000), Public Utilities' Water Account No. 6230000-470823 (\$460,000), Public Utilities' Energy Delivery Electric Account No. 6003000-421005 (\$1,100,000), and the Public Utilities' Energy Delivery Electric Account No. 6130000-470823 (\$790,000).

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Approved by: John A. Russo, City Manager  
Approved as to form: Gary G. Geuss, City Attorney

Certifies availability  
of funds: Laura Chavez-Nomura, Utilities Assistant General Manager/Finance

Attachments:

1. Professional Consultant Services Agreement with Utiliworks
2. Presentation