

RIVERSIDE PUBLIC UTILITIES

Board Memorandum

BOARD OF PUBLIC UTILITIES

DATE: JULY 11, 2016

ITEM NO: 5

SUBJECT: ELECTRIC ASSET MANAGEMENT SYSTEM PROJECT, AMENDMENT TO PROFESSIONAL SERVICES AGREEMENT WITH WESTIN ENGINEERING, INC. OF RANCHO CORDOVA, CA WITH NO CHANGE IN TERM OR COMPENSATION; APPROVAL OF WORK ORDER NO. 1623473 FOR \$493,000 FOR ACCOUNTING PURPOSES ONLY.

ISSUES:

The items for Board of Public Utilities consideration are to: 1) approve the Third Amendment to the Professional Services Agreement with Westin Engineering, Inc. to modify the scope of services to conduct a business process assessment, gap analysis and related work for development of an electric asset management system without changes in compensation or term; and 2) approve Work Order No. 1623473 for accounting purposes of the electric utility expenditure.

RECOMMENDATIONS:

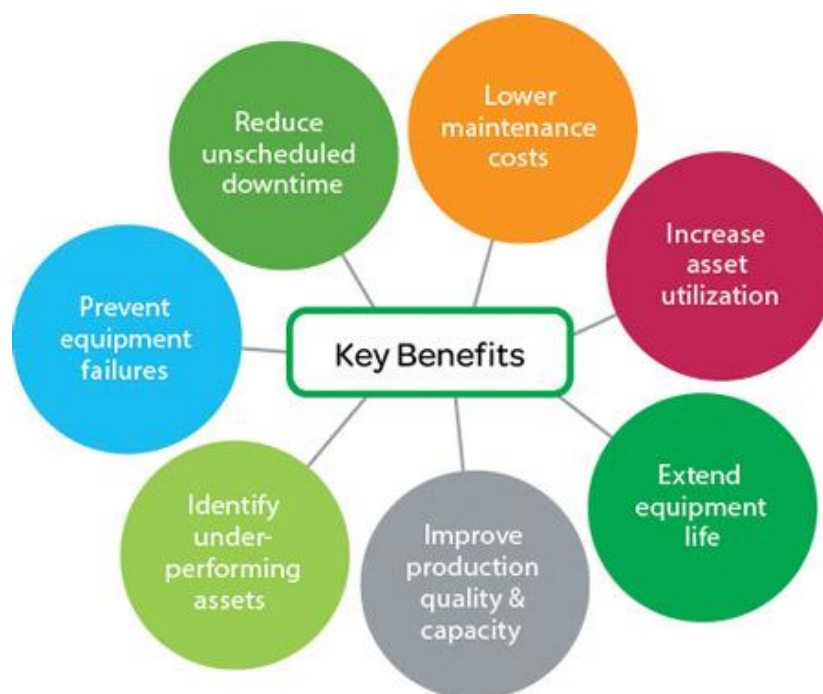
That the Board of Public Utilities:

1. Approve the Third Amendment to the Professional Services Agreement with Westin Engineering, Inc. to reflect a change in scope to conduct business process assessment, gap analysis and related work for development of an electric asset management system and no increase in compensation or term; and
2. Approve Work Order No. 1623473 in the amount of \$493,000 to fund the electric utility expenditure.

BACKGROUND:

An Asset Management System (AMS) focuses on the complete lifecycle of utility assets. It helps planning and operations staff understand the specific needs of each asset, while maintaining a system-wide view of priorities. An AMS tracks location, condition, criticality, costs, maintenance and inspection requirements, and the life-expectancy of each operating asset. The goal of asset management is to balance reliability, cost and risk.

An effective AMS can significantly improve system reliability and manage operating costs. Utility personnel use an AMS to track the condition of assets and predict future operating costs. An AMS also helps the utility plan and prioritize asset inspections, maintenance, repairs and replacement, and ensures that critical assets receive the appropriate levels of maintenance in a timely manner. Additionally, the utility can better plan and prioritize workforce activities and needs, and increase the efficiency of the workforce. Customers benefit from an effective AMS through improved service quality, increased efficiencies and reliability, and improved management of maintenance and operating costs. These key benefits of an AMS are highlighted in the figure below.



Benefits of a utility Asset Management System

Examples, counts and the value of various electric assets to be captured and catalogued in an AMS are summarized in the table below:

Asset Class	Asset Count	Cost/Unit	System Value
Substation Transformers	65	1,660,000	107,900,000
Substation Switch Gears	54	900,000	48,600,000
Cable	1,329	420,487	558,828,292
69 kV Breakers	92	160,000	14,720,000
SCADA/SAS Panels	85	106,667	9,066,695
Civil Substation Work (Structures)	206	100,000	20,600,000
Underground Structures & Equip.	12,709	Varies	994,845,000
Communications	900	31,171	28,053,900
Poles & Overhead Equip.	22,637	15,078	341,320,686
Distribution Transformers	13,912	6,000	83,472,000
Streetlights	30,346	2,500	75,865,000

TOTAL

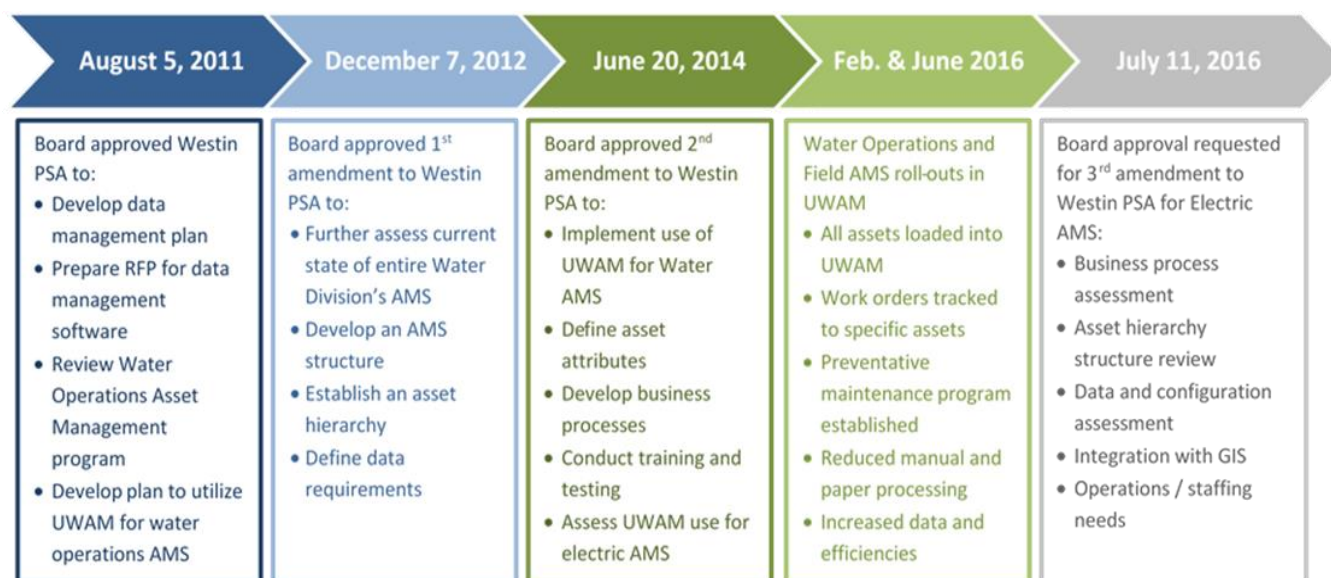
\$2,283,271,574

Project History

The asset management project for the Water Division launched in 2011, when Westin Engineering, Inc. (Westin) was engaged in an amount not-to-exceed \$271,260 to develop a database management system, review the Water Operation's asset management needs, and develop a plan to improve use of the City owned Oracle Utility Work and Asset Management (UWAM) system.

On December 7, 2012 the Board of Public Utilities (Board) approved the First Amendment to the Professional Services Agreement (PSA) with Westin in the amount of \$90,709. The amendment increased the total Westin contract to \$361,969 and expanded the scope to include further assessing the current state of the entire Water Division's asset management system, developing an asset management structure, establishing an asset hierarchy, and defining asset data requirements, all of which are fundamental to establishing an asset management system.

On June 20, 2014 the Board approved the Second Amendment to the PSA with Westin increasing the total contract amount to \$2,400,000. At that time, RPU was already using Oracle's UWAM system for multiple purposes but was only utilizing a small fraction of the asset management capabilities. In order to further utilize this robust technology and maximize the current investment, additional effort was needed to use the system for scheduling maintenance activities and tracking asset conditions and costs, to improve operations and maintenance management, and to enable more informed data-driven decisions. In order to ensure consistent implementation of UWAM across the utility, the scope of work also included a review of the use, configuration, and data structure of UWAM in the Electric Division.



Summary of Asset Management Project to Date

Project Benefits

With Westin's support, the Water Division has implemented the fundamental elements of asset management in UWAM. Vertical and horizontal assets with attributes have been loaded into the UWAM system, a preventative maintenance program has been established, and work orders are now written against specific assets for improved cost and staffing analysis and reporting. This implementation has eliminated the use of paper forms for inspections and maintenance, manual tracking of labor and costs, and manual input and tracking of asset information. It has significantly increased the availability of data for better planning and decision making, as well as increased processing times and efficiencies. One example is a specific report that previously took an administrative staff person two weeks to manually track and compile information. That report is now available through the AMS in less than an hour. The AMS has also made available a number of reports used by managers to identify current and future workload, resource allocation, and work order aging that was not available in a manual operating environment.

AMS is one of the key projects outlined in RPU's 2015 Strategic Technology Plan. As we progress toward the Utility 2.0 vision, it is key to operate as "1RPU." Since the Water Division now has a functional asset management system in place, the focus of staff's asset management efforts will now shift to the Electric Division, to advance it to the same point as the Water Division in developing the foundational elements of an AMS. Implementation of an AMS for the Electric Division will allow managers to track costs of specific

assets and asset types for maintenance and capital planning, establish proactive preventative maintenance cycles to prevent failure and lower replacement costs, and to produce detailed operational and dashboard reports to enable data-driven decisions.

Proposal

Board approval is requested to revise the scope of the existing Westin agreement with no increase in compensation or term. The change will reduce the scope for developing advanced asset management for the Water Division and will increase the scope to establish a foundational asset management implementation plan for the Electric Division. It will include business process assessment, asset hierarchy structure review, data and configuration assessment, GIS integration evaluation, assessment of staffing needs, and a gap analysis, including inventory of existing assets in the field compared to what is already in the UWAM system. A significant amount of work that was already developed by Westin for the water project can be leveraged for the electric project, including business processes, data scripts, data loading, system configuration, development and test environments, and test scripts; the work already completed yields an estimated savings of over \$300,000.

The key deliverable will be an Electric AMS implementation plan with cost estimates, operational impacts, staffing needs and schedule. This information will be used to generate key metrics for the project including calculations of return on investment (ROI). Asset Management ROI calculations include factors and results such as extension of asset life, downtime, part and inventory practices, purchasing, overtime, productivity and quality cost (scrap and rework). As such, a current state assessment is key to determining potential improvements and cost savings. Once the plan is evaluated, staff will return to the Board for consideration to proceed with implementation. At this time, staff estimates implementation will cost approximately \$1,200,000 - \$1,800,000 based on the water project and other comparable utility implementations, and will require 3-5 additional staff, which will be repurposed from current vacancies. There is \$827,000 remaining on the Westin purchase order, of which \$493,000 will be allocated to the Electric Division through an amendment to the existing purchase order.

Activity	Estimated Date(s)	Budget
Electric Assessment	July 2016 – March 2017	\$493,000
Board Approval - Implementation Plan	April 2017	N/A
Electric Implementation (estimate)	May 2017 – December 2018	\$1,200,000 - \$1,800,000

Once the electric implementation is complete, staff will evaluate the needs for advanced asset management features – such as work and cost estimating, asset criticality, forecasting, root-cause analysis, condition-based and predictive maintenance – and will return to the Board with a recommendation.

FISCAL IMPACT:

The total cost for this scope of work is \$493,000, which is available in Public Utilities' Energy Delivery Account No. 6130000-470618. The remaining approved work order amount on the water fund work order will remain in place until the assessment of the need for advanced asset management features is complete.

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 Approved by: Girish Balachandran, Utilities General Manager
 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

Attachment: Professional Services Agreement, Third Amendment – Westin Engineering, Inc.