

# REPORT TO COUNCIL

## City of Sacramento

915 I Street, Sacramento, CA 95814-2604  
www. CityofSacramento.org

Consent  
**November 10, 2009**

**Honorable Mayor and  
Members of the City Council**

**Agreement:** Supervisory Control & Data Acquisition System Software Replacement  
Project X14000200/Z14000900

**Location/Council District:** Citywide

**Recommendation:** - Adopt a **Resolution:** 1) Authorizing the City Manager to sign a Professional Services Agreement with Trihedral Engineering Limited for software purchase, training, maintenance and support services for the Supervisory Control & Data Acquisition System Software Replacement Project, for an amount not to exceed \$440,600; 2) Transferring \$40,000 to the Pump Station Radio Telemetry Project (PN:X14000200, Fund 6006) from the Information Technology Project CIP budget (PN: Z14003601, Fund 6006); and 3) Transferring \$70,000 to the Pump Station Radio Telemetry Project (PN:X14000200, Fund 6011) from the Information Technology Project CIP budget (PN: Z14003601, Fund 6011).

**Contact:** David Brent, Engineering Manager, 808-1420, Dave Hansen, Supervising Engineer, 808-1421, Tedd Vallance, Information Technology Supervisor, 808-5633

**Presenters:** Not Applicable

**Department:** Utilities

**Division:** Engineering Services

**Organization No:** 14001351

### **Description/Analysis**

**Issue:** The City of Sacramento, Department of Utilities (DOU), utilizes a Supervisory Control and Data Acquisition (SCADA) system which allows for local and remote monitoring, control and alarming of its operational facilities located throughout the city.

The DOU has utilized the same SCADA software application (FIX32) for over 12 years and the software has reached its end of life. Technical support is not available, and it is not possible to expand the system. An RFP was issued to evaluate available SCADA software alternatives, and four proposals were received. The proposal submitted by Trihedral Engineering Limited was determined to be the top ranked proposal that best

meets the DOU operational criteria. The DOU requests approval of a professional service agreement with Trihedral Engineering Limited.

**Policy Considerations:** A reliable SCADA system supports efficient operation of our Water, Sewer and Drainage systems, which is consistent with the City Council focus areas of public safety and sustainability.

**Environmental Considerations:**

**California Environmental Quality Act (CEQA):** The Office of Environmental Planning services has reviewed the proposed project and determined that it is exempt from CEQA under Section 15301(b) and (c) of the CEQA Guidelines.

**Sustainability Considerations:** The existence of a properly functioning SCADA system promotes sustainability by allowing the City to monitor, control and alarm the water treatment plants, combined wastewater treatment plants, drainage lift stations, combined sewer system (CSS)/sewer lift stations, water reservoirs, wells, turnouts and combined system level monitoring locations located throughout the city both locally and remotely. By monitoring and controlling the sites remotely, there is a reduced need to send vehicles and personnel to the site, providing a more efficient use of City resources. Without the SCADA software, City personnel would need to constantly patrol the sites to monitor levels, pressures and equipment statuses to ensure each site was operating properly. The SCADA software also allows data to be gathered and recorded to a central location without the need to send personnel to the remote site to gather it, which creates a consistent method for gathering data to ensure reliability and accuracy. This data is becoming more critical in ensuring the City meets regulatory requirements.

**Commission/Committee Action:** Not applicable

**Rationale for Recommendation:** The transfer of funds and approval of the agreement with Trihedral Engineering Limited will result in a more reliable and sustainable SCADA system, which supports efficient operation of our Water, Sewer and Drainage systems.

**Financial Considerations:** The cost of this project is \$440,600.00 and will be funded from Pump Station Radio Telemetry (X14000200) and SCADA System Upgrade (Z14000900) as follows:


X14000200, fund 6006: \$88,120, requiring a budget transfer of \$40,000 from the Information Technology Project (Z14003601, Fund 6006);

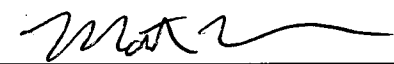
X14000200, fund 6011: \$176,240, requiring a budget transfer of \$70,000 from the Information Technology Project (Z14003601, Fund 6011);

Z14000900, fund 6005: \$176,240, which has sufficient budget.

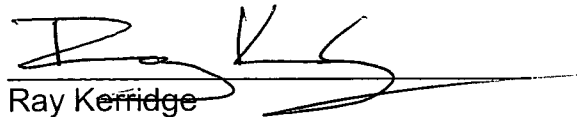
**Emerging Small Business Development (ESBD):**

None of the four firms submitting proposals were certified as an ESBD.

Respectfully Submitted by:   
David L. Brent  
Engineering Manager

Approved by:   
Marty Hanneman  
Director of Utilities

Recommendation Approved:

  
Ray Kerridge  
City Manager

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**Attachment 1****Background****Request for Proposal Results – RFP Number P083335016**

The City of Sacramento, Department of Utilities, utilizes a supervisory control and data acquisition (SCADA) system which allows for local and remote monitoring, control and alarming. This includes water treatment plants, combined wastewater treatment plants, drainage lift stations, sewer lift stations, water reservoirs, water wells, water turnouts and combined system level monitoring locations located throughout the city. The SCADA system is critical to the daily operations of each of these facilities and also retrieves and records operational data and alarms from each of the sites. The data and alarms include sump levels, reservoir levels, system wide water pressures, flow rates and totals, pump/motor status and run times, generator status and fuel levels, power status, voltage levels and kilowatt usage.

The Department of Utilities has utilized the same SCADA software application (FIX32) for over 12 years and the software has reached its end of life. The current software is no longer supported by the vendor, General Electric, and has no direct upgrade path. This software was not developed to run on our current computer operating systems (Windows XP and Windows Server 2003) and has begun causing operational issues. There are concerns that our current software will cease to function each time an operating system upgrade or patch is installed. It also does not support any of the new security enhancements which are available in the most recent operating systems.

Regulatory requirements have created an increased need for data from the SCADA system to ensure that the facilities and processes stay in compliance. This increased demand for data acquisition and processing cannot be supported by our current software. Since the software is no longer supported, it is not possible to expand the system should the Department of Utilities require additional interface nodes or technical support.

On April 1, 2008, the Department of Utilities Engineering Services and Plant Services Divisions, in conjunction with the Central Information Technology group, issued a Request for Proposal number P083335016 for the purchase of SCADA HMI software and support. The RFP closed on April 28, 2008, at which time four proposals were received. City staff completed an evaluation of each proposal, which included a vendor presentation, staff evaluation of RFP requirements, a follow-up presentation, a security evaluation, and phone interviews with the proposers' current customers. The results of this evaluation are provided below:

**RFP Evaluation results**

	<b>Wonderware</b>	<b>Trihedral</b>	<b>Telvent</b>	<b>Schneider</b>	<b>Possible Score</b>
<b>Development Environment</b>	85.8	<b>96.5</b>	57.3	61.8	100.0
<b>Security Requirements</b>	77.5	<b>90.0</b>	48.3	48.3	100.0
<b>Runtime Environment</b>	83.3	<b>88.4</b>	61.0	62.4	100.0
<b>Development Software</b>	83.1	<b>89.5</b>	59.7	61.4	100.0
<b>Historical Data Collection</b>	88.1	<b>90.8</b>	62.8	60.8	100.0
<b>Warranty and Support</b>	65.0	<b>83.5</b>	61.9	63.3	100.0
<b>Central IT Security Ranking</b>	2	1	3	4	A ranking of 1 is best
<b>Price for proposed system</b>	\$516,307.00	<b>\$436,500.00</b>	\$473,290.00	\$438,370.00	

At the conclusion of the proposal evaluation process, City staff selected Trihedral Engineering Limited's proposal as the top ranked proposal that best met the City's requirements.

**Attachment 2**

**RESOLUTION NO.**

Adopted by the Sacramento City Council

**SUPERVISORY CONTROL & DATA ACQUISITION SYSTEM SOFTWARE  
REPLACEMENT PROJECT**

**BACKGROUND**

- A. The City of Sacramento, Department of Utilities (DOU), utilizes a Supervisory Control and Data Acquisition (SCADA) system which allows for local and remote monitoring, control and alarming of its operational facilities located throughout the City. The SCADA system is critical to the daily operations of these facilities and also retrieves and records operational data and alarms from each of the sites.
- B. The DOU has utilized the same SCADA software application for over 12 years and the software has reached its end of life. Technical support is not available, and it is not possible to expand the system. As a result, an RFP was issued to evaluate available SCADA software alternatives, and four proposals were received.
- C. The proposal submitted by Trihedral Engineering Limited was determined to be the top ranked proposal that best meets the DOU operational criteria.

**BASED ON THE FACTS SET FORTH IN THE BACKGROUND, THE CITY COUNCIL  
RESOLVES AS FOLLOWS:**

- Section 1. \$40,000 is transferred to the Pump Station Radio Telemetry project (PN: X14000200, Fund 6006) from the Information Technology Project CIP budget (PN: Z14003601, Fund 6006)
- Section 2. \$70,000 is transferred to the Pump Station Radio Telemetry project (PN: X14000200, Fund 6011) from the Information Technology Project CIP budget (PN: Z14003601, Fund 6011)
- Section 3. The City Manager is authorized to sign a Professional Services Agreement with Trihedral Engineering Limited for software purchase, training, maintenance and support services for the Supervisory Control & Data Acquisition System Software Replacement Project, for an amount not to exceed \$440,600.