



RIVERSIDE PUBLIC UTILITIES

Board Memorandum

BOARD OF PUBLIC UTILITIES

DATE: NOVEMBER 28, 2022

SUBJECT: WATER SUPERVISORY CONTROL AND DATA ACQUISITION PHASE II (TECHNOLOGY UPGRADE) PROJECT - REQUEST FOR PROPOSAL NO. 2056 FOR DESIGN-BUILD AGREEMENT WITH TESCO CONTROLS OF SACRAMENTO, CALIFORNIA IN THE AMOUNT OF \$9,318,000 PLUS 10% CHANGE ORDER AUTHORITY IN THE AMOUNT OF \$931,800; REQUEST FOR PROPOSAL NO. 2109 FOR PROFESSIONAL SERVICES AGREEMENT FOR OWNER'S REPRESENTATIVE SERVICES WITH ERAMOSIA INTERNATIONAL OF OVERLAND PARK, KANSAS FOR A TERM THROUGH DECEMBER 31, 2028 IN THE AMOUNT OF \$1,303,286 PLUS 10% CHANGE ORDER AUTHORITY IN THE AMOUNT OF \$130,329; AND ADDITIONAL PROJECT COSTS OF \$306,360 ALL FOR WORK ORDER NO. 2015467 IN THE TOTAL AMOUNT OF \$11,989,775

ISSUES:

Consider:

1. Approving a total expenditure amount of \$10,249,800 for a Design-Build Agreement for Water SCADA Technology Upgrade from RFP No. 2056, and a total expenditure amount of \$1,433,615 for a Professional Services Agreement for Owner's Representative Services for the Water SCADA Technology Upgrade Project from RFP No. 2109;
2. Approving a total capital expenditure amount of \$11,989,775 for Work Order 215467, including additional project costs of \$306,360 for the Water SCADA Phase II (Technology Upgrade) Project;
3. Recommending that City Council approve a Design-Build Agreement for Water SCADA Technology Upgrade from RFP No. 2056 with Tesco Controls of Sacramento, California in the amount of \$9,318,000 plus 10% change order authority in the amount of \$931,800; and
4. Recommending that City Council approve a Professional Services Agreement for Owner's Representative Services for the Water SCADA Technology Upgrade Project from RFP No. 2109 with Eramosa International, Inc. of Overland Park, Kansas, for a term through December 31, 2028, in the amount of \$1,303,286, plus 10% change order authority in the amount of \$130,329.

RECOMMENDATIONS:

That the Board of Public Utilities:

1. Approve a total expenditure amount of \$10,249,800 Design-Build Agreement for Water SCADA Technology Upgrade from RFP No. 2056, and a total expenditure amount of \$1,433,615 for a Professional Services Agreement for Owner's Representative Services for the Water SCADA Technology Upgrade Project from RFP No. 2109; and
2. Approving a total capital expenditure amount of \$11,989,775 for Work Order 215467, including additional project costs of \$306,360 for the Water SCADA Phase II (Technology Upgrade) Project; and

That the Board of Public Utilities recommend that the City Council:

3. Approve the Design-Build Agreement for Water SCADA Technology Upgrade from RFP No. 2056 with Tesco Controls of Sacramento, California in the amount of \$9,318,000 plus 10% change order authority in the amount of \$931,800;
4. Authorize the City Manager, or designee, to execute the Design-Build Services Agreement including making minor and non-substantive changes and to sign all documents and instruments necessary to complete the transactions;
5. Approve the Professional Services Agreement for Owner's Representative Services for the Water SCADA Technology Upgrade Project from RFP No. 2109 with Eramosa International, Inc. of Overland Park, Kansas, for a term through December 31, 2028, in the amount of \$1,303,286, plus 10% change order authority in the amount of \$130,329; and
6. Authorize the City Manager, or designee, to execute the Professional Services Agreement including making minor and non-substantive changes and to sign all documents and instruments necessary to complete the transactions.

BACKGROUND:

The City's water supply is operated by State of California certified water treatment and distribution operators using a Supervisory Control and Data Acquisition (SCADA) system. The SCADA system is the backbone of the water system allowing continuous control and monitoring of water supply production, treatment, and distribution of drinking water using computers, instrumentation, and communication networks. The SCADA system uses specialized automation software to send operational control instructions via radio and fiber communications networks to the City's 150 central processing units (CPU) and programmable logic controllers (PLCs). CPUs and PLCs are mini-computers that allow remote operation of the City's production wells, treatment plants, reservoirs, booster stations, and inter-agency connections.

The water SCADA system consists of 1990s technology. Today, many components of the water SCADA system are obsolete and at the end of their useful life. The current approach to replacing failed parts has been to secure used items found in the marketplace. However, finding replacement parts has become more difficult as many utilities in a similar situation compete for the same components. RPU's Water System Vulnerability Assessment identified several

security improvements which could be made by upgrading the existing SCADA components and the associated control software (which is no longer supported). Due to these potential threats and challenges, the water SCADA team launched a multi-phased SCADA upgrade project. The SCADA Phase I project resulted in the upgrade of the communication network and was completed in 2022 which significantly improved the speed, reliability and security of the data communications. The current proposed SCADA Phase II project is a design-build effort to upgrade the operational software, computers, PLCs, and CPUs. A SCADA Phase III project will be brought back at a later date for consideration and approval for site-specific upgrades.

DISCUSSION:

The water SCADA system is largely unsupported by manufacturers and vendors, and replacement parts necessary for maintenance are difficult to find or are no longer available for purchase. Furthermore, the SCADA computer servers, the firmware running the 150 remote control systems, and the communications systems are in need of upgrades as determined via a third-party SCADA System Cyber Vulnerability Assessment. A new SCADA system (hardware and software) will resolve these issues and provide significant added value to the water system, such as increased reliability and enhanced operational capabilities. Increased reliability will occur via improved remote monitoring, reduction in operational failures, and the ability of the new system to anticipate maintenance needs. Overall, upgrading the aging water SCADA system is vital to ensure the continued operation of a reliable and safe water supply.

A design-build approach instead of the traditional design-bid-build project method will be used as it provides many advantages for technology-type projects. The main advantage lies in that most qualified SCADA engineering design firms also do installation work allowing system design to coincide with construction, thus allowing for a much more streamlined process. It also creates accountability, time savings, and flexibility.

The solicitation of this project began with a successful Request for Proposal No. 2031 for the selection of the water SCADA software application. Two (2) qualified vendors submitted proposals and were interviewed and scored. The City's evaluation team selected Inductive Automation as the successful proposer and will use its Ignition SCADA software platform as the basis for the SCADA system.

Staff bid the design-build portion of this project via Request for Proposal No. 2056, which was posted on the City's Online Bid System on June 4, 2021, and closed on August 2, 2021. All bids required the use of Inductive Automation's (RFP No. 2031) software platform proposal to be included in their final proposal costs as a subcontractor. Staff used the engineering technology firm, Westin Technology Solutions, as our project engineer to lend its expertise for the development, software selection, and scoring of the proposals. Two qualified teams were identified as part of RFP No. 2056, with Tesco Controls being selected.

The Final Ranking Criteria was based on the following:

Category	Weighting
Proposal Content	30%
Business Requirements	25%
Vendor Interview	20%
Cost	25%

Tesco Controls from Sacramento, California, demonstrated extensive experience designing and installing large-scale SCADA technology systems. Staff negotiated a Design-Build Construction Services Agreement for this work with Tesco Controls in the amount of \$9,318,000 based on a fixed hourly rate. Tesco Controls scored higher in three of the four categories which resulted in the final rating depicted below.

The table below includes the proposal amounts and rankings.

Proposer	City, State	Proposal Amount	Committee's Avg. Rank	Pricing Rank	Overall Rank	Ranking
Tesco Controls	Sacramento, CA	\$9,318,000	1497.4	227	1724.4	1
Leed Electric	Santa Fe Springs, CA	\$7,257,987	1390.3	250	1640.3	2

Due to this project's complexity and to ensure project success, an Owner's Representative technology engineer will be used and will play a critical role in successfully delivering this project. Request for Proposals No. 2109 was posted on the City's Online Bid System on July 28, 2021, and closed on August 19, 2021. Three Consulting Firms submitted proposals and were evaluated by the City's evaluation team. The two highest-ranked scores were invited to interview. Key staff members considered the proposals based on the RFP criteria. They recommended Eramosa International, Inc. of Overland Park, Kansas, to perform the Owner's Representative role for RPU's Water SCADA Phase II Design-Build project. Staff negotiated a professional services agreement for this work with Eramosa International, Inc. for \$1,303,286 based on a fixed hourly rate. The table below includes the proposal amounts and rankings.

Proposer	City, State	Proposal Amount	Committee's Avg. Rank	Pricing Rank	Overall Rank	Ranking
Eramosa International	Overland Park, KS	\$ 1,303,286	1366.13	176	1542.13	1
Northern Digital	Bakersfield, CA	\$ 944,746	1028.38	250	1278.38	2
XTRLs International	San Diego, CA	\$ 210,494	343.25	NA	0	3

The Purchasing Manager concurs that the recommended actions are in compliance with Purchasing Resolution No. 23914

The Water SCADA Technology Upgrade project breakdown is as follows:

Task Description	Performed By	Total	Percent of Total
Design-Build Construction Services	Tesco Controls	\$9,318,000	78%
10% Construction Contingency	-	\$931,800	8%
	Sub-total	\$10,249,800	
Consulting Services – Owner's Representative Professional Services	Eramosa International, Inc.	\$1,303,286	11%
10% Professional Services Contingency	-	\$130,329	1%
	Sub-total	\$1,433,615	
Annual Maintenance & Service Agreement – 4 Years	Inductive Automation SCADA Software	\$120,000	1%
Water Operations Support & Inspections	RPU Operations	\$186,360	1%

	Sub-total	\$306,360	
Work Order Total		\$11,989,775	100%

Completing this project will eliminate the critical findings identified in the vulnerability assessment completed in 2016. The critical vulnerabilities to the SCADA technology infrastructure present a significant risk as treatment, production, and distribution systems can be jeopardized, causing improper water supply and treatment. Another benefit to this project is the anticipated reduced costs of ongoing critical maintenance and repairs needed to maintain the legacy system. We estimate the time required by staff to maintain the SCADA system can be reduced by one third.

STRATEGIC PLAN ALIGNMENT:

This item contributes to **Strategic Priority 6 - Infrastructure, Mobility & Connectivity** and **Goal 6.2 –** Maintain, protect, and improve assets and infrastructure within the City’s built environment to ensure and enhance reliability, resiliency, sustainability, and facilitate connectivity.

This item aligns with each of the five Cross-Cutting Threads as follows:

1. **Community Trust** – Water SCADA Technology Upgrade project supports efforts to provide safe reliable drinking water and the infrastructure that delivers it to the community we serve.
2. **Equity** – Water SCADA Technology Upgrade project supports efforts for water availability to ensure every member of the community has equal access to water.
3. **Fiscal Responsibility** – Water SCADA Technology Upgrade project will provide preventative asset maintenance and replacement of infrastructure to ensure they are in proper working order.
4. **Innovation** – Water SCADA Technology Upgrade project will use the best available technology to monitor, maintain and replace infrastructure.
5. **Sustainability & Resiliency** – Water SCADA Technology Upgrade project will maintain assets to meet life expectancy and beyond.

FISCAL IMPACT:

The total fiscal impact is \$11,989,775. There are sufficient funds available for Fiscal Year 2022/23 in the Distribution Automation/Reliability Account No. 6230200-470655, Network Communications System (NCS) Account No. 6230200-470826, and SCADA Upgrade and Additional Systems Automation Account No. 6230200-470832 to initiate the project, as detailed in the following table:

GL Key/Object	Approved 5-Year CIP Plan						
	FY 22/23		FY 23/24	FY 24/25	FY 25/26	FY 26/27	5-Year Totals ²
	(Budgeted)	(Available Balance) ¹					
6230200-470655 - Distribution Automation/Reliability	\$591,828	\$1,326,811	\$620,869	\$513,356	\$721,152	\$662,236	\$3,844,424
6230200-470826 - Network Communications System	\$710,194	\$1,316,399	-	-	-	-	\$1,316,399
6230200-470832 - SCADA Upgrade & Additional Systems Automation	\$946,925	\$3,165,723	\$730,432	\$1,502,504	\$1,929,081	\$1,523,143	\$8,850,883
Totals	\$2,248,947	\$5,808,933	\$1,351,301	\$2,015,860	\$2,650,233	\$2,185,379	\$14,011,706

Notes:

1. FY 22/23 Available Balance includes carryovers from previous fiscal years.
2. Includes FY 22/23 Available Balance and Budgeted Amounts for FY 23/24 through FY 26/27

The subsequent years have been approved as a part of the five-year CIP and will be included as a part of the biennial budget process.

Prepared by: David A. Garcia, Assistant General Manager/Water
Approved by: Todd M. Corbin, Utilities General Manager
Approved by: Kris Martinez, Assistant City Manager
Approved as to form: Phaedra A. Norton, City Attorney

Certifies availability
of funds: Edward Enriquez, Interim Assistant City Manager/Chief Financial
Officer/City Treasurer

Attachments:

1. Design-Build Construction Services Agreement with Tesco Controls
2. Professional Consultant Services Agreement with Eramosa International, Inc.
3. Presentation