

MEMORANDUM

To: Honorable Mayor and Members of Town Council

From: Mark Marlowe, P.E., Director of Castle Rock Water

Date: July 20, 2021

Title: Resolution Approving a services agreement between the Town and xxxxx for the SCADA Backhaul and Radio Network Design and Installation Project
[Entire Castle Rock Water Service Area]

Executive Summary

Castle Rock Water (CRW) seeks Town Council approval of a Resolution (***Attachment A***) approving a services agreement with XXXX, for the CRW Supervisory Control and Data Acquisition (SCADA) Backhaul and Radio Network Design and Installation Project. This capital improvement was identified through the SCADA Master Plan (MP), adopted in December of 2019 by Council Resolution No. 2019-131.

Through a competitive request for proposal (RFP) process, XXXX was selected by CRW staff as the recommended consultant to complete these proposed system upgrades. The existing system is antiquated with components in service for up to 20 years and currently poses a potential security and reliability risk to CRW. A wireless backhaul and radio network includes microwave systems and other infrastructure using radio frequencies that are responsible for wirelessly conveying data between CRW facilities located throughout Town. Transmitted data includes critical information and operating controls for all of CRW water and wastewater facilities.

The scope of work for this project shall include, but not be limited to, completing a microwave radio frequency communication path study, identifying and obtaining all project permitting and radio licensing, designing and installing backhaul and radio network equipment necessary for a new high speed backhaul communication ring, new data concentrators and security devices, completing detailed testing of new equipment, and training of CRW SCADA staff.

Notification and Outreach Efforts

This project is security sensitive and no public outreach is planned. Work will be performed at remote sites and will be done out of the public eye.

History of Past Town Council, Boards & Commissions, or Other Discussions

Castle Rock Water Commission was provided with a presentation on the SCADA Master Plan on XXXX, and voted to recommend Council approval.

Town Council adopted the 2019 SCADA Master Plan Update in December 2019.

Castle Rock Water Commission was provided an overview of this project at the June 23, 2021 meeting and the Commission voted _____ to recommend Town Council approval.

Discussion

In 2019, an updated SCADA Master Plan was completed and subsequently adopted by Town Council. Capital improvements identified in this plan included approximately \$12M in improvements to be completed over a five to seven-year period. Implementation of the SCADA Master Plan is on schedule and budget so far. Several improvements were completed in 2020 including establishing updated standards for SCADA hardware and software, and completing a hazards assessment for cybersecurity. To date in 2021, additional cybersecurity upgrades have been completed including isolating the SCADA network from the Town's business network. Master Plan implementation expenditures to date total \$46,856. The next planned improvements are to complete telemetry and backhaul communication network upgrades. The budgeted amount for these improvements is \$1,748,000.

CRW uses SCADA to monitor and control all processes in the water and wastewater systems for Castle Rock. The current backhaul communication system has been in place for almost two decades and technology has evolved immensely over that period. Although some hardware components have been replaced and software upgrades have been performed over the years, an upgrade of the backhaul and radio network system is needed. A more robust operational system will address deficiencies within the existing system and bring the system into compliance with modern cybersecurity and equipment safety standards. It also will reduce network failure risk due to aging equipment, reduce costs of support by utilizing current, non-obsolete hardware and software, improve operator efficiency by standardizing equipment and procedures, and properly manage risk and resilience associated with process automation.

For the purposes of this memorandum, backhaul will be defined as the high speed microwave network, which includes 82 remote utility sites. The new backhaul bidirectional ring will replace existing T1 copper service lines and will be mounted on or near six (6) existing water tanks (using antennas), which will be connected to five (5) water treatment plants with high speed redundant communication paths.

The SCADA system is a separate and segregated system and is a stand-alone process by which many CR Water assets are controlled remotely. For security reasons the CR Water team selected, interviewed, and vetted contractors and then invited five to bid on the Backhaul RFP. Below are the results of the bid process:

Consulting Firm	Total Cost
Jacobs Engineering	Declined to Bid

Techneaux	\$1,895,180
Tetra Tech	\$2,493,846
Twin Eagle	\$1,408,919
Wunderlich Malec	Declined to Bid

xxxxxxx was selected based on the qualifications that were submitted, the completeness of fulfilling the scope of work, and the project costs that were submitted.

XXXX (The selected consultant) will be required to perform site path studies, to ensure that all locations are able to communicate and to allow for the future growth with the addition of three remote sites. The consultant will also need to research, prepare and submit to the appropriate agency any and all necessary permits for project completion.

Budget Impact

During the budget process of 2020, the funding for the backhaul communication system and radios was identified and planned for implementation in 2021. These funds will be taken from various SCADA System Improvement accounts, which have adequate funding, as follows:

Fund Name	Account Number	Cost	Current Balance
SCADA System Improvements	210-4275-442.75-41	X	\$1,472,381
SCADA System Improvements	211-4375-443.75-41	Y	\$159,765
SCADA System Improvements	213-4575-445.75-41	Z	\$292,382
Totals			

Staff Recommendation

Staff recommends Town Council approval of a Resolution approving a services agreement between the Town and xxxxx for the SCADA Backhaul and Radio Network Design and Installation Project.

Proposed Motion

"I move to approve the Resolution as introduced by title."

Attachments

Attachment A: Resolution No. 2021-XXX

Exhibit 1: Contract for 2021 SCADA Backhaul and Radio Network Installation by
XXXX