****** First Reading ******

Agenda Item

TO: Mayor and City Council

FROM: Mark S. Gaugh, Director of Utilities/ACM

DATE: January 18, 2011

RE: Bid Recommendation-SCADA

Issues

The City's sanitary sewer collection system consists of 46.3 miles of pipe, 796 manholes and 14 pumping (lift) stations that pump the wastewater flow from homes and businesses to the wastewater treatment plant. Since wastewater must flow by gravity to these stations, lift stations are necessary in several parts of the city. These lift stations are critical for proper sewer system management. Pump station failures can result in sewage spills (surcharges), which enter the environment and can get into creeks, streams and/or the water supply reservoirs. Lift stations cannot be staffed 24 hours per day. So, in addition to physical checks by operations staff, lift stations are monitored by a SCADA (Supervisory Control and Data Acquisition) system. The SCADA system is radio controlled and reports alarms of high water levels, pump failures, etc. to the wastewater staff who are trained to respond and address the problem. Each station has a radio cabinet and antenna for reporting alarms. A failure at a lift station that goes unreported, due to a malfunction of the SCADA system can result in illegal surcharges. These SCADA malfunctions can result in fines to the City, because of potential environmental harm like fish kills or public health concerns of exposure to microorganisms residing in the sewage flow. Therefore, a reliable SCADA system is very important to proper wastewater system operation.

Over the past few years, we have been experiencing increasing failures of our SCADA system. Failures during storm events, which have occurred with more frequency, have played a part. The equipment may also be experiencing age-related problems, since radio replacements have increased, as well. Repairs made during storm events in May, June and July of 2009 totaled $12,248.36. In the past four years, repairs have totaled $39,963. Response time for repairs has also been an issue, as well as being able to provide the service technician with a bucket lift truck to do some of the antenna work. Our current vendor only has one technician who does the service work, so they have not always been able to respond as quickly as we would like.

We have looked at several options regarding the SCADA system. One option is to replace the current system with new radios, antennas, power supplies, arrestors and micro-processor upgrades. Our current vendor estimates this cost to be $40,694.20. This type of system would be basically what we have now, along with its inherent problems. We also looked for a technology that might be able to use our existing power pole infrastructure network to transmit the signals. This method is cost prohibitive. We also looked at a technology that utilizes cellular phone signals for alarm reporting, instead of line-of-sight radio signals. We have visited with wastewater personnel in other communities who have used a SCADA system similar to ours in the past, but who have converted to the cellular technology. Staff

from the communities of Blue Springs and Sedalia, Missouri reported the cellular technology to be superior and much less susceptible to storm events than the type of radio system we are currently using. Last month, we advertised and sent bid requests to our current SCADA provider, as well as two other companies that provide SCADA systems. Our current provider does not offer a cellular based system. The two vendors who bid the cellular SCADA also provide online capability for system monitoring and control; a feature our current system does not have. Wastewater personnel can go online from any location and check alarm status and obtain reports of operation for any lift station in the system.

BID COMPARISON FOR CELLULAR SCADA

Siemens Control System-*Link2Site*
$71,476.00, includes one year of service at $10,800. So, initial cost would be $60,676. After year one, the annual maintenance fee would be $10,800.

JCI-Rep for Mission Communications
$31,869, plus $5,796 annual service.

The lowest bid ($31,869) was submitted by JCI.

COST COMPARISON FOR CURRENT RADIO SYSTEM VS CELLULAR SCADA

Cellular SCADA	Current System
1. Hardware for 14 stations = $31,869	1. Hardware for 14 stations = $40,694.20
2. Annual Service Fee = $5,796.00	2. Annual Avg. Cost to Maintain = $6,725.38

ADVANTAGES TO CELLULAR SCADA

- System maintenance can be done with in-house staff, thereby reducing down time, waiting for a technician to arrive.
- No need to use the City bucket trucks to access poles, thereby reducing system downtime and overall response costs.
- Internet access for system operation.
- Lower initial cost.
- Lower average annual cost to maintain and operate.
- Lower cost to add stations in the future, as City expands plant and lift stations.
- Higher reliability and reduced chance for surcharges- less susceptibility to storm outages.

Recommendation

Staff recommends that the ordinance accepting the bid from JCI be approved for $31,869 as the lowest and best bid. Funds for this work were budgeted in budget line 09-19-275-01.

Two readings are recommended for this ordinance.

Bill 2011-11

AN ORDINANCE AUTHORIZING THE MAYOR OF THE CITY OF CAMERON, CLINTON AND DeKALB COUNTIES, MISSOURI TO ACCEPT A BID FROM JCI INDUSTRIES FOR SCADA EQUIPMENT

WHEREAS, the City of Cameron maintains 14 lift stations as part of its sanitary sewer system; and

WHEREAS, those stations must be monitored on a 24 hour basis to ensure proper lift station operation; and

WHEREAS, the current SCADA radio system is no longer reliable or cost-effective to maintain; and

WHEREAS, the City advertised and solicited bids to replace the existing radio equipment; and

WHEREAS, two bids were received, and the lowest bid was submitted by JCI for $31,869.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF CAMERON, CLINTON AND DeKALB COUNTIES, MISSOURI AS FOLLOWS:

Section 1. The City Manager is hereby authorized to accept the bid from JCI, Industries for the purchase of SCADA equipment.

Section 2. The City Clerk is hereby directed to attest to the Mayor's signature.

Section 3. This ordinance shall be in full force and effect from and after its passage.

Passed and approved on first reading this 18th day of January 2011.
Passed and approved on second reading this _____ day of _____ 2011.
Passed and approved on third and final reading this ___ day of _____2011.

_____
Mayor Dennis M. Clark

ATTEST:

_____
City Clerk