CITY OF FAYETTEVILLE ARKANSAS

MEETING AGENDA

Water, Sewer, and Solid Waste Committee

11 May 2021

5:30 P.M.

(Or immediately following Equipment Committee Session)

This is a Virtual Meeting

Committee: Chairman Mark Kinion; Council Member Sloan Scroggin, Council Member Teresa Turk, Council Member D'Andre Jones,

Copy to: Mayor Lioneld Jordan, Paul Becker, Kara Paxton, Susan Norton, Chris Brown, Alan Pugh, Terry Gulley, Peter Nierengarten, Jeff Coles, Brian Pugh, Mark Rogers, Corey Granderson, Aaron Watkins, Greg Weeks, Monty Sedlak, Matthew Benton, Keith Macedo, Ray Eaton, Brett Peters, Josh Durham, Nick Batker, Lee Beshoner

From: Tim Nyander, Utilities Director

CALL TO ORDER

ROLL CALL

UPDATES

OLD BUSINESS:

1. **Jacobs Cost Overrun on the SCADA Upgrade Project**

The Utilities supervisory control and data acquisition (SCADA) system monitors and provides automated control and monitoring to the water distribution, wastewater treatment, lifts stations and Biosolids Management Site. The system has been operated and maintained by Jacobs for over 20 years.

Due to consumer grade network equipment, non-supported operating systems, and the overall network design, the SCADA system was a critical cybersecurity risk that needed a complete redesign with security as the number one action item.

A systemwide approach was developed to (1) replace existing components with commercial business grade components, (2) upgrade or replace the existing operating system with an up-to-date system that can be periodically updated, and (3) improve cyber security of the system.

The upgrade was developed by the Jacobs team with input from the City. It included in-lab configuration of updated hardware and software, and application and hardware development.

The cost estimate for the plan was $474,000. Additionally, the plan included replacing software and hardware which was estimated at $458,000, for a total of $922,918. Additional network and SCADA equipment has brought the project cost to date at $1,009,911.

It was understood at the time that additional upgrades beyond the base implementation was not scheduled to happen before the system was initially rolled out. Any additional work would be beyond the scope of the agreement would require additional funding.
However, there were activities performed beyond the original scope that were unavoidable due to changes that had to be made as the base implementation was rolled out. The additional funding that was anticipated to be required later is being requested at this time as an amendment to the original scope. That funding amount is approximately $69,500.

As the SCADA project progressed Jacobs staff identified approximately 50 network switches that needed to be purchased to complete the overhaul of the SCADA network, at a cost of $43,303.42, plus taxes and freight charges.

During SCADA software programming Jacobs determined that removing a proposed SCADA concentrator would improve long term functionality. Removing the concentrator decreased the cost of hardware but increased the cost of programming. Initially this was proposed to be removed in the future, but Jacobs determined it was in the best interest of the City to make the change during initial SCADA software development and not in the future.

City IT has monitored the technology portion of this project closely and would have preferred more insight into decisions that affected the scope of work and budget but are pleased with the overall project direction. The end goal is to have a secure SCADA system that provides a foundation to provide advanced monitoring, configuration, and reporting for both water and wastewater operations. With continued scope-of-budget oversight we feel confident we will have a fully functional SCADA system soon that meets or exceeds the City's needs.

Funds are available in the Sanitary Sewer Rehabilitation Project in the Water & Sewer Fund.

STAFF REQUESTS THIS BE FORWARDED TO THE CITY COUNCIL FOR CONSIDERATION FOR APPROVAL

NEW BUSINESS:

2. Discussion on Mt. Olive Water Service Agreement
Discuss the 15-year water service agreement to be presented to the City Council at the May 18th meeting.

For Information Only

3. Badger Master Service Agreement for Smart Metering
Discuss the 10-year master service agreement to be presented to the City Council at the May 18th meeting.

For Information Only

4. Engineering Agreement for Phase II of the Lake Fayetteville Spillway Improvements with FTN

The Lake Fayetteville Dam is regulated by the Arkansas Natural Resources Commission (ANRC) and is classified as an 'intermediate-size, high-hazard' dam based on storage volume and downstream conditions, respectively. The City of Fayetteville Water and Sewer Division is responsible for Dam maintenance, inspection, and upkeep. The ANRC completed a comprehensive inspection of the dam and available reports/plans most recently in Fall 2018. One of the key findings by ANRC was that the spillway is reported to have a capacity to pass 50% of the Probable Maximum Flood (PMF), however, for an intermediate/high-hazard classification the spillway must be capable of passing 100% of the PMF.

FTN Associates, Inc. is a local engineering firm with expertise in lakes, dams, hydraulics, and hydrology. They were formally selected to provide engineering analysis and design regarding the current Lake Fayetteville spillway capacity and to explore options for increasing this capacity to pass 100% of the PMF. Phase One of this study is completed and provided the hydraulic and hydrologic calculations necessary to define the PMF in this watershed and demonstrated that the current spillway passes about 70% of the PMF. Future Phases Two and Three would analyze downstream effects (City of Johnson) and construction-level engineering design. After each phase of this project, the City will meet with ANRC to ensure compliance and agreement for next steps. With Phase One completed, and concurrence received from ANRC, Amendment No. 1 will now provide funding for the Spillway Feasibility Analyses to look at several modification options to the spillway to achieve the required 100% PMF. The hydraulic model will look downstream and assess the impacts of modifications at the spillway on downstream property.

Staff recommends approval of Amendment No. 1 to the Engineering Services Agreement with FTN Associates, Inc. for Assessment of the Lake Fayetteville Spillway Capacity and Recommended Improvements as Required by the Arkansas Natural Resources Commission. Amendment No. 1 will increase the project cost by $107,706.00 for a total project budget of $171,206.00.

Funds are available in the Water & Sewer Fund.

STAFF REQUESTS THIS BE FORWARDED TO THE CITY COUNCIL FOR CONSIDERATION FOR APPROVAL

5. Engineering Agreement with Hawkins Weir for Hwy 112

ARDOT has notified the City of Fayetteville to relocate water and sewer infrastructure along Highway 112 where they will be widening the roadway and constructing two round-abouts. After receiving this notification, a formal selection committee was held on March 30, 2021 at which Hawkins-Weir was selected for contract negotiations (RFQ 21-01, Selection #4).

Affected utilities include approximately 10,440 LF of 8-inch and smaller water/sewer mains, 465 LF of 12-inch waterlines, and 2,830 LF of 36-inch waterline. Much of this project appears to be reimbursable to the City by ArDOT, however preliminary engineering must be completed first to determine exact qualifications. Afterwards, a formal relocation agreement will be presented to the City Council outlining the terms of reimbursement. This engineering services agreement will include survey, engineering design, permitting, and bidding services. The proposed contract is hourly in the maximum not-to-exceed amount of $466,000.00.

Funds are available in the Water/Sewer Relocations for Bond Projects Project.

STAFF REQUESTS THIS BE FORWARDED TO THE CITY COUNCIL FOR CONSIDERATION FOR APPROVAL

6. Engineering Agreement with McClelland for Hwy 16

ArDOT has notified the City of Fayetteville to relocate water and sewer infrastructure along Highway 16 where they will be widening the roadway to 4-lanes. After receiving this notification, a formal selection committee was held on March 30, 2021 at which McClelland was selected for contract negotiations (RFQ 21-01, Selection #5).

Affected utilities include approximately 4,100 linear feet of 8-inch diameter cast iron waterline that will need to be replaced and upgraded to 12-inch diameter PVC pipe. Additionally, there is approximately 1,700 linear feet of small diameter sanitary sewer relocation necessary. Parts of this project appear to be reimbursable to the City by ArDOT, however preliminary engineering must be completed first to determine exact qualifications. Afterwards, a formal relocation agreement will be presented to the City Council outlining the terms of reimbursement. This engineering services agreement will include survey, engineering design, permitting, and bidding services. The proposed contract is hourly in the maximum not-to-exceed amount of $273,388.00.

Funds are available in the Water/Sewer Relocations for Bond Projects Project.

STAFF REQUESTS THIS BE FORWARDED TO THE CITY COUNCIL FOR CONSIDERATION FOR APPROVAL

.

7. Gregg Ave/Fulbright Expressway Relief Sewer Bids

The City's gravity sewer collection system in this location has a 15-inch and 12-inch diameter line joining into a single 16-inch diameter line crossing underneath the Fulbright Expressway. This creates a hydraulic bottleneck, identified in our most recent Sewer Collection System Master Plan. Hawkins-Weir Engineers studied the area and determined several alternative solutions, including boring the interstate, installing a pump station, and laying a bypass gravity line. The bypass gravity line is the most economical option and will help with long-term future capacity in this basin.

On April 28, 2021, the City of Fayetteville accepted sealed competitive bids for the Gregg Avenue and Fulbright Expressway Sewer Improvements project. Crossland Heavy Construction, Inc. submitted the lowest bid. All bids are shown here:

Goodwin & Goodwin, Inc.	$1,137,689.50
Crossland Heavy Const., Inc.	*$996,617.00*
KAJACS Contractors, Inc.	$997,000.00

Staff recommends awarding Bid #21-37 and approving a construction contract with Crossland Heavy Construction, Inc. in the amount of $996,617.00 for construction related to the upsizing and rerouting of an 18-inch diameter gravity sewer line in the vicinity of Gregg Ave. and the Fulbright Expressway. Funds are available for this project in the Sanitary Sewer Rehabilitation account.

Funds are available in the Sanitary Sewer Rehabilitation Project.

STAFF REQUESTS THIS BE FORWARDED TO THE CITY COUNCIL FOR CONSIDERATION FOR APPROVAL

8. Denitrification Pumps Replacement – Noland WWTP

Nitrates are essential plant nutrients, but in excess amounts they can cause significant water quality problems. Together with phosphorus, nitrates in excess amounts can accelerate the richness of nutrients in a lake or other body of water, causing dramatic increases in aquatic plant growth and changes in the types of plants and animals that live in the stream.

One of the denitrification pumps at the Noland Plant failed and was sent out to JR Stewart Pump & Equipment for hidden damages evaluation. The quote for repairs was $71,345.99. We asked Jack Tyler Engineers to provide us a quote for a replacement pump because we felt the repair costs were very high. It is a Flyght pump, and it has a specialized volute and motor.

During the discovery process we asked Jack Tyler to quote us a price for a new pump and the new pump was $58,517. While we were finding the best value for the City the other denitrification pump failed. We now have two failed pumps.

The pumps are critical for the process. The denitrification pumps pick up mixed liquor from the end of the train before it goes over the weir to the clarifiers and returns it to the beginning of the process in the anoxic basin. This allows for further denitrification of the mixed liquor. The process issues that may develop from the lack of denitrification pumping would be loss of the conversion to nitrite and further denitrification of the mixed liquor. We also could experience denitrification in the clarifiers and risk a solids excursion.

We will not be able to manage a single basin without the pump. We must drop basins for routine maintenance ever year during the lowered permit standards. Attached are the rebuild and replacement quotes. We would like to proceed with a sole source procurement of two Denitrification Pumps. The total cost would be $117,034 plus taxes and freight charges.

Funds are available in the Wastewater Treatment Plant Pumps and Equipment Project.

STAFF REQUESTS THIS BE FORWARDED TO THE CITY COUNCIL FOR CONSIDERATION FOR APPROVAL

9. Overview of WWTP Monthly Report

Discussion of March’s Monthly WWTP Report

PRESENTATIONS

ATTACHMENTS
SCADA Switches Quote
Mt. Olive Water Services Agreement
Badger Master Service Agreement
FTN Scope of Services Agreement – Lake Fayetteville Spillway
Hawkins Weir Scope of Services Agreement – Hwy 112
McClelland Scope of Services Agreement – Hwy 16
Repair Quote for Rebuilding Denitrification Pump
Quote for New Denitrification Pump
March 2021 WWTP Report

ADJOURN
Next Water, Sewer, Solid Waste Committee meets on
Tuesday, June 4, 2021, 5:30 p.m.