

## MEMORANDUM

TO: Donna Barron, City Manager

VIA: Keith Marvin, P.E., Director of Public Services

FROM: Doug Lipscomb, Wastewater Superintendent, Public Services

DATE: March 12, 2019

SUBJECT: **Approval of a Professional Services Agreement with McCreary & Associates, Inc., in the Amount of \$75,000 for Professional Engineering Services for Design of Electrical Improvements Phase 2 at the Wastewater Treatment Plant; and Authorize the City Manager to Execute the Agreement.**

### **BACKGROUND**

The City of Lewisville's Wastewater Treatment Plant electrical system was originally constructed in 1988, with a dual loop ungrounded electrical design with nine City owned transformers. Electrical improvements are needed to replace inefficient equipment at the end of its useful life and ground all new electrical systems. Grounding the new equipment will limit the voltage imposed by lightning, line surges, or unintentional contact with higher-voltage lines to better protect motors and electrical components from transient voltage spikes. In addition, the grounding will lower the arc flash levels to acceptable levels.

The Phase 1 portion of this project was completed in October 2018 addressing the Prairie Creek East lift station electrical systems. The lift station was grounded, three inefficient Variable Frequency Drives (VFD's) were replaced and the power conditioning equipment was upgraded to improve the quality of power delivered to the motors. Phase 2 continues these improvements with additional upgrades at the Wastewater Treatment Plant. A map is included for project reference.

The design phase of this project is expected to take three months, with the bid process taking place over the summer. Award of a construction contract is anticipated to take place in late summer. Some of the needed equipment will have a long lead time which will push the actual construction effort into the fall. All work is expected to be complete by the end of the calendar year.

### **ANALYSIS**

McCreary & Associates, Inc. has submitted a Professional Services Agreement, in the amount of \$75,000, for design of Phase 2, Task 1 and Task 2. Task 1 electrical improvements include; an Arc Flash Study, replacement of Plant #1 Aeration Blower electrical equipment into a newly installed Motor Control Center #2 (MCC-2), replacement of three blower control panels and upgrade the Plant #1 15kV Transformer T3. The Task 2 portion of the project will focus on the upgrade and replacement of transformers T1 and T2; which have been in service for more than 30 years.

This agreement will provide the power factor design, electrical grounding and improvements to protect electrical systems within the Wastewater Treatment Plant. Funding for the project is available in the Water/Wastewater Improvements Capital Project (#U1513).

**RECOMMENDATION**

It is City staff's recommendation that the City Council approve the agreement as set forth in the caption above; and authorize the City Manager to execute the agreement.