



# City of Pflugerville

## Legislation Text

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**File #:** 2018-6485, **Version:** 2

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Discuss and consider action to approve a Supplemental Agreement #1 with Freese and Nichols, Inc. in the amount of \$3,442,165 for professional engineering services associated with the plant expansion final design and bid phase services for the Central Wastewater Treatment Plant.

Wastewater flow to the City of Pflugerville's Central Wastewater Treatment Plant (WWTP) has exceeded 75% capacity of the permitted capacity and the growth trend indicates the plant could exceed 90% capacity as early as 2021.

The City is planning to expand the wastewater plant from 5.3 MGD to 10.0 MGD to meet projected needs. The City has submitted a Texas Pollutant Discharge Elimination System (TPDES) Permit Amendment and it is anticipated the plant expansion must be designed to meet 5/5/2/1 (mg/L for biochemical oxygen demand, total suspended solids, ammonia and phosphorous respectively). In addition to providing increased capacity, some of the existing unit processes are aging and require rehabilitation/replacement to enable those units to serve as reliable components of the expanded system.

Freese and Nichols (FNI) was awarded a contract at the March 28, 2017, Council meeting for preliminary design services and a conceptual design report with recommendations was submitted on December 19, 2017.

In the report, FNI recommended, in addition to increasing the plant capacity, treatment processes should be upgraded to provide for biological nutrient removal (BNR) of phosphorous to replace the existing chemical phosphorous precipitation process. Upgrading the treatment process to BNR will significantly reduce the volume of waste sludge produced and save the City disposal costs. FNI's report also identified several high priority improvements, referred to as interim improvements, which are needed to maintain plant capacity and permit compliance during the period of time while the plant expansion project is ongoing. The construction agreement for the interim improvements was approved by the City Council on February 13, 2018.

City staff asked FNI to develop a phased implementation plan to allow the capital costs to be spread over several budget years and to defer construction of the solids processing facilities until such time as waste solids production from the expanded/upgraded facility requires the solids handling capacity to be increased. The plant expansion/upgrade project will be implemented in three (3) design and construction phases:

### Phase 1 (this project)

- New treatment plant headworks including: influent lift station, solids screening and grit removal systems and flow splitter box
- Two (2) new Carrousel style aeration tanks designed for biological nutrient removal

- New final clarifier and mixed liquor splitter box
- New effluent filters and ultra-violet (UV) disinfection system
- New non-potable water pump station and disinfection system
- New electrical/motor control and combined laboratory/administration/electrical buildings
- Design of the interim improvements

Phase 2 (immediately following Phase 1 - planned to begin in 2019)

- Modification of the existing Carrousel units to include new anaerobic/anoxic reactor basins to enable biological nutrient removal through the existing carrousel units
- Rehabilitation and repair of the existing treatment units, including the carrousel and clarifiers that will continue to be used in the expanded/upgraded treatment facility

Phase 3 (approximately 2027, depending on actual rate of increase in influent flow)

- New waste sludge processing facility, including new sludge thickening and dewatering equipment, and a new solids processing building

The scope of work for this project is to develop the final construction documents (plans and specifications) and provide bid phase services for Phase 1 of the expansion/upgrade and for engineering services associated the interim improvements. The design effort for Phase 1 will also include development of approximately 30% design plans for the future Phase 2 and preliminary design plans for future Phase 3 to ensure design compatibility between all phases. In addition, the design effort for Phase 1 may include a limited amount of work for Phases 2 and 3 that would be most cost effective to construct as part of the Phase 1 improvements (i.e., drain lines, spare electrical conduits, etc.).

The scope of work and fee for construction phase services for phase 1 will be negotiated prior to construction and brought forward for City Council consideration. Additional services associated with the construction document preparation, bidding, and construction phase services for Phase 2 and Phase 3 will be negotiated at a future date and brought forward for City Council consideration.

The attached agreement has been reviewed and approved as to form by the City Attorney.

### **Status**

City staff has negotiated with Freese and Nichols, Inc. to establish a scope, schedule and fee for this project.

### **Prior Council Action**

Freese and Nichols was awarded a contract at the March 28, 2017 Council meeting for Preliminary Design and Permitting Phase services.

This item was tabled at the February 13, 2018 to allow for additional consideration of the project scope.

### **Projected Future City Council Action**

Future agenda items will be scheduled for consideration and approval of supplemental agreements

for construction phase services prior to construction.

**Fiscal Impact**

Funding for this project is a combination of applicable wastewater impact fees and bond funding from the December 2017 certificate of obligation issuance.

**Staff Recommendation**

Staff recommends approval of this supplemental agreement with Freese and Nichols, Inc. in the amount of \$3,442,165 for professional engineering services associated with the plant expansion final design and bid phase services for the Central Wastewater Treatment Plant.

**Drafter**

Amy Giannini

City Engineer