Parker County Special Utility District
Water System Improvements Project
Funded by the TWDB DWSRF Program

Project Summary

Phase I WTP Improvements

The Parker County Special Utility District has received funding from the Texas Water Development Board (TWDB) for project funding through the Drinking Water State Revolving Fund (DWSRF) Program. The project will be fully funded with DWSRF funding through the United States Environmental Protection Agency as administered by the TWDB. The overview of the proposed Phase I water system improvements include installation of preliminary treatment systems and an additional RO train, implementation of solids land application at the existing water treatment plant (WTP) site, expansion to the raw water intake pump station, and relocation of the reject water outfall. The District has engaged Enprotec / Hibbs & Todd, Inc. (eHT) to provide engineering support in upgrading and expanding the District's existing WTP along with future improvements planned for the District's water distribution system as well.

The improvements at the WTP are intended to address capacity limitations of the Parker County Special Utility District's existing surface water supply portfolio. Since the opening of the 1.0 million gallon per day (MGD) water treatment plant (WTP) in 2014, there has been a rapid increase in water demand in the area, and the WTP has faced multiple operational challenges. The District's current water supply portfolio includes a wholesale finished water supply contract with the City of Mineral Wells, which currently provides additional water when needed to keep up with peak day demands. In addition, District staff has observed significant fouling effects on the membrane filtration (MF) and reverse osmosis (RO) treatment processes and internal buildup of manganese and organics from the water in the Brazos River.

The Phase I improvements at the WTP are considered urgent due to the fact that the current RO system is undersized as compared to the existing WTP capacity, and no considerations for sludge management have been made previously. The currently-installed system is unable to produce the WTP's originally intended design capacity of 1.0 MGD. The WTP site Phase I improvements are necessary to allow the WTP to service the current connections during peak demands with a target for construction completion of the WTP site project elements in spring 2021. Additionally, the District currently does not have any form of waste management located at the WTP facility. A waste management system is necessary to allow for disposal of WTP solids generated from the MF units.

A summary of the Phase I water system improvements within the footprint of the WTP are as follows:

- Replacement of raw water transfer pump station with a floating pump station at the WTP raw water storage pond;
- Addition of a chlorine dioxide chemical pretreatment system;
- Addition of a waste collection pump station and pipeline to onsite land application;
- Addition of a chloramine feed system in pretreatment to minimize biofouling in pretreatment in the MF and RO;
- Rehabilitation of the existing RO train, addition of a second RO permeate tank, installation of a second 0.6 MGD RO train, and installation of a second MF/RO splitter structure;

- Upgrade of the HVAC system for the treatment building to eliminate overheating of existing equipment control panels;
- Replacement of the disinfection system and add coagulant bulk storage, day storage and feed system;
- Upgrade of the existing high service pump station to increase finished water pumping capacity;
- Replacement of the WTP's manual transfer switch with an automatic transfer switch;
- Upgrade of the raw water pump station, modification of the electrical system with manual transfer switch to support a mobile trailer-mounted generator; and
- Relocation of the existing RO Reject discharge outfall to 500 feet downstream of the existing raw water intake structure.

Upon the improvements at the raw water intake and relocation and upsizing of outfall, the WTP capacity will be expanded from 1 MGD up to 2 MGD.

Because of changes in TWDB review requirements with regard to Construction Manager-at-Risk (CMAR) project delivery, the District had to cancel its contract with its previously selected CMAR contractor. Therefore, the District has proceeded with a Competitively Sealed Proposal (CSP) procurement approach, which ultimately resulted in selecting Whiting-Turner for the District's awarded general contractor. Once TWDB approves the proposed construction contract, the project will enter into construction shortly.