



SCOPE OF SERVICES

Solicitation Number: CLMP203

Project Name: Walnut Creek WWTP Optimization and Facility Plan

PROJECT FOR:

CITY OF AUSTIN, AUSTIN WATER, THROUGH ITS CAPITAL CONTRACTING OFFICE

PROJECT TITLE:

Walnut Creek WWTP Optimization and Facility Plan

OBJECTIVES OF THE PROJECT:

The purpose of the Walnut Creek WWTP Optimization and Facility Plan is to assist Austin Water (AW) in developing a plan to optimize current treatment processes, maximize existing and untapped treatment capacity, and identify strategic capacity additions or modifications that optimize site development of the Walnut Creek Wastewater Treatment Plant (WWTP) property while meeting the environmental, regulatory, social and financial requirements. In developing plant process and capacity recommendations, the consultant team shall assess the related environmental, social and economic impacts of the alternatives proposed. Namely, this assessment will account for AW's long-range financial plan and Walnut Creek WWTP's current and future place within the community. Recommended improvements shall be compliant with the Texas Pollutant Discharge Elimination System (TPDES) permit and address anticipated regulations. The Walnut Creek WWTP Optimization and Facility Plan will be the ultimate deliverable for this project, which will allow Austin Water to plan for and initiate future improvement projects, as needed.

***The selected consultant shall be required to comply with Austin Water Utility Facility Security Procedure SP-1070 (see Attachment A-1).**

BACKGROUND:

The Walnut Creek Wastewater Treatment Plant (WWTP) has a rated capacity of 75 million gallons per day (MGD), a rated 2-hour peak flow of 165 MGD, and is currently treating approximately 62 MGD average daily flow for 2016. Walnut Creek WWTP's discharge and reuse permit limits are:

Discharge Permit

5 mg/l CBOD
5 mg/l TSS
2 mg/l ammonia
126/100 ml *E. coli*
6 mg/l DO

Reuse Type 1 Permit

5 mg/l CBOD
3 NTUs Turbidity
126/100 ml *E. coli*
126/100 ml *E. coli* (Single Grab)

Walnut Creek WWTP includes six individual treatment trains, built in three phases. Each train consists of an aeration basin, a flocculation basin, a secondary clarifier, a chlorine contact basin, and the pumps, piping, and electrical equipment required to operate each train.

The first phase was constructed 1977 with a rated capacity of 18 MGD. This phase included Activated Sludge Complex 1, comprised of trains 1 and 2. The Thickener Building was built in 1982.

Activated Sludge Complex 2, comprised of trains 3 and 4, was constructed in 1987 and increased the capacity of the WWTP to 40 MGD.

In 1990, Activated Sludge Complex 3, comprised of trains 5 and 6, was constructed in 1990 to meet new permitting requirements passed in 1988 from 20 mg/l BOD; 20 mg/l TSS to a more stringent permit limit of 10 mg/l BOD; 15 mg/l TSS; 2 mg/l ammonia. This included modifying Activated Sludge Complex 1 and 2 to double the aeration basin volume and installing fine bubble diffusers. The capacity of the plant was increased to a rated capacity of 60 MGD with a 2-hour peak of 140 MGD peak.

In 1990 Annual Permit limits were added to the discharge permit to include 5 mg/l BOD, 5 mg/l TSS, and 2 mg/l ammonia.

The 75 MGD Expansion was constructed in 2005 with an influent wastewater characteristic of 160 mg/l BOD concentration with a peak 2-hour flow of 165 MGD.

Due to population growth and increased flow prior to the completion of the 1987 expansion, an Interim Plant with a capacity of 13.5 MGD was constructed in 1985 with a discharge limit of 10 mg/l BOD and 15 mg/l TSS. The Interim Plant includes aeration basins, clarifiers and pumping. The Interim Plant was used until the 1987 expansion was completed.

Treated effluent is utilized to serve the Wastewater Reclaimed Initiative (WRI) system and the non-potable water (NPW) for the treatment plant. The excess is discharged to the Colorado River. Until the mid-1990's, Walnut Creek WWTP discharged its effluent directly into Walnut Creek, which borders the treatment plant to the west, and eventually empties into the Colorado River. Due to the increasing volumes of effluent, the outfall was relocated south so the plant could directly discharge into the Colorado River. A new 96-inch effluent pipe, which was put in place to convey the effluent to the new outfall on the Colorado River, runs parallel to Walnut Creek.

Walnut Creek WWTP is located entirely within zip code 78724 in the City of Austin's District 1.

ANTICIPATED SERVICES:

Specific objectives for the project include:

- Evaluate existing hydraulic and organic loadings and compare to current treatment plant capacity.

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- Review and comment on future projected hydraulic, organic and nutrient loading capacity requirements based on current growth.
 - Review and comment on plausible future effluent permit requirements from the Texas Commission of Environmental Quality (TCEQ) and the US Environmental Protection Agency (EPA).
 - Evaluate existing treatment process equipment and piping for effectiveness and efficiency.
 - Identify alternatives and/or options of various WWTP modification and process treatments with existing and plausible future effluent permit requirements.
 - Provide conceptual facilities modification alternatives and recommend optimal build out alternatives within the existing site boundaries.
 - Provide budgetary construction and engineering costs.
 - Provide implementation strategy consistent with AW's long-range financial plan.
 - Assess the related environmental, social and economic impacts of the alternatives proposed.

The following is intended as a guide to the general nature of services that will be provided based on the Major Scopes of Work described herein.

1. Preliminary Data Collection

- A. Collect and review existing and historical flow and loading data.
- B. Collect and review existing TPDES permit requirements and compliance data, plant operations data, existing facility design criteria, and all other pertinent information.
- C. Collect and review previous engineering reports and designs prepared for Walnut Creek WWTP.

2. Evaluate Existing Hydraulic, Organic, Ammonia, and Nutrient Loadings

- A. Evaluate current and plausible future loadings and the resulting impacts to the current and future treatment plant facilities.
- B. Using available information, compare existing treatment plant facilities to actual flows, loadings and treatment efficiencies, determine and document remaining capacities.
- C. Evaluate source of loadings and identify cost-effective treatment strategies.

3. Determine Effectiveness and Efficiency of Existing Treatment Process for Future Use

- A. Evaluate the headworks, aeration basin, flocculation basins, secondary clarifiers, aeration equipment, return activated sludge equipment, waste activated sludge equipment, chlorine contact, sludge thickening, sludge dewatering, septage station, Interim Plant, odor control facilities and all associated appurtenances for remaining treatment capacity and improvement requirements.
- B. Evaluate and rate the current use of the equipment for treatment capacity and analyze for additional treatment capacity.

4. Identify, Select and Recommend Various Wastewater Treatment Plant Modification Alternatives

- A. The consultant shall research and present various treatment option alternatives including modification, expansion, side stream, or off-site treatments for meeting future flows, future loadings and future plausible TPDES permit requirements including nutrients.
- B. The consultant shall recommend which existing treatment process structures and appurtenances could continue to be used in the future or be modified to meet treatment requirements.
- C. The consultant shall indicate implementation strategy and construction cost for WWTP modification alternatives and optimal sequential expansion for optimal build out within the existing site boundaries.
- D. The consultant shall assess the related environmental, social and economic impacts of the alternatives proposed.

5. Provide Conceptual Facilities Modifications

- A. The consultant shall define sizing, configuration, and construction and engineering cost estimates for the alternative facility modifications. The cost estimate shall utilize a life cycle cost estimate for any facility modifications.
- B. The consultant shall suggest implementation strategy for future modifications consistent with AW's long-range financial plan.

PROPOSED PROJECT SCHEDULE:

Optimization and Facility Plan 18 Months

PROPOSED PROCUREMENT SCHEDULE

RFQ Issue Date: July 19, 2016
 Pre-Response Meeting: July 26, 2016
 RFQ Due Date: Wednesday, August 24, 2016
 Interviews (if necessary): week of October 18, 2016
 Tentative Council Date: December 1, 2016

COST ESTIMATE:

Estimated Consultant Project Cost \$ 2 million

MAJOR AND OTHER SCOPES OF WORK:

Below is a list of the major scopes of work that the City has identified for this project. ****There must be representation for all major scopes of work listed in the prime's statement of qualifications. The experience of the firms listed to perform the Major Scopes of Work,***

whether a subconsultant or prime firm, will be evaluated under Consideration Item 6 – Major Scopes of Work – Comparable Project Experience.

In addition, the City has identified Other Scopes of work that MAY materialize during the course of the project. The City does not guarantee that the scopes listed under Other Scopes of work will materialize on this contract. If the prime consultant intends to enter into a subconsulting agreement on a scope of work not listed below, the prime consultant is required to contact SMBR and request an updated availability list of certified firms in each of the scopes of work for which the prime consultant intends to utilize a subconsultant.

*** Major Scopes of Work**

Desalinization (Process & Facilities) Engineering
Electrical Engineering
Environmental Engineering

Other Scopes of Work

Civil Engineering
Structural Engineering

Notes:

- Construction Inspection and Public Information and Communications are **NOT** subconsultant opportunities. These services will be performed in-house or under a separate contract, if needed, and will be determined when project assignment is made.
- If the City determines that a conflict of interest exists at the prime or subconsultant level, the City reserves the right to replace/remove the prime or instruct the prime consultant to remove the subconsultant with the conflict of interest and to instruct the prime consultant to seek a post-award change to the prime consultant's compliance plan as described in City Code § 2-9B-23. Such substitutions will be dealt with on a case-by-case basis and will be considered for approval by Small and Minority Business Resources (SMBR) in the usual course of business. The City's decision to remove a prime or subconsultant because of a conflict of interest shall be final.
- A consultant performance evaluation will be performed on all professional services contracts. This evaluation will be conducted at the end of each Preliminary, Design and Construction phase.