



DATA SHEET
Agenda No. 13.

Meeting Date: October 4, 2018

Agenda Item:

Consider approval of Task Order No. 4 to existing contract with Carollo Engineers, Inc. for services related to expanding the Regional Treated Water System hydraulic model and performing additional analyses.

Placement:	<input type="checkbox"/> Consent	<input checked="" type="checkbox"/> Individual Consideration	<input type="checkbox"/> Executive Session
Vote:	<input type="checkbox"/> Non-Weighted	<input checked="" type="checkbox"/> Weighted Capital	
Recommending Department: Engineering			

Background:

The Regional Treated Water System (RTWS) utilizes treated water from two treatment plants, the Tom Taylor RWTP and the Tom Harpool RWTP. The RTWS has expanded and customer demands have increased to a point where the full system needs to be hydraulically modeled to help determine areas that can be improved for operational efficiency.

Proposed Task Order No. 4 with Carollo Engineers, Inc. is for engineering services related to updating the current RTWS model, evaluation of various demand growth scenarios, analyzing results, and developing strategies to operationally meet or exceed customer demands through the year 2035.

The task order includes budget amounts of \$156,000 for Basic Services (hydraulic model development, system evaluation and optimization study), \$14,700 for Special Services (hydraulic model calibration), and \$30,000 Additional Services (contingency for project related unknowns). The total amount of the proposed Task Order is \$200,700.

Financial:

Funding is included in the approved FY 2019 Capital Budget referenced as Hydraulic Efficiency and Optimization project number 55H.

Recommendation:

Staff recommends approval of Task Order No. 4 with Carollo Engineers, Inc.

Enclosure:

1. Task Order No. 4 with Carollo Engineers, Inc.

Submitted By: Tom Snyder
Tom Snyder, Director of Engineering & Construction

Date: September 28, 2018

ATTACHMENT A

Task Order No. 4

This Task Order is part of the AGREEMENT between *Carollo Engineers, Inc.*, (the "ENGINEER"), and Upper Trinity Regional Water District (UTRWD), (the "OWNER"), for a project generally described as:

Engineering Services for the District's Regional Treated Water System

The purpose of this Task Order is as follows:

Hydraulic Efficiency and Optimization Study

ARTICLE I SCOPE OF SERVICES

The ENGINEER agrees to furnish the OWNER the following specific services:

BASIC ENGINEERING SERVICES

The following scope of work describes the work tasks and activities to be completed by the ENGINEER as part of engineering services related to the Optimization Study for the Tom Taylor Regional WTP (TRWTP) and the Tom Harpool Regional WTP (THRWTP) raw water and treated water systems.

Scope of Work:

The District supplies its customers with treated water from two treatment plants, the Tom Taylor RWTP and the Tom Harpool RWTP. The time is right for the District to identify efficiency and optimization measures to improve the operations of the existing water transmission and delivery facilities. This study will include updates to the current hydraulic network model, evaluation of various scenarios, analyzing results, and developing strategies to meet or exceed customer demands through the year 2035.

Task 100 Model Development and Update

Task 101 – Project Management: Prepare internal project instructions, work plan, quality control procedures, and meeting procedures. Conduct internal staff coordination; budget and schedule control; and coordination of various tasks being conducted simultaneously. A duration of 2 months is assumed for this Task.

Task 102 – Meetings: ENGINEER will attend the following meetings. Engineer will prepare meeting agendas, meeting handouts and meeting notes.

- Kickoff Meeting – One (1) meeting will be held to kickoff the project.
- Data Review Meeting - ENGINEER will attend one (1) meeting via conference call with OWNER to gather, discuss, and review data collected.

Task 103 – Model Development and Update: ENGINEER will review and update the hydraulic model with new existing information. Existing GIS data or detailed design drawings provided by the District will be used to populate the model. This task only accounts for facilities that are existing and will not be changing during the scenarios. The model development and update includes the following:

- Pipe upsizing at FM 2181 from 20 inch to 24 inch
- Change meters to magnetic flow meters
- Changes to MSUD POD #3 Silverado (formerly Regatta), FM428, North Lake meter vault, ground storage tanks, and other minor miscellaneous facilities.

Task 200 System Evaluation

Task 201 – Project Management: Prepare internal project instructions, work plan, quality control procedures, and meeting procedures. Conduct internal staff coordination; budget and schedule control; and coordination of various tasks being conducted simultaneously. A duration of 4 months is assumed for this Task.

Task 202 – Meetings: ENGINEER will attend the following meetings. Engineer will prepare meeting agendas, meeting handouts and meeting notes.

- Model Baseline Review Meeting: ENGINEER will attend one (1) meeting via conference call with OWNER to discuss the baseline model inputs, parameters, and results.
- Scenario Review Meeting: ENGINEER will attend one (1) meetings with OWNER to discuss the scenarios to be evaluated as part of the system improvements. ENGINEER will prepare handouts, meeting agendas and meeting minutes.

Task 203 – Develop Future Demands: The ENGINEER will develop future demands based for the entire UTRWD service area, from both the Taylor RWTP and the Harpool RWTP. Demands will be developed in accordance with TWDB, NCTCOG, population estimates, subscriptions, general industry practice, and other available information from the District. Demands will be developed from the years 2020 through 2035 in yearly intervals. Each demand year will be based on three different growth scenarios, including high growth, moderate growth, and low growth. This will give a range of demands per year to assist the District in planning water distribution facilities.

The moderate growth demands developed as part of this task will be summarized in the Optimization Study to be delivered as part of this project. These demands will be input into the hydraulic model and used to analyze and evaluate the performance of the system. Based on this analysis, recommendations will be presented to improve system efficiency, capital improvements, and other modifications to meet customer demands.

Task 204 – Demand Projections Technical Memorandum: The ENGINEER will summarize the demand projections developed in Task 203 in a Technical Memorandum. A draft copy will be delivered to OWNER for review and comments. ENGINEER will incorporate comments into final copy of Technical Memorandum.

Task 205 – Evaluate System Improvements: The ENGINEER will evaluate various system improvements and determine when these improvements are needed based on the future demands developed for this project. One set of demand projections (low, moderate, or high growth) will be used for this task as determined by the District. The following evaluations will be performed:

1. Replacement of the Southwest Booster Pump Station with new ground storage tank and pump station near the new North Lake ground storage tank.
 - a. Consider using the existing Southwest Booster Pump Station with the new ground storage tank or at another location.
2. Abandonment of Copper Canyon Elevated Tank. This tank is not operated during the summer due to high system pressures.
 - a. Consider using the elevated tank as an intake for an inline booster pump station.
 - b. Consider raising the elevation of the tank to make it operable during the summer.
3. Incorporate future parallel pipeline projects improvements from Taylor RWTP to the Stone Hill Tank and evaluate hydraulic improvements to Stone Hill Tank.
4. Determine maximum tank delivery elevation for customers based on pressure planes.
5. Evaluate possible timing of future expansion of treatment plant capacities, at both Harpool and Taylor RWTPs based on system demands.

For each of these improvements, ENGINEER will evaluate up to 3 potential solutions.

Task 206 – Efficiency Evaluation: The ENGINEER will identify areas within the raw water and finished water systems where bottle necks occur. These areas will be evaluated for improvements to increase efficiency and reduce energy costs. Pump stations will be evaluated to optimize pump operations. The District will determine the growth demand projections that will be used as a baseline.

Each facility will be evaluated based on existing conditions, existing demands, and one future demand growth scenario as determined by the District. Once the areas of deficiency are identified throughout the planning period to the year 2035, the bottle necks will be evaluated for improvements. Up to 3 potential solutions will be evaluated for each improvement.

The Temple Dane Pump Station and inline booster pump station across the lake will be evaluated to ensure redundancy and capacity to meet future demands. Currently, the District is limited on the flow that can be sent across the lake from Harpool to Taylor and Taylor to Harpool. This task will determine the maximum flow that can be pumped across the lake. It will also determine any improvements to the pump station and/or pipeline to meet the customer demands. It will also evaluate the size and timing of an inline booster pump station at or near Temple Dane for future flows across the lake.

Task 207 – System Evaluation Technical Memorandum: The ENGINEER will summarize the results from the growth projection scenarios as well as the system improvements and efficiency evaluation, described in Tasks 205, 206, and 207, in a Technical Memorandum. A draft copy will be delivered to OWNER for review and comments. ENGINEER will incorporate comments into final copy of Technical Memorandum.

Task 300 Optimization Study

Task 301 – Project Management: Prepare internal project instructions, work plan, quality control procedures, and meeting procedures. Conduct internal staff coordination, budget and schedule control, and coordination of various tasks being conducted simultaneously. A 4 month duration period has been estimated.

Task 302 – Meetings and Site Visits: ENGINEER will attend the following meeting. Engineer will prepare meeting agendas, meeting handouts and meeting notes.

- Optimization Study Review Meeting: ENGINEER will attend one (1) review meeting with the OWNER. ENGINEER to review the draft study. Comments received will be incorporated into final report.

Task 303 - Optimization Study: The ENGINEER will summarize the results from the System Evaluation in the Optimization Study. A draft report will be submitted to the District for review and comment. The study will include a list or table and graphic of improvements grouped into projects that are prioritized by year to allow the District to continue to meet customer demands. The District will determine the one demand growth projection scenario that will be used to run the optimization.

SPECIAL SERVICES

Special Services are those services known to be required for completion of the project that the OWNER agrees are to be furnished by the ENGINEER or by a subconsultant that cannot be defined sufficiently at this time to establish the maximum compensation. The services are not included in the scope of work of Basic Services or the amount of compensation for Basic Services. The Special Services for this assignment are described as follows:

Task 401 – Model Validation for Taylor System: Detailed model validation for the Tom Taylor RWTP system will be performed by ENGINEER. Field collected pressure data will be used to calibrate the model for the treated water system. OWNER will be responsible for installing and gathering the pressure data collected and providing it to ENGINEER. Locations for pressure sensors will be recommended by ENGINEER. Available SCADA and pressure transducer data from Summer 2018 will be used to validate/confirm pressures within the Taylor service area.

ADDITIONAL SERVICES

Additional services to be performed by the ENGINEER, if authorized by the OWNER, which are not included in the above-described Basic Engineering Services, are described as follows:

- A. Other services not included in Basic or Special Services.

ASSUMPTIONS:

The following assumptions have been made in the preparation of the scope and fee for this project:

1. Notice to proceed will be received in October 2018. The project duration is estimated to be 6-8 months in duration.
2. OWNER will provide available subscription agreements, drawings, development information, GIS data, and operational data to be used for this project.
3. Improvements and projects listed in Study do not include estimated construction costs or preliminary design of recommended improvement.

**Article II
Compensation**

Basic Services

Compensation by the OWNER to the ENGINEER for all Basic Services enumerated in Task Order No. 3 will be based on the hourly fee schedule and costs in accordance with Exhibit A, with the totals not to exceed \$ 156,000.00. Basic Services are broken down into the following major items of work:

A. Task 100	<u>\$ 18,600.00</u>
B. Task 200	<u>\$ 91,200.00</u>
C. Task 300	<u>\$ 46,200.00</u>

Special Services

For all Special Services enumerated in Task Order No. 4, compensation will be based on the actual cost times a multiplier in accordance with Exhibit A. The total amount will not exceed \$ 14,700.00 without prior written authorization from the OWNER. Special Services are broken down into the following major items of work:

A. Special Services	
• Task 401	<u>\$ 14,700.00</u>

Additional Services

Additional Services which may be required by the OWNER will be based on the actual hours and costs in accordance with Exhibit A. A budget allowance of \$ 30,000.00 has been established for this item and will not be exceeded without specific written authorization of the OWNER. No work will be undertaken without specific written authorization from the OWNER.

Total Compensation Summary

Basic Services:	<u>\$156,000.00</u>
Special Services:	<u>\$ 14,700.00</u>
Additional Services:	<u>\$ 30,000.00</u>
Estimated Total Task Order No. 4:	<u>\$200,700.00</u>

Other Provisions

The following provisions will apply to this Task Order:

The ENGINEER's compensation is based on immediate authorization to proceed and timely completion of the PROJECT. If the PROJECT timing deviates from the assumed schedule for causes beyond the ENGINEER's control, the ENGINEER reserves the right to request renegotiation of those portions of the compensation affected by the time change.

This Task Order No. 4 will become part of the referenced AGREEMENT when executed by both parties.

IN WITNESS WHEREOF, the parties execute below:

For the OWNER, Upper Trinity Regional Water District dated this _____ day of _____, 2018.

By: _____

By: _____
Name Title

For the ENGINEER, Carollo Engineers, Inc. dated this _____ day of _____, 2018.

By: _____

By: _____
Name Title

DRAFT