Memo

To: Clay Pearson, City Manager

From: Skipper Jones, Assistant Director Capital Projects

CC: Trent Epperson, Assistant City Manager
Robert Upton, Director Engineering and Capi
Clarence Whittwer, Director Public Works
David Van Riper, Assistant Director Public W

Date: January 10, 2019

Re: Surface Water Treatment Plant - Water Product

1/10/2019
To: Mayor and City Council members
Update on design elements progress for new surface water treatment plant, including `taste text'. Clay

Purpose

This memo provides information about progress on the Surface Water Treatment Plant project and background on the results of water treatment Pilot Testing as well as an introduction to the water taste testing event to be held for Council. The overall project scope of engineering services is divided into three packages: Package 1, The Pre-Sedimentation Bay and Raw Water Lift Station, Package 2, the Treatment Plant and Package 3, the Finished Water Storage, Distribution Pump Station and Distribution Lines.

Background

In April 2017, Council awarded Preliminary Design contracts to Freese and Nichols for Package 1, CDM Smith for Package 2 and in April 2018 Council awarded the design contract for Package 3 to Stantec Consulting Services. The Consultants for Packages 1 and 2 have completed their preliminary engineering assignments and submitted or will be submitting their final preliminary engineering reports (PERs) by the end of January 2019. Stantec was awarded Package 3 one year later and are working to complete their package in early first quarter 2019.

The scope of work for Package 2 (the Plant) included designing, building, procuring equipment and operating a pilot scale treatment plant on site to identify and refine the treatment processes that will be employed and provide process evaluation of equipment anticipated for use in the full scale plant. Specifically this task included the installation of equipment to:

- draw and store water from the Gulf Coast Water Authority (GCWA) canal,
- construct a small enclosed facility on site to house pilot equipment and activities,
- employ a water quality consulting and testing firm to operate the pilot plant for a period not less than nine consecutive months,
- collect water quality data from the operation of three separate membrane pilot units,
- provide guidance and technical information to assist the City in the selection of a membrane manufacturer and other process equipment,
- develop the treatment process providing finished drinking water meeting the City's highest water quality standards.

The pilot plant operation has run for the last nine months in order to experience the widest variety of raw water conditions presented in the source waters and develop a robust treatment process flexible

enough to deal with all anticipated raw water conditions. The pilot plant is scheduled to be de-commissioned and disassembled in late January. The remaining item in the scope of piloting activities includes convening a taste sampling of the finished product by interested members of the public and local political leaders.

Current Status

The Package 2 consultants, CDM/ Smith, in conjunction with the project's water quality consultant, Carollo Engineers (pilot plant operators), have put together a water sampling opportunity that will be conducted in the foyer of City Hall in order to capture interested members of the public and Council members. This will be a blind test, in that no sample will be identified prior to tasting and will include the collection of comments on the taste of the water.

Water samples will be prepared from the City's two current surface water plants, Alice Street and the Shadow Creek (FM521) Plant, both of which receive water from the City of Houston's surface water treatment plants. Two additional samples will be provided from the pilot plant using GCWA Canal source water using two slightly different treatment processes; one process includes a step in which water is pushed through a Granular Activated Carbon (referred to as GAC) contactor in the process train and one will not. **The purpose of the taste testing is to determine the ability to detect and discern any difference in the water samples from our current sources and the proposed surface water source. It will also provide information on whether or not the difference in the new surface water source with and without GAC is substantial enough to justify resources necessary to include this contactor in the plant and the sub-sequential operational requirements.**

For the public, this tasting provides an opportunity to form a positive public perception of the future water plant and the water it will produce. There will also be an opportunity for the public to ask questions and see preliminary site plans for the plant and understand where the product water will be utilized within the City once the plant is constructed and on-line.

For Council, this represents an opportunity to experience the water product, understand the processes that will be used to produce it, and get answers to questions from the City's experts and Staff on the equipment and processes. It will provide an opportunity to understand how the new surface water plant's product will compare to the water that the City has become accustomed to, understand the effect of various treatment processes that are planned for the plant, and finally to have firsthand knowledge of the plant and the water product to be able to answer the public's questions when asked.

Next Steps:

Staff have prepared the taste sampling for the hour prior to the regularly scheduled Council meeting **4:30 on January 28** to be held in the foyer of City Hall. This will be presented by Carollo Engineers, the project's water quality experts, and operators of the pilot plant operations. Staff will have the preliminary site plan of the facility available for review and discussions and will have staff available to answer questions.

Budget Info:

Funding Sources	Series	To Date	Future	Total Budget
W/S Revenue Bonds	2017B	6,012,500		6,012,500
Impact Fee - Debt	2017B	6,012,500		6,012,500
W/S Revenue Bonds	2018A	4,325,000		4,325,000
Impact Fee - Debt	2018A	4,325,000		4,325,000
W/S Revenue Bonds	Future		68,625,000	68,625,000
Impact Fee - Debt	Future		68,625,000	68,625,000
Cash				-
Other Funding Sources				-
Total Funding Sources		**20,675,000**	**137,250,000**	**157,925,000**

Expenditures	To Date	Future	Total
PER	9,378,750		9,378,750
Land		915,000	915,000
Design	5,395	16,600,000	16,605,395
Construction Contract		125,000,000	125,000,000
Construction Management/Inspection			-
Construction Materials Testing			-
FF&E			-
Total Expenditures	**9,384,145**	**142,515,000**	**151,899,145**

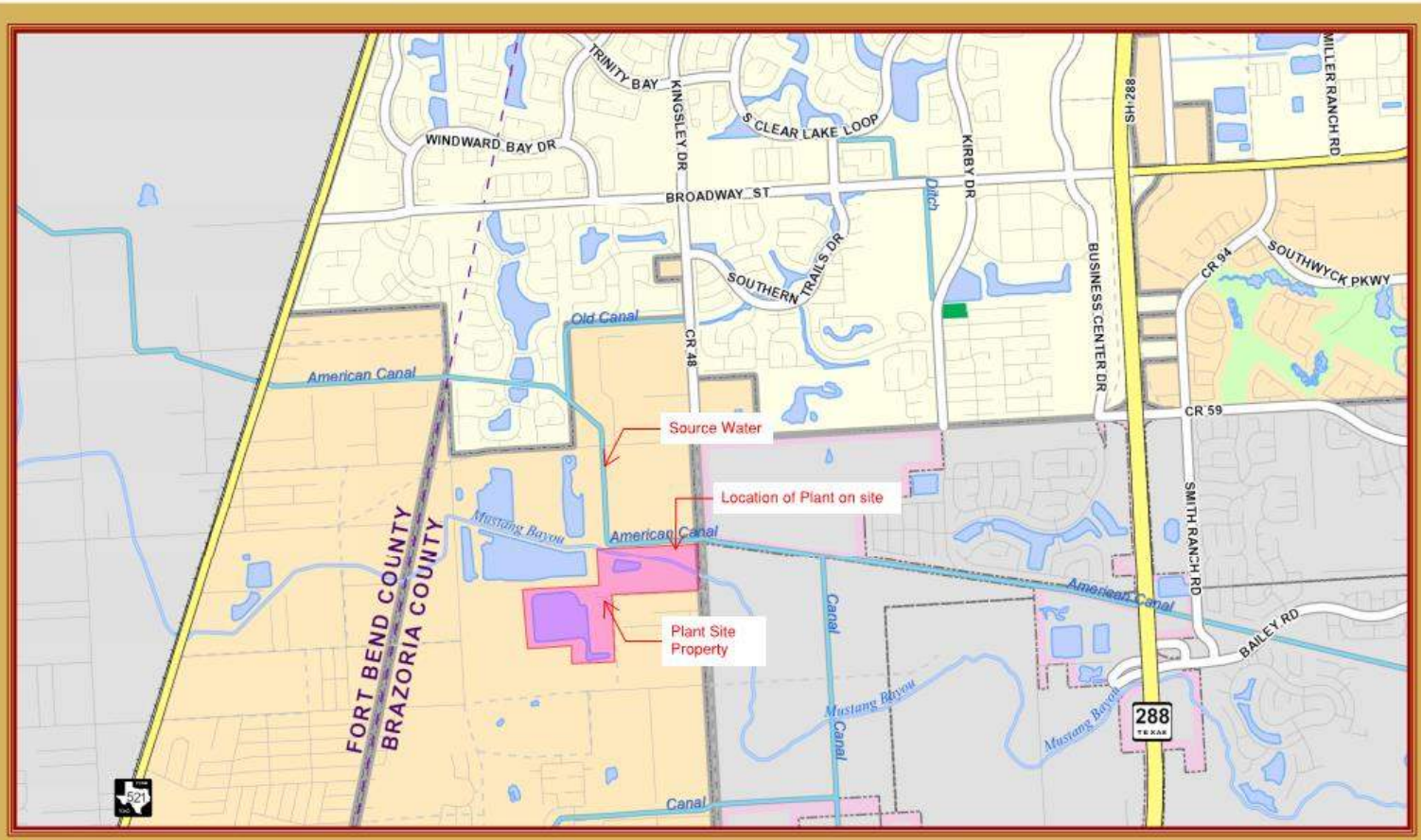
Project Balance/Contingency	**6,025,855**

Schedule Info:

	Base Line	*Current*
Design Start - Package 1	March-17	May-17
Design Start - Package 2	March-17	May-17
Design Start - Package 3	March-17	April-18
Bid Start	March-20	
Construction Start	May-20	
Proposed Construction Completion	December-22	

Rain Days: N/A

SURFACE WATER PLANT LOCATION



Legend/Notes

1:35,415

1 inch = 2,942 feet

NORTH

This product is for informational purposes only and may not be prepared or be suitable for legal, engineering, or surveying purposes.

MAP PREPARED: DECEMBER 18, 2018

Raw Water Intake Pumps

Raw Water Flocculation and Plate Settlers

Membrane Filter Units - Toray, Evoqua, and Pall

Membrane Filter Units - Toray, Evoqua, and Pall