

3/28/2019

To: Mayor and City Council members

Upcoming award of the Construction Manager at Risk (CMAR) contract for the Surface Water Plant including award of contract for Pre-construction Services for all 3 project packages. The CMAR process has proved to be an effective delivery method to help manage and control costs on Fire Station #8. The CMAR will provide review of plans, means and methods, materials, construction sequencing, etc. guiding the design to be cost effective and eliminating change orders due to design omissions or design conflicts. Guaranteed Maximum Price (GMP) based on the CMAR bidding the project components expected in approximately 9-12 months for all Packages. Trent



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To: Clay Pearson, City Manager

From: Skipper Jones, Assistant Director Capital Projects

CC: Trent Epperson, Assistant City Manager  
Robert Upton, Director Engineering and Capital Projects  
Clarence Wittwer, Director Public Works  
David Van Riper, Assistant Director Public Works

Date: March 28, 2019

Re: Surface Water Treatment Plant

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## Purpose

This memo provides information about progress on the **Surface Water Treatment Plant project and the proposed award of a Construction Manager at Risk (CMAR) contract for Pre-Construction Services for the project.** This contract is scheduled for the April 8<sup>th</sup> City Council meeting.

## Background

The Surface Water Treatment Plant is being designed to provide **10 million gallons per day (MGD) of drinking water to the citizens of Pearland beginning in January 2023** and be expandable to 20 MGD. This additional capacity is necessary to meet the growing demands of the City and its population as it moves towards build-out and probable future restrictions on ground water use. The project has been planned to be constructed using the **alternative delivery process known as Construction Manager at Risk (CMAR) that requires the contractor to work with designers to generate cost-efficient plans, resolve constructability issues and reduce the risk of costly and time-consuming change orders before bidding the construction work.** This alternative delivery process is specifically detailed and outline in Local Government Code, Chapter 252 and Government Code, Title 10, Subtitle F, Chapter 2269.251. Staff's procedures to make this selection have carefully followed statutory guidelines for this process to continue to ensure compliance with financing requirements from Texas Water Development Board (TWDB).

In early **January 2019 Staff advertised the Request for Proposal (RFP) for CMAR** to include pre-construction and, by later amendment, construction phase services. Sixteen general contractor type entities plus two national plan houses viewed the documents and two well qualified CMAR firms responded, McCarthy Building Companies, a nationwide heavy construction firm and Pepper Lawson Waterworks (PLW), a Texas firm with a long history in our region and a recent successfully completed project with the City of Pearland. This RFP contained requirements to provide responses for both Pre-Construction and Construction Phase services for the project.

Pre-Construction services include, provision of project management and cost estimation personnel, provision of design review and recommendations, requests for additional details necessary to complete the plans, provide on-going value engineering and cost effective alternative designs and methods, bid and sub-contracting of portions of the work not self-performed and the development of detailed cost

estimates leading up to the provision of a Guaranteed Maximum Price (GMP) at the point of 90% plans completion.

Construction Phase Services, to be provided upon acceptance of the GMP by the City, include competitively bidding all work packages and equipment purchases against market conditions, conduct outreach activities to solicit interests from local and Disadvantaged Business Enterprises (DBEs), recommend award of subcontracts for construction activities, accept assignment of pre-purchased equipment procured by the City, manage all other equipment and material procurement, manage the work of subcontractors and material/equipment vendors, monitor and maintain quality controls and schedules, provide payment and performance bonds as well as all required insurance, conduct monthly progress meetings, process pay applications, manage shop drawings and submittals, implement plant commissioning and start-up, complete the construction and provide operations and maintenance manuals, provide plant start-up and performance testing and reporting, provide warranty work and then maintenance for a period of two years upon completion.

Construction Phase services are NOT a component of the current contract scheduled for award but, will be added by amendment to this agreement upon successful negotiation of the CMAR's Guaranteed Maximum Price (GMP) scheduled for no later than 90% plans and specifications.

### Current Status

The Selection Committee reviewed each respondent's qualifications, scoring on a multi-point basis that included Experience with previous projects of similar size and scope, quality of key personnel assigned, history of meeting or exceeding cost and schedule targets, safety records, project approach, self-performance capabilities. Both Contractors were interviewed on February 27<sup>th</sup> and scored based upon their answers. See table below for scoring results.

			Pepper Lawson	McCarthy
<b>Qualifications</b>				
<b>1) Experience &amp; Capabilities</b>				
a) Past Experience & performance w/ govt projects	15 pts		14.25	14.25
b) Quality of Key Personnel Assigned	15 pts		14.25	11
c) History of meeting Cost & Schedule	5 pts		4.75	4
d) Client References	5 pts		3.5	3.25
<b>2) Organization,</b>				
a) Management, Safety Record and Q/A program	10 pts		9.25	8.75
b) Project approach- ability to meet schedule	20 pts		18.5	14
c) pre-construction, construction & Coordination	20 pts		18	15.25
d) Self-perform capability	10 pts		7.5	9.5
<b>2) Fees and Rate Proposal</b>				
a) Pre-Construction Services Billing Rate	7 pts		7	3.5
b) Construction Phase Services Fee	8 pts		8	5.58
<b>3 Interview</b>				
	Max 15 pts		13.75	10.75
	<b>Totals</b>		<b>118.75</b>	<b>99.83</b>

After completion of the interviews and tabulating scores the fee proposals were unsealed and reviewed for compliance with instructions within the request. Part One requested respondents provide the billing rate for each team member and the estimated man/hours required to perform Pre-Construction Services. This information was then extrapolated to provide an estimated Pre-Construction Fee. Pepper Lawson

(PLW) estimated approximately 9,656 man/hours at an average rate of \$105.63 dollars per hour. McCarthy's estimate totaled approximately 10,700 man/hours at an average rate of \$139.78 per hour.

Part Two requested provision of a Construction Phase Services Fee, expressed as a percentage of the cost of construction based on an estimated \$100 million dollar construction cost. McCarthy proposed a fee of 6.95%. PLW proposed a fee of 4.85%.

PLW performed very well on the Reflection Bay Water Reclamation plant project developing a \$400,000 cost savings option in the first weeks of construction. Additionally, when one of their sub-contractors made a mistake that required a re-design effort by the Engineer of Record, Pepper Lawson paid for the additional work, no questions asked. This project was delivered almost six months ahead of schedule and well within budget.

### **CMAR Next Steps:**

After the selection of the CMAR firm, staff negotiated several final items to be included in the scope of work for CMAR Pre-Construction phase services including:

- Pepper Lawson has agreed to a fee reduction reducing the contractor's markup on the first \$10 million dollars of plant equipment purchases completed in the Construction Phase;
- The CMAR will assume Pre-Construction management of the Transmission lines and booster pump plant entrance design and planning in addition to the On-site work;
- The scope and fees of Pre-Construction work will be divided into two Tasks, Task 1 being the On-Site plant work and Task 2 being the Off-Site Transmission line work
- The CMAR will provide a full and final cost proposal for both Tasks as Lump Sum fees to remove the risk of "extra work" claims;
- Pepper Lawson has recommended, and Staff agree, that this contract should include an Owner's Allowance strictly for the Owner's use in connection with potential additional work such as potholing, subsurface investigations, geotechnical and installation of piezometers that could assist in guiding value engineering of foundations.
- Development of a milestone payment schedule projecting man/hours and rates across the nine month planning and design schedule of Pre-Construction services.

Discussions with PLW and the Owner's Representative have revealed a number of beneficial reasons to place all work under a single CMAR, including

- Grouping the Off-Site work, transmission lines, booster pump plant connections and instrumentation and communications, in the CMAR's scope provides one contract to manage
- Makes the CMAR responsible for Coordination of the construction schedules and assuring the inter-operability of infrastructure.
- With all work under one management team completion schedules can be synchronized to allow all components to finish together
- This removes finger pointing regarding inter-operability of systems within each category. While there are additional pre-construction fees this arrangement is expected to result in lower overall costs than managing multiple contracts and paying multiple contractor mark-ups and preparing multiple bid packages.

## Engineering Design Next Steps

The Final Design contract for Package 2 was awarded to CDM-Smith on the March 4 Agenda. The executed contract was transmitted to CDM on March 6. Final Design work began immediately in order to maintain the design schedule.

Preliminary Engineering Reports (PERs) for Packages 1 and 3 are nearing completion. The CMAR's scope of work for pre-construction services now includes Package 1 and Package 3 as defined above therefore no amendments to the Pre-Construction services for these packages will be required as they complete.

Staff is currently **in negotiations for Final Design services with Freese and Nichols for Package 1, for the Pre-sedimentation Basin and Low Lift Pump Station.** In a change from the previous scope assignments, Freese and Nichol's contract will now include the facility's detention requirements and associated drainage work. This package is in the early stages of development and is **planned to be ready for the late April or early May award time frame.**

Package 3, the High Service Pump Station, Ground Storage Tank and Transmission Lines has been amended to review an alternative route for the transmission lines to avoid placing infrastructure along the narrow Magnolia Parkway (County Road 59) Right of Way between CR48 and Kirby Drive. The County is currently considering three different Right of Way alternatives to widen that roadway all of which could impact the City's transmission line placement. Therefore an alternative route within the City owned Right of Way for Broadway has been selected which could also shorten the overall length of transmission line required. **A contract for Final Design services for Package 3 is planned to be ready for Council consideration in May.**

Staff will bring both of these design contracts to Council as they are finalized.

### Recommendation:

**On April 8, Staff will bring the final negotiated CMAR contract for the Surface Water Plant and Transmission lines to Council with the recommendation to approve the selection process and award the contract for Pre-Construction services to Pepper Lawson Waterworks in the Lump Sum amount of \$992,000 plus an Owner's Allowance of \$100,000 totaling \$1,092,000.** The Agenda Request will provide the full scope of work included and the proposed schedule of values for the contract.

A notice to Proceed would be issued immediately and the CMAR will begin work with CDM Smith, the designer for the plant.

### Budget Information:

**Current budget information reflects very early construction costs estimated from each of the three design engineers.** These estimates were developed during the Preliminary engineering phase; which in the cases of Packages 2 and 3 are not yet completed. They also contain large contingencies to cover unknowns. **As with other CMAR led projects cost estimating and refinement of cost effective design and construction methodologies are primary scope components for the CMAR.** These figures will change

as the project progresses and ultimately produces the CMAR's GMP at which time the City may accept that price and issue a contract for construction.

<b>Funding Sources</b>	<b>Series</b>	<b>To Date</b>	<b>Future</b>	<b>Total Budget</b>
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		79,725,000	79,725,000
Impact Fee - Debt	Future		63,350,000	63,350,000
Cash				-
Other Funding Sources				-
<b>Total Funding Sources</b>		<b>20,675,000</b>	<b>143,075,000</b>	<b>163,750,000</b>

<b>Expenditures</b>	<b>To Date</b>	<b>Future</b>	<b>Total</b>
PER	9,378,750		9,378,750
Land		915,000	915,000
Design	5,207,827	6,797,568	12,005,395
Construction Contract		145,000,000	145,000,000
Construction Management/Inspection			-
Construction Materials Testing		350,000	350,000
FF&E			-
<b>Total Expenditures</b>	<b>14,586,577</b>	<b>153,062,568</b>	<b>167,649,145</b>

<b>Project Balance/Contingency</b>	<b>(3,899,145)</b>
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These figures are based on preliminary cost estimates from completed and draft Preliminary Engineering Reports. The apparent budget deficit is being addressed in the FY2020 CIP. Additionally, the CMAR will begin cost estimating and value engineering of the design immediately once on board and this effort is expected to begin to bring these estimates closer to the existing budget.

**Schedule Info:**

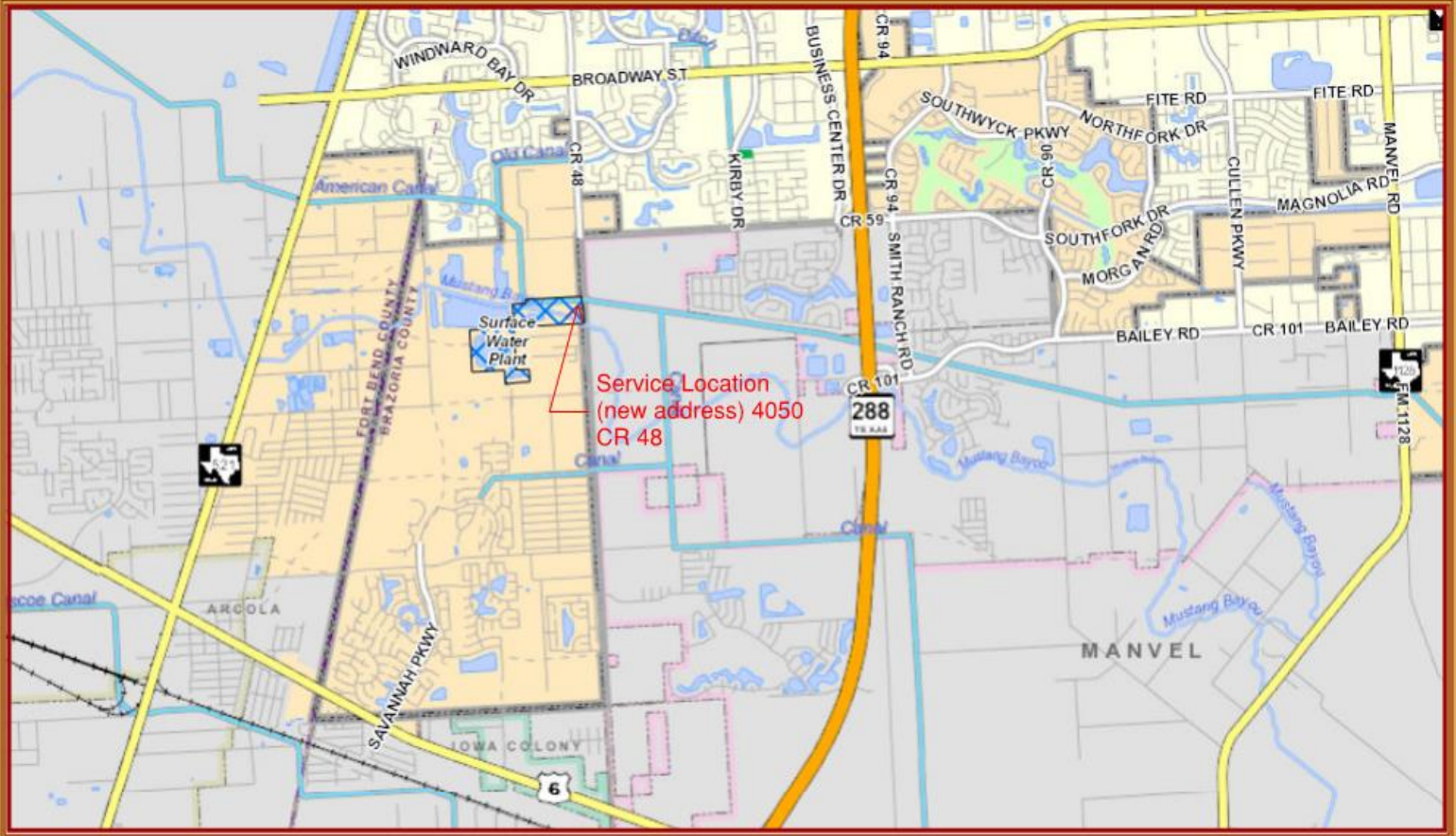
	<b>Base Line</b>	<b>Current</b>
<i>Design Start - Package 1</i>	May-18	
<i>Design Start - Package 2</i>	March-18	March-18
<i>Design Start - Package 3</i>	May-18	
<i>Bid Start</i>	March-20	
<i>Construction Start</i>	May-20	
<i>Proposed Construction Completion</i>	December-22	

Rain Days: N/A

**Previous Memos:** 02.21.19, 01.10.19, 04.19.18, 03.29.18, 04.13.17, 03.09.17, 02.02.17, 06.14.



## SURFACE WATER PLANT LOCATION MAP



**Legend/Notes**

<b>Project Area</b>	Transportation
Drainage	Wastewater
Facilities	Water
Parks	



1:57,169  
1 inch = 4,764 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: MAY 17, 2017  
G&S DEPARTMENT



# Preliminary Surface Water Plant Site Schematic Layout

