



# Memo

To: Clay Pearson, City Manager

From: Morgan Early, Project Manager

CC: Trent Epperson, Assistant City Manager  
Robert D Upton, P.E., Director of Engineering & Projects  
Skipper Jones, Assistant Director of Capital Projects  
Clarence Wittwer, Director of Public Works  
David Van Riper, Assistant Director of Public Works  
Julian Kelly, Superintendent – Water Production  
John Hines, Superintendent – Distribution & Collections

Date: August 20, 2020

Re: Water Quality Program II – Oakbrook & Oakbrook Estates

20 August 2020  
To: Mayor and City Council members  
Design services for water quality improvement retrofits in existing neighborhoods forthcoming for consideration. Clay

---

## Purpose

This memo provides advance notice of the proposed engineering design services contract award to ARKK Engineers a design services contract for the Water Quality Program II – Oakbrook & Oakbrook Estates.

## Project Background

The City has implemented a multi-year water quality improvement program to address locations within the distribution system that have a history of water quality complaints. The ultimate objective of this effort is to improve water circulation, remove smaller diameter pipe, install fire hydrants to promote better flushing thus reducing the time water spends in the distribution system prior to consumption. Oakbrook and Oakbrook Estates are two such areas that have been the source of chronic complaints.

The Oakbrook development was constructed into two separate subdivisions with a total of (11) unique phases. During this time period, the City did not have a water master plan for the City system. The lack of a holistic system plan, created locations in the distribution system that do not have adequate circulation and, as a result, have low velocity. Low velocities in pipes create long travel times, resulting in pipe sections where sediments can collect and be protected from scouring efforts. Untreated, sediment deposition will impose odors, tastes and, in some cases, colors that result in these specific kinds of complaints.

Due to the available funding, the full scale of the water quality improvements to this area was not captured by FY19 funds. This resulted in the development of a phased approach for this neighborhood.

Phase I design began in July 2019, and once begun, resulted in the identification of conflicts with the initial design scope of looping each segment. The primary conflict being the lack of dedicated easements incorporated into the subdivision construction. Due to these design developments and with collaboration with water production staff, the design of Phase I has been finalized in conjunction with the design of Phase II beginning. To obtain economies of scale and to minimize the imposition on residents, a decision was made

to combine construction activities for Phase II improvements with those of Phase I. Phase I design sought to loop all locations that had existing water lines that dead ended in cul-de-sacs. Many of these consist of small diameter pipe, with a 2-inch blow-off at the end of the line. The small line diameter and small blow-off valve result in the inability to adequately flush these lines and can create these stagnant segments. Locations which do not have room for easements will be upsized to a 6" and extended to the end of the cul-de-sac where a fire hydrant will be installed. This will allow staff to pig and/ or flush these lines that cannot be looped.

The Phase II area, which includes Oak Bent Dr, Oak Lake Cir, Branch Hill Dr, Scarlet Oak Dr, Oak Top Dr, E Baden Oaks, Dixie Hill Ct, Oak Point Ct, Bracket Ct, Oak Point Ct (E Loop), Oak Leaf Cir, Pin Oak Dr N, Oak Place Ct, Oak Trace Ct, Oak Chase Ct, Oak Bark Ct, Majestic Oak Ct, and Winding Forest Dr will take advantage of existing easements to cross-connect dead end lines to each other improving flows and velocities. Staff have identified (13) locations within the Phase II area that can be tied-in together or otherwise connected back to the distribution system, once necessary agreements with easement owners have been executed. To limit disturbance to residents, staff proposes Phase I and II are bid and constructed concurrently so that this work is all completed at one time.

Staff selected ARKK Engineers for the project design due to their extensive background in water system design and their familiarity with the distribution system in this area. (ARKK is currently under-contract for and completing design of Phase I) This combination also simplifies the project's bid and construction phases.

**Scope of Contract**

The scope of the proposed work will include Design Phase Services, Bid Phase Services, and Construction Phases Services, as approved, to prepare the construction contract package, answer bidder questions and assist in administering the construction. Design Phase Services include final design, technical specifications and bid documents for a Lump Sum in the amount of \$54,800. Preparation of parcel exhibits to attach to easement agreements to be billed at cost plus 10% for each exhibit prepared. Estimated costs for (21) easements are proposed for \$21,150.00. Estimated reproduction and Record Drawing expenses as proposed in the contract are not to exceed \$500.00 and \$1,750.00, respectively. Bidding services will be performed for a Lump Sum of \$3,250.00. Construction Phase services will be performed on an hourly not to exceed basis for \$17,750.00. The total contract value of the work of engineering design services is \$99,200.00.

The proposal from ARKK Engineers, LLC for professional services associated with the design and construction of the Water Quality Program II – Oakbrook & Oakbrook Estates is scheduled to be presented to Council for consideration on the September 14, 2020 agenda.

**Budget Info**

Funding Sources	Series	To Date	Future	Total Budget
System Revenue - Cash		837,000		837,000
Certificates of Obligation				-
Certificates of Obligation				-
General Obligation Bonds				-
General Obligation Bonds				-
W/S Revenue Bonds				-

Impact Fee - Debt		-
Other Funding Sources		-
<b>Total Funding Sources</b>	<b>837,000</b>	<b>837,000</b>

<b>Expenditures</b>	<b>To Date</b>	<b>Future</b>	<b>Total</b>
PER			-
Land		50,000	50,000
Design		99,200	99,200
Construction		620,000	620,000
Construction Management/Inspection			-
Construction Materials Testing			-
FF&E			-
<b>Total Expenditures</b>	<b>-</b>	<b>769,200</b>	<b>769,200</b>

<b>Project Balance/Contingency</b>		<b>67,800</b>
------------------------------------	--	---------------

### Schedule Info

The design for Phase II was delayed, as shown in the current schedule below, because of necessary scope changes resulting from the lack of dedicated easements within the development. Staff will coordinate the start of bid and construction phase services with the Water Quality phase I - Oakbrook project. Staff anticipates there will be a cost savings associated with combining these two projects at construction. Combining the construction activities into one contract will also minimize disruption to the residents by allowing for one cumulative schedule of work within the subdivision.

	<b>Base Line</b>	<b>Current</b>
<b>Design Start</b>	June-20	September-20
<b>Bid Start</b>	March-21	
<b>Construction Start</b>	May-21	
<b>Proposed Construction Completion</b>	November-21	

Rain Days: N/A

### Recommendation

Staff will recommend Council approve and award the engineering services contract to ARKK Engineers, LLC in the amount of \$99,200.00 at the September 14, 2020 council meeting.

# Water Quality Program Overview Map

## VICINITY MAP



## Water Quality - Oakbrook & Oakbrook Estates



1:12,000  
1 inch = 1,000 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 28, 2019