Thank you for attending the Pre-Submittal Meeting for RFQ 2020-001

• You will be joining the call muted to limit background noise.
• When choosing Audio, please choose connect through the internet or by calling the 1-800 phone number - do not do both.
• The meeting is being recorded including all chat between participants.
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RFQ 2020-001

PRE-SUBMITTAL MEETING

PROFESSIONAL SERVICES FOR EVALUATION OF SUBSIDENCE IMPACTS ON SPRING CREEK WATERSHED
Agenda

• Subsidence District Mission
• Project Overview
• Project Scope
• Questions
• RFQ Timeline
Subsidence District Mission
The Subsidence Districts were created to prevent land subsidence in Harris, Galveston, and Fort Bend counties through the management of groundwater.

Land subsidence contributes to flooding threatening the economic health of the area.

Efforts to prevent subsidence by the District and the regulated community create a more resilient infrastructure to mitigate flooding while securing reliable water sources for future needs.
Regulating groundwater to stop subsidence

- Following the creation of the District, groundwater regulation began nearest the coast in the area of concentrated emphasis (ACE). As population spread to the north and west and water use increased, numerous regulatory plans were developed and implemented.

- Both the HGSD and FBSD Regulatory Plans were updated in 2013.

- Regulatory Areas One and Two are fully converted so that groundwater comprises no more than 10 and 20% of their total water demand, respectively.

- Regulatory Area Three was converted in 2010 from 100% groundwater to 20% of their total water demand, except for those who have groundwater reduction plans. Those permittees converted to 70% in 2010 and have the following conversions and timelines are required to stop future subsidence in Regulatory Area Three.
  - Groundwater reduced to 40% of total water demand by 2025
  - Groundwater reduced to 20% of total water demand by 2035
Project Overview
Spring Creek Watershed

Location of Spring Creek watershed with respect to the Subsidence Districts’ Regulatory Areas.
Previous studies on relationship between subsidence and flooding

In 1986, the District in coordination with Harris County Flood Control District, City of Houston and Fort Bend County Drainage District completed a study to define specific impacts of subsidence on three major components of inland drainage and flood control systems: riverine drainage systems, localized drainage systems, and Addicks and Barker flood control reservoirs.
Previous studies on relationship between subsidence and flooding

- Nine channels in five watersheds were studied. Watersheds included Brays Bayou, Sims Bayou, Buffalo Bayou, Addicks Reservoir tributaries and Barker Reservoir tributaries.
- Findings from the 1986 study showed that river systems experienced the following subsidence impacts:
  - When subsidence caused steepening of stream gradient, flows increased but flood depth decreased with resultant decrease in flood plain.
  - When subsidence caused flattening of the stream gradient, flows decreased but flood depth increased along with increased flood plain.
  - When subsidence caused a cone of subsidence within the stream system, decreased flood levels occurred upstream of the center of the cone and increased flood levels downstream.
- Study also included an economic analysis of subsidence impacts.
- This study will be posted on the District’s website.
Drivers for this Study

• Although subsidence impacts on flooding has been studied before, Spring Creek was not included in the 1986 study.

• Findings from other bayous and streams in Harris County are not transferrable to Spring Creek. The Creek is quite different from other watersheds in the District, in terms of watershed and channel characteristics.

• While the Spring Creek watershed is largely undeveloped at the moment, growth is anticipated for this area in the future.

• New hydrologic and hydraulic modeling tools are available that may be able to expand our understanding of subsidence impacts on flooding. Additionally, new and improved tools are available to evaluate impacts of subsidence.

• Additionally, this study will provide an opportunity to examine the impacts of groundwater management decisions in by Lone Star Groundwater Conservation District.
Project Scope
Overview of tasks included in RFQ

1. Develop methodology for subsidence grid transformation
2. Develop hydrologic and hydraulic models for subsidence scenarios
3. Determine impacts from subsidence
4. Prepare documentation of the study
Task 1: Subsidence Grid Transformation

- HGSD will provide subsidence grid comprised of 1-square mile grid cells for up to three subsidence scenarios
Figure 1 from Kasmarek, 2012

Grid over Harris, Waller, Montgomery Counties
Task 1: Subsidence Grid Transformation

- HGSD will provide subsidence grid comprised of 1-square mile grid cells for up to three subsidence scenarios
- Deliverable will be memorandum summarizing methodology to refine H&H models to reflect simulated subsidence
- Consulting teams are asked to describe how their approach will consider the scale differences between the simulated subsidence grid and the H&H models
Task 2: Develop H&H models for subsidence scenarios

- Multiple flood studies have been completed on Spring Creek since Hurricane Harvey in 2017, providing existing models that can be used for this study.

- Deliverable will be memorandum describing model selection process, model revisions, and summarizing preliminary model results.

- Consulting teams are asked to describe the model selection process, what models would be recommended based on current understanding, along with any modeling challenges that are anticipated.
Task 3: Determine impacts from subsidence

- This task will evaluate the impacts on Spring Creek watershed associated with subsidence using models developed in Task 2.
- Primary interest is impacts on riverine flooding.
- Secondary interest is how subsidence can impact other aspects of the Spring Creek Watershed, to the extent that they inform a holistic understanding of subsidence impacts. Secondary aspects include:
  - localized drainage system flooding
  - faulting and scarp placement
  - stream condition
  - in-stream velocities
Task 3: Determine impacts from subsidence

• Evaluation should include a screening level analysis of economic impacts from each of the subsidence scenarios

• Deliverable will be memorandum describing the approach and a summary of subsidence impacts from each subsidence scenario

• Consulting teams are asked to describe proposed methodology for evaluating subsidence impacts, considering both physical and economic impacts.
Task 4: Develop documentation of the study

- Draft report
- Final report
- Executive summary
Final Remarks

- Multi-agency effort
- Coordination with regional and state agencies important
- Local communication driven by District but supported by technical team
Questions
Questions

• If you have questions you would like to pose, you may pose your question in the chat or raise your hand and we will unmute you so that you can ask your question.

• Any questions and responses provided during the Pre-Submittal meeting will be posted in an addendum.
RFQ Timeline

• Release RFQ: Friday, June 5, 2020
• Pre-submittal conference: Tuesday, June 16, 2020, 10:30 am
• Deadline for questions and inquiries: Monday, June 22, 2020, 5:00 pm
  • Send questions and inquiries to contracts@subsidence.org
  • Answers to all questions, inquiries, and requests for additional information will be issued in the form of Addenda on the District website.
  • If Addenda are issued, receipt of each Addendum shall be acknowledged by in the submittal package.
• SOQ submissions due: Wednesday, July 15, 2019, 2:00 pm
Thank you

- We appreciate your interest in this RFQ