

Bastrop Bayou Watershed Protection Plan Modeling Scope

The Houston-Galveston Area Council is requesting written proposals/bids for watershed modeling to be utilized in the Bastrop Bayou Watershed Protection and Implementation Plan. A Watershed Protection and Implementation Plan was initiated for the Bastrop Bayou watershed in 2006. One goal of the plan is to provide a mechanism to avoid having the watershed listed for bacteria impairment due to the expected population growth (50% by 2035). To achieve this goal, the plan lays out steps to identify the possible sources of bacterial pollution, defines the needed load reductions and identifies the management measures needed.

Part of the process of quantifying the needed load reductions is to perform a quantitative analysis of sources and mixing processes. A quantitative analysis is frequently best performed using a numerical model. H-GAC has already employed the SELECT model to estimate the relative loads of bacteria produced by various sources. A particular need in the Bastrop Bayou watershed is to consider the tidal mixing processes that are important in the lower tidal reaches. The mouth of Bastrop Bayou is connected to tidal waters via Bastrop Bay, Christmas Bay and West Bay of the Galveston Bay system. Tidal exchanges move significant volumes of water and associated bacteria loads in and out on each tidal cycle. The volume of water introduced between low tide and high tide and removed on the ebb tide is referred to as the tidal prism. Additionally flow for the non-tidal portion is also needed.

The Bastrop Bayou system is listed as segment 1105 and the main stem is tidal. The upper reaches of tributaries (Austin, Flores and Brushy) are non-tidal. There are a total of ten monitoring station in segment 1105.

The contractor would set up a model of the Bastrop Bayou system (all of segment 1105) using available bathymetric information and tide records from the Galveston Bay system. The contractor would operate the model for a representative period (at least 1 month) and employ conservative tracer particles to determine the rate at which tidal mixing removes materials from the bayou. Available water quality data would be employed for calibration. For the non-tidal sections, the contractor will develop synthetic flow calculations from a nearby watershed's flow measurements. No USGS flow monitoring gauges are

located in segment 1105, while a USGS flow measuring station is located in the adjacent Chocolate Bayou.

The contractor shall employ tidal prism calculations to yield estimates of bacteria (E. Coli and Enterococcus) loadings at all ten monitoring sites. The contractor will calculate the current and maximum loadings from each of the sampling sites. The Contractor will determine current loadings with sources identified by the SELECT modeling. The contractor shall estimate load reductions in relation to time from the forecasting model already completed. The contractor will attend a kick-off meeting with H-GAC and TCEQ staff to clarify the approach and specifics of modeling as necessary. H-GAC and TCEQ staff will review the final, detailed modeling plan after the kick-off meeting and prior to the beginning of the modeling work. A copy of this document and the SELECT Modeling results are posted at www.bastropbayou.org

The complete budget must not exceed \$49,000.

Calendar of Events

- Request Issued October 8, 2009
- Proposals/bids due – 4:00 P.M. October 22, 2009
- Begin negotiations with top-ranked proposer October 26, 2009
(Meet with TCEQ officials)
- Service begins October 30, 2009
- Deadline to complete project December 4, 2009

All proposals/bids are due on October 22, 2009 by 4:00 pm. The document(s) may be delivered by mail, email or in person. H-GAC will not accept any proposals delivered by facsimile.

Outline and Content

To simplify the review process and to obtain the maximum degree of comparability, the submitted proposal/bid must follow the outline as set forth below and, at a minimum, contain the information as requested. Proposers/bidders are encouraged to include additional relevant information. As an option, pre-printed brochures may accompany required materials, but will not be considered as substitution for other written requirements.

Format

The documents must be typewritten and signed. Legibility, clarity and completeness are important and essential.

Cover Letter

The cover letter should be limited to one (1) page and should include: the subject, the name and address of the Proposer/bidder, the date of the proposal/bid and the total cost.

The proposal must include

1. A brief statement of the firm's understanding of the work to be done.
2. The names, titles, addresses and telephone numbers of the individuals who are authorized to make representations on behalf of the firm.
3. A statement that the person signing the transmittal letter is authorized to legally bind the firm; that the proposal/bid and pricing contained therein shall remain firm for a period of 90 days from the date of receipt of best and final offers, and that the proposal/bid will comply with the requirements of this scope.
4. A statement that the lump sum is the total fixed price for the equipment and services enumerated.
5. A statement indicating which vendor, if multiple vendors are proposing jointly, intends to act a prime point of contact for any evaluation questions and the delivery and maintenance of the vendor's proposed offerings.

Contact Information

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HGAC reserves the right to reject a proposed subcontractor for a reasonable cause. To satisfy Texas' statutory requirements [Government Code, Chapter 2161, Subchapter D], H-GAC requires all Offerors to supply information in any bid/proposal response listing (1) the total number of subcontracts and (2) the total number of HISTORICALLY UNDERUTILIZED BUSINESS (HUB) contracts applicable to the Products or Services offered in the response.