13501 Katy Freeway Suite 1350
Houston, Texas 77079
Main: 877 627 3772

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Memorandum

To:	Kristin Edwards
From:	Guillermo Benavides, PE, ENV SP
Date:	April 24, 2025
Subject:	Revised Proposal for Professional Services - Preliminary Engineering Report for Shoal Point Entry Road
Project No.:	24013577P

Proposal Restructure:

Pursuant to our discussion during the proposal review meetings on April 10th and April 16th, our office has revised the original proposal, dated March 5, 2025. The aim of the revisions are to more clearly define the scope of work to be performed under Phase I (as follows:

1. Proposal scope restructured to clearly define Phase I and Phase II as well as associated costs of each phase.
2. Level of effort exhibit revised to clearly identify Phase I costs and Phase II costs.
3. Survey Services scope of work revised to exclude LiDAR data collection and replaced with on-site topographic survey.
4. Environmental Services scope of work revised to include additional natural resources items recommended to be completed during Phase II.
5. Preliminary Schedule updated to reflect anticipated project timeline.

Internal Review Group Questions:

Additionally, we have reviewed the questions from the City's internal review group and offer the following responses (original questions in **bold** and responses in *italics*):

1. **Survey data – Is the amount of data proposed in the plan enough to support the design, or will additional surveys need to take place later?**
   CED finds the proposed topographic survey and data collection sufficient to support the design along a preferred route and therefore anticipates no additional field survey. Some office work, such as refining base files or extracting supplemental details, will be completed during the final design phase. Any City-requested changes like rerouting or modifications to the design scope after route selection will result in a revised survey fee from CED.

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2. **Traffic counts – We (City of Texas City) would recommend 13-hour traffic counts – 6am to 7pm – instead of 12-hour counts. This adjustment is to account for shift changes at the refineries which impact the peak hour counts and the fact that many employees of the refineries are commuters from elsewhere in the Houston area. This is the standard we have used for the other recent traffic design studies we have had done in Texas City.**

   We appreciate the City's input regarding the 13-hour traffic counts from 6:00 a.m. to 7:00 p.m. We have updated our scope to reflect this adjustment, and the change can be accommodated within the originally proposed cost. No fee modification is required.

3. **Geotechnical information – In the proposal packet, you list 5 shallow borings and 2 deep, and only three days of drilling time. We would like to see pricing for additional borings and would like clarification as to whether 3 days of drilling represents three consecutive calendar days or 72 hours. If the latter, we would recommend accounting for more time in case of bad weather, etc.**
   The proposed geotechnical exploration is intended to obtain basic subsurface information to support the preliminary evaluation of pavement and structural requirements. The updated plan includes eight test borings totaling approximately 260 linear feet of drilling —six shallow borings for roadway pavement evaluation and two deeper borings to support preliminary bridge abutment recommendations. Drilling is scheduled over three consecutive calendar days, which CED estimates to be sufficient based on typical production rates.

   Work will be scheduled with consideration for weather conditions. If delays occur due to inclement weather, the drilling team will pause operations and return to complete the work without additional cost to the City.

   Additionally, more detailed geotechnical investigation will be required during final design, once the preferred route and structure types are confirmed. The projected fee for final design already includes the estimated cost for this additional work.

4. **Cost-benefit analysis – Would you mind providing more detail about the methodology to be used?**
   CED applies a structured and industry-recognized methodology to perform cost-benefit analyses for roadway infrastructure projects. Our approach follows guidance established by the Federal Highway Administration (FHWA) and the American Association of State Highway and Transportation Officials (AASHTO), which provide national standards for evaluating transportation investments. The process includes the following steps:

   a. Identify and Quantify Costs:
   Direct costs such as construction (materials, labor, and equipment), land acquisition, utility relocations, drainage, lighting, landscaping, and safety features are itemized using current unit pricing

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and cost databases. Indirect costs, including environmental mitigation, traffic disruptions during construction, and long-term maintenance, are also considered for each alignment.

b. Identify and Quantify Benefits:
Project benefits are identified for each alignment, including travel time savings, reduced vehicle operating costs, improved safety through crash reduction, increased travel reliability, environmental benefits, and potential for economic development. These benefits are evaluated using accepted transportation performance measures.

c. Monetize Costs and Benefits:
Quantifiable elements are translated into monetary values using industry-accepted valuation methods. For tangible items, current market rates and engineering cost databases are applied. For non-tangible benefits, such as safety and emissions reductions, we use valuation techniques endorsed by FHWA and AASHTO and consider stakeholder input when appropriate.

d. Calculate Net Benefit and Benefit-Cost Ratio:
All costs and benefits are summarized to calculate the net present value and benefit-cost ratio for each alternative. Discount rates recommended by federal and state agencies are used to ensure consistency in evaluating long-term project performance.

e. Conduct Sensitivity Analysis:
Sensitivity analyses test how changes in key assumptions, such as traffic volumes or construction costs, influence the benefit-cost outcomes. This helps evaluate the stability of the analysis under different future conditions.

f. Evaluate Non-Quantifiable Factors:
Some project impacts, like effects on adjacent property values, community access, or social equity, cannot be easily quantified. These factors are evaluated qualitatively and compared across alternatives to provide a comprehensive view.

g. Recommendation:
We conclude with a summary of the analysis and a recommendation based on both quantitative and qualitative findings. This recommendation is structured to support transparent decision-making and agency review.

5. **Locating existing utilities – the group asked if you will be using desktop or physical location or radar? Also, will we have a comprehensive list in Phase 2, or will there be need for additional locates?**
CED's utility investigation will include a combination of Quality Level D and Quality Level C SUE, as defined by ASCE standards. Quality Level D involves reviewing existing utility records such as as-built drawings, GIS data, and information provided by utility companies. This method offers a general understanding of utility locations and is commonly used during the early planning phase.

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As part of our utility coordination efforts, we will also conduct a Quality Level C investigation, which includes surveying visible utility features such as manholes, valve covers, and pedestals, and comparing them with available records. While this helps identify potential conflicts, it does not provide precise depth or horizontal location. Based on our experience with similar projects, we believe this level of investigation, supported by direct coordination with utility owners, will provide the information needed to support preliminary design.

If these methods do not provide sufficient clarity, more detailed investigations may be considered during final design or construction to accurately locate underground utilities.

6. **After Phase 2, do you have any broad estimates of how much additional time/dollars would need to be dedicated to get construction drawings prepared?**
CED has prepared a preliminary estimate of the Level of Effort (LOE) for Final Design (Phase 3), projected to range between $742,647 and $903,285. This estimate reflects the anticipated effort required to advance the project from Phase 2 through the development of Plans, Specifications, and Estimates (PS&E) for the construction phase. The projected range is provided for reference and may be refined as the design progresses and the final alignment and scope are confirmed.

7. **Does the fee include the subconsultant fees or will the subconsultant fees be an additional cost***?*
CED is a multidisciplinary civil engineering firm with the in-house expertise to handle every stage of project development. To improve efficiency and reduce costs, especially by avoiding unnecessary mobilization, we may partner with specialized subconsultants as needed. On this project, we are working with two subconsultants—one for traffic data collection and another for the required geotechnical drilling. Their local capabilities allow us to provide these services effectively and affordably. The proposed cost includes all subconsultant fees, meaning no extra charges for the City.

Additional Environmental Services:

During our meeting on April 16, 2025, we discussed a potential update to the Environmental Services scope. Following a review of the project requirements, CED's Environmental Group recommends expanding the effort within Phase II of the Preliminary Engineering Report (PER) to enhance the natural resources assessment. This added effort will support a more complete and informed evaluation during the preliminary design phase and will help better identify permitting requirements and ensure regulatory compliance.

I hope the revised proposal and responses have addressed your questions and concerns thoroughly. We appreciate the opportunity to support the City on this important project and look forward to continuing our collaboration. If you have any further questions or need additional information, please feel free to contact me at any time.

Included: Projected Phase 3 – Final Design Phase - LOE

cc: Christopher Otto, PE, CFM, Colliers Engineering & Design (via email)

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Project Name

24013577P - Texas City - Shoal Point Entry - Final Design

Exhibit A - FINAL DESIGN - ESTIMATED FEES

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			ESTIMATE COST	
		HOURS	HIGH-END	LOW-END
	Final Engineering Design	**4425**	**$ 903,285.00**	**$ 742,647.00**
1	**Project Administration**	**202**	$ 49,005.00	$ 49,005.00
2	**Survey**	**50**	$ 9,500.00	$ 9,500.00
3	**Environmental Permitting**	**115**	$ 21,000.00	$ 21,000.00
4	**Geotechnical Investigation**	**665**	$ 126,350.00	$ 95,855.00
4.1	Mobilization / Demobilization	58	$ 11,020.00	$ 7,714.00
4.2	Standard Borings (60 @ avg. 20 ft)	104	$ 19,760.00	$ 13,832.00
4.3	Deep Borings (12 @ avg. 80 ft)	167	$ 31,730.00	$ 22,211.00
4.4	Shelby Tube Samples	36	$ 6,840.00	$ 4,788.00
4.5	CPT Soundings (select locations)	72	$ 13,680.00	$ 9,576.00
4.6	Groundwater Monitoring / Piezometers	29	$ 5,510.00	$ 3,857.00
4.7	Lab Testing (Classification, Atterberg, Consolidation, etc.)	69	$ 13,110.00	$ 9,177.00
4.8	Engineering Analysis & Report	87	$ 16,530.00	$ 16,530.00
4.9	Wetland Access Premium (matting, permits, etc.)	43	$ 8,170.00	$ 8,170.00
5	**Private Access Control & Street Light Design**	**0**	$ 20,000.00	$ 20,000.00
6	**Structural Design**	**1332**	$ 253,890.00	$ 123,747.00
6.1	*Final Design for MSE Walls*	180	$ 33,440.00	$ 23,408.00
6.2	*Final Design for Culverts*	121	$ 23,960.00	$ 23,960.00
6.3	*Final Design for Sheet Piling Bridge Design*	180	$ 34,300.00	$ 54,880.00
6.4	*Final Design for Span Bridge Design*	610	$ 116,200.00	$ -
6.5	*Cost Estimate for Structural Design*	68	$ 12,410.00	$ 8,067.00
6.6	*Final Plans and details*	173	$ 33,580.00	$ 13,432.00
7	**Roadway Design**	**1683**	$ 343,275.00	$ 343,275.00
8	**Project Manual**	**174**	$ 34,840.00	$ 34,840.00
9	**QA/QC**	**133**	$ 31,275.00	$ 31,275.00
10	**Bid Phase Services**	**71**	$ 14,150.00	$ 14,150.00
	TOTALS HOURS	4425		
TOTAL COST			**$ 903,285.00**	**$ 742,647.00**

DATE: 4/24/2025