ENGINEERING SERVICES AGREEMENT

THE STATE OF TEXAS §

§

COUNTY OF HARRIS §

THIS AGREEMENT “Agreement” is between **Harris County**, a body corporate and politic under the laws of the State of Texas, hereinafter called "County", acting herein for the **Harris County Toll Road Authority** (HCTRA), a division of the County, and **ENTECH CIVIL ENGINEERS, INC.,** hereinafter called the "Engineer" or “Company”.

W I T N E S S E T H:

WHEREAS, the County proposes to hire the Engineer to provide professional program engineering services for the permanent transition of Toll Road Operations to an All Electronic Roadway Environment (Precincts 1, 2, 3 and 4)., in Harris County, Texas, hereinafter called the “Project”;

WHEREAS, the Engineer has represented to the County that it is qualified and prepared to perform all of the Services described in the Scope of Services, Appendix A, attached hereto and incorporated herein by reference as if copied herein verbatim (Scope of Services), and has submitted a proposal to provide such Services for the Project;

WHEREAS, the County is satisfied that the Engineer is capable of performing the necessary Services required for the Project and desires to contract with the Engineer to perform the Services described in the Scope of Services;

WHEREAS, the provisions of Chapter 262, Texas Local Government Code, Competitive Bidding Law do not apply to the proposed Agreement because the contract is for professional engineering services;

WHEREAS, the County has determined and found that it would be in the best interest of the County to delegate to the Executive Director of HCTRA supervisory and management authority over the Engineer; and

WHEREAS, the Engineer will control the methods and means in performing the work set out in the Scope of Services;

NOW, THEREFORE, in consideration of the mutual covenants and conditions set forth below, the parties agree as follows:

1. General

   a. In performing the Services under this Agreement, the Engineer will function solely and exclusively for the benefit of the County and not for the benefit of the contractors for the Project or any other party. All Services rendered by the Engineer under this Agreement shall be performed under the supervision of HCTRA. The Engineer shall perform the Services with the professional skill and care ordinarily provided by competent Contractor practicing under the same or similar circumstances and professional license; and in accordance with generally accepted professional standards and use the degree of care and skill reasonably necessary to ensure compliance with applicable laws and regulations.

   b. The Engineer shall be responsible for the professional quality, technical accuracy and the coordination of all deliverable documents and Services furnished by the Engineer under this Agreement. The Engineer shall, without additional compensation, correct or revise errors and deficiencies in its documents.

   c. The Engineer will collaborate with the County's personnel to facilitate the implementation of a Project Database within the County's Electronic Document Management System known as "CAPTRAC". The Electronic Document Management System will provide electronic management that shall govern the distribution and file copies of all Project related correspondence, reports, plans, and technical data. The County and the Engineer will use "CAPTRAC" to facilitate the effective electronic exchange of Project

information and documents with members of the design team and other interested stakeholders.

d. The Engineer will collaborate with the County's personnel to facilitate the maintenance of the Project Database. Project files shall be entered into the database by the Engineer on a timely basis and made available by the County on "CAPTRAC" at all times for performance of daily Project activities. Other documents, including those used for legal review, audit requests/requirements, and open records request purposes, shall be entered by the County staff assisting the Engineer team. The Engineer shall also ensure that all Project files are appropriately entered into the database:

1. At all critical milestones;

2. At established periodic intervals; and

3. Following completion of the work as a final Project record, including applicable record drawings.

2. Scope of Services

The Services to be provided herein with regards to the Project are defined in Appendix A ("Scope of Services") consisting of 6 pages.

3. Compensation and Payment

a. The Engineer shall be entitled to payments based on hourly rates and reimbursement as set forth in this section, and the Engineer agrees that such payment will constitute full compensation for the performance of Services under this Agreement. The County shall not be obligated to pay in excess of **$18,000,000.00** and the Engineer shall not be obligated to perform further Services hereunder once such sum has been earned, except to the extent that HCTRA has given prior written authorization to perform additional services and receive compensation therefore from funds in excess of such figure and within the maximum sum available under 3.c.

(1) The Engineer shall be entitled to payments based upon hourly billing for defined Services and any additional Services not included in the

Scope of Services under this Agreement, including changes in the contractual scope of work and revision of work satisfactorily performed, provided that such additional Services will be performed only when approved in advance and authorized by the County, and will be reimbursed at the raw salary rates in effect at that time, times a multiplier as set forth below, to the extent that such direct salary costs and subcontracts are reasonable and necessary for the performance of such Services. The reimbursable hourly raw salary rates cannot exceed those set forth in Appendix B. The Engineer shall also be entitled to expense reimbursement as set forth in Appendix B, provided that miscellaneous expenses, if any, may be reimbursed hereunder only when HCTRA determines that incurring such expenses is not required as part of the original Scope of Services and provides written approval of such expense in advance of it being incurred. Payment will be made on the basis of certified time and expense records and in accordance with those payment procedures set forth in subparagraph b., below. Billing rates will have a 3.0 multiplier on raw salary rates.

(2) Where subcontractors are employed by the Engineer to perform Services specified in this Agreement, the Engineer will be reimbursed for subcontractors' salaries and hourly rates, including overtime rates, on the same basis as described for the Engineer's own personnel in subparagraph a. (1), of this Paragraph. Reimbursement to the Subcontractor for non-salary costs incurred by subcontractors will be on the same basis as if the costs were incurred by the Engineer. The Engineer will be paid a subcontract administrative fee equal to ten percent (10%) of all subcontractor invoiced amounts. Total contract amounts shall include subcontractor fees.

b. It is understood and agreed that monthly payments will be made to the Engineer by the County based on the following procedures: On or about the fifteenth day of each month during the performance of Services hereunder and on or about the fifteenth day of the month following completion of all Services hereunder, the Engineer shall submit to the County two (2) copies of invoices showing the amounts due for Services performed during the previous month, set forth separately for work under this Agreement and for additional Services (accompanied by supporting certified time and expense records of such charges in a form acceptable to the County Auditor). It is specifically understood that any requests for travel reimbursements shall comply with those

procedures for travel reimbursement to County employees established by the Harris County Auditor. HCTRA shall review such invoices and approve them within ten (10) calendar days with such modifications as are consistent with this Agreement and forward same to the County Auditor. The County shall pay each such invoice as approved by the County Auditor within twenty (20) calendar days after the County Auditor's approval of same. Invoices are due and payable net 30 days from receipt.

c. It is expressly understood and agreed that the County has available the total maximum sum of **$19,800,000.00** as hereinafter certified available for the purpose of satisfying the County's obligations under the terms and provisions of this Agreement. The County shall not be liable under any circumstances or any interpretations hereof for any costs under the Agreement except for those certified available for this Agreement by the Harris County Auditor, as evidenced by the issuance of a purchase order by the Harris County Purchasing Agent for the certified amount. Once the funds are expended for satisfying the County's obligations under the terms and provisions of this Agreement, the County shall have no further obligations nor shall the Engineer be required to perform further Services hereunder.

4. Time of Performance

It is understood and agreed that the time for performance of the Engineer's Services under this Agreement shall begin with receipt of the Notice to Proceed and end **1825** calendar days from that date, except to the extent continued performance after that date is authorized in writing by the Executive Director of HCTRA or his designee. The Engineer is responsible for notifying HCTRA thirty days prior to the end of the contract.

5. The County's Option to Terminate

a. The County has the right to terminate this Agreement at its sole option at any time, with or without cause, by providing written notice of such intention to terminate and by stating in said notice the "Termination Date." Upon such termination, the County shall compensate the Engineer in accordance with Paragraph 3., above, for those Services that were provided under this Agreement prior to its termination and that have not been previously invoiced to the County. The Engineer's final invoice for said Services will be presented

to and paid by the County in the same manner set forth in Paragraph 3. b., above.

b. Termination of this Agreement and payment in settlement as described in subparagraph a. of this Paragraph shall extinguish all rights, duties, obligations, and liabilities of the County and the Engineer under this Agreement and this Agreement shall be of no further force and effect; provided, however, such termination shall not act to release the Engineer from liability for any previous default either under this Agreement or under any standard of conduct set by law. No termination of this Agreement shall have the effect of terminating the Engineer's obligations under Sections 7 (Delays and Damages), 8 (Inspection of the Engineer's Books and Records), 12 (Appearance as Witness), or 15 (Indemnification).

c. If the County shall terminate this Agreement as provided in this Paragraph, no fees of any type, other than fees due and payable at the Termination Date, shall thereafter be paid to the Engineer.

d. The County's rights and options to terminate this Agreement, as provided in any provision of this Agreement shall be in addition to, and not in lieu of, any and all rights, actions and privileges otherwise available under law or equity to the County by virtue of this Agreement or otherwise. Failure of the County to exercise any of its rights, actions, options or privileges to terminate this Agreement as provided in any provision of this Agreement shall not be deemed a waiver of any rights, actions or privileges otherwise available under the law or equity with respect to any continuing or subsequent breaches of this Agreement or of any other standard of conduct set by law.

e. Copies of all completed and partially completed documents prepared under this Agreement shall be delivered to the County upon the Engineer's receipt of termination payment when and if this Agreement is terminated.

6. Source of Fee Payments

The County intends to pay for the Services with the proceeds from the sale and issuance of bonds and a yearly revenue fund account. It is expressly acknowledged that all payments owing for Engineering Services performed under this Agreement shall be made solely from these sources of funds for financing design and construction of the Project. The County shall be under no liability under this Agreement to make payment to the Engineer from any other source. In addition, the County reserves the right, at its sole discretion, at any time prior to issuance by the County of the written notice to proceed as provided in Paragraph

4., above, to cancel this Agreement and in the event of such cancellation, the Engineer shall not be entitled to any payment, nor have any claim for compensation or damages resulting from such cancellation. In no event shall the liability of the County under this Agreement exceed the amount hereunder certified as available by the County Auditor.

7. Delays and Damages

Except as otherwise provided herein, the Engineer agrees that no other charges or claims for damage shall be made by it against the County for any delays or hindrances occurring during the progress of the Engineer in providing to the County the Services specified in this Agreement.

8. Inspection of the Engineer's Books and Records

The Engineer will permit the County, or any duly authorized agent of HCTRA, to inspect and examine the pertinent books and records of the Engineer, but only for the purpose of verifying the direct salary costs, overtime work, and out-of-pocket expenses for additional Services charged to the Project described in and contemplated by Paragraph 3. a., above.

9. Personnel, Equipment, and Material

a. The Engineer represents that it presently has, or is able to obtain, adequate qualified personnel in its employment for performance of the Services required under this Agreement and that the Engineer shall furnish and maintain, at its own expense, adequate and sufficient personnel and equipment, in the opinion of HCTRA, to perform the Services when and as required and without delays. It is understood that HCTRA will approve assignment and release of all key engineering personnel and that the Engineer shall submit written notification of all key engineering personnel changes monthly for HCTRA's approval prior to the implementation of such changes. Services described in this Agreement shall be performed under the direction of an engineer licensed to practice professional engineering in the State of Texas.

b. All employees of the Engineer or a subcontractor of the Engineer shall have such knowledge and experience as will enable them to perform the duties assigned to them. Any employee of the Engineer or a subcontractor of the

Engineer who, in the opinion of HCTRA, is incompetent or by his conduct becomes detrimental to the Project shall, upon request of HCTRA, immediately be removed from association with the Project.

c. Except as otherwise specified, the Engineer shall furnish all equipment, transportation, supplies, and materials required for its operations under this Agreement.

10. Subletting

The Engineer shall not sublet, assign, or transfer all or any part of the Services in this Agreement without the prior written approval of HCTRA. Responsibility to HCTRA for sublet work shall remain with the Engineer.

11. Conferences

At the request of HCTRA, the Engineer shall provide appropriate personnel for conferences at its offices, or attend conferences at the various offices of HCTRA, or at the site of the Project, and shall permit inspections of its offices by HCTRA, or others when requested by HCTRA.

12. Appearance as Witness

If requested by the County, or on its behalf, the Engineer shall prepare such engineering exhibits and plats as may be requested for all hearings and trials related to the Project and, further, it shall prepare for and appear at conferences and shall furnish competent expert engineering witnesses to provide such oral testimony and to introduce such demonstrative evidence as may be needed throughout all trials and hearings with reference to any litigation relating to the Project. Compensation for trial preparation and appearance by the Engineer in courts regarding litigation matters will be made in accordance with the provisions of Paragraph 3. a. (1), above.

13. Compliance with Laws

The Engineer shall comply with applicable federal, state, and local laws, statutes, ordinances, rules and regulations, and the orders and decrees of any courts or

administrative bodies or tribunals in any matter affecting the performance of this Agreement, including, without limitation, Worker's Compensation laws, minimum and maximum salary and wage statutes and regulations, licensing laws and regulations. When required, the Engineer shall furnish the County with certification of compliance with said laws, statutes, ordinances, rules, regulations, orders, and decrees specified above.

The Engineer shall strictly comply with Section 2251.022 Texas Government Code, and shall require that its subcontractors fully comply with Section 2251.023 Texas Government Code.

14. Insurance

The Engineer shall obtain, keep and maintain any and all insurance that may be required by law or that may be required by any agreement the County has with any other party concerning the Project.

15. Indemnification

TO THE EXTENT ALLOWED BY LAW, THE ENGINEER AGREES TO INDEMNIFY AND HOLD HARMLESS THE COUNTY, ITS OFFICERS, EMPLOYEES, AND AGENTS FROM LIABILITY, LOSSES, EXPENSES IN PROPORTION TO ENGINEER'S LIABILITY, DEMANDS, REIMBURSEMENT OF REASONABLE ATTORNEY'S FEES, AND CLAIMS FOR BODILY INJURY (INCLUDING DEATH) AND PROPERTY DAMAGE TO THE EXTENT CAUSED BY THE NEGLIGENCE, INTENTIONAL TORT, INTELLECTUAL PROPERTY INFRINGEMENT OF THE ENGINEER (INCLUDING THE ENGINEER'S AGENTS, EMPLOYEES, AND SUBCONTRACTORS/CONSULTANTS UNDER CONTRACT, OR ANY OTHER ENTITY OVER WHICH THE ENGINEER EXERCISES CONTROL) IN THE PERFORMANCE OF THE SERVICES DEFINED IN THIS AGREEMENT.

16. Delivery of Notices, Etc.

a. All routine written notices, invoices, change orders, etc. are to be delivered to the Deputy Director, Engineering at the Harris County Toll Road Authority, 7701 Wilshire Place Drive, Houston, Texas 77040, or at such other place or places as the County may designate by written notice delivered to the Engineer.

All formal notices and demands under this Agreement shall be delivered to the Harris County Commissioners Court, 1001 Preston, 9th Floor, Houston, Texas 77002, Attention: Clerk of Commissioners Court, with a copy forwarded to the Harris County Toll Road Authority, 7701 Wilshire Place Drive, Houston, Texas 77040, Attention: Executive Director.

b. All written notices, demands, and other papers or documents to be delivered to the Engineer under this Agreement shall be delivered to Entech Civil Engineers, Inc., 15021 Katy Freeway, Suite 500, Houston, Texas 77094, Attention:, Michael Ponce, P.E or at such other place or places as the Engineer may designate by written notice delivered to the County.

17. Reports of Accidents, Etc.

Within 24 hours after the occurrence of any known accident or other event which results in, or might result in, injury to the person or property of any third person (other than an employee of the Engineer), whether or not it results from or involves any action or failure to act by the Engineer or any employee or agent of the Engineer and which arises in any manner from the performance of this Agreement, the Engineer shall send a written report of such accident or other event to the County, setting forth a full and concise statement of the facts pertaining thereto. The Engineer shall also immediately send the County a copy of any summons, subpoena, notice, or other documents served upon the Engineer, its agents, employees, or representatives, or received by it or them, in connection with any matter before any court arising in any manner from the Engineer's performance of work under this Agreement.

18. The County's Acts

Anything to be done under this Agreement by the County may be done by such persons, corporations, or firms as the County may designate.

19. Limitations

Notwithstanding anything herein to the contrary, all covenants and obligations of the County under this Agreement shall be deemed to be valid covenants and obligations only to the extent authorized by the Act creating the County and permitted by the laws and the Constitution of the State of Texas.

20. Captions Not a Part Hereof

The captions or subtitles of the several sections and divisions of this Agreement constitute no part of the content hereof, but are only labels to assist in locating and reading the provisions hereof.

21. Controlling Law, Venue

This Agreement shall be governed and construed in accordance with the laws of the State of Texas. This Agreement shall be performed entirely in Harris County, Texas and the parties hereto acknowledge that venue is proper in Harris County, Texas, for all disputes arising hereunder and waive the right to sue or be sued elsewhere.

22. Successors and Assigns

The County and the Engineer bind themselves and their successors, executors, administrators and assigns to the other party of this Agreement and to the successors, executors, administrators and assigns of the other party, in respect to all covenants of this Agreement.

23. Independent Contractor

Notwithstanding any provision of this Agreement, the Engineer shall at all times act as an independent contractor, and not as an employee of the County, and the Engineer shall be responsible for the means and methods employed in performing Services hereunder.

24. Certificate of Interested Parties (Form 1295)

Texas law requires all parties who enter into any contract with the County that must be approved by Commissioners Court to disclose all Interested Parties. Texas Ethics Commission Form 1295 must be completed in its entirety. If changes to this Form are necessary during this Agreement, the Engineer will notify and send the County an updated and complete version.

25. Additional Statutory Requirements

Company represents and certifies that, at the time of execution of this Agreement, Company (including any wholly owned subsidiary, majority-owned subsidiary, parent company or affiliate of the same) is not listed by the Texas Comptroller of Public Accounts pursuant to Chapters 2252 or 2270 of the Texas Government Code, nor will Company engage in scrutinized business operations or other business practices that would cause it to be listed during the term of this Agreement.

26. Historically Underutilized Business Requirements

In accordance with Section 284.007 of the Texas Transportation Code, the County shall make a good faith effort to meet or exceed goals provided under Section 284.007(b) for awarding contracts and subcontracts associated with a project it operates, maintains, or constructs to historically underutilized businesses. For purposes of this section, the term “historically underutilized business” has the meaning given to such term in subsection (d) of Section 284.007, Transportation Code. The Engineer agrees to reasonably assist the County in its efforts to meet or exceed the goals provided under Section 284.007(b) for awarding contracts or subcontracts to historically underutilized businesses.

APPROVED AS TO FORM:

CHRISTIAN D. MENEFEE

County Attorney

DocuSigned by:
By: Marcy Linebarger
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Marcy Linebarger
Assistant County Attorney

HARRIS COUNTY

By: _____

LINA HIDALGO
County Judge

Date: _____

ENTECH CIVIL ENGINEERS, INC.

By: Michael Ponce

Name: Michael Ponce

Title: Vice-President

Date: August 11, 2021

APPENDIX A

HARRIS COUNTY TOLL ROAD AUTHORITY – SYSTEM WIDE ALL ELECTRONIC TOLL CONVERSION

The work to be performed by the Program Management Consultant (PMC) shall include providing professional services to manage the development and installation of approved objectives for improvements to the existing system and business practices for the System Wide All Electronic Toll Conversion.

The PMC shall provide overall program management including project supervision, scheduling and reporting, administration, oversight of individual project development documents produced by the PMC or other project team members (PTM's), document control including project deliverables and website materials, and the public engagement /communication program. The PMC shall provide the resources to lead the public engagement, tolling solutions and business rules/operations, and provide oversight/review of the plaza and fiber network design that will be performed by PTM's.

The ENGINEER hereinafter identified as the Program Management Consultant (PMC), shall provide professional services in support of System Wide All Electronic Toll (AET) Conversion program development within the Project Limits. The work to be performed by the PMC shall consist of overall program management, project supervision, management, scheduling, administration, review and coordination of individual project development documents by others, maintenance of corridor planning documents and website materials, a corridor-wide construction-related traveler information system and AET communication program /public outreach program, and related engineering services.

The following personnel are considered Core team: Program Manager, Deputy Program Manager, and Major Task Leads for public engagement, tolling solutions, plaza designs, fiber network, traffic management, and business rules/operations.

The following personnel are also considered Major Task Leads: Planning/Preliminary Engineering, Final Design, Environmental, ITS and Public/Traveler Outreach. For the purposes of this contract, the Program Manager is the project manager, the Deputy Program Manager is the deputy project manager, and all references should be interpreted accordingly.

The following personnel shall be prepared to co-locate with HCTRA at HCTRA's discretion and shall be available to HCTRA during the duration of this contract: Program Manager, Deputy Program Manager, and Major Task Leads for Planning/Preliminary Engineering, Final Design, Preliminary Schematic Review, Plan/Ready to Let Review, Program Management and Coordination, Environmental, ITS/Traveler Information, and

Public/Traveler Outreach. Co-location refers to being housed in HCTRA's administrative building. Most of the work is expected to be performed on site with the Harris County. Some work may be performed off site and the appropriate negotiated overhead rate would apply.

Work performed under this work authorization shall be in accordance with the applicable laws, rules, regulations and guidelines in effect at the time of work authorization execution. Work shall comply with current versions of HCTRA's manuals and procedures and shall use the current version of applicable software programs; references to manuals and software in this document shall refer to the current version of same.

Function Code (FC) 145 Project Management

145.1 Project Management Plan

The PMC shall update and maintain the existing Project Management Plan (PMP) as a living, electronic document in a central and immediately accessible location for HCTRA and all sub-consultants. In the PMP, the PMC shall outline items including but not limits to: project team organization, roles and responsibilities; program and project-level scheduling expectations; coordination and communication procedures; document and graphics formatting protocols; filing protocols, project close-out procedures, and other important operational information pertaining to project team and HCTRA collaboration.

Deliverables

145.1.a Draft and monthly updates (as necessary) to Project Management Plan in electronic format, accessible to HCTRA and sub-consultants

145.2 Quality Assurance/Quality Control Plan

The PMC shall update and maintain the existing program Quality Assurance / Quality Control (QA/QC) Plan to document the quality control program to be implemented by the project team. The PMC shall conduct Quality Control procedures under respective work tasks and sub-tasks.

Deliverables

145.2.a Draft and final updates to QA/QC Plan

145.2.b Quarterly quality audits and documentation of QA/QC implementation.

145.3 Coordination Meetings

The PMC shall hold a kickoff meeting with HCTRA, including major task leads and all sub-consultants, within four weeks of work authorization execution notification. At the kick-off meeting, the PMC shall walk through an updated, living Project Management Plan in electronic format. The PMC shall conduct coordination meetings with HCTRA weekly. The PMC shall attend and participate in other coordination meetings with HCTRA, regional jurisdictional entities, affected stakeholders and regulatory agencies. For each meeting, prepare agendas, presentation materials for use by the PMC, HCTRA and third parties, written summary of meeting and action items for distribution. A summary of meetings, attendees, topics shall be included in a Quarterly Meeting Summary Report and submitted to HCTRA Program Manager. The PMC shall maintain these records electronically in the document management system.

Deliverables

145.3.a Agenda, meeting materials including electronic Project Management Plan in PDF format for distribution as a living document, sign-in sheet, minutes and action item list for kick-off meeting.

145.3.b .yyyymmdd (by date) Agenda, presentation materials, sign-in sheet, and meeting notes including decisions made and action items for each meeting

145.3.c .yyyymmdd (by date) Quarterly Meeting Summary Report

145.4 Sub-consultant Management

The PMC shall manage sub-consultants assigned to specific work authorizations, including developing sub-contract documents, assigning, managing and reviewing work products, holding monthly team project meetings, periodic individual sub-consultant meetings, and reviewing and approving sub-consultant schedules, progress reports, invoices, and work deliverables.

Deliverables

145.4.a .yyyymmdd (by date) Agenda, sign-in sheet, and meeting notes including decisions made and action items for each team meeting

145.4.b .yyyymmdd (by date) Agenda, sign-in sheet, and meeting notes including decisions made and action items for each individual sub-consultant meeting

145.5 Management of Work Activities

The PMC shall proactively manage its own work activities, providing daily management, coordination and oversight of work performed for this work authorization. The PMC shall manage the progress of the project to assure it is in accordance with Federal and HCTRA statutes, regulations, guidelines and HCTRA's latest codes, practices, criteria, specifications, policies, and procedures as well as on schedule within project scope and budget while meeting quality expectations. The PMC shall take ownership and be accountable for managing the program, proactively balancing program needs and resources. The PMC shall manage work using tools including but not limited to:

Quarterly PMC Program Status Report – the PMC shall prepare, schedule, and discuss with HCTRA on a quarterly basis an assessment of where the program stands, vision for the immediate, mid-, and longer-term program, the PMC's proposed next steps to accomplish this vision, and any actions suggested for HCTRA to facilitate this process. This report is not an external-facing public document, but a nuts-and-bolts program management tool. The PMC shall cover the entire program status in summary with regard to scope, schedule, and budget and detail status for the same areas for Major Work Tasks. The PMC shall include an assessment of burn rate through the end of the Work Authorization, risks, and mitigation strategies to address those risks. At the kick-off, the PMC shall present an initial draft of this Report with initial goals for the first quarter of activities, including reporting for anticipated activities for the following quarter for discussion with HCTRA at the kick-off meeting. The PMC shall proactively schedule and facilitate a quarterly discussion with HCTRA of this quarterly deliverable and others, including a re-visit of prior action items.

PMC Progress Report and Deliverables Table - the PMC shall manage their effort by maintaining a detailed Progress Report and Deliverables Table, tracking progress cumulatively throughout each invoice period. The PMC shall be prepared to submit the weekly products upon request by HCTRA and shall submit the period-end products to HCTRA within 7 days after the end of the invoice cycle. The PMC shall include in the Progress Report the following: Progress Reporting Period, Progress Summary, Problems Encountered, Future Progress Expected, Schedule Status, Physical Percent Complete, Financial Percent Complete, Physical Ahead/Behind Financial Percent Complete, HUB/DBE Status. The Progress Report shall include Progress for the entire PMC team for the month (regardless of invoice progress). The live Deliverables Table shall include all deliverables. A Snapshot Deliverables Table shall be extracted for each invoice reporting period including Deliverables anticipated for the next invoice period. The PMC shall use the format provided by HCTRA for these products.

Continuous Improvement Assessment – the PMC shall conduct a quarterly self-assessment based upon a format provided by HCTRA to identify areas of effort meeting

and exceeding expectations and opportunities for improvement. The PMC shall proactively schedule and facilitate a quarterly discussion with HCTRA of this quarterly deliverable and others, including a re-visit of prior action items.

Program-wide templates and tools - the PMC shall provide program-wide templates and updates to project teams and provide support in their use consistently across the program. The PMC shall start with tools and templates provided by HCTRA and coordinate refinements to these tools with HCTRA as necessary to ensure consistency across the program.

Deliverables

145.5.a .yyyymmdd (by date) Quarterly PMC Program Status Report

145.5.b .yyyymmdd (by date) PMC Progress Report

145.5.c .yyyymmdd (by date) PMC Deliverables Table

145.5.d .yyyymmdd (by date) Assessment Form

145.5.e .yyyymmdd (by date) Updates as needed to program-wide project-development templates and tools, including but not limited to checklists, logs, templates, reports, policies and procedures, and special request, available upon request by HCTRA and for delivery to project teams as needed

145.6 Program Management Support

The PMC shall provide daily support, coordination and oversight of work for the AET program, continuing and optimizing current support activities. The PMC shall provide on-site, full-time support upon request by HCTRA for any task. The PMC shall prepare program support documents including but not limited to the following:

The PMC shall implement a program management tool for tracking project development and other task deliverable status across the program. The PMC shall utilize the tool for live tracking of project progress and status. The program management tool shall be unified, live, accessible database supporting unique inquiries as well as regularly published dashboards and reports including but not limited to:

AET Program Leadership Dashboard – the PMC shall create and tailor this dashboard to meet regular reporting needs for HCTRA internal leaders overseeing the AET program. The PMC shall evolve this product with the needs of the program.

AET Master Program Table – the PMC shall maintain this table to track all projects including construction costs, right-of-way, utilities, ITS costs, project development

(external consultant) costs, inflation, total project costs, funding, funding delta, program categories, and other program-level information.

Road Map Table – the PMC shall maintain the Road Map Table, a high-level, one-page wide summary version of the Master Program Table reporting with Master Program Table let dates and costs.

Road Map – the PMC shall prepare a Road Map, a Geographic Information System-based tabloid which serves as a high-level, summary version of the Master Program Table available to internal and external partners. This product is managed by publication date and is not a live product.

Candidate Projects List – the PMC shall maintain a Candidate Projects List, updating it to be concurrent with the Road Map. This product is managed by publication date and is not a live product.

Program-wide Project Development Status Report - the PMC shall maintain a living project status report which addresses high-level progress, updates, and action and risk items for each project under development, as well as status of upcoming projects, across Williamson, Travis, and Hays counties.

Project Construction Status Report - the PMC shall develop and maintain a living project status report which addresses high-level progress, updates, and action and risk items for each project let or under construction through construction completion. The PMC shall work under this task only to assemble and report the information provided and gathered under other work tasks.

Special Requests and Other Efforts Status Report – the PMC shall track special requests and other tasks not related to specific projects. The PMC shall work under this task only to assemble and report on the special requests and other efforts – work on these tasks shall be performed under the appropriate task.

Project Decisions/Commitments Tool - the PMC shall develop, with concurrence from HCTRA, a tool (potentially a strip map or GIS product) for tracking decisions and commitments made at the program level that must be communicated to project development teams and at the project development level that must be communicated and institutionalized at the program level for subsequent project development purposes. The PMC shall work with HCTRA to develop a protocol for determining the type of activities to be maintained in this tool, including but not limited to: right-of-way commitments, access commitments, bicycle/pedestrian accommodations, design waivers/exceptions, project limits and project scoping decisions. The PMC shall maintain this tool and data live with this information accessible to HCTRA at any time.

Program management tools - the PMC shall maintain program-wide management tools including: checklists, logs, templates, reports, policies and procedures, and special request forms as applicable to facilitate management of a complex, broad program.

Program-wide project-development templates and tools - the PMC shall maintain program-wide project management tools including: checklists, logs, templates, reports, policies and procedures, special request forms, for example for QA/QC procedures, Progress Report, Deliverables Table, project schedule, technical memorandum, and reports. The PMC shall provide these templates and updates to project teams and provide support in their use consistently across the program. The PMC shall coordinate refinements to these tools with HCTRA as necessary to ensure consistency across the program.

Invoice review and program expenditure forecast – the PMC shall review invoices by others including reviewing base contracts and work authorizations to ensure invoiced items are qualified for reimbursement. The PMC shall coordinate internally with those involved in project development activities regarding progress reporting. The PMC shall proactively report issues and recommend invoice payment, as well as track invoices and maintain a program expenditures to-date and forecast across the program.

Deliverables

145.6.a Master Program Table (live)

145.6.b Road Map Table (live)

145.6.c .yyyymmdd (by date) Road Map (bi-monthly)

145.6.d Candidate Projects List (live)

145.6.e .yyyymmdd (by date) Project Development Status Report (live)

145.6.f Project Construction Status Report (live)

145.6.g .yyyymmdd (by date) Special Requests and Other Efforts Status Report (live)

145.6.h Project Decisions/Commitments Tool (development)

145.6.i Project Commitments Tool (live)

145.6.j Other program management tools

145.6.k Program-wide project development templates and tools

145.6.l Invoice review log and program expenditure forecast

The PMC shall support and coordinate with HCTRA to facilitate program-wide and project-level reporting by HCTRA. The PMC shall provide through a mechanism established by HCTRA information including but not limited to:

- Project development progress and status including high-level progress, updates, and action and risk items for each project under development, as well as status of upcoming projects within program limits
- Project construction-related support at a minimum level to provide continuity on design commitments and engineering changes
- Project data including construction costs, right-of-way, utilities, ITS costs, project development (external consultant) costs, inflation, total project costs, funding, funding delta, program categories, and other data typically tracked by HCTRA
- Road Map reviews to ensure consistency of information being published

The PMC shall distribute program-wide project management tools provided by HCTRA including: checklists, logs, templates, reports, policies and procedures, special request forms, for example for QA/QC procedures, Progress Report, Deliverables Table, project schedule, technical memorandum, and reports. The PMC shall provide these templates and updates to project teams and provide support in their use consistently across the program.

Special Requests and Other Efforts Status Report – the PMC shall report to HCTRA via mechanism to be provided by HCTRA progress and status on special requests and other tasks not related to specific projects. The PMC shall work under this task only to assemble and report on the special requests and other efforts – work on these tasks shall be performed under the appropriate task.

Invoice review and program forecasting – the PMC shall review invoices by others including reviewing base contracts and work authorizations to ensure invoiced items are qualified for reimbursement. The PMC shall coordinate internally with those involved in project development activities regarding progress reporting. The PMC shall proactively report issues and recommend invoice payment, as well as track invoices and report program expenditures to-date and forecast across the program to HCTRA using a HCTRA-identified mechanism.

Deliverables

145.6.m Project development progress and status reporting (live)

145.6.n .yyyymmdd (by date) Road Map Table review concurrence (bi-monthly)

145.6.o Special Requests and Other Efforts Status reporting (live)

145.6.p Project Construction Status reporting (live)

145.7 Program Schedule

The PMC shall support and coordinate with HCTRA to facilitate program-wide and project-level reporting by HCTRA. The PMC shall provide through a mechanism established by HCTRA information including but not limited to:

The PMC shall update and maintain the existing program schedule using Primavera P6 or more current version as specified by HCTRA. The PMC shall maintain the schedule for key milestones and critical path for the duration of the program. The PMC shall include each individual project under development on the corridor by HCTRA or other entities. The PMC shall depict the order and interdependence of various tasks, subtasks, milestones and deliverables. The PMC shall indicate the primary functional area, such as design, environmental, public involvement, right-of-way/utility, general administration, etc. for each activity. The PMC shall indicate when another party is responsible for completion of an activity such as review by HCTRA. The PMC shall maintain the program schedule from execution through PMC contract completion. The PMC shall review progress during program- and project-level coordination meetings and update the schedule as necessary. The PMC shall identify issues that need resolution or action items in the Progress Report and in the monthly program and project-level coordination meetings.

The PMC shall review, assess, monitor, and update monthly detailed schedules and other scheduling documents produced by others including Utility Companies and third party agencies, and shall integrate critical milestone elements within the program master schedule.

Deliverables

145.7.a Draft, final and updates to program schedule (live)

145.7.b Schedule output tables to show deliverables and tracking (live)

145.8 Budget

The PMC shall maintain a live budget with current information available up through the most recent invoice concerning overall budget, tracking and managing all expenditures by task/sub-task and project (by project ID number) to the level defined in the fee estimate. The PMC shall submit with each invoice an overall budget summary table including sub-totals, positive or negative difference from the Fee Schedule amount, and percent expended, by invoice period. The PMC shall immediately advise HCTRA any areas of concern. PMC shall be responsible for ensuring that project expenditures are

maintained within overall function code and direct expense allocation by work authorization for all firms on the team. The PMC shall include Projected vs. Actual Contract Invoices form for each invoicing period until the termination of the work authorization. The PMC shall maintain this item in a format agreed upon by HCTRA and location immediately available to HCTRA at any time and updated no less than 30 days following the end of the previous invoice period, including information on the status of sub-consultant invoices being included in the budget (for example, invoice is included or a month behind).

Deliverables

145.8.a .yyyymmdd (by date) Program budget (monthly)

145.8.b .yyyymmdd (by date) Projected vs. Actual Contract Invoices form for each invoicing period

145.9 Invoice Preparation and Submittal

The PMC shall invoice according to Function Code. The PMC shall submit each invoice no later than 30 days after the end of the reporting period in a format acceptable to HCTRA. The PMC shall utilize the invoice template provided by HCTRA and shall ensure that each sub-consultant invoice submitted follows the same invoice template. The PMC shall submit timesheets to support invoice submittals only upon request by HCTRA.

With each invoice, the PMC shall include:

- Budget Summary Table (developed under separate task)
- Projected vs. Actual Contract Invoices form (developed under separate task)
- Progress Report (developed under separate task and, if necessary, updating the financial percent complete)
- Snapshot Deliverables Table (developed under separate task)

Deliverables

145.9.a .yyyymmdd (by date) Invoice

145.10 Document Control

The PMC shall maintain the existing electronic document management system (EDMS) in a location agreed upon with HCTRA to collect, assemble, manage and maintain all documents pertinent to the program and projects.

Upon NTP by HCTRA, the PMC shall proactively and progressively transition on-going program and project files to the platform directed by HCTRA.

Standard HCTRA file management and file retention practices shall be used for all information and data.

Deliverables

145.10.a Monthly hosting and maintenance of SharePoint site

145.10.b Monthly hosting and maintenance of virtual open house site AETopenhouse.com

145.10.c Log of on-going projects and other program deliverables transitioned

145.10.d Log of prior projects and other program deliverables transitioned

145.11 Agency and Consultant Contract Support

The PMC shall support HCTRA in coordination with and develop inter-local agency agreements, memorandums of understanding or agreements, and advance funding agreements, including exhibit preparation and supporting document preparation and assembly as requested by HCTRA.

The PMC shall support HCTRA in coordination with, develop, and assist external partners with the development of contractual documents including base contract documents, supplemental agreements, work authorizations, and supplemental work authorizations.

Deliverables

145.11.a ### (sequential numbering) Draft, final, and updated documents

145.12 Construction Multi-Project Coordination

The PMC shall coordinate with HCTRA and, as approved by HCTRA, with project-specific Construction Engineering and Inspection (CE&I) public information representatives or mobility coordinators to deliver the construction coordination component across all the individual construction projects in the AET.

The PMC shall serve as necessary and approved by HCTRA as the Mobility Coordinator for individual construction projects and conduct associated activities necessary to coordinate activities including but not limited to:

- Proactive outreach to stakeholders and the public by a consistent project contact
- Proactive outreach to internal HCTRA stakeholders and agency partners
- Public events
- Traffic management protocols and approach responsive to stakeholder and public concerns

- Avoidance, minimization, and mitigation of traffic impacts
- Communication of traffic impacts
- Up to full-time on-site project liaison for complex projects or phases

The PMC shall:

- Coordinate and participate in weekly strategy sessions with HCTRA to discuss current and upcoming messaging, upcoming public involvement activities, construction project milestones, and planning efforts
- Prepare an agenda, gather pre meeting info, prepare meeting minutes, and moderate monthly construction coordination meetings with the AET construction contractors
- Prepare an agenda, gather pre meeting info, prepare meeting minutes and moderate monthly construction safety meetings with the AET construction contractors

The PMC shall develop and implement strategies or offer services including but not limited to:

- Construction scheduling support of multiple construction projects along the corridor
    - Construction project scheduling, analysis and review including scheduling, analyzing, monitoring and evaluating highway construction project progress using the critical path method technique
    - Scheduling and analysis of schedule impacts and strategies related to system-wide construction planning including but not limited to: AET construction projects or major projects on other corridors within the region or outside of the AET program
    - Identification of potential construction conflicts and problem-solving
- Scheduling and tracking the program's progress on construction projects including but not limited to:
    - Identifying the schedule activities that control the overall construction time or the critical path for program construction or high-profile project areas
    - Identifying and measuring the impact a system-wide change has on an individual project schedule
    - Providing recommendations to resolve the time, scope, and cost aspects of project changes or delays
    - Creating and maintaining a summary of key dates for all ongoing and upcoming projects
    - Collecting key data (% complete, # accidents, % $ spent, completion date, % of DBE goal, etc.) from each ongoing project to provide project status summary

    - Reviewing upcoming traffic switches to coordinate alignments and phasing between adjacent projects and preparing plan revisions to coordinate traffic control
    - Reviewing multiple lane closures, contra flow, and full closure request for conflicts with adjacent projects or other events
- Advising on technical aspects of the mobility aspect of construction including but not limited to:
    - ITS message suggestions
    - Lane closure notices and distribution thereof
    - Google maps interaction
    - Lane closure conflict review when submitted by all contractors
    - Crash monitoring, assessment, and improvement recommendations
    - Travel time and delay monitoring and reporting
    - Lane closure time restriction reviews and adjustments
    - End of queue review/tweak and guidance on what plan to use when
- Live construction information dashboard for internal HCTRA use
- Up to full-time on-site supplemental project liaison for complex projects or phases
- Up to full-time direct support to HCTRA to support AET construction management-related activities

Deliverables

145.12.a Participate in weekly coordination meetings

145.12.b Schedule Analysis

145.12.c Project Key dates summary

145.12.d Barricade inspection reports

145.12.e Evaluation report upon completion of each project (or quarterly/annually) to document lessons learned and provide recommendation on how to improve

145.12.f (detail remaining deliverables by extracting from above text)

145.13 AET Program Annual Report

The PMC shall prepare a draft, pre-final, and final annual program report for external publication annually to communicate the program purpose and progress.

Deliverables

145.13.a Draft, pre-final, and final annual AET program report

Function Code (FC) 102 Feasibility, Route and Design Studies

102.1 Task Data Library

The PMC shall maintain, as well as collect, review, catalogue and periodically update data for the study area, using a storage platform designated by HCTRA. The PMC shall maintain a log documenting information gathered and source. Data library shall include but not be limited to: existing plans, schematics, right-of-way maps, planimetric mapping, environmental documents, existing geotechnical data and boring logs, traffic counts, crash data, pavement management information (PMIS) data, environmental information of record, drainage studies, flood plan information and studies including Flood Boundary Maps and hydraulic models, roadway inventory information of record from HCTRA, applicable cities and counties, adopted land use maps and plans, subdivision plots, permits, and public and private utility information.

Deliverables

102.1.a Log updated monthly, provided to HCTRA upon request

102.1.b Transmittal of data library and log upon WA completion or HCTRA request

102.2 Feasibility Studies

The PMC shall provide oversight and coordination for the preparation of feasibility studies and related activities. The PMC shall review documents prepared by others within these limits and shall provide written comments and recommendations. The PMC shall track comments provided and resolution.

Deliverables

102.2.a .# Review comments and documentation for resolution for technical memoranda prepared by others

102.3 Special Studies, White papers, and Research Documentation

As directed by HCTRA, the PMC shall undertake special studies and development of white papers concerning program issues to investigate and develop recommendations for specialty items including, but not limited to:

- Design or implementation best practices
- Alternative project delivery methods
- Third party proposals such as from, but not limited to, Developers, local toll agencies, local transit agencies, and local or regional freight agencies

- Third party proposals from private parties such as, but not limited to, utility companies

Deliverables

102.3.a .# Draft, final and updates to technical memoranda/reports

102.4 Design Criteria

The PMC shall define and maintain project-specific design criteria as a corridor Design Summary Report (DSR), and periodically update same. The PMC shall provide project-specific design criteria to project design teams for providing uniformity throughout the corridor as applicable. At a minimum, this will include the following: roadway criteria - design speed, horizontal criteria - stopping sight distance, maximum curvature, and maximum superelevation rates; vertical criteria - minimum/maximum gradient, K-value, and vertical clearances; cross section criteria - lane widths, shoulder widths, pavement cross slope, and maximum side slopes; intersection horizontal and vertical criteria and minimum drainage criteria. All design criteria shall be in accordance with TxDOT's design manual, including Roadway Design Manual, Hydraulic Design Manual, Bridge Design Manual, etc.

The PMC shall review DSRs developed by others for specific projects for consistency with this corridor wide document and provide comment specific to each individual project. The PMC shall attend and participate in each project's initial Kick-Off Meeting to establish and agree on fundamental aspects and concepts and to establish the basic features and design criteria for the project. The PMC shall examine and provide comment to HCTRA regarding design consistency or overlap with adjacent projects to ensure continuity.

Deliverables

102.4.a project design criteria for review by HCTRA as appropriate.

102.4.b .cccc-ss-jjj Comments on project-specific DSRs provided by others and tracking of comment resolution for these comments and comments by HCTRA

102.5 Preliminary Cost Estimates

As directed by HCTRA, the PMC shall prepare preliminary cost estimates for the corridor utilizing current HCTRA cost data. The PMC shall break down preliminary cost estimates by major cost elements and utilize a HCTRA-approved template including breakdowns for a construction cost subtotal, inflation to let year, right-of-way cost, utilities cost, tolling cost, and total project cost. Appropriate contingencies shall be defined along with applicable back-up supporting recommended value of contingency for a specified cost

element as appropriate. Potential cost increase based upon anticipated construction year shall also be considered and noted.

Deliverables

102.5.a .cccc-ss-jjj Draft and Final and updates to preliminary cost reports

102.6 Traffic Evaluations, Analysis and Projections

The PMC shall review traffic studies performed by others, including Traffic Impact Analyses, and provide comments for HCTRA consideration.

The PMC shall maintain traffic models for the corridor to allow HCTRA to understand the impacts of each proposed project on overall corridor operations.

The PMC shall develop traffic projections for projects under development in coordination with HCTRA, for use in environmental analysis and pavement design.

The PMC shall conduct traffic evaluations, studies and projections to determine the effects of alternative(s) on network operations and to determine the most effective alternative. Studies shall include but are not limited to: origin and destination studies, planning Level of Service (LOS) analysis for the current and design year, desire line analysis, select link analysis, screen line analysis, and analyses of changes to roadway geometry and configuration.

Deliverables

102.6.a Analysis of traffic TP&P traffic data and associated traffic volumes for individual projects for use in environmental analysis and pavement design

102.6.b Draft and final technical memoranda documenting review of IAJR prepared by others

102.6.c Draft and final update to existing IAJR(s)

102.6.d Draft and final comment-response matrices of comments on traffic studies performed by others

102.6.e Development of traffic TP&P traffic data and associated traffic volumes for individual projects for use in environmental analysis and pavement design

102.6.f Draft and final technical memorandum for traffic analysis conducted by the PMC

102.6.g Submittal of all files necessary to replicate model runs performed under this contract

102.7 Subject Matter Management and Coordination

To support key decisions and commitments, as well as support their follow-through at the project development level, the PMC shall provide subject matter expertise (SME) and maintain, in a format agreed upon by HCTRA, program- and project-related data related to specific technical subject matters and attend regular meetings with HCTRA and other agencies as required through the project life-cycle regarding each subject matter.

Across all areas, the PMC shall ensure that key decisions and commitments are tracked using a Project Decisions/Commitments tool and shall coordinate, prepare for, attend, and document meetings between HCTRA and other local agencies and partners.

Subject matters include but are not limited to:

ROW/Utilities – The PMC SME shall be a design engineer familiar with ROW and utilities as part of the project development process and not a ROW professional. The PMC shall coordinate with HCTRA on ROW and utility scheduling and needs at the program level across all active and future projects, including but not limited to managing ROW and utility status program-wide. The PMC shall coordinate and facilitate meetings with project teams and external partners as necessary to advance ROW and utility activities. The PMC shall provide support in developing agreements as necessary.

Structures – the PMC shall coordinate with HCTRA regarding structural reviews by project including structural reporting and asbestos abatement investigations.

Railroad – the PMC shall coordinate program-wide railroad activities across the program, including but not limited to supporting HCTRA in advancing railroad agreements.

Transit – the PMC shall coordinate program-wide transit activities including but not limited to specific project-related coordination related to accommodations as part of AET projects.

Bicycle/Pedestrian/ADA – the PMC shall coordinate program-wide bicycle/pedestrian/ADA activities including but not limited to specific project-related coordination related to accommodations as part of AET projects.

Hydrology/Hydraulics - The PMC shall maintain the previously developed drainage plan at the corridor-level and share and monitor application of the established AET drainage design criteria and standards. The PMC shall coordinate review of proposed adjustments to the corridor drainage plan with HCTRA and other jurisdictional entities, including the FEMA flood Plain coordinator.

The PMC shall provide oversight and coordination for hydraulics and hydrology planning, modeling and design and related activities for multiple projects within the corridor as assigned by HCTRA. Development shall be in accordance with current AASHTO, FHWA, FEMA and HCTRA guidelines and policies in effect at the time of development. The PMC shall provide oversight, coordination and participation with HCTRA in project meetings with Federal, HCTRA, and Local Regulatory and Resource Agencies as necessary.

For assigned projects or corridors, as requested by HCTRA, the PMC shall review hydraulics and hydrology planning, modeling and design prepared by others including developers, consultants, or HCTRA personnel, and shall provide written comments and recommendations on such documents.

The PMC shall provide oversight and coordination for the preparation of hydraulics and hydrology planning, modeling and design, and related activities for multiple projects within the corridor.

Pavement - the PMC shall coordinate between HCTRA and project-specific design teams regarding AET assumptions for pavement design. The PMC shall facilitate HCTRA provision of pavement design optimization or provide pavement design optimization services upon approval by HCTRA. The PMC shall hold pavement design meetings with HCTRA to coordinate decision-making and approvals on pavement designs. The PMC shall provide coordinate activities related to pre-cast concrete and its application to projects.

Aesthetics & Maintenance – the PMC shall coordinate the application of the AET program aesthetic guidelines through projects across the program and coordinate with HCTRA and local agencies regarding maintenance provisions for these elements and others associated with the maintenance of I-35 facilities.

Other subject areas as appropriate

Deliverables

By subject matter area: the PMC shall maintain institutional information, track and deliver upon issues and action items, as well as prepare agendas, presentation materials, sign-in sheet, meeting notes, and action item list for each meeting attended

102.7.a ROW/utilities (as needed)

102.7.b Structures (bi-weekly)

102.7.c Railroad (as needed)

102.7.d Transit (as needed)

102.7.e Bicyclist/pedestrian/ADA (as needed)

102.7.f Hydrology/hydraulics (bi-weekly)

102.7.g Pavement (bi-weekly)

102.7.h Aesthetics & Maintenance (bi-weekly)

102.7.i Other subject matter expertise (as needed)

102.8 Conceptual Design Schematics

The PMC shall develop conceptual design schematics (30% schematic submittal) for specific locations as requested by HCTRA to support feasibility studies or white paper analyses. The PMC shall utilize MicroStation to evaluate the proposed improvements in plan view. The PMC shall perform profile work only to the extent necessary to lay out the proper horizontal geometry and identify fatal flaws. The conceptual designs shall be based on the preliminary design and current data provided by HCTRA with modifications (e.g. geometric refinements, drainage design, etc.) as required.

The schematics shall contain the following design elements:

- Mainlane roadway alignment
- Pavement edges, face of curbs and shoulder lines
- Typical sections of existing and proposed roadways
- Proposed structure locations
- Preliminary ROW requirements and control-of-access locations
- Direction of traffic flow and the number of lanes on all roadways
- Existing and projected traffic volumes

Deliverables

102.8.a Draft and Final electronic PDF formats by project

102.8.b Hardcopy roll plots for the District

102.8.c MicroStation computer-generated electronic media by project containing the roadway schematic layout with all supporting attachments and exhibits and compatible with the software used by HCTRA (1 inch = 100 feet, English units)

102.9 Coordination of Schematic Engineering Development

The PMC shall provide oversight and coordination for the preparation of schematic engineering documents and related activities for multiple projects within the corridor.

The PMC shall coordinate on conceptual and geometric schematic documents prepared by others including developers, consultants, or HCTRA personnel, and shall provide written comments and recommendations, addressing topics including but not limited to:

- Contract time/schedule and management of activities to meet the identified “Ready to Let” date
- Design Criteria and Design Summary Report
- Survey data and mapping
- Typical Sections
- Avoidance, minimization or mitigation of environmental constraints
- Avoidance or minimization of right-of-way impacts
- Avoidance or minimization of utility conflicts
- Optimization of design to address transportation need and purpose while minimizing impacts including cost
- Design elements including but not limited to roadway alignments, structures, control-of-access limits, large guide signs, lane and shoulder lines and arrows, signals, lighting, horizontal and vertical data, and clearances
- Drainage including complex hydrology and hydraulics analysis—external and internal, temporary and permanent, mitigation, and water quality impacts and mitigation as applicable over the Edwards Aquifer
- Design Exceptions, Waivers, and Variances
- Engineering Summary Report
- Illumination Study
- Geotechnical Engineering Report
- Environmental Report
- Agency coordination and public involvement documentation
- Traffic projections and operational analysis
- ROW/Property Base Map
- ROW needs associated with hydraulic detention and water quality as applicable and as identified for environmental study and potential mitigation purposes
- Right of Way Memorandum
- Utility Base Map
- Construction sequencing and traffic control
- Temporary and permanent Intelligent Transportation System (ITS)/Transportation Management System (TMS) elements

- Bicycle and pedestrian accommodations
- Cost estimates
- Right-of-entry letters
- Checklists and formats in HCTRA-specified formats

The PMC shall consider as applicable the schematic elements in the context of the AET Implementation Plan, adjacent projects under construction and in development, including projects outside the direct purview of the PMC, including projects in adjacent Districts and projects abutting I-35 on other roadways.

Project Progress Reporting - The PMC shall QC review weekly the project updates submitted by others in program-wide Progress Report template.

Project Status Reporting - The PMC shall maintain the Project Status Report as a living document documenting key commitments and decisions by the project design engineer and HCTRA, as well as milestone events. The PMC shall utilize a format provided by HCTRA. This document will follow the project through its lifecycle: at the appropriate time, the PMC shall transition this report for use in the final design stage. The PMC shall also report key project commitments and decisions to the program level for tracking.

Deliverables

102.9.a .cccc-ss-jjj Weekly QC reviews of project updates submitted by others in program-wide Progress Report template

102.9.b .cccc-ss-jjj Record of actions, including tracking logs for comments and resolution of same

102.9.c .cccc-ss-jjj Project Status Report maintained live

102.9.d .cccc-ss-jjj Agenda, materials, sign-in sheet, minutes and action item list for project coordination meetings

102.9.e .cccc-ss-jjj Program commitments/decisions tracking

102.10 Review of Schematic Engineering Development

The PMC shall provide an Independent Quality Review of conceptual and geometric schematic documents prepared by others including developers, consultants, or HCTRA personnel, and shall provide written comments and recommendations to ensure they meet the purpose and need identified in the associated environmental document and address activities necessary for projects to meet HCTRA's "Ready To Let" definition by HCTRA-directed date.

The PMC shall consider as applicable the schematic elements in the context of the AET Implementation Plan, adjacent projects under construction and in development, including projects outside the direct purview of the PMC.

To maintain independence and objectivity, the PMC shall establish a fire-wall for individuals conducting Review tasks (for Schematic and Plan Sets) so that these are the only tasks that Independent Quality Review individuals perform for the program.

Deliverables

102.10.a .cccc-ss-jjj Meeting attendance, review comments and documentation for resolution of same for documents prepared by others

Function Code (FC) 120 Social/Economical/Environmental Studies

120.1 Environmental Document Preparation

The PMC shall provide oversight and production for the preparation of environmental documents, including environmental impact statements, environmental assessments, categorical exclusions, supplemental environmental documents, environmental reevaluations of existing documents, and other HCTRA and federal environmental documents as assigned by HCTRA. Environmental documents shall be in conformance with National Environmental Policy Act of 1969 (NEPA) and current legislative, HCTRA, and FHWA requirements. The PMC shall provide oversight, coordination and participation with HCTRA in project meetings with Federal, State, and Local Regulatory and Resource Agencies as necessary in support of environmental document preparation and environmental clearance activities.

Environmental Management System: the PMC shall utilize HCTRA's environmental management system to track environmental issues and mitigation commitments throughout the term of the program. The PMC shall review the project for compliance with HCTRA and federal environmental laws pertaining to transportation projects.

Environmental Document Review and Recommendations: The PMC shall provide experienced environmental professionals for assigned projects as requested by HCTRA, to review environmental documents prepared by others including developers, consultants, or HCTRA personnel, and shall provide written comments and recommendations on such documents.

Environmental Permits: The PMC shall prepare exhibits and supporting documentation including permit applications as directed by HCTRA for any permits that may be required such as with the United HCTRAs Army Corps of Engineers (USACE), Texas Commission on Environmental Quality (TCEQ), Federal Aviation Administration (FAA) for flight path clearance, local floodplain administrators, and other HCTRA or local jurisdictional permit

agencies including local cities. Permit coordination shall include coordination or completion of Environmental Permit Issues and Commitments Sheets (EPIC Sheets) for HCTRA signature and processing.

Deliverables

120.1.a .cccc-ss-jjj Environmental Document reports, hard copy and electronic format, for submittal to HCTRA and jurisdictional agencies. Submittals shall include draft and final versions and any applicable addenda or supplements

120.1.b .cccc-ss-jjj Environmental Management System report and tracking forms

120.1.c .cccc-ss-jjj Completed environmental permits and supporting exhibits

120.1.d .cccc-ss-jjj Public meetings and hearings, mounted exhibits and handouts for display and distribution

120.2 Public Involvement for Environmental Documents

To support environmental activities, the PMC shall:

- Use the Public Involvement Plan (PIP), public involvement templates, checklists, and other tools as applicable
- Conduct meetings with affected property owners (MAPOs) as applicable
- Conduct stakeholder and public involvement meetings or hearings including scheduling the event and prepare all materials
- Document the meetings in a format to be provided by HCTRA and refined as applicable to meet current environmental study guidelines

To support environmental activities conducted by HCTRA or others, the PMC shall:

- Provide the PIP, public involvement templates, checklists, and other tools as applicable
- At the request of HCTRA, the PMC shall send one (1) attendee to public events
- Monitor the progress and performance of public involvement activities, including ensuring the consistency and conformance of materials with the program guidance.

The PMC shall assist HCTRA with general, non-specific public inquiries regarding the environmental process and environmental document. The PMC shall coordinate

scheduling all meetings with the other PMC and HCTRA to avoid program schedule conflicts.

Deliverables

120.2.a .cccc-ss-jjj Review comments and documentation of resolution for public involvement documents prepared by others

120.2.b .cccc-ss-jjj Meeting attendance for meetings by others

120.2.c .cccc-ss-jjj Develop materials, procure locations, staff, host and document public outreach meetings or events

120.3 Public Involvement Plan (PIP) for Project Development

The PMC shall collaborate with HCTRA to update and maintain the Public Involvement Plan (PIP) for project-level development activities and procedures applicable from project concept up to construction letting. The PMC shall maintain public involvement procedures in accordance with current HCTRA code, regulations, and program guidance. The PMC shall update the PIP to address activities required under NEPA for project development, as well as on-going stakeholder and community outreach for projects at other stages of development to increase transparency regarding activities through each project's lifecycle.

Deliverables

120.3.a Draft, Final, and quarterly updates to the Public Involvement Plan

120.4 Program-wide Communications Plan (PCP)

The PMC shall update and maintain the AET Program Communications Plan (PCP) developed in 2016. The PMC shall address internal and external communications regarding program-level messaging and its nexus with project-level public involvement activities during project development, and construction-related traveler information. The PMC shall focus the PCP on program-level communications and messaging appropriate for dissemination through all AET activities, including project development activities and construction information, each covered under separate tasks. The PMC shall routinely revisit roles and responsibilities previously identified and recalibrate the plan details based upon lessons learned. The PMC shall update the PCP quarterly for the first year and up to twice a year thereafter to address an evolving program.

The PMC shall prepare materials for and facilitate an annual visioning session with HCTRA to calibrate program-level public involvement and public information strategies.

The PMC shall utilize formative market research, such as focus groups, surveys, in-depth interviews, and message and materials testing in developing the PCP to identify priority audiences and effective engagement strategies.

Deliverables

120.4.a Draft, Final, and then twice yearly updates to the Program Communications Plan

120.4.b Draft and Final materials for annual communications visioning session

120.4.c Draft research plan and final reporting on findings

120.5 Program-level Public Involvement and Information Activities

The PMC shall implement the AET Program Communications Plan (PCP), providing proactive public information and communications support at the program level, including coordinating program-level messaging with project-development and implementation stages.

The PMC shall conduct weekly strategy sessions with HCTRA to discuss current and upcoming messaging, upcoming public involvement activities, construction project milestones, and planning efforts.

In support of program-level public involvement activities, the PMC shall perform activities including but not limited to:

- Coordinate and schedule meetings program-wide
- Field all public inquiries received by the program and route them to the appropriate team responsible for tracking, logging, and, if appropriate, responding (directly unless otherwise directed by HCTRA)
- Produce and publish, as needed and approved by HCTRA:
    - Monthly Email newsletter, including graphics
    - Email blasts for milestone events
    - Press releases and media kits
    - Social media update materials
    - Legal notices and advertisements
    - Outreach materials for minority and under-represented populations
- Consistently and regularly monitor the program website and coordinate with project teams to ensure site information is up-to-date. The PMC shall coordinate the updates with project development teams and HCTRA, providing new webpages and updates in a format specified by HCTRA to HCTRA for updating to HCTRA-

owned and managed website. As applicable, the PMC shall develop program-level website materials

- Coordinate, support, make presentations or facilitate, prepare handouts, and document outreach for various groups, including but not limited to:
    - small groups of internal stakeholders, agencies, local jurisdictional entities and public officials (generally under 10 external attendees)
    - small groups of external stakeholders such as community groups and seminars/industry events (generally under 30 attendees)
    - large-groups such as community associations, business groups, or other entities at table-top and town hall type meetings (30-100 external attendees)
- Provide audio-visual equipment including laptop, projector, and screen as needed
- Provide materials, supplies, and development of multi-media tools including set-up and disassembly where applicable of multi-media tools, as approved by HCTRA, including but not limited to: kiosks, video iPods, plasma screen displays
- Provide, host, and maintain the program's HCTRA-owned Virtual Open House tool, an interactive public involvement website and public e-mail addresses for logging comments and inquiries as a supplemental site to HCTRA.org site which does not have this capability. The PMC shall keep the web-site up to date on assigned projects or corridors and shall modify the web-site for compliance with HCTRA's communications procedures and guidelines.
- Define and implement a digital media campaign potentially leveraging local media advertising, sponsored content, e-blasts, search engine optimization, and social media management and promotion activities via local media outlets

The PMC shall update, maintain, and apply to new projects existing program-level communications products including but not limited to:

- AET Infographic
- Master slide deck used as the basis for program- and project-level presentations
- Tabloid one-page project summaries using Adobe Design suite, Illustrator, and Geographic Information System-based maps
- Database of stakeholders by projects of interest or program-interest
- Existing log of phone calls, emails, and written correspondence received and made to external stakeholders and the public.
- Projects Pages (one-page summaries of completed projects with before and after photographs)
- Project Fact Sheets (public messaging)
- Program summary sheet
- Geographic Information System (GIS) maps for communications products

The PMC shall develop new communications products to support communications, with an emphasis upon products that communicate complex concepts clearly and understandably for a public audience, including but not limited to:

- Annual external-facing electronic Program Update Report
- Infographics to communicate complex information clearly and interestingly

The PMC shall assist HCTRA in conducting quarterly program Technical Steering Committee (TSC) meetings targeted at an established list of approximately 40 local partner agencies. The PMC shall develop agenda, presentation, handouts, and other materials and document the meetings, as well as attend and facilitate.

The PMC shall work collaboratively with an extensive team across various public and private partners to maintain up-to-date information, descriptions and distributions, seek opportunities to communicate the “AET story,” and assure information is correct, free of composition errors, and released professionally.

The PMC shall update information and keep the public and media informed during the life-cycle of a project from planning through construction completion.

In addition, as needed, the PMC shall conduct other public involvement activities upon request by HCTRA.

Deliverables

120.5.a Meeting attendance

120.5.b Agenda, sign-in sheet, minutes and action item list for project coordination meetings

120.5.c Schedule, set up, prepare, attend, take down, and document internal and agency stakeholder outreach meetings

120.5.d Schedule, set up, prepare, attend, take down, and document external small-group stakeholder outreach meetings

120.5.e Schedule, set up, prepare, attend, take down, and document external large-group stakeholder outreach meetings

120.5.f Log of phone calls, emails, and written correspondence with stakeholders

120.5.g Public-friendly communications products

120.5.h Agenda, presentation, materials, sign-in sheet, minutes and action item list for Technical Steering Committee meetings (quarterly)

120.5.i Draft, Final, quarterly and then twice yearly updates to the AET Construction Communications Strategy

120.5.j Public Involvement Meetings schedule (living document)

120.5.k Draft and final website updates

120.5.l Draft and final email blasts

120.5.m Draft and final media releases, media kits, legal notices and advertisements, and social media postings for general program information

120.5.n Outreach materials, including for minority and under-represented populations

120.5.o Maintain public-friendly GIS map of known issues along corridor

120.5.p Master slide deck, available to HCTRA upon request

120.5.q Draft, Final, and Updates to tabloid project summaries

120.5.r Project summary pages and Project Fact Sheets

120.5.s Program two-page summary sheet

120.5.t Program benefits flyer

120.5.u Draft and Final template for new project-specific communications products

120.5.v Draft, Final, and Updates to new program-level communications products

120.5.w Interactive public involvement website (AETopenhouse.com) and public e-mail address (info@AET.org)

120.5.x Living stakeholder database in electronic format provided to HCTRA upon request

120.5.y Digital media campaign

120.5.z Earned media plan, outreach, and reporting

120.5.aa Paid media plan, development of ads, media placement and reporting

120.6 Public/Traveler/Business Construction Information

The PMC shall be responsible and accountable for closely coordinating public information and traffic management support to deliver a seamless construction information program for the AET program under the umbrella of the AET Communications Strategy (CCS).

The PMC shall implement the work outlined in the CCS with HCTRA (Public Information Officer, AET program, and others). And, as approved by HCTRA, the PMC shall coordinate with project-specific Construction Engineering and Inspection (CE&I) public information representatives to ensure coordination with the program-wide comprehensive, cohesive messaging for construction- and incident-related information within the AET construction.

The PMC shall participate in weekly strategy sessions with HCTRA to discuss current and upcoming messaging, upcoming public involvement activities, construction project milestones, and planning efforts.

The PMC shall organize and prepare public-friendly materials for project workshops and meetings, groundbreakings and ribbon-cuttings.

The PMC shall develop and use outreach materials and methods to communicate project impacts on AET to road users, the general public and all other stakeholders and partners such as, TxDOT, Harris County, the city of Houston, and other municipalities along the corridor. The PMC shall integrate public information and communications efforts with the technology-side framework and effort and other HCTRA efforts advancing a Traffic Management System for the region. This effort shall include the PMC coordinating with traffic management centers and other TxDOT districts along Sam Houston Toll road, as directed by HCTRA. The PMC shall conduct and develop, but is not limited to, the following:

- Stakeholder meetings, including meet-the-contractor open houses
- Groundbreakings and ribbon-cuttings
- Landowner/business owner public meetings and door-to-door communication
- Online meetings
- Business-owner construction impact packets
- Brochures

- FAQ document
- Maps
- Direct mail/door hangers
- Videos (outline, scripts, storyboards, voiceover recordings, final videos)
- Infographics
- Social media pieces and text notifications

The PMC shall plan and coordinate distribution of collateral materials, including mass mailings and literature drops.

The PMC shall develop and maintain a direct project/program information line which shall be answered by a communications coordinator who shall be available to answer calls and respond to concerns during regular business hours. This number shall also be answered by a project representative as a direct phone line for media and stakeholders in a crises or major construction/closure event.

The PMC shall be responsible for coordinating changes to the portable, changeable messaging signs along the corridor to notify the traveling public of upcoming construction changes at least one week before construction starts.

The PMC shall establish a voluntary Advisory Panel to assist HCTRA in identifying and addressing issues associated with providing traveler information and managing traffic operations through multiple work zones, and as a soundboard for guidance. The Panel shall consist of transportation experts, communications experts, and may include representatives from businesses and neighborhoods along the corridor. The PMC shall organize meetings of the Panel annually, and as needed for major events.

The PMC shall measure the effectiveness of PI efforts and products and improve communications as warranted.

Deliverables

120.6.a Construction impact packets

120.6.b Direct mail postcards and letters

120.6.c Door hangers

120.6.d Brochures

120.6.e Maps

120.6.f Online meetings

120.6.g Videos

120.6.h Infographics and content documents

120.6.i Press releases

120.6.j Media packets

120.6.k Meeting plans, agendas, summaries

120.6.l Materials for public meetings

120.6.m Meeting set up and meetings

120.6.n Plan and coordinate distribution of collateral materials

Function Code (FC) 130 Right-of-Way and Utilities

130.1 Review and Coordination of ROW Surveys, ROW Acquisition, and Utility Engineering, Coordination, Monitoring and Verification

The PMC shall provide oversight and coordination for the preparation of ROW Surveys, ROW Acquisition, and Utility engineering, Monitoring and Verification and related activities for multiple projects within the corridor as assigned by HCTRA. Schematic document development shall be in accordance with current AASHTO, FHWA, and HCTRA guidelines and policies in effect at the time of development. The PMC shall provide oversight, coordination and participation with HCTRA in project meetings with Federal, HCTRA, and Local Regulatory and Resource Agencies as necessary in support of schematic engineering preparation.

The PMC shall update and maintain the utility coordination process for the corridor, for use on individual projects within the corridor, to include the identification of utility conflicts, coordination, compliance with the Utility Accommodation Rules (UAR), and resolution of utility conflicts.

For assigned projects or corridors, as requested by HCTRA, the PMC shall review ROW Surveys, ROW Acquisition, and Utility Engineering, Monitoring and Verification prepared by others including developers, consultants, or HCTRA personnel, and shall provide written comments and recommendations. PMC's Surveyor will provide field and office survey services as needed to verify that field surveys and mapping deliverables performed by others meet the project specifications and requirements.

Deliverables

130.1.a .cccc-ss-jjj Review comments and documentation resolution for ROW and utilities deliverables prepared by others

130.1.b .cccc-ss-jjj Record of actions on utility coordination, including tracking logs for comments and resolution of same

130.1.c .cccc-ss-jjj Agenda, presentation materials, sign-on sheet, minutes and action item list for each meeting attended

130.2 Right-of-Way (ROW) and Utilities Base Mapping

The PMC shall maintain overall ROW and utilities base maps for the program incorporating detailed ROW information obtained by others throughout the project development process.

Deliverables

130.2.a .cccc-ss-jjj Initial development and quarterly updates to program ROW base map maintained electronically in .dgn format

130.2.b .cccc-ss-jjj Initial development and quarterly updates to program utility base map maintained electronically in .dgn format

130.3 Access Management

The PMC shall coordinate and evaluate access management within the project limits in accordance with the latest HCTRA Access Management Manual or as directed by HCTRA.

Deliverables

130.3.a .cccc-ss-jjj Technical memorandum documentation of access management coordination and evaluation

130.4 Right-of-Way Map Preparation

All standards, procedures and equipment used by the Engineer's Surveyor shall be such that the results of the survey shall be in accordance with Board Rule 663.15, as promulgated by the Texas Board of Professional Land Surveyors including those requirements for adequate record research, field surveys of boundary monumentation, and the proper analysis of the data with respect to HCTRA's existing rights-of-way and the adjoining properties in order to make a proper determination as to the location of the boundary lines.

Upon approval by HCTRA, the PMC shall locate the existing ROW within the project limits from the current project control monuments and prepare a layout map for the project. For the purposes of this project, the layout map will consist of HCTRA's existing rights-of-way lines only in a DGN file suitable for use as a reference file. Said lines will be located in the project coordinate system and drawn using the specified graphics standards. The PMC shall review and evaluate the proposed or existing ROW map to verify that all construction staging and alignment considerations have been taken into account. The PMC shall make every effort to prevent detours and utility relocations from extending beyond the proposed ROW lines. The PMC shall notify HCTRA in writing if it is necessary to obtain additional construction easements or ROE and shall provide justification for such action. The PMC shall be responsible for identifying and delineating any temporary construction easements in areas outside HCTRA's ROW. HCTRA will secure the necessary legal instruments.

Deliverables

130.4.a . cccc-ss-jjj Existing Right-Of-Way Layout Map

130.4.b cccc-ss-jjj Exhibits showing temporary construction easements and driveway licenses outside of HCTRA's ROW to be used by HCTRA to secure the necessary legal instruments.

130.5 Utility Coordination

Upon approval by HCTRA, the PMC shall coordinate directly with utility companies on behalf of HCTRA to include preparation of utility agreements and utility certifications and special provisions for HCTRA review and approval. Utility Coordination shall include utility coordination meetings with individual utility companies, communication and coordination with utilities, and preparation of utility agreement assemblies including utility agreements, joint use agreements, and advanced funding agreements.

1. Utility Coordination. The Utility Coordinator shall perform utility coordination and liaison activities with involved utility owners, their consultants, and HCTRA to achieve timely project notifications, formal coordination meetings, conflict analysis and resolution. The Utility Coordinator shall act as the "Responsible Party" as indicated in HCTRA's– Utility Cooperative Management Process (See HCTRA's ROW Utility Manual, chapter 2).
   The Utility Coordinator shall coordinate all activities with HCTRA, or their designee, to facilitate the orderly progress and timely completion of HCTRA design phase. The Utility Coordinator shall be responsible for the following:
   a. Work Plan: Coordinate a work plan including a list of the proposed meetings and coordination activities, and related tasks to be performed, a schedule and an estimate. The work plan must satisfy

the requirements of the project and must be approved by HCTRA prior to commencing work.

b. Orientation: Prepare and present, in collaboration with HCTRA staff, instruction and orientation sessions as required by HCTRA. The instruction shall introduce the subsurface utility engineering process, demonstrate the technology and facilitate the preparation of work orders, billings, and contract related documentation.

c. Initial Project Meeting: Attend an initial meeting and an on-site inspection (when appropriate) to ensure familiarity with existing conditions, project requirements and prepare a written report of the meeting.

d. External Communications: The Utility Coordinator shall coordinate all activities with HCTRA and its consultants or other contractors or representatives, as authorized by HCTRA. Also, the Utility Coordinator shall provide HCTRA copies of diaries, correspondence and other documentation of work-related communications between the Utility Coordinator, utility owners and other outside entities when requested by HCTRA.

e. Permits and ROE: Obtain all necessary permits from city, county, municipality, or other jurisdiction to allow the PMC to work within existing streets, roads or private property for additional designating and/or subsurface utility locating.

f. Progress Meetings and Coordination: The Utility Coordinator shall implement a schedule of periodic meetings with each utility company and owner or owner's representatives for coordination purposes. Such meetings shall commence as early as possible in the design process and shall continue until completion of the project. The Utility Coordinator shall schedule all utility coordination meetings and ensure compatibility with the schedule of HCTRA. Set agenda for all coordination meetings as directed by HCTRA. The Utility Coordinator shall provide and produce meeting minutes of all meetings with said utility companies, owners or owners' representatives within seven (7) business days. The frequency of such meetings shall be appropriate to the matters under discussion with each utility owner. The meetings shall review:

    1) Activities completed since the last meeting
    2) Problems encountered.
    3) Late activities.
    4) Activities required by the next progress meeting.
    5) Solutions for unresolved and/or anticipated problems.
    6) Information or items required from other agencies/consultants.

    The Utility Coordinator shall advise utility companies and owners of the general characteristics of the Project and provide an illustration of the project footprint for mark-up of the utility facility locations that occupy the project area.

g. Utility Committee Coordination: As required, the Utility Coordinator shall coordinate with the local utilities committees to present a footprint of HCTRA's projects with represented utility companies and owners. The Utility Coordinator shall also coordinate with any other utility committees which may include county, city, or other officials, if needed.
h. Initial Project Coordination Letters: The Utility Coordinator shall provide initial project notification letters to all affected utility companies, owners, and other concerned parties, if needed.
i. Utility Contact List: The Utility Coordinator shall provide HCTRA and all affected utility companies and owners a Utility Contact List for each project with all information such as: (a) Owner's Name; (b) Contact Person; (c) Telephone Numbers; (d) Emergency Contact Number; (e) E-mail addresses; (f) as well as all pertinent information concerning their respective affected utilities and facilities, including but not limited to: size, number of poles, material, and other information which readily identifies the utilities companies' facilities.
j. Coordinate with utility companies within the project area.

2. Utility Base Map: The Utility Coordinator shall maintain a Utility Base Map in the latest version of MicroStation used by HCTRA. This layout shall include all existing utilities which are to remain in place or be abandoned, and all adjusted utilities. The utility line styles are to reflect the Subsurface Utility Engineering (SUE) plans. This layout shall be utilized to monitor the necessity and evaluate alternatives. The Utility Coordinator shall utilize the layout of existing utilities as prepared, if available, and make a determination of the following:
   a. Facilities in conflict with the proposed project that are to be relocated.
   b. Facilities to be abandoned in place.
   c. Facilities to remain in service and in place as a result roadway design adjustments and meeting the current Utility Accommodation Rules (UAR).
   d. The Utility Coordinator shall be responsible for determining if there are additional facilities, not shown in the Subsurface Utility Engineering (SUE) documents, which require relocation. The PMC shall coordinate this information with HCTRA immediately upon discovery.
3. Utility Conflict Analysis: The PMC shall develop, maintain and update a utility conflict matrix in a format provided by HCTRA. This matrix shall be prepared at project initiation and updated it prior to every milestone submittal, or as requested by HCTRA. Each utility conflict shall be documented by location of conflict (station and offset), utility company name (including owner contact information), type of facility, nature of conflict, potential relocation resolution and expected clearance date. This document shall be provided to the project team and utility companies at each milestone for use in providing updates and resolutions as necessary.
4. Utility Agreements for Utility Adjustments: The Utility Coordinator shall coordinate with utilities that conflict with highway construction or the UAR, and make the utility company aware of these conflicts. The Utility

Coordinator shall assist the utility companies in the preparation of required agreements associated with the funding of adjustments and the occupation of HCTRA ROW. The Utility Coordinator shall complete the Utility Assignment Work Sheet Pre-highway Letting (ROW-U-UAWS) form.

a. Standard Utility Agreement Assemblies: A packaged agreement consisting of a Utility Joint Use Acknowledgement, Standard Utility Agreements, Plans on 11" x 17" sheets, HCTRAment of contract work form, Affidavit form and copy of recorded easement, schedule of work and various attachments as detailed in the UAR and HCTRA*'s ROW Utility Manual*.
    1) Utility Agreements: If a utility is located within an easement, the utility company may have a compensable interest. The utility company must furnish a copy of their easement to the Utility Coordinator. The Utility Coordinator shall determine whether or not a compensable interest exists and the owner's degree of eligibility. The Utility Coordinator shall assist the utility company with adjustment plans and cost estimate for these adjustments. The Utility Coordinator shall review plans to ensure compliance with UAR and ensure the proposal will not conflict with highway construction. The utility should be reimbursed all cost incurred within their easement limits for replacement in kind.
    2) Utility Exception Requests: The Utility Coordinator shall prepare exception requests to the UAR for the Utility Owner and HCTRA for review and approval.
    3) Utility Acknowledgement: Utility Adjustments shall be submitted with the Form 1082. The term permit refers to Form 1082. The Utility Coordinator shall furnish the appropriate form to the utility company and assist them with adjustment plan preparation. The utility company should submit Form 1082 and adjustment plans to the Utility Coordinator for review. The Utility Coordinator shall review plans to ensure compliance with UAR and ensure the proposal will not conflict with highway construction. Permits to be submitted through HCTRA Utility Installation Review (UIR) system.
    4) Escrow Agreements: If it is determined that the utility will be adjusted as part of the highway contract; HCTRA's project manager must be notified immediately. The Utility Coordinator shall determine what funding amount is required based upon the applicable betterment or eligibility ratio. The Utility Coordinator shall notify HCTRA immediately of the need for an Advanced Funding Agreement (AFA). The PMC shall coordinate the development of the required AFA with the utility owner and HCTRA in accordance with established procedures of HCTRA's Contracts Services Section. Procure or verify all AFA payments have been submitted to HCTRA.

5) Federal Utility Procedures: Where there is Federal-Aid in the ROW, inclusive of utility costs, the Federal Utility Procedures (FUP) Approval is Federal Highway Administration (FHWA) authorization for HCTRA to assume total oversight of the utility adjustment process. Necessary information for the FUP approval shall include the utility name(s), location(s) of existing facilities by station number and estimated cost of adjustment(s) by utility.
6) HCTRA Utility Procedures.
7) Local Utility Procedures.

b. Utility Agreement Determination: The Utility Coordinator shall be solely responsible for determining which utilities will be installed by "Agreement". The Utility Coordinator shall Process all utility joint use agreements (ROW-U-JUAs), Utility Agreements and determine necessity of any Escrow Agreements and forward to HCTRA for final approval.

c. Utility Agreement Submittal: The PMC with the assistance of the Utility Coordinator shall be responsible for the timely coordination, review and submittal of all documentation to be included in all the Utility Agreements with such documents conforming to the requirements of 23 C.F.R. Section 645A. The PMC with the assistance of the Utility Coordinator shall assist in the preparation, compilation, gathering, and collection of all required and supporting documents to be included with the Utility Agreements.

d. Utility Records Compilation: For each Utility, the records for all utility owners' costs shall be in accordance with the requirements of 23 C.F.R. Section 645A, in a format that is compatible with the estimate attached to the Utility Adjustment Agreement and sufficient detail for analysis. The totals for labor, overhead, construction costs, travel, transportation, equipment, materials, supplies and other services shall be shown in such a manner as to permit comparison with the approved estimate.

e. Utility Record Management: The PMC shall maintain a complete set of records for all Utility Adjustment Costs for each Utility for a period of time sufficient to complete all final payments to the utility companies or owners.

f. Utility Agreement Execution: The Utility Coordinator shall submit the required number of executed copies of the Utility Agreement assemblies, which include:
1) Appropriate forms as detailed in the UAR and supplied by HCTRA
2) Copy of the recorded easement Deed
3) Utility relocation plans (11"x17")
4) Cost estimate - <u>The utility should be reimbursed eligible costs incurred within their easement limits for replacement in kind.</u>
5) Transmittal letter and cost estimate that includes a description of the work being done as well as the estimated cost, schedule of

work, and recommendation for approval (2 original signature copies of each).

Deliverables

130.5.a Draft, Final and updates to the utility coordination process

130.5.b Updated utility schedule

130.5.c Meeting agendas, sign-in sheets, and minutes

130.5.d Documentation of all correspondence with Utility Owners

130.5.e Executed permits and ROE

130.5.f Copies of all Utility Notification Letters

130.5.g Utility Contact List (included with FC 160 milestone deliverables)

130.5.h Pre 30% Submittal – Completed ROW-U-UAWS form

130.5.i Utility Work Plan including proposed coordination meetings and activities. (An updated Work Plan shall be included with FC 160 milestone submittals)

130.5.j Utility Agreement Assemblies (Draft Agreement Assemblies included with FC 160 60% milestone deliverable. Final Agreement Assemblies included with FC 160 90% milestone deliverable)

130.5.k Utility Acknowledgement

130.5.l Federal/ HCTRA/ Local Utility Procedures

130.5.m Utility Exception Requests (Draft Exception Requests included with FC 160 60% deliverable; Final Exception Requests included with FC 160 90% deliverable)

130.5.n Draft Excrow Agreements(included with FC 160 90% deliverable)

130.5.o Utility Base Map (included with FC 160 milestone submittals)

130.5.p Utility Conflict List (included with FC 160 milestone submittals)

130.5.q Utility Records

130.5.r Utility Relocation Estimate (included with FC 160 milestone submittals)

130.5.s PMC's internal QA/QC set (included with FC 160 milestone submittals)

Function Code (FC) 160 Roadway Design

160.1 Review and Coordination of Field Surveying and Photogrammetry

The PMC shall provide oversight and coordination for the preparation of field surveying and photogrammetry and related activities for multiple projects within the corridor as assigned by HCTRA. Schematic document development shall be in accordance with current AASHTO, FHWA, and HCTRA guidelines and policies in effect at the time of development. The PMC shall provide oversight, coordination and participation with HCTRA in project meetings with Federal, State, and Local Regulatory and Resource Agencies as necessary.

For assigned projects or corridors, as requested by HCTRA, the PMC shall review field surveying and photogrammetry prepared by others including developers, consultants, or HCTRA personnel, and shall provide written comments and recommendations on such documents.

Deliverables

160.1.a Review comments and documentation for resolution of same for documents prepared by others

160.1.b Record of actions on project development, including tracking logs for comments and resolution of same

160.1.c Processed survey data files for others

160.2 Conduct Design Survey

Upon approval by HCTRA, the PMC shall perform tasks including, but not limited to the following:

- Obtain or collect data to create cross-sections and digital terrain models
- Locate existing utilities including flow line dimensions and or structure invert dimensions
- Locate topographical features and existing improvements
- Provide details of existing bridge structures
- Provide details of existing drainage features, (including but not limited to culverts and manholes with flow line and structure invert dimensions.)
- Establish additional and verify existing control points. Horizontal and Vertical control ties must be made and tabulated, to existing I-35 HCTRA control located in highway ROW
- Locate existing ROW
- Review ROW maps
- Locate boreholes
- Perform hydrographic surveys
- Update existing control data and prepare survey control data sheets, as directed by HCTRA for inclusion into a construction plan set
- Aerial Photogrammetry and Fixed-Wing Aerial LiDAR, with supplemental ground surveying and ground truthing, will be utilized to accomplish the surveying and mapping performed in this task.

Survey Control Index Sheets - the PMC's Surveyor shall also prepare a *Survey Control Index Sheet* and a *Horizontal and Vertical Control Sheet(s)*, signed, sealed and dated by the professional engineer in direct responsible charge of the surveying and the responsible RPLS for insertion into the plan set. The *Survey Control Index Sheet* shall include an overall view of the project control and the relationship or primary monumentation and control used in the preparation of the project; whereas, the *Horizontal and Vertical Control sheet(s)* shall identify the primary survey control and the survey control monumentation used in the preparation of the project. Both the *Survey Control Index Sheet* and the *Horizontal and Vertical Control Sheet(s)* must be used in conjunction with each other as a set. The PMC shall use HCTRA's form available for download from HCTRA's website. The following information shall be shown on the *Survey Control Index Sheet:*

- Overall view of the project and primary control monuments set for control of the project
- Identification of the control point
- Baseline or centerline
- Graphic (Bar) Scale
- North Arrow

- Placement of note *"The survey control information has been accepted and incorporated into this PS&E"* which shall be signed, sealed and dated by a Texas Professional Engineer employed by HCTRA
- RPLS signature, seal, and date
- HCTRA's title block containing District Name, County, Highway, and CSJ**.**

The following information shall be shown on all *Horizontal and Vertical Control Sheets:*

- Location for each control point, showing baseline or centerline alignment and North arrow.
- Station and offset (with respect to the baseline or centerline alignments) of each identified control point.
- Basis of Datum for horizontal control (base control monument/benchmark name, number, datum).
- Basis of Datum for the vertical control (base control monument, benchmark name, number, datum).
- Date of current adjustment of the datum.
- Monumentation set for Control (Description, District name/number and Location ties).
- Surface Adjustment Factor and unit of measurement.
- Coordinates (HCTRA Plan Coordinates [SPC] Zone and surface or grid).
- Relevant metadata.
- Graphic (Bar) Scale.
- Placement of note "*The survey control information has been accepted and incorporated into this PS&E"* which shall be signed, sealed and dated by a Texas Professional Engineer employed by HCTRA.
- RPLS signature, seal and date.
- HCTRA's title block containing District Name, County, Highway, and CSJ.

Deliverables (tracked by .cccc-ss-jjj)

160.2.a Digital Terrain Models (DTM) and the Triangular Irregular Network (TIN) files in a format acceptable by HCTRA

160.2.b Maps, plans, or sketches prepared by the PMC's Surveyor showing the results of field surveys

160.2.c Computer printouts or other tabulations summarizing the results of field surveys

160.2.d Digital files or media acceptable by HCTRA containing field survey data (ASCII Data files)

160.2.e Maps, plats, plans, sketches, or other documents acquired from utility companies, private corporations, or other public agencies, the contents of which are relevant to the survey

160.2.f Field survey notes, as electronic and hard copies

160.2.g An 8 ½ inch by 11 inch survey control data sheet for each control point which must include, but need not be limited to, a location sketch, a physical description of the point including a minimum of two reference ties, surface coordinates, a surface adjustment factor, elevation, and the horizontal and vertical datums used. A pre-formatted survey control data sheet form in Microsoft Office Word 2010 format will be provided by HCTRA

160.2.h A Survey Control Index Sheet and a Horizontal and Vertical Control Sheet(s), signed, sealed and dated by the professional engineer in direct responsible charge of the surveying and the responsible RPLS for insertion into the plan set

160.2.i A digital and hard copy of all computer printouts of horizontal and vertical conventional traverses, GPS analysis and results, and survey control data sheets

160.2.j All GEOPAK GPK files and/or OpenRoads GEOPAK files

160.2.k Project digital pictures (delivered in .jpg format)

160.2.l 3D & two-dimensional (2D) Topo (.dgn) processed files in MicroStation (latest version), with all chains and points. Include within the drawing file: Company name, address, telephone number, surveyor's name, date(s) of survey and survey datum information.

160.2.m Executed ROE forms, if applicable

160.2.n Survey reports in a format requested by HCTRA

160.3 Coordination of PS&E Development and Other Activities to "Ready to Let"

The PMC shall provide oversight, coordination and related services for the preparation of plans, specifications and estimates for multiple projects within the AET corridor. The PMC shall also provide an Independent Quality Review of the Plans, Specifications, and Estimates (PS&E) package to ensure the package meets all requirements and to ensure

constructability of all roadway and structural elements, including activities necessary for projects to meet “Ready To Let” definition by HCTRA-directed date.

Plan preparation and Ready to Let activities include: any environmental clearance and mitigation completed; project agreements in place; railroad coordination complete and agreement in place; utility agreements in place and relocations in progress (cleared sufficiently to proceed into construction without delays); reviewing Roadway and Structures elements, Sequence of Work/Traffic Control, Drainage (Temporary and Permanent), Storm Water Pollution Prevention Plan (SW3P), Environmental Permits, Issues and Commitments (EPIC) addressed, identifying Utility conflicts, etc.; ensuring accuracy and appropriate use of Items, Quantities, General Notes, Standard and Special Specifications, Special Provisions, Contract Time/Schedule, Standards, etc.; and providing detailed comments in an approved format.

PS&E development shall be in accordance with current AASHTO, FHWA, and HCTRA guidelines and policies in effect at the time of development and shall be coordinated with appropriate environmental action by the PMC. The PMC shall provide oversight, coordination and participation with HCTRA in project meetings with Federal, HCTRA, and Local Regulatory and Resource Agencies as necessary in support of PS&E preparation.

1. Design Review Plan: The PMC shall prepare design plans outlining what design controls shall be used in each of the various stages of plan review (30, 60, 90 and 100 percent). Design controls shall incorporate Austin District’s PS&E review process, documents and checklists. These design controls shall be used to review multiple PS&E projects within the IH-35 corridor. The PMC shall attend meetings and facilitate design workshops with HCTRA and developer to aid in the review of milestone plan submittals or interagency design approvals.
2. Roadway Design Controls
    a. Plan Profile Sheets: The PMC shall review final plan profile sheets.
    b. Typical Sections: The PMC shall review final typical section sheets.
    c. Roadway Details: The PMC shall review final roadway detail sheets. Alternate designs shall be submitted, and the PMC shall review plan sheets in the design and construction phases. This task shall include reviewing environmental mitigation and storm water pollution prevention plan (SW3P) controls.
3. Drainage
    The PMC shall review final plan sheets. Alternate designs shall be submitted by the developer as the design progresses, and the PMC shall review plan sheets in the design and construction phases. Drainage items in this task include bridges, culverts, storm sewer systems and channelization. All work shall conform to HCTRA's Hydraulic Design Manual, methods and procedures. Hydraulic reports

and studies to be prepared by the PMC shall be in accordance to Local, HCTRA and Federal laws, policies and guidelines.

4. Signing, Pavement Markings, Signalization
   The PMC shall prepare preliminary and final sheets including intelligent transportation systems (ITS), traffic signals, ·illumination, electrical details, signing and pavement markings. The PMC shall review each for accuracy and completeness at the 30, 60, 90 and 100 percent stages of development.
5. Miscellaneous (Roadway)
   a. Traffic Control Plan, Detours, and Sequence of Construction: The PMC shall review preliminary and final sheets including traffic control plans and construction phasing details for the project. The PMC shall review each for accuracy, completeness and compliance with the latest Texas Manual of Uniform Traffic Control Devices (TMUTCD) at the 30, 60, 90 and 100 percent stages of development.
   b. Retaining Walls: The PMC shall review all retaining wall layouts and details, both temporary and permanent.
   c. Miscellaneous Items: The PMC shall review all miscellaneous roadway sheets, details and supporting documentation. Items include, but are not limited to: general notes, estimates, specifications, provisions, joint bid work, railroad exhibits.
   d. Constructability Reviews: The PMC shall perform constructability reviews at major project development stages and design milestones to identify constructability issues and concerns including appropriate work areas and traffic control plan accommodations.

   Constructability reviews shall be captured in a Constructability Report identifying areas of concern and potential conflict. The PMC shall review the results of all Constructability reviews and provide in writing recommendations to HCTRA with the PMC's opinion for implementation or identification of potential risks. The final approval of the incorporation of any recommendations shall be made by HCTRA.

6. Traffic Management Systems (Permanent)
   The PMC shall review permanent and interim traffic management systems including computerized traffic management systems (CTMS) for proposed systems or modifications to existing systems. The PMC shall review each for accuracy, completeness and compatibility with HCTRA systems at the 60, 90 and 100 percent stages of development.

7. Bridge Design

a. Bridge Design (General): The PMC shall review all bridge design plans developed. All deviations from the final schematic and established design criteria shall be documented and included in a Master Design Summary Report. Resources the PMC shall utilize include, but are not limited to HCTRA's bridge manuals, the Bridge Detailer's Manual and HCTRA standards and procedures.
b. Bridge Layouts: The PMC shall review all bridge layouts.
c. Bridge Details: The PMC shall review all bridge details.

The PMC shall coordinate partner agency reviews including local jurisdictions. The PMC shall also support HCTRA in maintaining external project-level information current through approved mechanisms and support in responding to information requests or comments on the projects.

The PMC shall consider as applicable the design elements in the context of the AET Implementation Plan, adjacent projects under construction and in development, including projects outside the direct purview of the PMC, including projects in adjacent Districts and projects abutting I-35 on other roadways.

Project Progress Reporting - The PMC shall QC review weekly the project updates submitted by others in program-wide Progress Report template.

Project Status Reporting - The PMC shall maintain the Project Status Report as a living document documenting key commitments and decisions by the project design engineer and HCTRA, as well as milestone events. The PMC shall utilize a format provided by HCTRA. This document will follow the project through its lifecycle: at the appropriate time, the PMC shall transition this report for use in the construction stage. The PMC shall also report key project commitments and decisions to the program level for tracking.

Deliverables (tracked by .cccc-ss-jjj)

160.3.a Review comments and documentation of resolution for materials prepared by others

160.3.b Record of actions on PS&E review milestones, including tracking logs for comments and resolution

160.3.c Agenda, presentation materials, sign-on sheet, minutes and action item list for each meeting attended

160.3.d Review comments and documentation of PS&E contract documents, scope and fee estimates prepared by others, including tracking logs for comments and documentation of resolution

160.3.e Draft and final railroad exhibits and layout sheets

160.3.f Review comments and documentation of resolution for railroad exhibits and layout sheets prepared by others

160.4 Design Exceptions, Waivers, and Variances Support

The PMC shall monitor, guide, and track design exceptions, waivers, and variances required within the AET program. The PMC shall provide examples, guidance, and review of these documents performed by others. The PMC shall inform HCTRA of program- and project-level direction that increases risk of necessitating these documents and recommendations to remove or mitigate these situations. The PMC shall maintain and disseminate the standards for these documents adhering to HCTRA guidance and materials developed for the on-going AET Program. The PMC shall also report these key documents to the program level for tracking.

Deliverables

160.4.a Program-wide documentation/examples/guidance repository

160.4.b Documentation of support activities by project as part of program reporting under the FC 145 task

160.5 Utility Engineering Investigation (Subsurface Utility Engineering)

Upon approval by HCTRA for specific projects, the PMC shall provide oversight of Utility Engineering Investigation including utility investigations subsurface and above ground prepared in accordance with American Association of HCTRA Highway and Transportation Officials (AASHTO) standards [ASCE C-1 38-02 (http://www.fhwa.dot.gov/programadmin/asce.cfm)] and Utility Quality Level. The PMC shall review and provide oversight of utility activities including schedules, SUE plans, test hole locations and datasheets.

Subsurface utility engineering including utility investigations subsurface and above ground prepared in accordance with American Society of Civil Engineers (ASCE) 38-02 and the American Association of State Highway and Transportation Officials (AASHTO) standards and Utility Quality Levels as follows.

A. Utility Quality Levels are defined in cumulative order (least to greatest) as follows:

1. Quality Level D - Existing Records: Utilities are plotted from review of available existing records.

2. Quality Level C - Surface Visible Feature Survey: Quality Level "D" information from existing records is correlated with surveyed surface-visible features. Includes Quality Level D information.

3. Quality Level B - Designate: Two-dimensional horizontal mapping. This information is obtained through the application and interpretation of appropriate non-destructive surface geophysical methods. Utility indications are referenced to establish survey control. Incorporates Quality Levels C and D information to produce Quality Level B.

4. Quality Level A - Locate (Test Hole): Three-dimensional mapping and other characterization data. This information is obtained through exposing utility facilities through test holes and measuring and recording (to appropriate survey control) utility/environment data. Incorporates Quality Levels B, C and D information to produce Quality Level A.

B. Designate (Quality Level B) (Assume 450,000 linear feet)

Designate means to indicate the horizontal location of underground utilities by the application and interpretation of appropriate non-destructive surface geophysical techniques and reference to established survey control. Designate Quality Level B Services are inclusive of Quality Levels C and D. The Engineer shall:

1. Compile "As Built1' information from plans, plats and other location data as provided by the utility owners.

2. Coordinate with the utility owner when utility owner's policy is to designate its own facilities at no cost for preliminary survey purposes. The Engineer will examine utility owner's work to ensure accuracy and completeness.

3. Designate, record and mark the horizontal location of the existing utility facilities and their service laterals to existing buildings using non-destructive surface geophysical techniques. No storm sewer facilities are to be designated unless authorized by the County. A non-water base paint, utilizing the American Public Works Association (APWA) color code scheme, must be used on all surface markings of underground utilities.

4. Correlate utility owner records with designating data and resolve discrepancies using professional judgment. A color-coded composite utility facility plan with utility owner names, quality levels, line sizes and subsurface

utility locate (test hole) locations, if applicable, will be prepared and delivered to the County. It is understood by both the Engineer and the County that the line sizes of designated utility facilities detailed on the deliverables are from the best available records and that an actual line size is normally determined from a test hole vacuum excavation. A note must be placed on the designated deliverable only that states "lines sizes are from best available records". All . above-ground appurtenance locations must be included in the deliverable to the County. This information will be provided in Microstation, Geopak or applicable County Design Consultant GADD system. The electronic file will be delivered on CD or DVD. A hard copy is required and must be sealed and dated by the Engineer. When requested by the County, the designated utility information must be overlaid on the County's design plans.

5. Determine and inform the County of the approximate utility depths at critical locations as determined by the County. This depth indication is understood by both the Engineer and the County to be approximate only and is not intended to be used preparing the right-of-way and construction plans.

6. Provide a monthly summary of work completed and in process with adequate detail to verify compliance with an agreed work schedule.

7. Clearly identify all utilities that were discovered from the Quality Levels C and D investigation, but cannot be depicted in Quality Level B standards. These utilities must have a unique line style and symbology in the design (Quality Level B) deliverable.

8. Comply with all applicable County policy and procedural manuals.

C. Subsurface Utility Locate (Test Hole) Service (Quality Level A)

(Assume 312 Test Holes) - Locate means to obtain precise horizontal and vertical position, material type, condition, size and other data that may be obtainable about the utility facility and its surrounding environment through exposure by non- destructive excavation techniques that ensures the integrity of the utility facility. Subsurface Utility Locate (Test Hole) Services (Quality Level A) are inclusive of Quality Levels B, C, and D. The Engineer shall:

1. Develop a Subsurface Utility Engineering (SUE) (test hole) work plan relative to the existing utility infrastructure and proposed highway design elements.

2. Coordinate with utility owner inspectors as may be required by law or utility owner policy.

3. Neatly cut and remove existing pavement material, such that the cut does not exceed 1.0 square feet unless unusual circumstances exist.

4. Measure and record the following data on an appropriately formatted test hole data sheet that has been sealed and dated by the Engineer.

5. Elevation of top and/or bottom of utility tied to the datum of the furnished plan.

6. Identify a minimum of two benchmarks utilized. Elevations shall be within an accuracy of 0.5 inches of utilized benchmarks.

7. Elevation of existing grade over utility at test hole location.

8. Horizontal location referenced to Project coordinate datum.

9. Outside diameter of pipe or width of duct banks and configuration of non- encased, multi-conduit systems.

10. Utility facility material(s).

11. Utility facility condition.

12. Pavement thickness and type.

13. Coating/Wrapping information and condition.

14. Unusual circumstances or field conditions.

15. Excavate test holes in such a manner as to prevent any damage to wrappings, coatings, cathodic protection or other protective coverings and features. Water excavation can only be utilized with written approval from the appropriate County office

16. Be responsible for any damage to the utility during the locating process. In the event of damage, the Engineer shall stop work, notify the appropriate utility facility owner, County Engineer, and appropriate regulatory agencies. The regulatory agencies include, but are not limited to, the Texas Railroad Commission and the Texas Commission on Environmental Quality. The Engineer will not resume work until the utility facility owner has determined the corrective action to be taken. The Engineer shall be liable for all costs associated with the repair or replacement of the utility facility.

17. Backfill all excavations with approved material, install a marker ribbon throughout the backfill, compact backfill to noted specifications and restore pavement and surface material.

18. Provide complete restoration of work site and landscape to equal or better condition than before excavation. If a work site and landscape is not appropriately restored, the Engineer shall return to correct the condition at no extra charge to the County.

19. Plot utility location position information to scale and provide a comprehensive utility plan signed and sealed by the responsible Engineer. This information will be provided in Microstation or Geopak format or applicable County/County's Design Consultant CADD system. The electronic file will be delivered on a DVD or CD. When requested by the County, the Locate information must be overlaid on the County's design plans.

20. Return plans, profiles, and test hole data sheets to the County. If requested, conduct a review of the findings with the County.

Deliverables

160.5.a Meeting minutes from meeting with HCTRA and/or utility owners - distributed to attendees for review within one week of the meeting.

160.5.b PMC's internal QA/QC set (include with all submittals)

160.6 Utility Engineering

Upon approval by HCTRA for a specific project, the PMC shall oversee and review PS&E development and special details including structural details to accommodate or adjust utilities

Deliverables

160.6.a Status report of submittals reviews

160.7 Utility Estimate

Upon approval by HCTRA for a specific project, the PMC shall independently review submitted estimates of quantities necessary to construct contract in standard HCTRA bid format at the specified milestones and Final PS&E submittals.

Deliverables

160.7.a Utility Cost Estimate

160.8 Utility Specifications and General Notes

Upon approval by HCTRA for a specific project, the PMC shall review necessary standard specifications, special specifications, special provisions and the appropriate reference items. The PMC shall review the General Notes, Special Specifications and Special Provisions for inclusion in the plans and bidding documents.

160.9 Intelligent Transportation System (ITS) Planning, Design and Implementation

The PMC shall support project-specific Intelligent Transportation System (ITS) implementation as part of the AET program, including but not limited to:

- Maintain and update as necessary the existing database of existing ITS infrastructure, proposed ITS improvements by each AET construction project for the program, and completed ITS improvements
- Maintain and update as necessary the existing database of ITS plan sheet specifications for elements identified for implementation in HCTRA's ITS 5-Year Master Plan
- Schedule, prepare for, and facilitate bi-weekly AET ITS Coordination meetings including staff directed by HCTRA and to cover program-wide ITS topics as well as project-specific ITS issues and reviews
- Schedule, prepare for, and conduct ITS kick-off meetings for each new project under development for each phase of preliminary schematic and final design to inform the project-specific consultant or in-house designer of program-level ITS plans for the project, share ITS specifications and other guidance and discuss any issues
- Review project-specific ITS plan sheets

The PMC shall be responsible for coordinating ITS improvements for a completed, functional system, optimizing existing elements as they come on-line.

Deliverables

160.9.a ITS infrastructure database

160.9.b ITS plan sheet specifications and guidelines

160.9.c .yyyymmdd Agenda, presentation materials, sign-in sheet, and meeting notes including decisions made and action items for each meeting

160.9.d .cccc-ss-jjj Project-specific ITS kick-off meetings

160.9.e .cccc-ss-jjj Project-specific ITS plan sheet comment matrices and tracking of issues resolution

160.10 Traffic Management System (TMS) Construction Information Support

The PMC shall develop supportive and interim technology protocols, procedures, and apply existing technologies to supplement the existing and planned future traveler information system for I-35 and the region to deliver the technology and operations component to the AET "smart work zone." The AET "smart work zone" addresses construction- and incident-related issues within the I-35 corridor from the northernmost active AET construction project to the southernmost active AET construction project. The PMC shall explicitly orient work to provide stop-gap technology support for the AET PI program to support the Public Information side framework and not supplant work for long-term future traveler information activities being conducted under other work efforts by HCTRA. The PMC shall reference the AET Construction Communications Strategy (CCS) guidance document produced in 2016 to identify user needs for travelers/businesses during construction that technology protocols, procedures and existing technologies could address and propose these solutions to HCTRA for consideration and discussion. The PMC shall bring expertise in existing best practice ITS techniques (including but not limited to queue warning systems and standalone ITS structures) as well as new technologies (including but not limited to vehicle-to-infrastructure systems) and technologies and approaches specifically applicable to freight vehicles. The PMC shall integrate the technology solutions under this task with Public Information efforts as well as HCTRA's construction activities, keeping in mind other HCTRA efforts advancing a long-term Traffic Management System for the region.

The PMC shall participate in weekly strategy sessions with HCTRA to discuss current and upcoming messaging, upcoming public involvement activities, construction project milestones, and planning efforts.

Data Collection - The PMC shall schedule, coordinate, and facilitating a half-day workshop with HCTRA to be oriented on and discuss recent and on-going TMS/ITS planning and implementation efforts related to the AET program and other regional efforts applicable to AET. The PMC shall focus this workshop on gaining a high-level but comprehensive understanding of HCTRA's near-, mid-, and long-term vision for TMS

technology as it relates to the AET program and on-going activities and milestones for technology that will be available to support public information activities for AET. As part of this effort, the PMC shall investigate planned and on-going TMS/ITS activities at the regional, I-35 corridor, and project-specific levels of detail.

Concept of Operations - The PMC shall draft a high-level concept document identifying the communications needs or gaps that could be addressed under this task, existing and on-going communications and TMS/ITS resources and activities, and additional protocols, procedures, and existing technology applications the PMC proposes to implement in order address the interim gap needs. The PMC shall schedule, coordinate, and facilitating a meeting with HCTRA including staff representing the AET program, traffic operations, public information, and construction to discuss the concept, proposed approach, and timeline. After approval by HCTRA, the PMC shall develop a detailed concept of operations to implement each aspect. This Concept of Operation shall be a living document as specific sub-tasks identified for implementation are implemented, adjusted, and augmented.

Development and Implementation – The PMC shall develop and implement gap solutions in protocols, procedures, and technology applications as identified in the Concept of Operations and approved by HCTRA.

Maintenance and Improvements – The PMC shall staff, maintain, and update the protocols, procedures, and technology applications to address AET Construction Communications Strategy technology needs until work authorization termination or transition to the long-term system is possible.

Stakeholder Outreach – The PMC shall meet and consult with the volunteer Advisory Panel per the direction of HCTRA and during the above process.

As directed by HCTRA, the PMC shall attend additional meetings, provide technical guidance and share corridor data related to TMS/ITS coordination on behalf of the AET program.

Deliverables

160.10.a .yyyymmdd Half-day workshop agenda, presentation materials, sign-in sheet, and meeting notes including decisions made and action items for each meeting (internal kick-off, then Advisory Panel kick-off and quarterlies)

160.10.b .yyyymmdd Technical and project team meetings - agenda, presentation materials, sign-in sheet, and meeting notes including decisions made and action items for each meeting (kick-off, bi-weekly)

160.10.c High-level concept of operations (draft, pre-final, final)

160.10.d Detailed concept of operations (draft, live)

160.10.e TMS gap protocols, procedures, and technology toolbox (live)

160.10.f TMS program guidelines documentation (live)

160.10.g .cccc-ss-jjj Project-specific TMS meetings

160.11 Toll Engineering and Toll Advisor

160.11.a Assist and advise, in matters of toll engineering policy in administration, planning, design, construction, operations and maintenance of the existing and future system.

160.11.b Assist in coordinating improvements to the system by providing services such as, but not limited to, program management, preparing program documents, attending meetings, and preparing exhibits as part of implementation of system wide improvements on the existing and future toll road systems.

106.11.c Attend meetings and provide advice and consultation on a broad range of tolling issues. Issues may include, but are not limited to, toll operations, toll facilities and maintenance, information technology (toll collection infrastructure), customer service (violation enforcement) and finance (audit) such as:

- Vehicle classification/axle count system
- Mainline and ramp toll plaza configurations for toll collection systems
- Tollway operations
- Managed Lanes and HOV operations
- Toll system integrator/equipment integration support
- Service Center operations
- Back office system and financial audits
- Reporting
- KPI development/monitoring
- System transition planning, execution and monitoring

TOLL ENGINEERING

A. Tolling studies to:

1. Expand / modify the agencies existing toll plazas
2. Convert an existing conventional plaza to Open Road Tolling
3. Implement All Electronic Tolling on existing toll or toll supported bridges.

4. Project traffic for existing or new toll bridges

B. Develop Preliminary and Final Design Plans, Schedules and Engineer's Estimates for tolling projects

C. Prepare Functional Requirements, Specifications and Procurement Documents for tolling projects following a standard Design, Bid, Build Process or Alternative Bidding Processes.

D. Analyze and provide recommendations for improvements to the toll road system with an emphasis on tolling principles, procedures and systems. Assignments will involve evaluation of the toll road system, analysis and development of recommendations for toll improvements, and toll project development and support.

E. In general, tolling engineering consists of:

- Data Collection - collect relevant and available data from toll agency and other agencies to obtain information necessary to understand, assess and analyze toll system issues and/or concerns.
- Issues and Concerns - identify and document issues and concerns through review of data collected and discussions with agency staff.
- Research - supplement data collected with research from other toll agencies and/or toll system vendors to allow issues and concerns to be analyzed and recommendations developed considering toll industry common practices.
- Analysis - analyze data collection and compare to industry standards to develop initial recommendations to issues and concerns.
- Draft Report - document recommendations in a draft letter report (in executive summary format) with supporting information such as data collected, issues and concerns identified, best practices researched, and analyses performed attached in appendices as supporting information.
- Recommendations - conduct meeting with toll operations, toll facilities and maintenance, information technology (toll collection infrastructure), customer service (violation enforcement) and finance (audit), as appropriate, to present draft letter report with initial recommendations to solicit and receive feedback and comment.
- Final Report - revise draft letter report to include agency feedback and comments. Document final recommendations (in executive summary format) with supporting information in appendices.
- "Close-Out" - conduct meeting to present final letter report with final recommendations and to close-out task and/or assignment.
- Support – assist, as directed, in conducting agency coordination and support services for recommended toll improvements.

TOLL COLLECTION SYSTEM

A. Propose an outline for the plan of existing and future toll collection methods.

B. Manage the development of layouts for new and existing toll plazas in compliance with approved toll collection methods.

C. Review conceptual renderings for the purpose of evaluating potential tollway and tolling elements.

D. Review and/or prepare design drawings, details, and estimates for treatments of tollway and tolling elements.

E. Prepare exhibits as requested to assist with the public information plan for educating the public on tolling operation changes.

F. Assist in scheduling the conversion of existing toll collection operations. Prepare a schedule for the existing system and completion dates to upgrade the toll collection system at ramps and mainlane plazas.

G. Assist in matters of toll engineering policy in administration, planning, design, construction, operations and maintenance of the existing and future system.

H. Analyze and provide recommendations for improvements to the toll road system with an emphasis on tolling guideline principles, procedures and systems. To involve evaluation of the toll road system, analysis and development of recommendations for toll improvements, and toll project development and support.

I. Provide the requested support for designing and managing the toll collection system and ITS system.

J. Conduct audits and support testing, as requested, for procedural and system compliance and present the results of the audit with recommendations, if pertinent.

K. Analyze, evaluate, and provide recommendations for the toll collection system using the following general process:

a. Collect relevant and available data from toll agency and other agencies to obtain information necessary to understand, assess and analyze toll system issues and/or concerns.

b. Identify and document issues and concerns through review of data collected and discussions with agency staff.

c. Supplement data collected with research from other toll agencies and system vendors to allow issues and concerns to be analyzed and recommendations developed considering toll industry common practices.

d. Analyze data collection and compare to industry standards to develop initial recommendations for issues and concerns.

e. Document recommendations in a letter report (in executive summary format), if requested, with supporting information such as data collected, issues and concerns identified, best practices researched, and analyses performed attached in appendices as supporting information.

L. Manage the development of layouts for new and existing toll plazas in compliance with approved toll collection methods.

M. Develop and update toll equipment standards and guidelines for the design of toll gantry structures and all tolling elements.

N. Assess toll policies and business rules, review and evaluate toll collection system and develop recommendations for toll improvements.

O. Assist with the planning, development, and procurement of projects, vendors, or consultants by developing Request for Proposal, Request for Qualifications, or bidding/proposal packages ancillary to toll collection system. Provide support as requested during the procurement and evaluation phases.

P. Interface and Assist with multiple vendors and project contracts that impact or are related to the agencies In-Lane Toll System, Customer Service Center, and Violation Processing Center contracts.

Q. Assist with the following tasks: contract management support, toll construction management, field inspections, materials research, and maintenance requests. Assist in defining problems and providing solutions for identified maintenance issues on toll facilities. Prepare exhibits, cost estimates, and gather data as requested by the agency.

R. Provide field maintenance support and oversight on tolling system and equipment.

S. Prepare a system-wide program schedule for the Agency. The program schedule shall be monitored continuously and updated as requested. Advise of schedule delays and conflicts, and advise on how to resolve any scheduling issues.

T. Provide coordination and oversight services of toll operations including system integrators, contractors and other agencies during project development, implementation, and construction, which will include interoperability with other toll authorities, communications planning, and design of toll collection systems.

U. Maintain an ftp site such as CAPTRAC, SharePoint etc. for storage and communication of information.

V. Review schematics, preliminary design submittals, final design submittals, studies, reports and other documents and plans related to the Toll System. Analyze the

toll collection system and identify improvements to enhance the operational efficiency of the facility.

COMMUNICATIONS AND PUBLIC INVOLVEMENT ASSISTANCE

Public Education and Awareness Program including but not limited to the following:

A. Increase customer awareness and understanding regarding the operational characteristics of the existing and future tollways; including but not limited to increasing public understanding of pricing strategies and how they work.

B. Ensure that potential users know how to get access to the facilities; by understanding the design; the electronic tag only features; and entry and exit locations.

C. Provide a clearinghouse for the public to receive information and to provide comments on the existing and future system, its operational characteristics, pricing and design.

D. Convey the benefits associated with pricing strategies for addressing mobility issues on the system.

E. Develop, disseminate and display timely, high quality, innovative, user-friendly and community appropriate information and materials to communicate intricate and technical operational guidelines and characteristics.

F. Proactively coordinate with design and operational partners to identify opportunities for synergy and to collaboratively leverage public educational and awareness about the facility and local transportation challenges and solutions.

G. Assist in preparing materials necessary to educate the public or elected officials. Assist HCTRA in preparing Power Point audio and visual presentations to illustrate projects. Prepare meeting reports detailing the nature of the meeting and the contents of the meeting. Prepare responses to public/agency comments to input into a comment/response matrix.

HCTRA Sustainable AET Deployment

HCTRA plans to develop a sustainability strategy for the AET Program. In this context, it is important that decisions about priorities and investment tradeoffs, as well as strategies and policies for management of HCTRA AET assets, should be viewed from the perspective of ***value maximization***. To understand the implicit economic, environmental, and social trade-offs, the sustainability strategy should emphasize an ***integrated***

systems view of the risks, costs and benefits associated with various strategies and action plans.

Project Objectives:

1. ***Economic Impact:*** Develop an integrated understanding (economic, environmental, and social impacts) of HCTRA's operating environment, performance, plans, and principal benefits to Harris County for AET deployment.
2. ***Sustainability Assessment:*** Assess the expected sustainability of HCTRA AET assets and operational processes in the face of projected demands, pressures, and potential hazard disruptions.
    - ***Sustainability Strategies:*** Identify strategies for enhancing the sustainability of HCTRA AET assets and work processes, including construction, monitoring, maintenance, and incident response.
    - ***KPIs and Information Management System:*** Identify KPIs and develop an online management system to support tracking HCTRA AET materiality.
3. ***Sustainability Transportation Research & Technology:*** Develop and produce applied research to support ongoing and projected dynamic strategic planning for AET deployment at HCTRA.

The selected proposer must be able to provide HCTRA with the following services as needed/ requested. HCTRA would accept a proposal that combines the services of more than one provider, so long as a lead provider is identified and will be responsible for the completion of services for the entire project.

Scope

Economic Impact:
Develop an integrated understanding (economic, environmental, and social impacts) of HCTRA's operating environment, performance, plans, and principal benefits to Harris County as a result of projected AET deployment. The economic impact analysis should be projected for three time periods: short-term (2020-2025), mid-term (2026-2035) and long-term (2036-2040). Summarize the findings to identify the most significant economic development opportunities and constraints. These findings or "opportunity statements" will help to craft effective strategies and actions.

The economic impact analysis shall include the following facets to examine the direct and indirect multiplier effects that occurs when Harris County households, jobs, businesses and their employees spend money in the region, as well as the economic benefits generated by having faster and more efficient tolling service in the local economy.

- Operations Impacts — The added net economic, social and environmental impacts generated by HCTRA as a result of operational efficiency changes due to AET.
- User Spending Impacts — The impact (economic, social and environmental) of transportation efficiency on households and jobs in the region due to AET implementation. Spending habits and earning limits are projected to change based on improved transportation efficiency. Additionally there may be equity impacts that should be outlined and addressed.
- Community & County Impacts — The impact (economic, social and environmental) of transportation efficiency on communities and the county due to AET implementation. Land value and location decisions may be impacted based on improved transportation efficiency. Environmental impacts need to be clearly outlined. Develop profile sheets for communities across the county based on impacts from AET implementation.

Sustainability Assessment:

Assess the expected sustainability of HCTRA AET assets and operational processes in the face of projected demands, pressures, and potential hazard disruptions. Implementing AET will impact the following: vehicle operating costs, greenhouse gas emissions, travel time costs, as well as users' level of service and safety, interoperability, Enforcement, traffic safety, number of stops, visual impact to the ambient environment, air pollution, noise, fair pricing for all users, the user friendliness and aesthetic effect to the vehicle, etc.

Sustainability Strategies:

Identify strategies for enhancing the sustainability of HCTRA AET Deployment based on the results from the Sustainability Assessment outlined above. Additionally review and recommend sustainability strategies to enhance HCTRA AET assets and work processes, including construction, monitoring, maintenance, and incident response. Role of and approach to sustainability for HCTRA's AET deployment program: Interview staff and assess reports, strategic plans, staff engagement, financial strategies, and other factors to identify and recommend the best way to position and integrate sustainability at HCTRA relative to AET deployment and operational integration. Pace and prioritization: Relative to the change management recommendations and staffing model, review existing pace of organizational strategic planning and prioritization and identify and recommend needed adjustments.

KPIs and Information Management System:
Identify KPIs and develop an online management system to support tracking HCTRA AET deployment and management materiality based on the sustainability assessment

and strategies developed above. Recommendations for tracking tools, goal setting, metric development metrics (KPIs) to be used to determine sustainability-related program success and opportunities.

- Recommendations for technology services used to track and report on sustainability-related data
- In regards to any software or propriety systems proposed to be used for data collection, analysis and maintenance of risk and vulnerability assessments, the Consultant shall keep in mind the intended goal to set up HCTRA to be able to independently update and maintain its Vulnerability and Resilience management information system.

    - If it is agreed to utilized software or propriety systems, the following shall apply:
    - Consultant shall use and maintain the selected software for data collection in accordance with the standards included in this RFQ.
    - The Consultant shall provide all copies, licenses and data for the selected software
      to HCTRA during and at the conclusion of the project as necessary.
    - No copies of purchased licenses, software or data shall be retained by the Consultant or its sub-Consultants without prior written permission from HCTRA.

Sustainable transportation research and technology:

Develop and produce applied research to support ongoing and projected dynamic strategic planning for AET deployment at HCTRA. Sustainable transportation research and technology development will analyze a diverse set of issues related to the form and function of Harris County and the role of transportation in creating or responding to that form. Of particular interest is the interplay between some or all of the following: land use, urban form, new mobility, active transport, micro-mobility, public policy, public budgeting/finance, real estate, equity, quality of life, among other related issues.

- Transportation and jobs/ housing connectivity
- Transportation and equity
- Resilience and Transportation planning
- Big Data and Transportation Planning

APPENDIX B

MAXIMUM RAW SALARY RATES	
JOB CLASSIFICATION	**MAXIMUM RAW SALARY RATE**
Principal in Charge	$ 150.00
Project Manager	$ 140.00
Principal	$ 90.00
Creative Manager	$ 50.00
Digital Manager	$ 50.00
Engagement Manager	$ 50.00
Project Controls Manager	$ 80.00
Project Controls Specialist	$ 60.00
Principal of Research	$ 88.00
Engineer In Training	$ 45.00
Project Engineer	$ 90.00
Design Engineer	$ 65.00
Sr. Engineer	$ 100.00
CADD Technician	$ 53.00
Engineering Tech	$ 46.00
Jr. Engineering Tech	$ 36.00
Sr. Engineering Tech	$ 57.00
Field Specialist	$ 16.20
Field Supervisor	$ 50.00
Flagman	$ 67.50
GIS Operator	$ 39.00
GIS Operator - Senior	$ 49.00
Sr. Scheduler	$ 65.00
Certified Photogrammetrist	$ 38.00
Media & Advertising Manager	$ 45.00
Media & Advertising Specialist	$ 35.00
Public Involvement Specialist	$ 35.00
Research Specialist	$ 35.00
Abstractor	$ 41.00
Aerial Mapping Technician	$ 29.00
Aerial Mapping/Mobile LiDAR Project Coordinator	$ 38.00
Aerial Triangulation Specialist	$ 29.00
LiDAR Processing Technician	$ 34.00

Mapping Editor	$	29.00
Orthoimagery Technician	$	29.00
Photo Lab Specialist	$	29.00
Sr. Survey Project Manager (TX RPLS)	$	106.00

Maximum Raw Salary Rates		
Job Classification	**Maximum Raw Salary Rate**	
Survey Project Manager (TX RPLS)	$	81.00
Project Surveyor (TX RPLS)	$	71.00
Survey Technician	$	48.00
1-Person Survey Crew	$	120.00
2-Person Survey Crew	$	175.00
2-Person Terrestrial Scan Crew	$	190.00
3-Person Survey Crew	$	225.00
4-Person Survey Crew	$	275.00
1-Person SUE Crew	$	44.00
2-Person SUE Crew	$	68.00
Utility Coordinator	$	47.00
Sr. Utility Coordinator	$	65.00
Utility Inspector	$	43.00
Admin/Clerical	$	41.00
Creative Specialist	$	35.00
Digital Media Specialist	$	35.00
Subject Matter Expert (SME) - Tolls	$	125.00

Note: Maximum Raw Salary Rates shown above are effective for the first year of the approved contract and are subject to an annual escalation rate of 4% effective on the contract anniversary date.

Maximum Reimbursable Expense		
	Unit	**Rate**
Mileage	Per mile	IRS Approved Rate
Airfare (2 trips per year for 2 people)	person	$500.00
Rental Car (2 days per trip)	day	$120.00
Parking		At cost
Hotel	day/person	At cost
Meals	day/person	At cost

Plots (color on bond)	EA	At cost
Photocopies 8 1/2" x 11" B/W	EA	At cost
Photocopies 11" x 17" B/W	EA	At cost
Photocopies 8 1/2" x 11" Color	EA	At cost
Photocopies 11" x 17" Color	EA	At cost
22" x 34" Prints	Each	At cost
8 1/2" x 11" Prints	Each	At cost
Delivery	Each	At cost
Reproduction	Each	At cost
Traffic Counts (7-9 AM & 4-6 PM)	Each	$375
Traffic Counts (24-hour)	Each	$300.00
Delivery (Local)	Each	At Cost
City of Houston Utility Records	Sheet	At Cost
Deed Copies	Page	$2.00
CenterPoint Energy Records	Set	At Cost
ATV	Day	$185.00
Boat	Day	$125.00
GPS Receiver	Hour	$225.00
Terrestrial Scanner	Hour	$130.00
Mobile LiDAR Vehicle	Day	$7,500.00
Helicopter or Fixed Wing Mobilization	Project	$15,000.00
Fixed Wing Aerial LiDAR	Project	$5,000.00
GPS Base Station – aerial/mobile	Day	$1,500.00
Helicopter Project Flight Miles	Mile	$125.00
Fixed Wing Project Flight Miles	Day	$225.00
Digital Image Processing	Frame	$27.00
Helicopter LiDAR Flight Crew	Hour	$236.00
Fixed Wing LiDAR Flight Crew	Hour	$220.00
Unmanned Aerial System (UAS) - Mobilization	Day	$2,250.00
2- Man UAS Flight Crew	Hour	$200.00
Other Direct Expenses		At Cost
SUE Unit Cost	Unit	Rate
SUE Quality Level D - Records Research	LF	$0.70
SUE Quality Level C- Pole Inventory Survey	LF	$0.74
SUE Quality Level B - Designation	LF	$1.72
SUE Quality Level A- Test Holes		
0 to 5 Feet	Each	$1,250.00
> 5 to 8 Feet	Each	$1,550.00
> 8 to 13 Feet	Each	$1,990.00
> 13 to 20 Feet	Each	$2,510.00

SUE Unit Cost	Unit	Rate
> 20 Feet	Vertical Ft	$192.00
Mobilization / De-Mobilization	Mile	$5.90
Street Coring	Each	$675.00
Duel SPAR 3D	Day	$850.00
Survey of SUE	Hour	$175.00
Traffic Control (Minimal)	Day	$2,500.00

ORDER OF COMMISSIONERS COURT

Authorizing an Agreement with Entech Civil Engineers, Inc.

The Commissioners Court of Harris County, Texas, met in regular session at its regular term at the Harris County Administration Building in the City of Houston, Texas, on _____, with all members present except _____.

A quorum was present. Among other business, the following was transacted:

ORDER AUTHORIZING AN AGREEMENT WITH ENTECH CIVIL ENGINEERS, INC. TO PROVIDE PROGRAM ENGINEERING SERVICES FOR THE PERMANENT TRANSITION OF TOLL ROAD OPERATIONS TO AN ALL ELECTRONIC ROADWAY ENVIRONMENT, PRECINCT 1, 2, 3, 4

Commissioner _____ introduced an order and moved that Commissioners Court adopt the order. Commissioner _____ seconded the motion for adoption of the order. The motion, carrying with it the adoption of the order, prevailed by the following vote:

	Yes	No	Abstain
Judge Lina Hidalgo	☐	☐	☐
Comm. Rodney Ellis	☐	☐	☐
Comm. Adrian Garcia	☐	☐	☐
Comm. Tom S. Ramsey, P.E.	☐	☐	☐
Comm. R. Jack Cagle	☐	☐	☐

The County Judge thereupon announced that the motion had duly and lawfully carried and that the order had been duly and lawfully adopted. The order adopted follows:

IT IS ORDERED that:

The Harris County Judge is authorized to execute on behalf of Harris County an agreement in an amount not to exceed **$19,800,000.00** with Entech Civil Engineers, Inc. to program engineering services for the permanent transition of Toll Road Operations to an All Electronic Roadway Environment, Precinct 1, 2, 3, 4. The Agreement is incorporated by reference and made a part of this order for all intents and purposes as though set out in full word for word.

2. All Harris County officials and employees are authorized to do any and all things necessary or convenient to accomplish the purposes of this order.