CENTRAL TEXAS REGIONAL
MOBILITY AUTHORITY

February 26, 2025
AGENDA ITEM #7

Discuss and consider approving an agreement with HDR Engineering, Inc. for the schematic design and environmental study for the eastern extension of 290 Toll

Strategic Plan Relevance:	Stewardship, Collaboration and Safety
Department:	Engineering
Contact:	Mike Sexton, P.E., Director of Engineering
Associated Costs:	$19,958,257.74
Funding Source:	Project Funds/General Fund/Operating Fund/Bond Sale Funds
Action Requested:	Consider and act on draft resolution

Summary:

On October 16, 2019, the City of Manor passed a resolution in support of a potential extension of the 290E Manor Expressway eastward and asked its regional transportation partners to move forward with the Project. Similarly, the City of Elgin passed a resolution on November 5, 2019, supporting an extension of the 290E Manor Expressway eastward to Elgin. On February 26, 2020, the Mobility Authority authorized the commencement of a feasibility study for the project. On August 16, 2024, TxDOT provided a letter approving the Mobility Authority to begin an environmental and schematic study of a US 290 toll extension. On December 18, 2024, the Mobility Authority authorized the Executive Director to negotiate with the most highly qualified provider, based upon a shortlist of ranked firms for the development of a schematic design and environmental study for the eastern extension of 290 Toll.

The Executive Director has negotiated a satisfactory agreement with the most highly qualified provider, HDR Engineering, Inc. in accordance with Policy Code 401.035 for presentation to the Board.

In accordance with Section 370.161 of the Transportation Code, the Mobility Authority

will not allow any work to be performed in Bastrop County, until such time an agreement between Bastrop County and the Mobility Authority is executed. The Mobility Authority and Bastrop County have met and are progressing this agreement.

Action requested/Staff Recommendation: Approve the proposed agreement with HDR Engineering, Inc. and authorize the Executive Director to finalize and execute the agreement on behalf of the Mobility Authority, in the form or substantially the same form attached hereto as Exhibit "A".

Backup provided: Draft Resolution

GENERAL MEETING OF THE BOARD OF DIRECTORS
OF THE
CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY

RESOLUTION NO. 25-0XX

APPROVING AN AGREEMENT WITH HDR ENGINEERING, INC. FOR THE SCHEMATIC DESIGN AND ENVIRONMENTAL STUDY FOR THE EASTERN EXTENSION OF 290 TOLL

WHEREAS, the cities of Manor and Elgin passed resolutions in support of a potential extension of e290 Toll eastward from SH 130 to Elgin, Texas (290E Phase IV Project); and

WHEREAS, following a feasibility study, conducted by the Mobility Authority, the Texas Department of Transportation authorized the Mobility Authority to begin an environmental and schematic study for the 290E Phase IV Project in August 2024; and

WHEREAS, on October 28, 2024, the Mobility Authority issued a request for qualifications (RFQ) to firms interested in providing services for the development of the schematic design and environmental study of the 290E Phase IV Project; and

WHEREAS, on December 18, 2024, the Board approved the selection of HDR Engineering, Inc. as the most highly qualified respondent to provide services for the development of the schematic design and an environmental study of the 290E Phase IV Project to the Mobility Authority, and authorized the Executive Director to negotiate an agreement with HDR Engineering, Inc.; and

WHEREAS, the Executive Director has negotiated an agreement with HDR Engineering, Inc. for the development of the schematic design and an environmental study of the 290E Phase IV Project, and recommends the Board approve the proposed agreement, in the form or substantially the same form attached hereto as Exhibit "A"; and

WHEREAS, the scope of services in the proposed agreement includes work for an extension of 290 Toll into Bastrop County, which is outside but adjacent to the Mobility Authority's area of jurisdiction; and

WHEREAS, the Mobility Authority has not yet entered into a project agreement with Bastrop County for an environmental and schematic design study for the eastern extension of 290 Toll into Bastrop County; and

WHEREAS, Section 370.161 of the Transportation Code only allows the Mobility Authority to study, evaluate, design, finance, acquire, construct, operate, maintain, repair, expand, or extend a transportation project in a county adjacent to its area of jurisdiction if it has entered into an agreement with that county.

NOW THEREFORE, BE IT RESOLVED that the Board hereby approves the proposed agreement with HDR Engineering, Inc. and authorizes the Executive Director to finalize and execute the

agreement on behalf of the Mobility Authority, in the form or substantially the same form attached hereto as Exhibit "A"; and

BE IT FURTHER RESOLVED that the Board hereby instructs the Executive Director to ensure that no study, evaluation or planning for an extension of 290 Toll into Bastrop County occurs prior to the Mobility Authority entering into an agreement with Bastrop County for that purpose.

Adopted by the Board of Directors of the Central Texas Regional Mobility Authority on the 26th day of February 2025.

Submitted and reviewed by:	Approved:
_____	_____
James M. Bass Executive Director	Robert W. Jenkins, Jr. Chairman, Board of Directors

Exhibit A

CONTRACT FOR PROFESSIONAL SERVICES
290 Toll Extension
with Work Authorizations

THIS CONTRACT FOR PROFESSIONAL SERVICES is made by and between the Central Texas Regional Mobility Authority, 3300 N Interstate 35 Frontage Rd #300, Austin, Texas 78705, hereinafter called "Mobility Authority," and **HDR Engineering, Inc.**, having its principal business address at **710 Hesters Crossing Rd., Suite 150, Round Rock, TX 78681**, hereinafter called "Engineer," for the purpose of contracting for professional services.

WITNESSETH

WHEREAS, the Mobility Authority desires to contract for services generally described as professional services, and more specifically described in Article 1; and

WHEREAS, pursuant to a qualifications-based selection conducted in accordance with the Professional Services Procurement Act (Tex. Gov't Code Sec. 2254.001, et. seq.), and the Mobility Authority's Policy Code regarding the procurement of professional services, the Mobility Authority has selected the Engineer to provide the needed Services; and

WHEREAS, the Engineer has agreed to provide the Services subject to the terms and conditions hereinafter set forth.

NOW, THEREFORE, the Mobility Authority and the Engineer, in consideration of the mutual covenants and agreements herein contained, do hereby mutually agree as follows.

AGREEMENT

ARTICLE 1. SCOPE OF SERVICES. The Mobility Authority and the Engineer will furnish items and perform those services for fulfillment of this Contract as identified in Attachment B, Services to be Provided by the Mobility Authority and Attachment C, Services to be Provided by the Engineer. All services provided by the Engineer will conform to standard engineering practices and applicable rules and regulations of the Texas Engineering Practices Act and the rules of the Texas Board of Professional Engineers and Land Surveyors. This Contract does not obligate the Mobility Authority to proceed with the Services or authorize the performance of work through a Work Authorization.

ARTICLE 2. CONTRACT PERIOD. This Contract becomes effective when fully executed by all parties hereto and it shall terminate on _____ (the "Contract Period") unless the Contract Period is: (1) modified by written supplemental agreement prior to the date of termination as set forth in Attachment A, General Provisions, Article 6, Supplemental Agreements; (2) extended due to a work suspension as provided for in Attachment A, Article 3, Paragraph C; or (3) otherwise terminated in accordance with Attachment A, General Provisions, Article 15, Termination. A Work Authorization issued prior to expiration of this Contract may remain in effect until such time as the Services authorized under that Work Authorization are complete and accepted by the Mobility Authority. The terms of this Contract shall continue in effect in respect to any work authorization remaining in effect following the expiration of this Contract. No new Services may be added to a Work Authorization, and no new Work Authorization may be issued after the termination date of this Contract.

ARTICLE 3. COMPENSATION.

A. Amount Payable. The amount payable under this Contract will be determined by the individual work authorizations authorized over the contract period.

B. Basis of Payment. The basis of payment is identified in Attachment E, Fee Schedule. Reimbursement of costs incurred under a work authorization shall be in accordance with Attachment E, Fee Schedule. The amount presented in Attachment E is the amount the Mobility Authority will agree to pay, and the Engineer will agree to

accept as full and sufficient compensation and reimbursement, for the performance of all services as set forth in this Contract and work authorizations.

C. Reimbursement of Eligible Costs. To be eligible for reimbursement, the Engineer's costs must (1) be incurred in accordance with the terms of a valid work authorization; (2) be in accordance with Attachment E, Fee Schedule; and (3) comply with cost principles set forth at 48 CFR Part 31, Federal Acquisition Regulation (FAR 31). Satisfactory progress of work shall be maintained as a condition of payment.

D. Engineer Payment of Subconsultants. No later than ten (10) days after receiving payment from the Mobility Authority, the Engineer shall pay all subconsultants for work performed under a subcontract authorized hereunder. The Mobility Authority may withhold all payments that have or may become due if the Engineer fails to comply with the ten-day payment requirement. The Mobility Authority may also suspend the work under this Contract or any work authorization until subconsultants are paid. This requirement also applies to all lower tier subconsultants, and this provision must be incorporated into all subcontracts.

E. Non-compensable Time. Time spent by the Engineer's personnel or subconsultants in an administrative or supervisory capacity not related to the performance of the Services is not compensable and shall not be billed to the Mobility Authority. Time spent on work in excess of what would reasonably be considered appropriate under industry standards for the performance of such Services is not compensable, unless that additional time spent resulted from the Mobility Authority's delay in providing information, materials, feedback, or other necessary cooperation to the Engineer. The Mobility Authority will not pay any hourly compensation to the Engineer for Services or deliverables required due to an error, omission, or fault of the Engineer.

F. Non-compensable Work. The Engineer acknowledges and understands that (1) the Mobility Authority's area of jurisdiction is Travis County and Williamson County and (2) pursuant to Section 370.161 of the Texas Transportation Code, the Mobility Authority cannot study, evaluate, design, finance, acquire, construct, operate, maintain, repair, expand, or extend a transportation project in a county adjacent to the Mobility Authority's area of jurisdiction prior to entering into an agreement with that adjacent county. Therefore, the Engineer must not perform any services or other work for a transportation project in a county adjacent to the Mobility Authority's area of jurisdiction unless and until the Mobility Authority has entered into an agreement with that county allowing for the performance of the services or other work by the Engineer. Notwithstanding any other provision in this Contract, any services or other work described in Section 370.161 of the Transportation Code that is performed by the Engineer prior to the Mobility Authority and adjacent county entering into an agreement shall be at the Engineer's sole cost and expense and will not be eligible for reimbursement or any other form of compensation by the Mobility Authority.

G. Consistency of Classification/Duties and Hourly Rates. Time spent by the Engineer's personnel or subconsultants to perform services or functions capable of being carried out by other, subordinate personnel with a lower hourly rate shall be billed at a rate equivalent to that of the applicable qualified subordinate personnel.

H. Taxes. All payments to be made by the Mobility Authority to the Engineer pursuant to this Contract are inclusive of federal, state, or other taxes, if any, however designated, levied, or based. The Mobility Authority acknowledges and represents that it is a tax-exempt entity under Sections 151.309, et seq., of the Texas Tax Code. A "Texas Sales and Use Tax Exemption Certificate" is available from the Mobility Authority for use toward project-related expenses upon request. Title to any consumable items purchased by the Engineer in performing this Contract shall be deemed to have passed to the Mobility Authority at the time the Engineer takes possession or earlier, and such consumable items shall immediately be marked, labeled, or physically identified as the property of the Mobility Authority, to the extent practicable.

ARTICLE 4. INVOICE REQUIREMENTS

A. Monthly Invoices. The Engineer shall request reimbursement of costs incurred by submitting an itemized invoice in a form acceptable to the Mobility Authority. If the work is eligible for payment through an agreement with another entity, the billing statement shall be in a form and include such detail as that entity may require, including a breakdown of Services provided on a Project-by-Project basis, together with other Services requested by the Mobility Authority. The Engineer is authorized to submit requests for reimbursement no more frequently

than monthly and no later than ninety (90) days after costs are incurred, with the exception of the closing of the Mobility Authority's fiscal year. Notwithstanding the ninety (90) day submittal deadline, all requests for reimbursement of costs incurred during the Mobility Authority's fiscal year (ending June 30th) must be submitted no later than 15 days after June 30th, or the next business day if that date should occur on a weekend or holiday.

B. Form of Invoice. The invoice shall show the work authorization number for each work authorization included in the billing, the total amount earned to the date of submission, and the amount due and payable as of the date of the current billing statement for each work authorization. The invoice shall indicate if the work has been completed or if the billing is for partial completion of the work. The fixed fee will be paid in proportion to the percentage of work completed per work authorization.

C. Overhead Rates. The Engineer shall use the provisional overhead rate indicated in Attachment E. If a periodic escalation of the provisional overhead rate is specified in Attachment E, the effective date of the revised provisional overhead rate must be included.

D. Thirty Day Payments. Upon receipt of an invoice that complies with all invoice requirements set forth in this Article, the Mobility Authority shall make a good faith effort to pay the amount which is due and payable within thirty (30) days. If the Mobility Authority disputes a request for payment by the Engineer, the Mobility Authority agrees to pay any undisputed portion of the invoice within this 30-day window. The Mobility Authority shall notify the Engineer of the disputed amount no later than the 21st day after the date the Mobility Authority receives the monthly invoice.

E. Withholding Payments. The Mobility Authority reserves the right to withhold payment of up to 110% of the disputed amount of the Engineer's invoice in the event of any of the following: (1) If a dispute over the work or costs thereof is not resolved within a thirty day period; (2) pending verification of satisfactory work performed; or (3) required reports (including third-party verifications, if any) are not received. In the event that payment is withheld, the Mobility Authority shall notify the Engineer and give a remedy that would allow the Mobility Authority to release the payment.

F. Invoice and Progress Report Submittal Process.

(1) The invoice submittal shall include:

- Progress report
- Forecast for completion of the scope
- Invoice (in the required format provided by the Mobility Authority)
- Disadvantaged Business Enterprise (DBE)/Historically Underutilized Business (HUB) Forms, as required
- Supporting documents as requested

(2) A progress report shall be submitted to the Mobility Authority at least once each calendar month;

(3) An update to the Project schedule (using critical path method analysis) indicating the Project's overall status versus the baseline schedule (originally submitted with the Project Management Plan) shall be submitted to the Mobility Authority at least once each calendar month;

(4) In the event that invoices are not submitted on a monthly basis, a monthly submittal of the progress report and Project schedule information will be required nevertheless;

(5) The invoice submittal shall not be later than the 10th day of the month following service unless otherwise directed; if submitted after the 10th day, it will be processed the following month;

(6) As it relates to the Mobility Authority's end of fiscal year closeout efforts, the Engineer shall submit the invoice including their services through June 30th for a given year no later than 15 days after June 30th, or the next business day if that date should occur on a weekend or holiday;

(7) The Mobility Authority's Director of Engineering will review the invoices to confirm that supporting documentation is included, and for compliance with the Contract and consistency with the submitted progress report; and

(8) The invoice will either be recommended for approval by the Mobility Authority's Director of Engineering, or the Mobility Authority's Director of Engineering will return it to the Engineer for required correction.

G. Effect of Payments. No payment by the Mobility Authority shall relieve the Engineer of its obligation to perform on a timely basis the Services required under this Contract. If, prior to acceptance of any Service, product or other deliverable, the Executive Director determines that said Service, product or deliverable does not satisfy the requirements of this Contract, the Executive Director may reject same and require the Engineer to correct or cure same within a reasonable period of time and at no additional cost to the Mobility Authority.

H. Audit. The Mobility Authority shall have the right to examine the books and records of the Engineer. The Engineer shall maintain all books, documents, papers, accounting records and other evidence pertaining to cost incurred and shall make such materials available at its office during the Contract Period and for four (4) years from the date of final payment under this Contract or until any pending litigation has been completely and fully resolved, and the Executive Director approves of the destruction of records, whichever occurs last. The Mobility Authority or any of its duly authorized representatives, TxDOT, Texas State Auditor, the Federal Highway Administration ("FHWA"), the United States Department of Transportation Office of Inspector General and the Comptroller General shall have access to any and all books, documents, papers and records of the Engineer which are directly pertinent to this Contract for the purpose of making audits, examinations, excerpts and transcriptions.

ARTICLE 5. WORK AUTHORIZATIONS. The Executive Director will issue work authorizations to authorize all work under this contract. Refusal to accept a work authorization in the form prescribed by the Mobility Authority may be grounds for termination of the contract. The Mobility Authority shall not be responsible for actions by the Engineer or any costs incurred by the Engineer relating to work not directly associated with or prior to the full execution of a work authorization. No representation or assurance has been made on behalf of the Mobility Authority to the Engineer as to the total compensation to be paid to the Engineer under this Contract. Terms and conditions governing the use of work authorizations are set forth in Attachment A, General Provisions, Article 1.

ARTICLE 6. SIGNATORY WARRANTY. The undersigned signatory for the Engineer hereby represents and warrants that he or she is an officer of the organization for which he or she has executed this Contract and that he or she has full and complete authority to enter into this Contract on behalf of the firm. These representations and warranties are made for the purpose of inducing the Mobility Authority to enter into this Contract.

ARTICLE 7. NOTICES. A notice, demand, request, report, and other communication required or permitted under this Contract, or which any party may desire to give, shall be in writing and shall be deemed to have been given on the sooner to occur of (i) receipt by the party to whom the notice is hand-delivered, with a written receipt of notice provided by the receiving party, or (ii) two days after deposit in a regularly maintained express mail receptacle of the United States Postal Service, postage prepaid, or registered or certified mail, return receipt requested, express mail delivery, addressed to such party at their address set forth below, or to such other address as a party may from time to time designate under this article, or (iii) receipt of an electronic mail transmission (attaching scanned documents in a format such as .pdf or .tif) for which confirmation of receipt by the other party has been obtained by the sending party:

Engineer:	**Mobility Authority:**
Srikanth Koneru HDR Engineering, Inc. 710 Hesters Crossing Rd., Suite 150 Round Rock, TX 78681	Director of Engineering Central Texas Regional Mobility Authority 3300 N Interstate 35 Frontage Rd #300 Austin, Texas 78705

ARTICLE 8. INCORPORATION OF PROVISIONS. Attachments A through H are attached hereto and incorporated into this Contract as if fully set forth herein.

ARTICLE 9. ENTIRETY OF AGREEMENT. This writing, including attachments and addenda, if any, embodies the entire agreement and understanding between the parties hereto, and there are no agreements and

understandings, oral or written, with reference to the subject matter hereof that are not merged herein and superseded hereby. No alteration, change or modification of the terms of the Contract shall be valid unless made in writing signed by both parties hereto.

ARTICLE 10. PRIORITY OF DOCUMENTS/ORDER OF PRECEDENCE. In the event of any conflict between the Contract and other documents, the order of precedence shall be as set forth below: A) Supplemental Work Authorization; B) Work Authorization; C) Contract Amendments; D) Contract; E) RFP/ RFQ; F) Engineer's Response to RFP/RFQ.

Each party is signing this agreement on the date stated under that party's signature.

THE ENGINEER

(Signature)

(Printed Name)

(Title)

(Date)

CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY

(Signature)

(Printed Name)

(Title)

(Date)

Attachments and Exhibits to Contract for Professional Services
Incorporated into the Contract by Reference

Attachments	Title
A	General Provisions
B	Services to Be Provided by the Mobility Authority
C	Services to Be Provided by the Engineer
D	Key Personnel
E	Fee Schedule
F	Work Schedule
G	Computer Graphics Files for Document and Information Exchange, if applicable
H	Subcontracting

ATTACHMENT A

GENERAL PROVISIONS
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ATTACHMENT A

GENERAL PROVISIONS

ARTICLE 1. WORK AUTHORIZATIONS

A. Use. The Engineer shall not begin any work until the Executive Director and the Engineer have signed a Work Authorization and the Engineer has received a Notice to Proceed as defined in the Work Authorization. Costs incurred by the Engineer before a Work Authorization is fully executed or after the completion date specified in the Work Authorization are not eligible for reimbursement. The Executive Director will issue Work Authorizations to authorize all work under this Contract. All work must be completed on or before the completion date specified in the Work Authorization.

B. Contents. Each Work Authorization shall include: (1) scope of Services including types of Services to be performed and a full description of the work required to perform those Services (2) a full description of general administration tasks exclusive to that Work Authorization (3) a work schedule (including beginning and ending dates) with milestones; (4) the basis of payment whether cost-plus, unit cost, lump sum, or specified rate; (5) a Work Authorization budget using fees set forth in Attachment E Fee, Schedule.; and (6) DBE/HUB Requirements. The Engineer shall not include additional contract terms and conditions in the Work Authorization. In the event of any conflicting terms and conditions between the Work Authorization and the Contract, the terms and conditions of the Contract shall prevail and govern the work and costs incurred.

C. Work Authorization Budget. A Work Authorization budget shall be prepared by the Engineer and set forth in detail (1) the computation of the estimated cost of the work as described in the Work Authorization, (2) the estimated time (hours/days) required to complete the work at the hourly rates established in Attachment E, Fee Schedule; (3) a work plan that includes a list of the work to be performed, (4) a stated maximum number of calendar days to complete the work, and (5) a cost-not-to-exceed-amount or unit or lump sum cost and the total cost or price of the Work Authorization. The Mobility Authority will not pay items of cost that are not included in or rates that exceed those approved in Attachment E.

D. No Guaranteed Work. Work Authorizations are issued at the sole discretion of the Executive Director. While it is the Executive Director's intent to issue Work Authorizations hereunder, the Engineer shall have no cause of action conditioned upon the lack or number of Work Authorizations issued.

E. Incorporation into Contract. Each Work Authorization shall be signed by both parties and become a part of the Contract. No Work Authorization will waive the Mobility Authority's or the Engineer's responsibilities and obligations established in this Contract. The Engineer shall promptly notify the Mobility Authority of any event that will affect completion of the Work Authorization.

F. Supplemental Work Authorizations. Before additional work may be performed or additional costs incurred beyond those authorized in a Work Authorization, a change in a Work Authorization shall be enacted by a written Supplemental Work Authorization executed within the period of performance specified in the Work Authorization. The Mobility Authority shall not be responsible for actions by the Engineer or any costs incurred by the Engineer relating to additional work not directly associated with the performance or prior to the execution of the Supplemental Work Authorization. The Engineer shall allow adequate time for review and approval of the Supplemental Work Authorization by the Executive Director prior to expiration of the Work Authorization. Any Supplemental Work Authorization must be executed by both parties within the Contract Period established in Article 2 of the Contract.

F-1. More Time Needed. If the Engineer determines or reasonably anticipates that the work authorized in a Work Authorization cannot be completed before the specified completion date, the Engineer shall promptly notify the Executive Director. The Executive Director may, at his sole discretion, extend the Work Authorization period by execution of a Supplemental Work Authorization.

F-2. Changes in Scope. Changes that would modify the scope of the work authorized in a Work Authorization must be enacted by a written Supplemental Work Authorization. If the change in scope affects the amount payable under the Work Authorization, the Engineer shall prepare a revised Work Authorization budget for the Executive Director’s approval. The Engineer must allow adequate time for

the Executive Director to review, negotiate, and approve any request for a Supplemental Work Authorization prior to expiration of the Work Authorization.

G. Deliverables. Upon satisfactory completion of the Work Authorization, the Engineer shall submit a letter of completion along with the deliverables as specified in the executed Work Authorization to the Executive Director for review and acceptance.

ARTICLE 2. PROGRESS

A. Progress meetings. As required and detailed in the Work Authorizations or as otherwise directed by the Executive Director, the Engineer shall from time to time during the progress of the work confer with the Executive Director. The Engineer shall prepare and present such information as may be pertinent and necessary or as may be requested by the Executive Director in order to evaluate features of the work.

B. Conferences. At the request of the Executive Director and as required and detailed in the Work Authorizations, conferences shall be held at the Engineer's office, the office of the Mobility Authority, or at other locations designated by the Executive Director. These conferences may also include evaluation of the Engineer's Services and work when requested by the Executive Director.

C. Inspections. If federal funds are used to reimburse costs incurred under this Contract, the work and all reimbursements will be subject to periodic review by the U. S. Department of Transportation.

D. Reports. The Engineer shall promptly advise the Executive Director in writing of events that have a significant impact upon the progress of a Work Authorization, including:

1. problems, delays, adverse conditions that will materially affect the ability to meet the time schedules and goals, or preclude the attainment of project work units by established time periods; this disclosure will be accompanied by statement of the action taken or contemplated, and any State or federal assistance needed to resolve the situation; and
2. favorable developments or events which enable meeting the work schedule goals sooner than anticipated.

E. Corrective Action. Should the Executive Director determine that the progress of work does not satisfy the work schedule or other deadlines set forth in a Work Authorization, the Executive Director shall review the work schedule with the Engineer to determine the nature of corrective action needed. The Executive Director's participation in reviewing the work schedule and determining corrective actions needed will not, in any way, excuse the Engineer from any responsibility or costs associated with the failure to timely perform the Services.

ARTICLE 3. SUSPENSION OF WORK AUTHORIZATION

A. Notice. Should the Executive Director desire to suspend a Work Authorization but not terminate the Contract, the Executive Director may provide written notification to the Engineer, giving ten (10) business days prior notice. Both parties may waive the ten (10) business day notice requirement in writing.

B. Reinstatement. All or part of a Work Authorization may be reinstated and resumed in full force and effect within thirty (30) days of receipt of written notice from the Executive Director to resume the work. Both parties may waive the thirty-day notice in writing.

C. Contract Period Not Affected. If the Executive Director suspends a Work Authorization, the Contract Period as determined in Article 2 of the Contract is not affected and the Contract and the Work Authorization will terminate on the date specified unless the Contract is amended to authorize additional time.

D. Limitation of Liability. The Mobility Authority shall have no liability for work performed or costs incurred prior to the date authorized by the Executive Director to begin work, during periods when work is suspended, or after the completion of the Contract or Work Authorization.

ARTICLE 4. ADDITIONAL WORK

A. Notice. If the Engineer is of the opinion that any assigned work is beyond the scope of a Work Authorization and constitutes additional work beyond the Services to be provided under the Work Authorization, it shall promptly notify the Executive Director and submit written justification presenting the facts of the work and demonstrating how the work constitutes supplementary work.

B. Supplemental Agreement. If the Executive Director finds that the work does constitute additional work, the Executive Director shall so advise the Engineer, and a written supplemental agreement will be executed as provided in General Provisions, Article 6, Supplemental Agreements.

C. Limitation of Liability. The Mobility Authority shall not be responsible for actions by the Engineer or any costs incurred by the Engineer relating to additional work not directly associated with or prior to the execution of a supplemental agreement.

ARTICLE 5. CHANGES IN WORK

A. Work Previously Submitted as Satisfactory. If the Engineer has submitted work in accordance with the terms of this Contract and Work Authorization(s) but the Executive Director requests changes to the completed work or parts thereof which involve changes to the original scope of Services or character of work under the Contract and Work Authorization(s), the Engineer shall make such revisions as requested and as directed by the Executive Director, provided the work is reflected in a Supplemental Work Authorization.

B. Work Does Not Comply with Contract. If the Engineer submits work that does not comply with the terms of this Contract or Work Authorization(s), the Executive Director shall instruct the Engineer to make such revision as is necessary to bring the work into compliance with the Contract or Work Authorization(s). No additional compensation shall be paid for these revisions or re-work.

C. Errors/Omissions. The Engineer shall make revisions to the work authorized in this Contract which are necessary to correct errors or omissions appearing therein, when required to do so by the Executive Director. No additional compensation shall be paid for this work.

ARTICLE 6. SUPPLEMENTAL AGREEMENTS

A. Need. The terms of this Contract may be modified if the Executive Director determines that there has been a significant increase or decrease in the duration, scope, cost, complexity or character of the services to be performed. A supplemental agreement will be executed to authorize such significant increases or decreases.

B. When to Execute. Both the Engineer and the Executive Director must execute a supplemental agreement within the Contract Period specified in Article 2 of the Contract.

ARTICLE 7. DATA OWNERSHIP

A. Work for Hire. All services provided under this Contract are considered work for hire and as such all data, basic sketches, charts, calculations, plans, specifications, models, animations, and other documents and files created or collected under the terms of this Contract are the property of the Mobility Authority.

B. Ownership of Plans. Notwithstanding any provision in this Contract or in common law or statute to the contrary all of the plans, tracings, estimates, specifications, computer records, discs, tapes, proposals, sketches, diagrams, charts, calculations, correspondence, memoranda, survey notes, and other data and materials, and any part thereof, created, compiled or to be compiled by or on behalf of the Engineer, including all information prepared for or posted on the Mobility Authority's website and together with all materials and data furnished to it by the Mobility Authority, are and at all times shall be and remain the property of the Mobility Authority and shall not be subject to any restriction or limitation on their further use by or on behalf of the Mobility Authority. Engineer hereby assigns any and all rights and interests it may have in the foregoing to the Mobility Authority, and Engineer hereby agrees to provide reasonable cooperation as may be requested by the Mobility Authority in connection with the Mobility Authority's efforts to perfect or protect rights and interests in the foregoing; and if at any time demand be made by the Mobility Authority for any of the above materials, records, and documents, whether after termination of this Contract or otherwise, such shall be turned over to the Mobility Authority without delay. The Mobility Authority hereby grants the Engineer a revocable license to retain and utilize the foregoing materials for the limited purpose of fulfilling Engineer's obligations under this Contract, said license to terminate and expire upon the earlier to occur of (a) the completion of Services described in this Contract or (b) the termination of this Contract, at which time the Engineer shall deliver to the Mobility Authority all such materials and documents. If the Engineer or a subconsultant desires later to use any of the data generated or obtained by it in connection with any Project or any other portion of the work product resulting from the Services, it shall secure the prior written approval of the Executive Director. The Engineer shall retain its copyright and ownership rights in its own back-office databases and computer software that are

not developed for the Mobility Authority or for purposes of this Contract. Intellectual property developed, utilized, or modified in the performance of Services for which the Engineer is compensated under the terms of this Contract shall remain the property of the Mobility Authority, Engineer hereby agrees to provide reasonable cooperation as may be requested by the Mobility Authority in connection with the Mobility Authority's efforts to perfect or protect such intellectual property. The Mobility Authority retains an unrestricted license for software packages developed in whole or in part with Mobility Authority funds.

C. Separate Assignment. If for any reason the agreement of the Mobility Authority and the Engineer set forth in subarticle 7.B regarding the ownership of work product and other materials is determined to be unenforceable, either in whole or in part, the Engineer hereby assigns and agrees to assign to the Mobility Authority all right, title, and interest that Engineer may have or at any time acquire in said work product and other materials, without royalty, fee or additional consideration of any sort, and without regard to whether this Contract has terminated or remains in force. The Mobility Authority hereby acknowledges, however, that all documents and other work product provided by the Engineer to the Mobility Authority and resulting from the Services performed under this Contract are intended by the Engineer solely for the use for which they were originally prepared. Notwithstanding anything contained herein to the contrary, the Engineer shall have no liability for the use by the Mobility Authority of any work product generated by the Engineer under this Contract on any Project other than for the specific purpose and Project for which the work product was prepared.

D. Disposition of Documents. All documents prepared by Engineer and all documents furnished to Engineer by the Mobility Authority shall be delivered to the Mobility Authority upon request. Engineer, at its own expense, may retain copies of such documents or any other data which it has furnished the Mobility Authority under this Contract, but further use of the data is subject to permission by the Mobility Authority.

E. Release of Design Plan. The Engineer (1) will not release any roadway design plan created or collected under this Contract except to its subconsultants as necessary to complete the Contract; (2) shall include a provision in all subcontracts which acknowledges the Mobility Authority's ownership of the design plan and prohibits its use for any use other than the project identified in this Contract; and (3) is responsible for any improper use of the design plan by its employees, officers, or subconsultants, including costs, damages, or other liability resulting from improper use. Neither Engineer nor any subconsultant may charge a fee for any portion of the design plan created by the Mobility Authority."

ARTICLE 8. PUBLIC INFORMATION AND CONFIDENTIALITY

A. Public Information. The Mobility Authority will comply with Government Code, Chapter 552, (the "Public Information Act") in the release of information produced under this Contract. The requirements of Subchapter J, of the Public Information Act, may apply to this Contract and the Engineer agrees that the Contract can be terminated if the Engineer knowingly or intentionally fails to comply with a requirement of that subchapter.

B. Confidentiality. The Engineer shall not disclose information obtained from the Mobility Authority under this Contract without the express written consent of the Executive Director. All employees of the Engineer and its subconsultants working on the Project may be required to sign a non-disclosure and confidentiality agreement.

C. Access to Information. The Engineer is required to make any information created or exchanged with the Mobility Authority pursuant to this Contract, and not otherwise excepted from disclosure under the Texas Public Information Act, available in a format that is accessible by the public at no additional charge to the Mobility Authority.

ARTICLE 9. PERSONNEL, EQUIPMENT AND MATERIAL

A. Engineer Resources. The Engineer shall furnish and maintain an office for the performance of all services, in addition to providing adequate and sufficient personnel and equipment to perform the services required under the Contract. The Engineer certifies that it presently has adequate qualified personnel in its employment for performance of the services required under this Contract, or it will be able to obtain such personnel from sources other than the Mobility Authority.

B. Removal of Employee. All employees of the Engineer assigned to this Contract shall have such knowledge and experience as will enable them to perform the duties assigned to them. The Executive Director

may instruct the Engineer to remove any employee from association with work authorized in this Contract if, in the sole opinion of the Executive Director, the work of that employee does not comply with the terms of this Contract or if the conduct of that employee becomes detrimental to the work; or for any other reason identified by the Executive Director.

C. Mobility Authority Approval of Replacement Personnel. The Engineer may not replace any Key Personnel, as designated in the applicable Work Authorization, without prior written approval of the Director of Engineering. If any Key Personnel cease to work on this Contract, the Engineer must notify the Director of Engineering in writing as soon as possible, but in any event within (3) three business days. The notification must give the reason for removal. The Engineer must receive written approval from the Director of Engineering of proposed replacement Key Personnel. The Director of Engineering's approval will be based upon the proposed replacement Key Personnel qualifications to provide the required Services. Approval will not be unreasonably withheld.

D. Liquidated Damages. The selection of Engineer to provide the Services under this Contract was based, in part, on the Key Personnel identified in Engineer's proposal. Because of the importance and unique nature of the Services to be provided by Key Personnel identified in Attachment C it is impractical to calculate the actual losses that would be suffered by the Mobility Authority by the loss of Key Personnel from the Contract. Therefore, the Engineer agrees to compensate the Mobility Authority for its losses by paying liquidated damages in the amount of $2,500 per day per Key Personnel position in Attachment C if any Key Personnel is removed by the Engineer by reassignment without prior written approval from the Director of Engineering. Liquidated damages will accrue from the date the Engineer removes the Key Personnel in Attachment C from the Contract if the parties do not agree on a replacement within (14) calendar days after the Key Personnel are removed from the Contract. If a replacement is agreed upon within that fourteen (14) calendar day period the liquidated damages will be waived. Liquidated damages shall cease when the parties agree on a substitute or when the Contract is terminated.

E. Ownership of Acquired Property. Except to the extent that a specific provision of this Contract states to the contrary, and as provided in subarticle 7.B, the Mobility Authority shall own all intellectual property acquired or developed under this Contract and all equipment purchased by the Engineer or its subconsultants under this Contract. All intellectual property and equipment owned by the Mobility Authority shall be delivered to the Director of Engineering when the Contract terminates, or when it is no longer needed for work performed under this Contract, whichever occurs first. In the event that a capital item is purchased for the sole use of the Mobility Authority, title shall pass or transfer to the Mobility Authority upon acquisition and prior to any use of the item by the Engineer.

ARTICLE 10. SUBCONTRACTING

A. Prior Approval. The Engineer shall not assign, subcontract, or transfer any portion of Services related to the work under this Contract unless specified in an executed Work Authorization or otherwise without first obtaining the prior written approval from the Executive Director. Request for approval should include a written description of the proposed services, and proposed rates .

B. DBE/HUB Compliance. The Engineer's subcontracting program shall comply with the DBE/HUB requirements described in the Work Authorization(s).

C. Required Provisions. All subcontracts for professional services shall include the provisions included in Attachment A, General Provisions, and any provisions required by law.

D. Invoice Approval and Processing. All subconsultants shall prepare and submit their invoices on the same billing cycle and format as the Engineer (so as to be included in invoices submitted by the Engineer).

E. Engineer Responsibilities. No subcontract shall relieve the Engineer of any of its responsibilities under this Contract and of any liability for work performed under this Contract, even if performed by a subconsultant or other third party performing work for or on behalf of the Engineer.

ARTICLE 11. INSPECTION OF WORK

A. Review Rights. Under this Contract, the Mobility Authority, TxDOT, and the U.S. Department of

Transportation, and any authorized representative of the Mobility Authority, TxDOT, or the U.S. Department of Transportation, shall have the right at all reasonable times to inspect, review or otherwise evaluate the work performed hereunder and the premises in which it is being performed.

B. Reasonable Access. If any review or evaluation is made on the premises of the Engineer or a subconsultant under this Article, the Engineer shall provide and require its subconsultants to provide all reasonable facilities and assistance for the safety and convenience of the persons performing the review in the performance of their duties.

ARTICLE 12. SUBMISSION OF REPORTS

All applicable study reports shall be submitted in preliminary form for approval by the Director of Engineering before a final report is issued. The Director of Engineering's comments on the Engineer's preliminary report must be addressed in the final report. Draft reports shall be considered confidential unless otherwise indicated by the Director of Engineering.

ARTICLE 13. VIOLATION OF CONTRACT TERMS

A. Increased Costs. Violation of Contract terms, breach of Contract, or default by the Engineer shall be grounds for termination of the Contract, and any increased or additional cost incurred by the Mobility Authority arising from the Engineer's default, breach of Contract or violation of Contract terms shall be paid by the Engineer.

B. Remedies. This agreement shall not be considered as specifying the exclusive remedy for any default, and all remedies existing at law and in equity may be availed of by either party and shall be cumulative.

ARTICLE 14. TERMINATION

A. Causes. The Contract may be terminated before the stated completion date by any of the following conditions.

1. By mutual agreement and consent, in writing from both parties.
2. By the Executive Director by notice in writing to the Engineer as a consequence of failure by the Engineer to perform the Services set forth herein in a satisfactory manner or if the Engineer violates the provisions of Article 20, Gratuities, or DBE/HUB Requirements.
3. By either party, upon the failure of the other party to fulfill its obligations as set forth herein, following thirty (30) days written notice and opportunity to cure.
4. By the Executive Director for his convenience and in his sole discretion, not subject to the consent of the Engineer, by giving thirty (30) days written notice of termination to the Engineer.
5. By satisfactory completion of all services and obligations described herein.

B. Measurement. Should the Executive Director terminate this Contract as herein provided, no fees other than fees due and payable at the time of termination shall thereafter be paid to the Engineer. In determining the value of the work performed by the Engineer prior to termination, the Executive Director shall be the sole judge. Compensation for work at termination will be based on a percentage of the work completed at that time. Should the Executive Director terminate this Contract under subarticles 14.A.3 & 4, the Engineer shall not incur costs during the thirty-day notice period in excess of the amount incurred during the preceding thirty (30) days.

C. Value of Completed Work. If the Engineer defaults in the performance of this Contract or if the Executive Director terminates this Contract for fault on the part of the Engineer, the Executive Director will give consideration to the following when calculating the value of the completed work: (1) the actual costs incurred (not to exceed the rates set forth in the applicable Work Authorization) by the Engineer in performing the work to the date of default; (2) the amount of work required which was satisfactorily completed to date of default; (3) the value of the work which is usable to the Mobility Authority; (4) the cost to the Mobility Authority of employing another firm to complete the required work; (5) the time required to employ another firm to complete the work; (6) delays in opening a revenue-generating Project and costs (including lost revenues) resulting therefrom; and (7) other factors which affect the value to the Mobility Authority of the work performed.

D. Excusable Delays. Except with respect to defaults of subconsultants, the Engineer shall not be in default by reason of any failure in performance of this Contract in accordance with its terms (including any failure to progress in the performance of the work) if such failure arises out of causes beyond the control and without the

default or negligence of the Engineer. Such causes may include, but are not restricted to, acts of God or the public enemy, acts of the Government in either its sovereign or Contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather.

E. Surviving Requirements. The termination of this Contract and payment of an amount in settlement as prescribed above shall extinguish the rights, duties, and obligations of the Mobility Authority and the Engineer under this Contract, except for those provisions that establish responsibilities that extend beyond the Contract Period, including without limitation the provisions of Article 16.

F. Payment of Additional Costs. If termination of this Contract is due to the failure of the Engineer to fulfill its Contract obligations, the Mobility Authority may take over the project and prosecute the work to completion, and the Engineer shall be liable to the Mobility Authority for any additional cost to the Mobility Authority.

ARTICLE 15. COMPLIANCE WITH LAWS

The Engineer shall comply with all applicable federal, state and local laws, statutes, codes, ordinances, rules and regulations, and the orders and decrees of any court, or administrative bodies or tribunals in any manner affecting the performance of this Contract, including, without limitation, worker's compensation laws, minimum and maximum salary and wage statutes and regulations, nondiscrimination, licensing laws and regulations, the Mobility Authority's enabling legislation (Chapter 370 of the Texas Transportation Code), and all amendments and modifications to any of the foregoing, if any. The Engineer shall comply with all applicable Authority policies and procedures as outlined in the Mobility Authority Policy Code handbook available on the Authority's website (https://www.mobilityauthority.com/about/policy-disclaimers/code). When required, the Engineer shall furnish the Mobility Authority with satisfactory proof of its compliance therewith.

ARTICLE 16. INDEMNIFICATION

A. Indemnification. THE ENGINEER SHALL INDEMNIFY AND HOLD HARMLESS THE MOBILITY AUTHORITY AND ITS OFFICERS, DIRECTORS, EMPLOYEES, AGENTS AND CONSULTANTS WHICH, FOR THE PURPOSES OF THIS CONTRACT, SHALL INCLUDE THE MOBILITY AUTHORITY'S GENERAL COUNSEL, BOND COUNSEL, FINANCIAL ADVISORS, TRAFFIC AND REVENUE ENGINEERS, TOLL OPERATIONS/COLLECTIONS FIRMS, AND UNDERWRITERS (COLLECTIVELY THE "INDEMNIFIED PARTIES") FROM ANY CLAIMS, COSTS, OR LIABILITIES OF ANY TYPE OR NATURE AND BY OR TO ANY PERSONS WHOMSOEVER, TO THE EXTENT CAUSED BY THE NEGLIGENT ACTS, ERRORS, OR OMISSIONS OF THE ENGINEER OR ITS OFFICERS, DIRECTORS, EMPLOYEES, SUBCONSULTANTS AND AGENTS WITH RESPECT TO THE ENGINEER'S PERFORMANCE OF THE WORK TO BE ACCOMPLISHED UNDER THIS CONTRACT OR ACTIONS RESULTING IN CLAIMS AGAINST THE INDEMNIFIED PARTIES. IN SUCH EVENT, THE ENGINEER SHALL ALSO INDEMNIFY AND HOLD HARMLESS THE MOBILITY AUTHORITY AND ITS OFFICERS, DIRECTORS, AND EMPLOYEES AND THE INDEMNIFIED PARTIES FROM ANY AND ALL REASONABLE AND NECESSARY EXPENSES, INCLUDING REASONABLE ATTORNEYS' FEES, INCURRED BY THE MOBILITY AUTHORITY OR ANY OF THE INDEMNIFIED PARTIES IN LITIGATING OR OTHERWISE RESISTING SAID CLAIMS, COSTS OR LIABILITIES. IN THE EVENT THE MOBILITY AUTHORITY AND ITS OFFICERS, DIRECTORS, AND EMPLOYEES AND/OR ANY OF THE INDEMNIFIED PARTIES, IS/ARE FOUND TO BE PARTIALLY AT FAULT, THE ENGINEER SHALL, NEVERTHELESS, INDEMNIFY THE MOBILITY AUTHORITY AND ITS OFFICERS, DIRECTORS, AND EMPLOYEES AND/OR ANY OF THE INDEMNIFIED PARTIES FROM AND AGAINST THE PERCENTAGE OF FAULT ATTRIBUTABLE TO THE ENGINEER OR ITS OFFICERS, DIRECTORS, EMPLOYEES, SUBCONSULTANTS AND AGENTS OR TO THEIR CONDUCT.

ARTICLE 17. ENGINEER'S RESPONSIBILITY

A. Accuracy. The Engineer shall have total responsibility for the accuracy and completeness of all work prepared and completed under this Contract and shall check all such material accordingly. The Engineer shall promptly make necessary revisions or corrections resulting from its errors, omissions, or negligent acts without additional compensation.

B. Errors and Omissions. The Mobility Authority and Engineer will address errors and omissions as follows:

1. The Engineer's responsibility for all questions and/or clarification of any ambiguities arising from errors and omissions will be determined by the Executive Director.
2. A problem resulting from an error and omission may be identified during any phase of project

development. The Engineer will be responsible for errors and omissions before, during, and after construction of a Project, as well as before and after Contract termination.

3. The phrase error and omission is used throughout to mean an error, an omission, or a combination of error and omission.
4. When an apparent error and omission is identified in work provided by the Engineer, the Executive Director will notify the Engineer of the problem and involve the Engineer in efforts to resolve it and determine the most effective solution, provided that the Executive Director shall ultimately determine the solution that is chosen.
5. Errors and omissions identified prior to Project construction will be corrected at the Engineer's expense with no additional cost to the Mobility Authority.
6. During and after construction, errors and omissions can potentially result in significant additional costs to the Mobility Authority that they would not have incurred if the construction plans had been correct. The resulting additional costs are considered damages that the Mobility Authority will collect from the Engineer, including through offset to amounts owed to the Engineer.
7. After a Project is constructed and is in use, there is a possibility of a Contractor claim that may involve a previous error and omission by the Engineer identified during construction; it is also possible the Engineer could be responsible for some or all of the cost of the Contractor claim. If there is a possibility of Engineer responsibility, upon notice of the Contractor claim, the Executive Director must notify the Engineer of the situation and provide the Engineer the opportunity to contribute any information to the Executive Director that may be useful in addressing the Contractor claim. The Engineer will not be involved in any discussions or negotiations with the Contractor during the claims process. Upon settlement of all previous claims with the Contractor, if additional costs are identified, the Executive Director should consider the same factors as during construction in determining the Engineer's level of responsibility.
8. The additional costs which are considered damages to the Mobility Authority and are to be recovered should represent actual cost to the Mobility Authority.
9. The Executive Director will not accept in-kind services from the Engineer as payment for additional costs owed.
10. The Engineer is responsible for promptly correcting errors and omissions without compensation. In the situation of a dispute concerning whether or not the work is compensable, the Engineer shall not delay the work.
11. A letter will be transmitted by the Executive Director formally notifying the Engineer of payment required for the error and omission and will indicate the Engineer's apparent liability for the identified additional costs. The letter will include an outline of the errors and omissions, along with the additional costs, and references to any previous points of coordination and preliminary agreements. Within 30 calendar days of the date of the letter, a response is required from the Engineer with: (a) payment, (b) a request for a meeting, or (c) a request for the Executive Director to reconsider whether the Executive Director should pursue reimbursement for the identified error and omission. If a response or payment is not received from the Engineer, the Mobility Authority may pursue legal action against the Engineer, in addition to offset of payments to the Engineer, claims against insurance and other remedies available under the Contract.
12. It is the Executive Director's responsibility to identify errors and omissions and fairly evaluate the responsibility for additional cost when applicable. It is the responsibility of the Mobility Authority staff to ensure that the Mobility Authority's business practices are professional, fair, equitable, and reasonable.

C. Professionalism. The Engineer shall perform the services it provides under the Contract: (1) with the professional skill and care ordinarily provided by competent engineers practicing under the same or similar circumstances and professional license and (2) as expeditiously as is prudent considering the ordinary professional skill and care of a competent engineer.

D. Seal. The responsible Engineer shall sign, seal and date all appropriate engineering submissions to the Mobility Authority in accordance with the Texas Engineering Practice Act and the rules of the Texas Board of Professional Engineers and Land Surveyors.

E. Resealing of Documents. Once the work has been sealed and accepted by the Director of Engineering, the Mobility Authority, as the owner, will notify the party to this Contract, in writing, of the possibility that a Mobility Authority engineer, as a second engineer, may find it necessary to alter, complete, correct, revise or

add to the work. If necessary, the second engineer will affix his seal to any work altered, completed, corrected, revised or added. The second engineer will then become responsible for any alterations, additions or deletions to the original design including any effect or impacts of those changes on the original engineer's design.

ARTICLE 18. NONCOLLUSION

A. Warranty. The Engineer warrants that it has not employed or retained any company or person, other than a bona fide employee working solely for the Engineer, to solicit or secure this Contract and that it has not paid or agreed to pay any company or Engineer any fee, commission, percentage, brokerage fee, gifts, or any other consideration, contingent upon or resulting from the award or making of this Contract.

B. Liability. For breach or violation of this warranty, the Mobility Authority shall have the right to annul this Contract without liability or, in its discretion, to deduct from the Contract compensation, or otherwise recover, the full amount of such fee, commission, percentage, brokerage fee, gift or contingent fee.

ARTICLE 19. INSURANCE

The Engineer shall furnish the Mobility Authority a properly completed Certificate of Insurance approved by the Executive Director prior to beginning work under the Contract and shall maintain such insurance through the Contract Period. The Engineer shall provide proof of insurance (and the Professional Liability Insurance discussed herein) in a form reasonably acceptable by the Executive Director. The Engineer certifies that it has and will maintain insurance coverages as follows:

A. Workers Compensation Insurance. In accordance with the laws of the State of Texas and employer's liability coverage with a limit of not less than $1,000,000. This policy shall be endorsed to include a waiver of subrogation in favor of the Authority.

B. Comprehensive General Liability Insurance. With limits not less than $1,000,000 for bodily injury, including those resulting in death, and $1,000,000 for property damage on account of any one occurrence, with an aggregate limit of $1,000,000.

C. Comprehensive Automobile Liability Insurance. Applying to owned, non-owned, and hired automobiles in an amount not less than $1,000,000 for bodily injury, including death, to any one person, and $1,000,000 on account on any one occurrence, and $1,000,000 for property damage on account of any one occurrence. This policy shall not contain any limitation with respect to a radius of operation for any vehicle covered and shall not exclude from the coverage of the policy any vehicle to be used in connection with the performance of the Engineer's obligations under this Contract.

D. Excess Liability Insurance. In an amount of $5,000,000 per occurrence and aggregate.

E. Valuable Papers Insurance. In an amount sufficient to assure the full restoration of any plans, drawings, field notes, logs, test reports, diaries, or other similar data or materials relating to the Services provided under this Contract in the event of their loss or destruction, until such time as the work has been delivered to the Authority.

F. Architects and/or Engineers Professional Liability insurance. Engineer shall provide and maintain professional liability coverage, with limits not less than $5,000,000 per claim and $5,000,000 aggregate. The professional liability coverage shall protect against any negligent act, error or omission arising out of design or engineering activities, including environmental related activities, with respect to the Project, including coverage for negligent acts, errors or omissions by any member of the Engineer and its subconsultants (including, but not limited to design subconsultants and subconsultants) of any tier. The policy must provide that coverage extends a minimum of three (3) years beyond the Engineer's completion of the Services. This policy shall be endorsed to include a waiver of subrogation in favor of the Authority.

G. General for All Insurance. The Engineer shall promptly, upon execution of this Contract, furnish certificates of insurance to the Executive Director indicating compliance with the above requirements. Certificates shall indicate the name of the insured, the name of the insurance company, the name of the agency/agent, the policy number, the term of coverage, and the limits of coverage.

All policies are to be written through companies (a) authorized to transact that class of insurance in the State of Texas; (b) rated (i), with respect to the companies providing the insurance under subarticles 19.A. through D., above, by A. M. Best Company as "A-X" or better (or the equivalent rating by another nationally recognized rating service) and (ii) with respect to the company providing the insurance under subarticle 19.E., a rating by A. M. Best Company or similar rating service satisfactory to the Mobility Authority and/or its insurance consultant; and (c) otherwise acceptable to the Executive Director.
All policies are to be written through companies authorized to transact that class of insurance in the State of Texas. Such insurance shall be maintained in full force and effect during the life of this Contract or for a longer term as may be otherwise provided for hereunder. Insurance furnished under subarticles 19.B., C., and D., above, shall name the Mobility Authority as additional insured and shall protect the Authority, its officers, employees, and directors, agents, and representatives from claims for damages for bodily injury and death and for damages to property arising in any manner from the negligent or willful acts or failures to act by the Engineer, its officers, employees, directors, agents, and representatives in the performance of the Services rendered under this Contract. Certificates shall also indicate that the Contractual liability assumed in Article 16, above, is included.

The insurance carrier shall include in each of the insurance policies required under subarticles 19.A. through F., the following statement: "This policy will not be canceled or materially changed during the period of coverage without at least thirty (30) days prior written notice addressed to the Central Texas Regional Mobility Authority, 3300 N. IH-35, Suite 300, Austin, Texas 78705, Attn: Executive Director"

H. Subconsultant. The Engineer shall be liable for work performed by the subconsultant and Engineer's insurance shall cover the work, actions, errors and omissions of the subconsultant.

ARTICLE 20. GRATUITIES

A. Employees Not to Benefit. Mobility Authority policy mandates that the director, employee or agent of the Mobility Authority shall not accept any gift, favor, or service that might reasonably tend to influence the director, employee or agent in making of procurement decisions. The only exceptions allowed are ordinary business lunches and items that have received the advance written approval of the Executive Director of the Mobility Authority.

B. Liability. Any person doing business with or who reasonably speaking may do business with the Mobility Authority under this Contract may not make any offer of benefits, gifts or favors to Mobility Authority employees, except as mentioned above. Failure on the part of the Engineer to adhere to this policy may result in the termination of this Contract.

ARTICLE 21. DISADVANTAGED BUSINESS ENTERPRISE OR HISTORICALLY UNDERUTILIZED BUSINESS REQUIREMENTS

The Engineer agrees to comply with the DBE/HUB requirements and reporting guidelines set forth in the Work Authorization(s). The DBE/HUB Goal established for this Project is as set forth in the Work Authorization. The Engineer also agrees to comply with the DBE/HUB subcontracting plan that was included in the response that the Engineer submitted to the Mobility Authority's Request for Qualifications or Request for Proposals.

ARTICLE 22. MAINTENANCE, RETENTION AND AUDIT OF RECORDS

A. Retention Period. The Engineer shall maintain all books, documents, papers, accounting records and other evidence pertaining to costs incurred and Services provided (hereinafter called the Records). The Engineer shall make the Records available at its office during the Contract Period and for four (4) years from the date of final payment under this Contract, until completion of all audits, or until pending litigation has been completely and fully resolved, whichever occurs last.

B. Availability. The Mobility Authority shall have the exclusive right to examine the books and records of the Engineer for the purpose of checking the amount of work performed by the Engineer. The Engineer shall maintain all books, documents, papers, accounting records and other evidence pertaining to cost incurred and shall make such materials available at its office during the Contract Period and for four (4) years from the date of final payment under this Contract or until pending litigation has been completely and fully resolved, whichever occurs last. The Mobility Authority or any of its duly authorized representatives, TxDOT, FHWA, the United States Department of Transportation Office of Inspector General, and the Comptroller General shall

have access to any and all books, documents, papers and records of the Engineer which are directly pertinent to this Contract for the purpose of making audits, examinations, excerpts and transcriptions.

ARTICLE 23. CERTIFICATE OF INTERESTED PARTIES

If applicable, the Engineer must comply with the Certificate of Interested Parties (Form 1295) adopted by the Texas Legislature as House Bill 1295, which added section 2252.908 of the Government Code, available for review at the Texas Ethics Commission website: https://www.ethics.state.tx.us/.

ARTICLE 24. CIVIL RIGHTS COMPLIANCE

A. Compliance with Regulations: The Engineer shall comply with the Acts and Regulations relative to Nondiscrimination in Federally-assisted programs of the U.S. Department of Transportation (USDOT), the Federal Highway Administration (FHWA), as they may be amended from time to time, which are herein incorporated by reference and made part of this Contract.

B. Nondiscrimination: The Engineer, with regard to the work performed by it during the Contract, will not discriminate on the grounds of race, color, sex, or national origin in the selection and retention of subconsultants, including procurement of materials and leases of equipment. The Engineer will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the Contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

C. Solicitations for Subcontracts, Including Procurement of Materials and Equipment: In all solicitations either by competitive bidding or negotiation made by the Engineer for work to be performed under a subcontract, including procurement of materials or leases of equipment, each potential subconsultant or supplier will be notified by the Engineer of the Engineer's obligations under this Contract and the Acts and Regulations relative to Nondiscrimination on the grounds of race, color, sex, or national origin.

D. Information and Reports: The Engineer will provide all information and reports required by the Acts and Regulations, and directives issued pursuant thereto, and will permit access to its books, records, accounts, other sources of information, and facilities as may be determined by the Mobility Authority or the FHWA to be pertinent to ascertain compliance with such Acts and Regulations or directives. Where any information required of the Engineer is in the exclusive possession of another who fails or refuses to furnish this information, the Engineer will so certify to the Mobility Authority or the Federal Highway Administration, as appropriate, and will set forth what efforts it has made to obtain the information.

E. Sanctions for Noncompliance: In the event of the Engineer's noncompliance with the Nondiscrimination provisions of this Contract, the Mobility Authority will impose such Contract sanctions as it or the FHWA may determine to be appropriate, including, but not limited to:

(1) withholding of payments to the Engineer under the Contract until the Engineer complies and/or
(2) cancelling, terminating, or suspending of the Contract, in whole or in part.

F. Incorporation of Provisions: The Engineer will include the provisions of paragraphs (A) through (E) in every subcontract, including procurement of materials and leases of equipment, unless exempt by the Acts and Regulations and directives issued pursuant thereto. The Engineer will take such action with respect to any subcontract or procurement as the Mobility Authority, TxDOT, or the FHWA may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the Engineer becomes involved in, or is threatened with, litigation with a subcontractor or supplier because of such direction, the Engineer may request the Mobility Authority to enter into such litigation to protect the interests of the Mobility Authority.

ARTICLE 25. PATENT RIGHTS

The Mobility Authority shall have the royalty free, nonexclusive and irrevocable right to use and to authorize others to use any patents developed by the Engineer under this Contract.

ARTICLE 26. COMPUTER GRAPHICS FILES

The Engineer agrees to comply with Attachment G, Computer Graphics Files for Document and Information Exchange, if determined by the Mobility Authority to be applicable to this Contract.

ARTICLE 27. CHILD SUPPORT CERTIFICATION

Under Section 231.006, Texas Family Code, the Engineer certifies that the individual or business entity named in this Contract, bid, or application is not ineligible to receive the specified grant, loan, or payment and acknowledges that this Contract may be terminated and payment may be withheld if this certification is inaccurate. If the above certification is shown to be false, the Engineer is liable to the state for attorney's fees, the cost necessary to complete the Contract, including the cost of advertising and awarding a second Contract, and any other damages provided by law or the Contract. A child support obligor or business entity ineligible to receive payments because of a payment delinquency of more than thirty (30) days remains ineligible until: all arrearages have been paid; the obligor is in compliance with a written repayment agreement or court order as to any existing delinquency; or the court of continuing jurisdiction over the child support order has granted the obligor an exemption from Subsection (a) of Section 231.006, Texas Family Code, as part of a court-supervised effort to improve earnings and child support payments.

ARTICLE 28. DISPUTES

A. Disputes Not Related to Contract Services. The Engineer shall be responsible for the settlement of all contractual and administrative issues arising out of any procurement made by the Engineer in support of the services authorized herein.

B. Disputes Concerning Work or Cost. The Executive Director of the Mobility Authority shall decide all questions, difficulties and disputes of any nature whatsoever that may arise under or by reason of this Contract, and his decision upon all claims, questions and disputes shall be final. The Engineer shall comply with the decision of the Executive Director with regard to the resolution of any such disputes.

ARTICLE 29. SUCCESSORS AND ASSIGNS

The Engineer and the Mobility Authority do each hereby bind themselves, their successors, executors, administrators and assigns to each other party of this Contract and to the successors, executors, administrators and assigns of such other party in respect to all covenants of this Contract. The Engineer shall not assign, subcontract or transfer its interest in this Contract without the prior written consent of the Executive Director.

ARTICLE 30. SEVERABILITY

In the event any one or more of the provisions contained in this Contract shall for any reason be held to be invalid, illegal, or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provision thereof and this Contract shall be construed as if such invalid, illegal, or unenforceable provision had never been contained herein.

ARTICLE 31. PRIOR CONTRACTS SUPERSEDED

This Contract, including all attachments, constitutes the sole agreement of the parties hereto for the Services authorized herein and supersedes any prior understandings or written or oral Contracts between the parties respecting the subject matter defined herein.

ARTICLE 32. CONFLICT OF INTEREST

A. Representation by Engineer.

The Engineer represents that it has no conflict of interest that would in any way interfere with its or its employees' performance of Services for the Mobility Authority or which in any way conflicts with the interests of the Mobility Authority and certifies that it is in full compliance with the Mobility Authority's Policy Code related to Conflicts of Interest. The Engineer shall prevent any actions or conditions that could result in a conflict with the Mobility Authority's interests.

B. Certification Status. The Engineer certifies that it is not:

1. a person required to register as a lobbyist under Chapter 305, Government Code;
2. a public relations firm; or
3. a government consultant.

C. Environmental Disclosure. If the Engineer will prepare an environmental study under this Contract, the Engineer certifies by executing this Contract that it has no financial or other interest in the outcome of the Project on which the environmental study is prepared.

D. Engineering Services for the Construction Contractor. Specific to the Project for which the Services are being provided under this Contract, the Engineer shall not provide services directly to the contractor responsible for constructing the Project unless approved by the Executive Director.

ARTICLE 33. AUDIT REQUIREMENTS
The parties shall comply with the requirements of the Single Audit Act of 1984, P.L. 98-502, ensuring that the single audit report includes the coverage stipulated in 2 CFR 200.

ARTICLE 34. DEBARMENT CERTIFICATIONS
The parties are prohibited from making any award at any tier to any party that is debarred or suspended or otherwise excluded from or ineligible for participation in Federal Assistance Programs under Executive Order 12549, "Debarment and Suspension." By executing this Contract, the Engineer certifies that it is not currently debarred, suspended, or otherwise excluded from or ineligible for participation in Federal Assistance Programs under Executive Order 12549. The parties to this Contract shall require any party to a subcontract or purchase order awarded under this Contract to certify its eligibility to receive Federal funds and, when requested by the Executive Director, to furnish a copy of the certification.

ARTICLE 35. PERTINENT NON-DISCRIMINATION AUTHORITIES
During the performance of this Contract, the Engineer, for itself, its assignees, and successors in interest agree to comply with the following nondiscrimination statutes and authorities; including but not limited to:

A. Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.

B. The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects).

C. Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 et seq.), as amended, (prohibits discrimination on the basis of sex).

D. Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 et seq.) as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27.

E. The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 et seq.), (prohibits discrimination on the basis of age).

F. Airport and Airway Improvement Act of 1982, (49 U.S.C. Chapter 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex).

G. The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, subrecipients and contractors, whether such programs or activities are Federally funded or not).

H. Titles II and III of the Americans with Disabilities Act, which prohibits discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38.

I. The Federal Aviation Administration's Nondiscrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex).

J. Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures nondiscrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations.

K. Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, the parties must take reasonable steps to ensure that LEP persons have meaningful access to the programs (70 Fed. Reg. at 74087 to 74100).

L. Title IX of the Education Amendments of 1972, as amended, which prohibits the parties from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq.).

ARTICLE 36. BOYCOTT ISRAEL

The Contractor represents and warrants that (1) it does not, and shall not for the duration of this Contract, boycott Israel or (2) the verification required by Section 2271.002 of the Texas Government Code does not apply to this Contract.

ARTICLE 37. FIREARM ENTITIES AND TRADE ASSOCIATIONS DISCRIMINATION

The Engineer verifies that:

1. It does not, and will not for the duration of this Contract, have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; or
2. The verification required by Section 2274.002 of the Texas Government Code does not apply to the Contract.

If circumstances relevant to this provision change during the course of this Contract, Engineer shall promptly notify the Executive Director.

ARTICLE 38. ENERGY COMPANY BOYCOTT

The Engineer verifies that:

1. It does not, and will not for the duration of the Contract, boycott energy companies; or
2. The verification required by Section 2274.002 of the Texas Government Code does not apply to the Contract.

If circumstances relevant to this provision change during the course of this Contract, the Engineer shall promptly notify the Executive Director.

ARTICLE 39. ABBREVIATIONS AND DEFINITIONS

Acts and Regulations	Federal, state, and local acts and regulations which are applicable to the Contract
Agreement	This Contract
Mobility Authority	The Central Texas Regional Mobility Authority
Business Days	Any day the Mobility Authority is open for business
CFR	Code of Federal Regulations
Contract	This Contract document and its attachments
Days	Calendar days
DBE	Disadvantaged Business Enterprise
Engineer	The service provider performing the services under this Contract
Executive Director	The Executive Director of the Mobility Authority, or anyone to whom he has delegated the authority to act on his behalf
FAR	Federal Acquisition Regulations
FHWA	Federal Highway Administration

HUB	Historically Underutilized Business
OMB	Office of Management and Budget
Project	Any capital improvement, rehabilitation, repair, maintenance, or other work in conjunction with the Authority's or a partner's facilities.
PS&E	Plans, specifications, and estimate
Services	Any work assigned under this Contract
TxDOT	Texas Department of Transportation
USDOT	United States Department of Transportation
Work Authorization	Any work authorization arising from this Contract
Year	When not otherwise clarified, "year" refers to a 12-month period

ATTACHMENT B
SERVICES TO BE PROVIDED BY THE MOBILITY AUTHORITY
290 Toll Extension Professional Services

The Authority shall perform and provide the following in a timely manner so as not to delay the Services to be provided by the Engineer:

1. Authorize the Engineer in writing to proceed.
2. Designate in writing a person to act as the Authority's representative, such person to have complete authority to transmit instructions, receive information, and interpret and define Authority's decisions with respect to the Services to be provided by the Engineer.
3. Render reviews, decisions and approvals as promptly as necessary to allow for the expeditious performance of the Services to be provided by the Engineer.
4. Provide timely review and decisions in response to the Engineer's request for information and/or required submittals and deliverables.
5. Maintain the Project's website and other public involvement materials.
6. Provide the Engineer with relevant data available to the Mobility Authority related to people, agencies and organizations interested in the project.
7. Either provide directly, or have its designated General Engineering Consultant ("GEC") provide general oversight services of the Engineer.
8. Place at Engineer's disposal all reasonably available information pertinent to the Project.
9. Provide assistance in coordinating with Corps of Engineers, FEMA, Travis County, Bastrop County, City of Austin, and TxDOT for any approvals and permits required.
10. Address problems regarding any refusal to grant right of entry (ROE) or communication with landowners who are hostile with respect to the completion of this scope of services.
11. Records available that would assist in the completion of the environmental services.
12. Submittal of documentation to regulatory agencies for review and comment when specified.
13. Review and approval of typical roadway and bridge cross sections created by the Engineer.
14. Approval of pavement design to be used for cost estimation purposes.
15. Available horizontal control points, benchmark elevations and descriptions for vertical control in the project area.

16. Available interface data for 290 Toll Phases II and III adjacent to the project corridor.
17. Assistance as necessary in obtaining the required data and information from other local, regional, state, and federal agencies.
18. Examples of acceptable format for the deliverables required by the work authorizations.
19. Level-D SUE records for the project corridor.

ATTACHMENT C
SERVICES TO BE PROVIDED BY THE ENGINEER
290 Toll Extension Professional Services

The Design Consultant Engineer ("Engineer"), shall be responsible for the work described in this Scope of Services ("Services") for the 290 Toll Extension ("Project"). The Engineer will coordinate with Mobility Authority Staff and their General Engineering Consultant ("GEC"), herein referred to as the "Mobility Authority".

The Engineer will work at the direction and supervision of the Mobility Authority to provide the Services. The Mobility Authority expects the Engineer to work cooperatively and collaboratively through all aspects and phases of schematic design and in its dealings with TxDOT, subcontractors, engineers, legal counsel, consultants, governmental entities, utilities, businesses, property owners, and the general public.

The Engineer will report to the Mobility Authority's Project Manager, the GEC's Project Manager and staff, and keep them informed of the design progress, especially issues that would affect the project schedule and delivery. The Engineer shall be available for weekly progress meetings with the Mobility Authority, if scheduled. The Engineer will also be responsible for coordinating with other members of their project team to verify that deliverables meet the established schedule and quality requirements.

The Engineer will be expected to deliver a TxDOT-approved Schematic Design and NEPA Environmental Document and environmental finding. The work to be performed by the Engineer shall consist of providing services for the corridor development process of 290 Toll and US 290 from SH 130 to SH 95 South that shall include: corridor feasibility analysis, schematic design, environmental documents/studies, analysis of current and future transportation needs, preparation of preliminary cost estimates, travel demand modeling and preliminary engineering, public involvement, data collection analysis, preliminary drainage features, traffic projections, traffic engineering, surveying and mapping, and preliminary utility coordination for 290 Toll and US 290 in Travis and Bastrop Counties in the State of Texas.

The Engineer shall work closely with local stakeholders to identify sensitive environmental features and provide input to the planning study, including the improvement concepts to be considered and the merits of those concepts. The Engineer shall support Mobility Authority Communications and the stakeholders in presenting the concepts to local citizens to learn about concerns and issues that may need to be addressed. Considering local citizen input, the stakeholders may make recommendations that will guide the Mobility Authority on the Project development. This project shall be developed in compliance with applicable Federal and State regulations and design standards.

The Mobility Authority is taking lead on schematic design and environmental study for the Project, but the Project will be fully coordinated with TxDOT and will be required to meet standard requirements for a TxDOT project including: Local Government Projects Policy Manual, Pavement Design Guide, Project Development Process Manual, PS&E Preparation

Manual, Roadway Design Manual, TxDOT MUTCD and others.

The project location is more specifically defined as:

US 290 from SH 130 to Elgin, TX, is approximately 15 miles in length. US 290 currently consists of a divided highway carrying two lanes in each direction for most of the distance. The proposed improvements under this study will be determined during the execution of this study phase but are anticipated to be three tolled mainlanes and three general-purpose lanes in each direction. The existing right of way (ROW) for the corridor varies but is usually less than 235 feet wide. The proposed highway is anticipated to need a ROW width of 330 feet based on an ultimate typical section of eastbound and westbound tolled mainlanes and general-purpose lanes.

The Engineer shall coordinate with the Mobility Authority prior to a particular task being started and will not begin work until Notice to Proceed has been issued.

Scheduling of activities below will conform to the Project milestones established by the Mobility Authority.

The Engineer will coordinate with the both the Mobility Authority and their GEC. It is understood that all references herein to responsibilities of or actions by the Mobility Authority will be led or supported by the GEC. The Engineer shall work cooperatively and collaboratively throughout all aspects and phases of project development and in its dealings with the Mobility Authority, GEC, TxDOT, toll system integrators, engineers, legal counsel, accountants, consultants, government entities, utilities, property owners, and the general public.

The Engineer shall coordinate with the Mobility Authority's Communications and public involvement team, as required, in the Mobility Authority's dealings with the general public, adjacent property owners, and interested advocacy groups.

1. PROJECT MANAGEMENT AND ADMINISTRATION

The Engineer shall be responsible for direct and coordinate activities associated with the project to comply with Mobility Authority policies and procedures, and to deliver that work on time. The Engineer shall coordinate subconsultant activity including quality of and consistency of work and administration of the invoices and monthly progress reports. The Engineer shall coordinate with necessary local entities.

1.1. Tasks.

1.1.1. Prepare monthly written progress reports.

1.1.2. Conduct weekly coordination meetings on the project with the Mobility Authority, TxDOT, and other interested parties.

1.1.3. Escalate major project issues to the Mobility Authority.

1.1.4. Project coordination with the Mobility Authority. Copy the Mobility Authority's Project Manager (PM) on internal and external correspondence.

1.1.5. Develop and maintain a detailed project schedule to track project conformance to schedule, for each work authorization.
1.1.6. Meet on a scheduled basis (bi-weekly) with the Mobility Authority to review project progress.
1.1.7. Prepare, distribute, and file both written and electronic correspondence.
1.1.8. Prepare and distribute meeting minutes.
1.1.9. Document phone calls and conference calls as required during the project to coordinate the work for various team members.
1.1.10. Project coordination within Engineer's team.

1.2. Deliverables.

1.2.1. Monthly written Progress Reports
1.2.2. Monthly Update Reviews and preview of upcoming month
1.2.3. Weekly meeting minutes
1.2.4. Detailed Work Schedule for approval by the Mobility Authority
1.2.5. Project Meeting minutes
1.2.6. Written and electronic correspondence and other work-related communication documentation
1.2.7. Phone and Conference call log and other related documentation

2. PLANNING STUDY

The Engineer shall conduct a planning study that includes the development of improvement concepts to meet current roadway design standards as established by the latest editions of the State Roadway Design Manual, American Association of State Highway and Transportation Officials (AASHTO) Policy on Geometric Design of Highways and Streets, State Standard Specifications for Construction of Highways, Streets, and Bridges, Highway Capacity Manual – Transportation Research Board, AASHTO – *A Policy on Design Standards Interstate System*, and other associated State manuals, as applicable. The planning study is intended to:

- Establish the need and purpose for the project.
- Develop Environmental Constraints Map to characterize the environmental setting.
- Develop and screen improvement options to determine which ones should be advanced for further detailed schematic design and environmental study.
- Develop a preliminary (30%) schematic design layout of the ultimate roadway configuration.
- Establish the right-of-way needs for the ultimate roadway configuration.

ATTACHMENT C
SERVICES TO BE PROVIDED BY THE ENGINEER
290 Toll Extension Professional Services

The Engineer shall develop improvement concepts including:

- Improvements shifted to either side of the current US 290 alignment in an effort to minimize impacts to existing and active development.
- Review and analysis of intersection improvements with major cross roads (maximum of 6 intersections).
    - Parmer Ln
    - Gregg Manor Rd
    - FM 973
    - Old Kimbro Rd
    - County Line Rd
    - SH 95 North
- Up to two (2) design alternatives through the Manor area
- Up to two (2) design alternatives through the Elgin area
- Preliminary geometric layout of direct connectors at US 290 and FM 973
- Preliminary geometric layout of direct connectors at US 290 and SH 95 North on the west side of Elgin

The Engineer shall provide for optional alternative analyses to be executed at the discretion and request of the Authority, including:

- Up to two (2) additional design alternatives in Manor or Elgin
- Preliminary geometric layout of direct connectors at US 290 and SH 95 South on the east side of Elgin

The improvement concepts are to be plan view only. Profile work must be done only to the extent necessary to lay out the proper horizontal geometry.
The improvement concepts must contain the following design elements (to the extent that they are available and can be established at the time of concept development):

- Mainlane roadway alignment
- Pavement edges, face of curbs, and shoulder lines of mainlanes, intersections, interchanges,
- and connecting highways or streets
- Typical sections of existing and proposed roadways
- Anticipated structure locations (including wildlife crossings and fencing structures)
- Anticipated retaining wall and sound wall locations
- Anticipated conveyance of major drainage elements
- Preliminary ROW and easement requirements and control-of-access locations
- Direction of traffic flow and the number of lanes on roadways
- Existing and projected traffic volumes

- Existing utilities
- Waters of the United States (WOTUS)

The Engineer shall perform the following activities as part of this task:

Improvement option development and evaluation

The Engineer shall develop and evaluate options. This effort shall include the following:

a. Research - Perform record research and obtain applicable existing information, including but not limited to: as-built plans, construction plans, right of way maps, environmental reports, previous studies related to the project area, and future land use maps.

b. Field Investigation - Conduct a field investigation of the existing US 290 alignment and the surrounding area to determine field conditions including photographic record of notable existing features. This field investigation will be limited to accessible areas within the existing right-of-way. Inventoried features and conditions will be incorporated into the project GIS database.

c. Preliminary design values – Project-specific design criteria (typical sections, design speed, functional classification, geometric criteria, etc.) shall be identified and documented in accordance with the latest version of the TxDOT Roadway Design Manual, AASHTO Policy on Geometric Design of Highways and Streets, TxDOT Standard Specifications for Construction of Highways, Streets, and Bridges, Highway Capacity Manual - Transportation Research Board, AASHTO – A Policy on Design Standards Interstate System, and other associated State Manuals, as applicable.

d. Traffic analyses.

The traffic data collection and analysis shall include the following:

- Identify and Obtain Corridor Issues — Including bottleneck problems; access management problems; general congestion; accident locations due to weave problems, sight distance, access points, etc.
- Review previously developed issues
- Identify additional issues
- Develop Initial Project Data
- Review available planimetric and topographic data
- Conduct initial field reconnaissance
- Use other sources of data such as INRIX
- Obtain available digital aerial photography at selected locations
- Obtain traffic data from the State including existing year traffic counts, percent truck data, etc.
- Obtain signal timing plans data from the State
- Obtain crash data from the State
- Obtain existing regional and local transportation plans

ATTACHMENT C
SERVICES TO BE PROVIDED BY THE ENGINEER
290 Toll Extension Professional Services

Traffic Data Collection

The Engineer shall be responsible for field review of the project, inventory and cataloging of existing available data. The State shall provide recent counts that were relevant to the study area. Based on review of available existing data, additional data needs will be identified, and data collection efforts will be conducted. Prior to field traffic data collection, the Engineer shall develop a data collection plan and provide to State for approval. The Engineer shall conduct a field review concurrent to the data collection.

Base Year and Future Traffic Volume Preparation

The Engineer shall compile available TxDOT AADT volumes and ADT counts of missing locations from the Traffic Data Collection task to establish a set of existing AADT volumes and intersection turn movements for the existing corridor.
The engineer shall compile available TxDOT annual traffic recording station and vehicle classification count data to devise design hour factors and vehicle classification (truck) portions for the study corridor.
The Engineer shall apply existing traffic origin-destination (OD) data using the Replica on-line application to identify major existing OD patterns in the corridor. The engineer will apply matrix techniques to develop an existing conditions AADT OD trip table for the corridor study area. An existing conditions corridor travel demand model road network will be coded to validate that when the existing conditions OD tables are assigned to the existing network, that segment volumes reasonably match segment counts.

The Engineer shall evaluate multiple sources of corridor traffic growth estimates to determine growth trends for development of project traffic forecasts. These include:

- Historic trend analysis of 20-years of TxDOT AADT counts.
- Evaluation of platted development and current portion of development completed in developments actively under construction.
- The Engineer shall perform travel demand modeling analysis to develop traffic volume forecasts estimates based on regional planning assumptions and effects of other transportation projects. The travel demand modeling analysis shall be based on the most recent official regional Capital Area Metropolitan Planning Organization (CAMPO) travel demand models (TDM). The Engineer shall perform the following tasks:
- In coordination with the State, obtain the most recent official regional MPO TDM from the Capital Area Metropolitan Planning Organization (CAMPO).
- Modify the CAMPO model to incorporate potential design alternatives (up to two (2)). Only the assignment process will be conducted. As part of the process, the Engineer will review centroid connector locations and modify if necessary. The Engineer will not

recalibrate the base year CAMPO model nor modify the socioeconomic data. Traffic volume forecast outputs may be used to evaluate design alternatives and to supplement development of project traffic volumes forecasts for TxDOT Austin District approval.

The above existing traffic and forecast growth information will be compiled in a Traffic Projections Methodology Memorandum for review and concurrence by TxDOT Austin District. The recommended traffic growth projection assumptions will be applied to the existing AADT OD matrix, which will be assigned to the existing corridor road configuration to develop draft No Build forecasts for the corridor. The Engineer shall present the projection methodology memo along with balanced existing AADT counts and No Build forecasts to TxDOT Austin District as part of the approval process.

Pending TxDOT Austin District approval of the AADT counts, No Build forecasts and forecast methodology, the engineer will collaborate with the project design team to devise configuration options for Build alternatives including lane requirements and access management effects on demand patterns. Pending development of ramp locations and configurations, the corridor demand model road network will be modified to the alternative configurations, and traffic assignments will be applied to produce forecasts for each alternative using forecast OD matrices approved by TxDOT for consistency.

The corridor demand model will include a sketch level capacity and operations analysis to aid in preliminary project development decisions. The sketch model shall apply traffic factors to determine design hour volumes and conduct sketch analysis using proposed lane configurations. Areas with noted design deficiencies will be further evaluated using HCM procedures as noted in later scope descriptions.

Pending determination of a preferred alternative, a final traffic assignment will be made to include project AADT forecasts as well as AM and PM design hour volumes. AADT forecasts will be compiled on traffic line diagrams for inclusion in project schematic plans. AM and PM peak DHVs will be compiles as maps and as OD tables applicable to either HCM or traffic simulation analysis, respectively. Forecasts will also be compiled to support environmental studies of project-level air quality and noise analysis.

Traffic Operations Analysis

The Engineer shall analyze traffic operations of design alternatives and the preferred alternative. Analysis of design alternatives shall be at a higher level of detail (deterministic, macroscopic) while the preferred alternative analysis shall be at the microscopic level and apply only to the

Manor area of the project. The design alternatives analysis process shall consist of the following tasks:

- Develop AM and PM peak hour SYNCHRO traffic models for the corridor for No-Build opening year, and design years to identify operational needs.
- Develop AM and PM peak hour HCS2024 and SYNCHRO traffic models for the corridor for Base Build opening year, and design years. This Build scenario includes 6-tolled lanes and a 6-general purpose lane typical section, optimized intersection signal timings, and basic geometric and traffic management improvements at intersections (turn bays, lane re-assignment, etc.)
- Based on results of SYNCHRO traffic models, perform CAP-X analysis for design year AM and PM peak hour to determine potential design solutions at the major intersections along the corridor.
- Incorporate preferred design solutions (one for each intersection from CAP-X) into Base Build SYNCHRO traffic models for further evaluation of the preferred design solutions and to develop final Build traffic models.
- Crash data will be collected and summarized to identify critical incident location. The contributing cause of the crashes must be reviewed to find patterns, issues and identify mitigation measures that might address existing problems.
- Based on traffic and crash analysis final recommendations of intersection configurations for a 6-tolled lanes and a 6-general purpose lane typical section are presented to support evaluation of ROW needs.
- Documentation - The Engineer shall document the analysis methodology, traffic data gathered, and the results of the traffic operations analysis as Traffic Technical Memorandums. The memorandums will summarize the findings and provide recommendations.

The preferred alternative analysis process shall consist of the following tasks – Optional Work:

- Using existing geometric and traffic volume data, code and calibrate AM and PM peak period *Vissim* models to reflect existing (2024) transportation network conditions along 290 Toll, between Parmer Lane and Old Kimbro Road, inclusive. Models will incorporate 2024 field traffic counts, INRIX origin-destination data (obtained through TxDOT's Statewide Data Contract), and corridor travel time runs/speeds. Models will <u>not</u> be calibrated/validated per FHWA's 2019 *Traffic Analysis Toolbox Volume III* procedures.
- Using the TxDOT-approved traffic volume projections and 2024 calibrated/validated *Vissim* models, develop AM peak and PM peak period models of no-build and build (preferred alternative) conditions during both

opening and design years. Both no-build and build models shall incorporate previously planned improvements.

- Summarize results of the analysis in a technical report that assesses proposed operational improvements.
- Prepare *Vissim* models for use in 3D animations to support public involvement activities.

Deliverables:

- Data collection plan
- Traffic Projections Methodology Memo
- Traffic line diagrams
- SYNCHRO models (no-build, alternatives, build)
- HCS2024 analysis files (build)
- CAP-X spreadsheets (build)
- Traffic analysis methodology memo
- Traffic data operations analysis memo
- *Vissim* models (existing, no-build, build) – Optional Work
- *Vissim* technical memorandum – Optional Work

Public involvement

Create a public involvement program in advance of and during the environmental project development process that includes the use of communication tools to create public awareness and achieve meaningful public input regarding the study issues and corridor needs. It shall be tailored to suit the issues, impacts and communication style in each corridor and for statewide issues. The public involvement program shall be consistent with statewide planning regulations. It shall be a collaborative process among the Mobility Authority, the Engineer and project stakeholders, and shall be proactive and continuous throughout the project. Significant task work includes: developing a public involvement plan and stakeholder database, responding to public inquiries, holding two (2) working group meetings and two sets of open houses (one in Bastrop County and the other in Travis County) for a total of four (4) open houses, one (1) Public Hearing, disseminating newsletters, attending community events, and providing coordination and support for key stakeholder updates, website content, media relations, and social media. Materials will be accessible and available in Spanish as needed.

Deliverables:

- Public Involvement Plan
- Project brand identity using CTRMA brand guidelines
- Stakeholder Database
- Documentation of Working Group Meetings (x2 presentations and meeting minutes)

- Open House and Public Hearing materials
    - Outreach materials including postcards, advertisements, email/letters to key stakeholders, flyers, fact sheet
    - Illustrated maps (assumes four (4) alternative maps)
    - Boards (assumes 15)
    - Community survey/poll (2)
    - Videos (Recorded PowerPoint presentation and short, one (1) project overview 2-3 minute video with up to six (6) interviews, four (4) animated 2D videos showing traffic scenarios)
    - Sign-in sheets
- Open House and Public Hearing documentation
- Newsletters (up to 8)
- Website content (assumes website development and hosting costs to be handled by the Mobility Authority)
- Press release/media alert (x4; Open houses, public hearing, environmental clearance)
- Stakeholder Meeting documentation (Assume 10 stakeholder meetings and 10 Elected Official meetings)
- Business outreach
    - Business forums in Travis and Bastrop County (x2 each)
- Community Event attendance (up to 12 events)
- Social media content including graphics, animations and video (up to 36 posts)

Route Option Refinements

The Engineer shall perform up to two rounds of option refinements based on stakeholder input and document the rationale for the refinements. This effort will include the following:

- Refine improvement concepts to address comments by stakeholders.
- Update potential impacts and costs for the refined concepts.
- Provide refined route concepts, potential impacts and estimated costs to the State electronically for review and comment. Conduct a meeting with the State to discuss within one week of providing the refined route concepts to finalize the concepts to be presented in the Engineering Technical Memorandum.
- Coordinate with the State and stakeholders to identify preliminary improvement option recommended preferences and associated rationale.
- Any opinions or estimates of costs or probable construction cost provided by Engineer are made on the basis of information available to Engineer and on the basis of Engineer's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since Engineer has

no control over the cost of labor, materials, equipment or services furnished by others, or over the construction contractor(s') methods of determining prices, or over competitive bidding or market conditions, Engineer does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions or estimates of costs or probable construction cost Engineer prepares.

Planning and Feasibility Study Deliverables

Deliverables applicable to this task are listed below:

- Draft and Final Traffic Technical Memorandum
- Draft and Final *Vissim* Technical Memorandum – Optional Work
- Draft and Final Engineering Technical Memorandum
- Final Report compiling documentation of Public Information (PI) efforts
- Preliminary (30%) schematic design layout of the ultimate roadway configuration.

3. SCHEMATIC DESIGN

The Engineer shall prepare an alignment and proposed roadway schematic layout to include projected traffic volumes and existing and proposed typical sections. The Engineer shall furnish Bentley OpenRoads computer generated media containing the roadway schematic layout to the CTRMA. Supporting attachments and exhibits shall accompany the schematic layout. OpenRoads computer generated files containing the roadway design schematic shall be compatible with the software used by the Mobility Authority.

The Engineer shall produce, obtain, review, and evaluate existing and twenty-year projected traffic data for use in the preparation of the schematic design layout. The data shall be utilized in accordance with the requirements for schematic development and consistent with the policies of the Mobility Authority.

The Engineer shall prepare preliminary drawings to identify potential impacts within the project corridor, including impacts to the nature, cultural, and human environment. Identification should include, but not be limited to existing and proposed utilities (public and private), structures, burial grounds, neighborhood communities, historical landmarks, and undeveloped areas is required. Potential utility conflicts and structural impediments must be identified as such. The Engineer shall render assistance to the Mobility Authority for agency meetings as necessary during the development of the schematic design as requested by the Mobility Authority. The

Engineer shall also render assistance to the Mobility Authority for meetings with affected property owners (MAPOs), public meetings and a public hearing as requested.

An itemization of the schematic design and engineering work activity to be performed under this contract is detailed below. All designs shall be prepared in accordance with the latest version of: *TxDOT Roadway Design Manual*, *TxDOT Project Development Process Manual*, *AASHTO Policy on Geometric Design of Highways and Streets*, *TxDOT Standard Specifications for Construction of Highways, Streets, and Bridges, TxDOT Traffic Operations Manual on Highway Operations*, *Texas Manual on Uniform Traffic Control (TMUTCD)*, *Highway Capacity Manual - Transportation Research Board, TxDOT Hydraulic Design Manual, TxDOT Access Management Manual, Public Right-of-Way Accessibility Guidelines (PROWAG), and the AASHTO Guide for the Development of Bicycle Facilities.*

The design schematic horizontal layout will adhere to a design scale of 1 in. = 100 ft (or 1 in. = 200 ft as directed by the Mobility Authority). The schematic layout, exhibits, and attachments will be developed in English units. Bentley OpenRoads computer graphic files furnished to the Mobility Authority must be submitted in electronic format. Schematics will follow the Mobility Authority and Federal Highway Administration (FHWA) standards, the schematic will also follow the CADD standards used by the Mobility Authority and shall be submitted as an original document, accompanied with an original Bentley OpenRoads formatted graphics file. Final copies of the schematic design shall be signed by a professional engineer licensed in the State of Texas.

Schematic Design Work Outline:

Data Collection

The Engineer shall conduct field reconnaissance and collect updated data as necessary to complete the schematic design. Data shall include the following information:

· Previously prepared Feasibility Studies
· Updates to existing and future design year traffic data.
· Aerial photos, planimetric mapping, and DTM
· Environmental Data.
· Previously prepared drainage studies.
· Adopted land use maps and plans as available.
· Federal Emergency Management Agency (FEMA) Flood Boundary Maps and Flood Insurance Studies and Models.
· Public and private utility information.
· Plat research for adjacent properties as available.
· Local Major Thoroughfare Plan.

Bridge Condition Assessment

- The engineer shall perform a condition assessment for structures that are planned to be incorporated into the final schematic. This condition assessment should consider the existing geometry relative to proposed geometry, bridge structural condition, geometry relative to hydraulic capacity, scour performance, and number and location of columns relative to widening feasibility.
- Rehabilitation work required to address deficiencies such as concrete spalls or joint replacement as indicated in existing inspection reports and identified during condition assessment field work will be reflected in the opinion of probable cost estimate.
- This effort will include the use and incorporation of existing bridge inspection reports as available.
- Field work will not include destructive methods, rather it will be based on visual observations.
- Field work will be limited to those portions of the bridge that are accessible without access equipment.

Roadway Design Criteria

The Engineer shall develop the roadway design criteria based on the TxDOT Roadway Design Manual and AASHTO Policy on Geometric Design of Highways and Streets guidelines. The design criteria shall include the following roadway design elements: design speed, lane and shoulder widths, pavement structure and slopes, horizontal curvatures, horizontal and vertical clearances, range of vertical profile grades, sidewalks, shared use paths, and side slopes.

Preliminary Design Conference

The Engineer shall prepare and submit a preliminary Design Summary Report (DSR) to the Mobility Authority for review and approval and shall attend an 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. This meeting will be coordinated with any adjacent projects for continuity.

Develop Base Maps

The base maps to be used for the analysis and proposed schematic layout shall be updated by the Engineer from existing construction and right of way (ROW) plans as available. The Engineer shall re-establish the existing centerline horizontal alignments for roadways, identify existing

ROW, property owners and the approximate location of major utilities based on a SUE in the preparation of base maps.

Analyze Existing Conditions

Using collected data and base maps, the Engineer shall review the existing conditions based upon available information to develop the schematic design. The analysis shall include, but not be limited to the following:

· ROW determination
· Horizontal alignment
· Vertical alignment
· Pavement cross slopes and pavement type
· Intersection design and analysis
· Sight distance
· Large Guide Signs and Roadside signing
· Level-of-service
· Locations of critical constraints
· Drainage
· Existing access condition

Design Schematics

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 (including wildlife crossings and fencing structures)
· Preliminary ROW requirements and control-of-access locations
· Drainage systems and FEMA floodplain
· Direction of traffic flow and the number of lanes on roadways
· Existing and projected traffic volumes
· Existing utilities

Schematic Design Considerations

The Engineer shall consider the following in the analysis to optimize the design to exceed minimum design criteria:

· Efficient use of the existing ROW
· Preserving access to side roads and adjacent properties.
· Roadway and intersection geometry exceeds minimum design criteria
· Bicycle and Pedestrian accommodation in design
· Drainage and Hydraulic design

· Stopping Sight distance exceeds minimum design criteria
· Level-of-service
· Traffic and signal operations
· Construction, ROW, easement, and utility costs
· Construction sequencing
· Traffic control during construction
· Roadside safety appurtenances
· Large guide signage
· Environmental mitigation (For example: Noise Walls, Storm Water Best Management Practices (BMPs), etc.)
· Avoidance and minimization of environmental resources such as parklands, historical resources, archeological sites, etc.
· Bridge Layouts and Clearance
· Accommodation of ultimate corridor configuration.
· Accommodation of future cross street expansion as described in local thoroughfare plan if applicable
· Avoidance of utility lines if feasible.
· Impact of construction delays from utility relocations.

Schematic Design – General Tasks

a. ROW/Property Base Map

The Engineer shall obtain information on existing ROW, easements, and property information from as-built plans, ROW maps, and tax records. The Engineer shall prepare a base map depicting the information.

b. Typical Sections

The Engineer shall update both existing and proposed typical sections as necessary to depict the number and type of lanes, shoulders, median width, curb offsets, cross slope, border width, clear zone widths, sidewalks, shared use paths, and ROW limits.

c. Environmental Constraints

The Engineer shall consider impacts to environmentally sensitive sites (as identified by the Engineer and verified by the Mobility Authority) during the schematic design process. Environmentally sensitive sites include natural, cultural, and the human environment. Examples are historic and archeological resources, burial grounds, neighborhood communities and residential areas, farmland, floodplains, wetlands, endangered species, rare habitats, wildlife corridors, wildlife crossings, parks and nature preserves, geologic features, undeveloped areas, and significant trees.

d. Drainage

The Engineer shall use data from as-built plans, drainage GIS data, topographic data, FEMA maps, Atlas 14 rainfall data, existing hydrologic and hydraulic models and reports, and topographical data, to determine and evaluate the adequacy of the ROW needed to accommodate the proposed roadway and drainage system. The methods used in the hydrologic and hydraulic analyses shall be conducted in accordance with the TxDOT Hydraulic Design Manual, Mobility Authority criteria, and specific guidance provided by the Mobility Authority. The drainage study shall identify the impacts to existing structures and other properties and to the 100-year floodplain due to proposed highway improvements. Provide a drainage study report identifying the results of the study.

The Engineer shall provide the hydrologic and hydraulic models such as HEC-RAS, HEC-HMS, HY-8, SWMM, and other applicable models used in analyses.

The drainage report shall be provided at every submittal unless there is essentially no change to the previous version submitted or having an approval from the Mobility Authority. The Hydrologic portion of a drainage analysis report should contain, but not limited to, the following elements:

· Description of the project location, boundary, purpose, and objectives, including modeling software, hydraulic design criteria, methods, assumptions, limitations, equations, and data used; Major technical decisions and special configurations

· Basin delineation and estimation of parameters for hydrologic modeling.

· Estimation of peak flows at points of interest

· Well annotated pre-project and post-project sub-basin maps with flow path, contours, and major drainage network drawn.

· Discuss how model parameters/coefficients were estimated.

· A table showing the Tc calculation for different flow components, such as sheet flow, shallow concentrate flow and channel flow.

· A table showing the pre-project, pre-mitigation, and post-project (post-mitigation) and post-project peak flows at control (junction nodes and outlet) points for the design and the check floods.

· Discuss the differences of model results between the proposed and the existing hydrologic models.

· A summary of major results, findings, project impact, and special notes/recommendations.

· A digital copy of the working and fully annotated HEC-HMS hydrologic models that provide the modeling scenarios for the 2, 5, 10, 25, 50, and 100- year floods for both the existing and proposed conditions along with the digital drainage report.

· Model plans and runs should have meaningful names, intermittent runs should be cleaned, and a readme file should be provided to explain the model plans, runs and special notes on how to use the models.

The Hydraulic portion of a drainage analysis report should contain, but not limited to, the following elements:

· Description of the modeling software, criteria, methods, special equations, assumptions, limitations, parameter estimation, data sources and quality, and summary of major technical decisions and special configurations made.

· Discussion of proposed hydraulic condition changes as compared with the existing baseline conditions for each modeling area.

· Hydraulic analyses for pre-mitigation conditions

· Hydrologic and hydraulic analyses to include mitigation structures such as detention ponds

· Preliminary design of post-project trunklines

· Hydraulic analyses of proposed post-project trunklines

· A table showing the pre-project and post-project WSEL at cross sections and hydraulic structures for the design and check floods

· Hydraulic model cross section layout maps with contours and pertinent references

· Discuss mitigation proposed for significant adverse impact areas, including detention pond location, volume, and hydraulic connection.

· A summary of major model results and findings, and flooding depths at locations of interest on main lanes, frontage roads, and local driveways under design flood condition.

· For each major stream crossing structures located in a FEMA SFHA or requiring a bridge class structure, the report shall follow the Hydraulic Report Guidelines referenced and outlined in the TxDOT Hydraulic Manual, Chapter 3, Section 5 under “Special Documentation Requirements for Projects crossing NFIP designated SFHA.”

· A list of recommendations and notes for potential bank erosion and bridge/culvert scour.

· Model plans and runs should have meaningful names, intermittent runs should be cleaned, and a readme file should be provided to explain the model plans, runs and special notes on how to use the models.

The scope of this project includes analysis of multiple FEMA crossings and non-FEMA crossings. The Engineer shall utilize HEC-RAS for FEMA crossings, bridge crossings, and bridge-class culvert (BCC) crossings, resulting in a total of 16 HEC-RAS models. HY-8 shall be used for small, non-FEMA crossings, resulting in a total of 18 HY-8 models. The crossings included in the scope are as follows:

FEMA Zone AE	4
FEMA Zone A	9
BCC (non-FEMA)	3
Culvert (non-BCC)	18

Additionally, due to the presence of wide floodplains and/or spillover characteristics, the Engineer shall develop HEC-RAS 2D models to support the HEC-RAS 1D models for the following five crossings:

- Gilleland Creek
- Wilbarger Creek
- Wilbarger Creek Tributary 167
- Willow Creek
- Elm Creek

The scope includes an impact assessment for 34 crossings, which represents at least 34 points of interest to be analyzed. The impact analysis will evaluate the potential effects of the proposed improvements on each crossing. Potential impacts will be assessed both upstream and downstream to identify and address adverse impacts due to the proposed project. Additionally, detention analysis is assumed to be required for approximately 18 of these crossings. High-level detention analyses, including preliminary estimates of detention sizes and locations, will be conducted to identify the ROW footprint necessary to accommodate the detention facilities.

The project spans a total of 14.7 miles and includes a combination of storm drain and open ditch drainage systems. The Engineer shall perform parallel drainage analyses to determine the adequacy of the ROW and provide rough quantity estimates. Storm drain analyses will focus on trunkline-level evaluations without detailed inlet or lateral calculations.

For the purpose of this scope, storm drain systems are assumed to extend from the beginning of the project to Bios-De-Arc Road (4.4 mi) and from SH 95 to the end of the project (2.3 mi). For this section, it is assumed that there will typically be two trunklines along the project, resulting in a total of 13.4 miles of trunkline analysis. Open ditch drainage is assumed to span the section from Bios-De-Arc Road to SH 95 (8 mi). High-level analysis is assumed to be required for four ditches within this segment, resulting in a total of 32 miles of ditch analysis.

The project begins just east of SH 130; therefore, no drainage analysis will be conducted at or along SH 130.

ROW Requirements

The Engineer shall determine the ROW requirements based on the proposed alignment, typical sections, design cross sections, access control, terrain, construction requirements, drainage, clear zone, maintenance, Intelligent Transportation System (ITS) and environmental mitigation and utility relocation requirements.

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Construction Sequence

The Engineer shall consider the requirements for construction staging and traffic control throughout the development of schematic design to develop a concept through which the proposed design could be constructed.

The Engineer shall prepare preliminary TCP typical sections and a preliminary phasing layout for the purpose of up to two constructability evaluation workshops for the build alternative. The typical sections and phasing layout shall be for the purposes of discussion at the workshops to review basic construction phasing concepts for any critical sequence concerns or constraints to consider and mitigate as possible within the schematic design and proposed ROW needs. The Engineer shall use the TCP requirements for number of lanes to be maintained during construction, cross street closure limitations to develop preliminary TCP layouts.

The construction sequence shall consider temporary vertical and horizontal clearances which may influence the final roadway alignment and profile.

Design Exceptions

The Engineer shall identify, document, and keep a list of Design Exceptions, Waivers, and Variances, to be provided to the Mobility Authority as part of the Geometric Memorandum, which includes a plan showing grouped areas of Design Exceptions and summary tables for FHWA review during coordination meetings. The Engineer shall prepare a Request for Design Exception, Waiver, or Variance (Request) for each Design Exception, Waiver, and Variance identified not exceeding six in total. The Requests shall conform to the requirements of current versions of the Mobility Authority/TxDOT PS&E Preparation Manual including completing the Form 1002 (page 3 of 3) for approval of the request.

Structures

For bridges or bridge-class structures that are to be widened, the Engineer shall request a Bridge Condition Survey be completed to determine the structure's suitability for widening. Aesthetic for the structures (bridge, retaining wall, etc.) is not to be performed by the Engineer.

TCP Coordination

The Engineer will coordination with TCP designer to determine the limits of TCP and feasibility as they relate to bridge structures as well as evaluation of vehicular clearances during unique construction phases.

Roadway Coordination

The Engineer will coordinate with the roadway designer coordinate superstructure depths, column placements, horizontal and vertical geometry recommendations, and substructure protection.

Hydraulic Coordination

The Engineer shall accommodate hydraulic demands and favorable scour performance by providing an adequate hydraulic opening and alignment of substructure units.

Bridge Design

The Engineer will layout bridge structures considering the following criteria:

- Obstacles such as existing structures, environmental, utilities,
- Minimize bridge footprint
- Maximize structural efficiency by extending superstructure spans as needed
- AASHTO LRFD Bridge Design Specifications
- TxDOT Bridge Design Guide/Manual guidance
- Balance span lengths as appropriate
- We assume a maximum of 48 individual grade separations. This accounts for both eastbound and westbound 290 as well as frontage road bridges required for hydraulic conveyance. Many of these structures are assumed to be twin structures or widenings.
- Structures information will be shown on roll plots. General layouts for each bridge structure is not part of this scope unless specifically included.

UPRR Exhibit A

The Engineer will develop a preliminary layout of both the railroad overpass near Central Avenue and the underpass near Main Street.

- This layout will include the roadway geometrics, bridge layout, horizontal/vertical clearance envelope, and track profile.
- UPRR criteria shall be used for preparing the exhibit. In the absence of specified criteria, TxDOT's design guidance for UPRR/BNSF design will be used.

Geotechnical Investigation – Optional Work

The Engineer will perform borings, laboratory testing and develop a geotechnical report. The following items will be included in the geotechnical investigation:

- Drill 15 borings, each to a maximum depth of 50 feet (total drilling footage 750 feet) for the proposed cut walls according to 2024 TxDOT Geotechnical Manual.
- The borings will be spaced no more than 200 feet apart.
- Laboratory testing on retrieved samples. The tests will include Atterberg limits, minus 200 sieve, moisture content, unconfined compression, swell potential, CU triaxial, and consolidation.
- Stability analyses for two (2) cut walls. A total of four (4) stability analyses will be performed.

- Develop a Geotechnical Report. The report will be prepared by an engineer specializing in soil mechanics after reviewing available design, boring and laboratory data and stability analyses.

Preliminary Lighting Placement Review and Cost Estimation

The Engineer shall perform a preliminary review of the draft schematic roll plots for the build alternative to provide a high-level recommendation on the lighting placement for the mainlanes and ramps for the purposes of cost estimation and to verify identified proposed ROW is sufficient. The Engineer shall not perform photometric analysis or prepare Lighting Warrant Memo for the lighting recommendation.

Geometric Design Schematics

The Engineer shall develop geometric design schematics based on the selected planning study improvement concept design after the basic layout, lane arrangement, and ROW and easements requirements depicted on the conceptual schematics is approved. The Mobility Authority may require this task be performed using OpenRoads Technology.

The geometric schematic plan view shall contain the following design elements:

· Bentely OpenRoads calculated roadway alignments for mainlanes, general purpose lanes, ramps, direct connectors, bridges, managed lanes, frontage roads and cross streets at major intersections and grade separations.
· Horizontal curve data shown in tabular format
· Pavement edges, curb lines, sidewalks for roadway improvements
· Typical sections of existing and proposed roadways
· Proposed structure locations, bridge layouts including abutment, bent and rail locations
· Existing and proposed major utilities
· Existing property lines and respective property ownership information
· Existing ROW and easements
· ROW and easements requirements adequate for preparation of ROW maps
· Waters of the US (WOUS)
· Control-of-access limits
· Existing and projected traffic volumes
· Location and text of the existing and proposed general purpose lanes guide signs and the preliminary locations for changeable message signs
· Lane lines, shoulder lines, and direction of traffic flow arrows indicating the number of lanes on roadways
· Existing utilities

The geometric schematic profile view shall contain the following design elements:

· Calculated profile grade and vertical curve data including "K" values for the mainlanes

· Existing ground line profiles along the mainlanes
· Grade separations and overpasses including preliminary bent locations, girder type, and span lengths.
· Calculated vertical clearances at grade separations and overpasses
· Evaluate side street and driveway geometries
· Bicycle and pedestrian accommodation
· Large guide signs
· Pavement markings

The calculated profile grade for frontage roads, connectors, ramps, and cross streets will be shown on separate Supplemental Profile rolls.

Cross-Sections

The Engineer shall use OpenRoads to generate preliminary cross-sections every 100 feet and at culvert locations or other critical locations in conjunction with the Geometric Schematic. The Engineer shall determine earthwork volumes for use in the cost estimate and shall prepare 11”x17” sheets of the cross-sections**.**

Retaining Walls

Prepare preliminary retaining concepts to be shown on schematics, typical sections, and cross sections.
· Determine if additional walls are required and verify the need for and length of the retaining wall as shown on the ultimate schematic.
· Compute and tabulate retaining wall quantities for preliminary design milestone plans submittal.

For the construction cost, feasibility, and ROW impact, the wall type will be broken down by cut and fill wall types. This analysis effort will be documented with the final schematic and cost estimate. Wall types include the following:

- Cut Wall
    - Soldier Pile
    - Tied Back Soldier Pile
    - Soil Nail
- Fill Wall
    - Cast in Place Cantilever
    - Mechanically Stabilized Earth

Value Engineering Study

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The Engineer shall participate in a Value Engineering (VE) study for this project after the 60% schematic submittal. The participation in the group session will be limited to the first and last days. The Engineer shall prepare exhibits and reference documents for the group session and be available for additional information during the group session. The Engineer shall evaluate the VE recommendations for implementation into the project and complete TxDOT form 2502. Recommendations from the VE Study approved for implementation into the project shall be incorporated into the schematic design unless otherwise directed by the Mobility Authority.

3D Design and Model

The Engineer shall use OpenRoads and other design software as approved by the Mobility Authority. This information shall be used for public informational meetings, conflict resolution, feasibility analysis, aesthetic feature presentations and confirmation of design intent. Graphics shall be high-resolution and capable of being displayed or run on standard Mobility Authority computers.

Preliminary Cost Estimate

The Engineer shall prepare a preliminary cost estimate for the project, including the costs of construction, required ROW and associated improvements, and eligible utility adjustments. Current State unit bid prices will be used in preparation of the estimate.

The estimate for bridge structures will be based on the current State Low Bid Average for New and Replaced Bridges as reported by TxDOT. The estimate shall consider square foot and overall length as well as bridge type based on required span length.

Any opinions of probable project cost or probable construction cost provided by Engineer are made on the basis of information available to Engineer and on the basis of Engineer's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since Engineer has no control over the cost of labor, materials, equipment or services furnished by others, or over the construction contractor(s') methods of determining prices, or over competitive bidding or market conditions, Engineer does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost Engineer prepares.

Engineering Summary Report

The Engineer shall prepare a report to summarize the design criteria, traffic analysis, preliminary cost estimate and basis of estimate, construction sequence description, and utility conflict issues.

Railroad Agreements

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The Engineer shall prepare a railroad Exhibit A for the two (2) proposed railway crossings in Elgin in accordance with the railroads requirements and State policies and procedures.

The Engineer will facilitate up to four (4) meetings with each of the railroads, for a total of eight (8) meetings to coordinate the proposed design, establish requirements, and schedules.

Schematic Design Project Deliverables

In conjunction with the performance of the foregoing services, the Engineer shall provide the following draft and final documents and associated electronic files as applicable. The number of deliverable items will be determined by the Mobility Authority.

a. Engineering Summary Report
b. Traffic and Operational Analysis Report
c. Preliminary Drainage Study Report
d. Conceptual Design Schematics roll plots
e. Geometric Schematic layouts (1 inch = 100 feet)
f. Design Schematic Profiles rolls
g. Design Schematic Cross-Sections
h. HEC-RAS model digital files from drainage study.
i. Preliminary Construction Phasing Layouts and Typical Sections
j. Electronic copy of traffic simulation for the recommended build alternative (output of 3D animation task outlined in Task 2) – Optional Work
k. Average Daily Corridor Traffic Projections Report (developed as part of Travel Demand Modeling and Future Traffic Volume Preparation in Task 2)
l. Line schematics with traffic data shown (developed as part of Travel Demand Modeling and Future Traffic Volume Preparation in Task 2)
m. Documentation of MAPO, Public Meeting, and Public Hearing
n. Form 2502 Executive Decision Summary VE Team Recommendations
o. Design Exception/Waiver documents
p. An Electronic submittal of the OpenRoads Drainage and Utility, HEC-RAS, SWMM, & HMS models. The models must be approved by the State's District Hydraulic Engineer prior to generating reports.
q. Retaining Wall location summary
r. Cost Estimates for each milestone submittal
s. KML / KMZ file of conceptual design schematic created from applicable .dgn files for reviewing in Google Earth.
t. Final schematic 3D model created using Open Roads software.
u. Electronic files shall be furnished to the Mobility Authority on a Universal Serial Bus (USB) flash drive.

v. Environmental Management System Advanced Planning & Development (APD) Form 2442
w. Large guide sign Layout
x. Renderings up to 15 (Optional Work)
y. Animation/Visualizations at three interchanges with direct connectors (Optional Work)

4. SOCIAL, ECONOMIC AND ENVIRONMENTAL STUDIES AND PUBLIC INVOLVEMENT Environmental – Planning and Feasibility Study

Environmental data collection

The Engineer shall review previously collected environmental data including previous reports prepared to the US 290 corridor. This effort will include the following:
a. Review of past study data.
b. Conduct windshield survey.
c. Update area secondary source environmental data provided by the State including land use, developed areas, property lines, floodplains, wetlands, utilities, oil and gas wells, and other features that could influence the development of route concepts.
d. Update the area aerial map provided by the Mobility Authority to depict relevant secondary source data.
e. Prepare an environmental features map depicting the study area and environmental features that could influence the development of improvement concepts.
f. Conduct up to four (4) one-on-one meetings with individuals familiar with future developments, planning, and environmental resources.
g. Prepare an Environmental Technical Memorandum to summarize environmental feature findings in establishing the environmental setting for the project.
h. Distribute draft technical memorandum to the Mobility Authority for internal review.
i. Address comments and finalize the Environmental Technical Memorandum and submit electronic copy to the Mobility Authority.

Assumptions

The Engineer shall provide right-of-entry (ROE) and coordination with landowners prior to proposed survey investigations.

1. Environmental Documentation.

Environmental documentation shall be based upon feedback from the State on the level of Environmental Study and documentation that will be required. Each environmental service provided by the Engineer shall have a deliverable. Deliverables shall summarize the methods used for the environmental services and shall summarize the results achieved. The summary of results shall be sufficiently detailed to provide satisfactory basis for thorough review by the

Mobility Authority and (where applicable) by agencies with regulatory oversight. Deliverables must meet regulatory requirements for legal sufficiency and must adhere to the requirements for reports enumerated in the State's NEPA MOU.

a. Quality Assurance/Quality Control Review

For each deliverable, the Engineer shall perform quality assurance quality control (QA/QC) reviews of environmental documents and on other supporting environmental documentation to determine whether documents conform with:

- Current Environmental Compliance Toolkit guidance published by the State's Environmental Affairs Division and in effect as of the date of receipt of the documents or documentation to be reviewed.
- Current state and federal laws, regulations, policies, guidance, agreements, and memoranda of understanding between the State and other state or federal agencies; and
- FHWA and American Association of State Highway and Transportation Officials (AASHTO) guidelines contained in "Improving the Quality of Environmental Documents, A Report of the Joint AASHTO and American Council of Engineering Companies (ACEC) Committee in Cooperation with the Federal Highway Administration" (May 2006) for:
    - Readability, and
    - Use of evidence and data in documents to support conclusions.
    - Upon request by the Mobility Authority, the Engineer shall provide documentation that the QA/QC reviews were performed by qualified staff

b. Deliverables shall contain data acquired during the environmental service. Deliverables shall be written to be understood by the public and must be in accordance with the State's Environmental Toolkit guidance, documentation standards, current guidelines, policies, and procedures.

c. Electronic versions of each deliverable must be written in software which is compatible to the Mobility Authority and must be provided in a changeable format for future use by the Mobility Authority. The Engineer shall supplement hard copy deliverables with electronic copies in searchable Adobe Acrobat™ (.pdf) format unless another format is specified. Each deliverable shall be a single, searchable .pdf file that mirrors the layout and appearance of the physical deliverable.

d. Submission of Deliverables

· Deliverables shall consist of technical reports of environmental services performed in addition to the assembled Environmental Document.

· Deliverables must comply with applicable state and federal environmental laws, regulations and procedures and include items listed in the Environmental Document Review Checklist.

· On the cover page of each technical report and environmental document prepared under the authority granted by this MOU, and for memorandum corresponding to the

documentation, the Engineer shall insert the following language in a way that is conspicuous to the reader or include it in the project record:

o "The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a

Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT."

e. The Mobility Authority shall provide the State's and other agency comments on draft deliverables to the Engineer. The Engineer shall revise the deliverable:

· to include Mobility Authority commitments, findings, agreements, or determinations (e.g., wetlands, endangered species consultation, Section 106, or Section 4(f)), required for the Transportation Activity as specified by the Mobility Authority;

· to incorporate the results of public involvement and agency coordination;

· to reflect mitigation measures resulting from comments received or changes in the Transportation Activity; and

· include with the revised document a comment response form (matrix) in the format provided by the Mobility Authority.

f. Photographs shall be well focused and clearly depict details relevant to an evaluation of the project area. Provision of photographs shall be one original print of each image or electronic presentations of comparable quality. Comparable quality electronic photograph presentations shall be at least 1200 x 1600 pixel resolution. Photographs shall be attached to separately labeled pages that clearly identify project name; project identification (ID) number; address or Universal Transverse Mercator (UTM) of resource; description of the picture and direction of the photographic view. In addition to the hard-copy prints, an electronic version of each will be submitted with the same identification information as the hard-copy.

Technical Reports and Documentation

Definition of technical report and documentation for environmental services: a report, checklist, form, or analysis detailing resource-specific studies identified during the process of gathering data to make an environmental decision.

Technical reports and documentation must be produced before an environmental document is prepared in order to identify issues early in the process. The State will determine what technical reports and documentation will be necessary for any given project. Technical reports and documentation must be prepared for the Mobility Authority with detail and clarity to support environmental determination(s). Technical reports shall be compliant with TxDOT Environmental Compliance Toolkits. The environmental document will reference the technical reports.

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Environmental technical reports and documentation must include appropriate National Environmental Policy Act of 1969 (NEPA) or federal regulatory language in addition to the purpose and methodology used in delivering the service. Technical reports and forms must include information to determine the significance of impacts. Some examples of environmental technical reports and documentation are listed below:

- · ECOS scoping
- · Biological Evaluation Form
- · Air Quality Analysis
- · Archeological Background Study
- · Texas Antiquities Permit Application
- · Archeological Survey Report
- · Bicycle and Pedestrian Accommodation
- · Community Impacts Assessment
- · Biological Resources
- · Farmland Protection Policy Act · Hazardous Materials
- · Historic Resources Project Coordination Request (PCR)
- · Non-archeological Historic-age Resources Research Design
- · Non-archeological Historic-age Reconnaissance Survey Report
- · Indirect and Cumulative Impacts
- · Public Involvement
- · Traffic Noise Analysis

Minimum Deliverables for documents and technical reports: (Additional deliverables to be identified in a work authorization based on work assigned).

.1 Environmental Data Collection

.2 Technical Reports and documentation

4.2.1 ECOS Scoping

4.2.1.1 WPD Forms

4.2.1.2 Project Description Technical Report and Updates

4.2.1.3 Right-of-Entry Letters Round 1

4.2.1.4 Right-of-Entry Letters Round 2

4.2.1.5 Right-of-Entry GIS Map and Monitoring

4.2.1.6 Purpose and Need Statement

4.2.2.1 Species Analysis Form Draft

Upon issuance of NTP, the Technical Expert shall perform desktop and field analyses to support preparation of ENV's Species Analysis Spreadsheet and Species Analysis form.

The Technical Expert shall download the current version of ENV's Species Analysis Spreadsheet and Species Analysis form from ENV's environmental compliance toolkits at. The Technical Expert shall prepare ENV's Species Analysis Spreadsheet and Species Analysis form and conduct field analysis in accordance with current guidance, instructions, and documentation standards

The minimum documentation requirements for this task are listed below. The Technical Expert shall provide items 1-9 each as a separate file. Unique project settings may require additional documentation. In that situation, the Technical Expert shall coordinate with the State's POCs to determine what additional documentation is needed. Draft documents must have the word "Draft" at the beginning of the file name. If there are multiple drafts of the same file, then documents must have a sequential version number. Final documents must have the word "Final" at the beginning of the file name.

Species Analysis Spreadsheet. (draft Excel, final PDF)

Species Analysis Form. (Word)

Texas Natural Diversity Database (TxNDD) file, including TxNDD map at 1.5 and 10 miles with table of Element of Occurrence Identification numbers (EOIDs). The minimum information in the EOID table must be EOID Number, Common Name, Scientific Name, Listing Status, and Buffer Zone. If TPWD provided the TxNDD search, they typically provide the associated Element of Occurrence Records (EORs). Attach EORs after the map and table. (PDF)

EMST map(s) showing the project area and mapped EMST vegetation types within and adjacent to the project area. The same type of maps must be produced for observed vegetation types. Maps must be combined into a single file. (PDF)

Documentation of TPWD Best Management Practices Form (for EA/EIS projects or CE projects that will be coordinated with TPWD) or documentation that TPWD coordination is not required on Species Analysis Form. (Word)

TPWD RTEST county list must be obtained less than six months prior to the final deliverable. (PDF)

USFWS Information, Planning, and Consultation (IPaC) system official species list with an IPaC project code must be obtained less than six months prior to the final deliverable. (PDF)

Verification of TxDOT team members (TxDOT-NRM and District POCs added to the IPaC project team. (email and IPaC Project Code)

Shapefiles or .kmz used to obtain the IPaC list.

Project location maps (must be under Project when filed in ECOS). (PDF)

Project site photos (must be under Projects when filed in ECOS). General project area photos uploaded under Project. Biology specific photos uploaded under Biology. (PDF)

If it is determined that consultation (information or formal) is required with USFWS or specific-specific surveys are needed, a supplemental work authorization would be required.

4.2.2.2 Species Analysis Form Final

See scope in Task 4.2.2.1.

4.2.2.3 Species Analysis Spreadsheet Draft

See scope in Task 4.2.2.1.

4.2.2.4 Species Analysis Spreadsheet Final

See scope in Task 4.2.2.1.

4.2.2.5 Tier 1 Site Assessment Draft

4.2.2.6 Tier 1 Site Assessment Final

4.2.3.1 Air Quality Analysis Draft

4.2.3.2 Air Quality Analysis Final

4.2.3.3 Input and output files and supporting documentation (i.e. traffic files, modeling locations, etc.)

4.2.3D MSAT Coordination Call, meeting notes, and determinations

4.2.4.1 Archeological Background Study Draft

4.2.4.2 Archeological Background Study Final

4.2.5.1 Texas Antiquities Permit Application Draft

4.2.5.2 Texas Antiquities Permit Application Final

4.2.6.1 Archeological Survey Report Draft

4.2.6.2 Archeological Survey Report Final

4.2.7.1 Bicycle and Pedestrian Accommodation Draft

4.2.7.2 Bicycle and Pedestrian Accommodation Final

4.2.8.1 Community Impacts Assessment Draft

4.2.8.2 Community Impacts Assessment Final

4.2.8.3 ROW and Displacements GIS Mapping and Updates

4.2.10.1 Farmland Protection Policy Act Draft

4.2.10.1 Farmland Protection Policy Act Final

4.2.11.1 Hazardous Materials Draft

4.2.11.2 Hazardous Materials Final

4.2.11.3 Hazardous Materials Updates

4.2.12.1 Historic Resources Project Coordination Request (PCR) Draft

4.2.12.2 Historic Resources Project Coordination Request (PCR) Final

4.2.12.3 Section 4(f) Evaluation Draft

4.2.12.4 Section 4(f) Evaluation Final

4.2.13.1 Non-archeological Historic-age Resources Research Design Draft

4.2.13.2 Non-archeological Historic-age Resources Research Design Final

4.2.14.1 Non-archeological Historic-age Reconnaissance Survey Report Draft

4.2.14.2 Non-archeological Historic-age Reconnaissance Survey Report Final

4.2.15.1 Induced Growth Impacts Draft

4.2.15.2 Induced Growth Impacts Final

4.2.15.3 Cumulative Impacts Draft

4.2.15.4 Cumulative Impacts Final

4.2.16.1 Public Involvement - Stakeholder Research

4.2.16.2 Public Involvement - Public meeting preparation

4.2.16.3 Public Involvement - Public meeting themes

4.2.16.4 Public Involvement - ENV participation in stakeholder outreach - assume 10 meetings

4.2.16.5 Public Involvement - ENV participation in elected official updates (assume 10 meetings)

4.2.16.6 Public Involvement - ENV Public Hearing Preparation

4.2.16.7 Public Involvement - ENV Public Hearing Attendance

4.2.16.8 Public Involvement - ENV Assistance with Public Hearing Comment Response Development

4.2.17.1 Traffic Noise Analysis Draft

4.2.17.2 Traffic Noise Analysis Final

4.2.17.3 Traffic noise model input and output data files (Draft)

4.2.17.4 Traffic noise model input and output data files Final

4.2.17.5 Traffic noise wall constructability analysis memo Draft

4.2.17.6 Traffic noise wall constructability analysis memo Final

4.2.18.1 Economic Cost Benefit Analysis Draft (Earnest Lloyd to provide by 12/31)

4.2.18.2 Economic Cost Benefit Analysis Final

4.2.19.1 Surface Water Analysis Draft

The Technical Expert shall download and use the latest version of ENV's Form: Surface Water Analysis from the TxDOT Environmental Compliance Toolkits website. The task can include a single site visit to the proposed project area to identify site conditions, if needed, to effectively complete the surface water analysis form. The draft and final deliverables must include identification of sources for supporting documentation such that the State, upon examination and by way of a sound and explicit rationale, will reach the same conclusions and associated responses as those reflected on the surface water analysis form for the following resource disciplines: Section 404 of the Clean Water Act, Section 401 of the Clean Water Act, Executive Order 11990 Protection of Wetlands, and Executive Order 11988 Floodplain Management.

The Technical Expert shall provide a draft and final surface water analysis form, including identification of sources for supporting documentation.

4.2.19.2 Surface Water Analysis Final

See scope in Task 4.2.19.1.

4.2.19.3 Waters of the US Delineation Report Draft

The Technical Expert shall download and use the latest version of ENV's Documentation Standard for Waters of the U.S. Delineation Report and Template: for Waters of the U.S Delineation Report. The Technical Expert shall provide a draft and final delineation report, to include water features within the project area.

In addition to the technical report, the Technical Expert shall submit GIS data in accordance with ENV's Documentation Standard for Waters of the U.S. Delineation Data.

GIS Data and Other Electronic Location Files

The Technical Expert shall provide the post-processed GIS files associated with the delineation in accordance with the responsibilities of the Technical Expert. The Technical Expert shall also provide .kmz files to the State.

The Technical Expert shall provide a draft and final delineation report including supporting forms and exhibits, with overriding consideration given to project-specific conversation with the State's POCs and applicable ENV guidance.

It is assumed that development of USACE PCN or IP permitting documents is not included in the scope of work and would require a supplemental agreement.

4.2.19.4 Waters of the US Delineation Report Final

See scope in Task 4.2.19.3

4.2.19.5 Section 404 / Section 10 Impact Table Draft

The Technical Expert shall download the latest version of ENV's Template: Section 404/10 Impacts Table from the TxDOT Environmental Compliance Toolkits website. The Technical Expert shall prepare and provide a draft and final Section 404/10 impacts table in accordance with TxDOT ENV's Template: Section 404/10 Impacts Table and Instructions – Preparing a Section 404/10 Impacts Table. The table must include detailed and accurate project-specific information, with fields completed according to the associated instructions.

4.2.19.6 Section 404 / Section 10 Impact Table Final

See scope in Task 4.2.19.5

4.2.20.1 Draft Environmental Document Draft

4.2.20.2 Draft Environmental Document Final

4.2.20.3 Notice of Availability Draft

4.2.20.4 Notice of Availability Final

4.2.21.1 Final Environmental Document Draft

4.2.21.2 Final Environmental Document Final

4.2.22.1 Environmental Decision Draft

4.2.22.2 Environmental Decision Final

4.2.23.1 Maintain Project File

5. UTILITY ENGINEERING INVESTIGATION

The Engineer shall complete a Quality Level D Subsurface Utility Engineering (SUE) investigation within the existing and proposed ROW along US 290 and major cross streets for 500' past the limits of the project. An estimated 723,000 linear feet (LF) of QLD SUE has been included in the scope of work.

Utility Base Map

The Engineer shall identify potential conflicts and attempt to minimize the potential adverse utility impacts in the preparation of the schematic design. The Engineer shall prepare a base map depicting the utility locations. The Engineer shall create and maintain a utility conflict matrix along with a utility conflict exhibit through the duration of the contract identifying potential known conflicts. The Engineer shall coordinate and meet with SME's to mitigate utility conflicts as project design advances (up to 36 meetings).

DELIVERABLES:

- Utility Conflict Matrix

- Utility Conflict Exhibit
- Existing Utility Layout - depicting SUE QL-D along with stationing and roadway improvements

  o industry accepted color codes for each utility type;

  o include legend on each page denoting utility owners;
- Quantity (linear feet) of Level D for each utility should be noted in a table on each page.

  o Utility conflict numbers labeled to match conflict matrix,

  o Final existing layout sheets should be signed & sealed

Utility Summary to indicate major utility facilities or time sensitive items pertaining to utilities that need to be addressed in PS&E.

Optional Advanced SUE Investigation

The Engineer shall complete up to 10,000 LF of QLC SUE, 10,000 LF of QLB SUE and up to ten (10) QLA SUE test holes at protentional conflict locations as approved by the CTRMA.

6. ROW SURVEY AND AERIAL MAPPING

1. ROW SURVEY

1.1. Survey of Existing ROW

1.1.1. The Surveyor shall research Travis and Bastrop Counties Appraisal district records and obtain owner information for the properties within the proposed corridor. The Surveyor shall prepare a spreadsheet of current ownership adjacent to the existing ROW in order to obtain Right of Entry (ROE), if necessary. The Surveyor will send out ROE letters (approved by the Client) prior to accessing private properties. For non-responsive landowners, letters will be sent via certified mail and/or hand delivered. If still no response, a copy of the letter will be left at the front door or gate. Signed ROE letters are documented in the ownership table with specific conditions/notes provided.

1.1.2. The Surveyor shall obtain vesting adjoiner deeds, plats, TxDOT ROW deeds found of record and record easements within and crossing the ROW and provide an abstract base map in a 2 dimensional (2d) dgn format of adjoining private or public ownership to include reference information, record ROW lines, record deed property lines, record deed acreage and known easements crossing or adjacent to

the ROW. The abstract map shall show the provided planimetrics file obtained from the design aerial Lidar (provided by others).

1.1.3. Surveyor shall perform a survey of the existing US290 ROW limits SH 130 to SH 95 South in Elgin, TX (±15 mi.), and including along intersecting roadways (minimum of 100' from intersection), of existing right of-way lines and adjoining public easements listed/shown on record subdivision plats & adjoiner deeds. ROW determination shall be based on a best fit analysis of ROW and front corner monuments. Surveyor shall research, obtain, and utilize for the survey the following:

1.1.3.1. Existing ROW maps or documents
1.1.3.2. Recorded ROW dedications
1.1.3.3. Recorded ROW conveyance instruments
1.1.3.4. Recorded subdivision plats adjacent to the existing ROW
1.1.3.5. Recorded adjoining deeds and easements if listed in the record deeds/subdivisions
1.1.3.6. Records obtained in the course of research which affect the subject properties

1.1.4. The existing ROW survey shall not require a boundary survey of the properties adjacent to the existing ROW. Boundary surveys of adjacent properties will be required only after additional right-of-way or easement acquisition is identified and will be included in a separate work authorization/supplemental work authorization.

1.1.5. The existing ROW survey shall not require setting missing monumentation of the existing ROW. Monumentation may be performed in a future phase of surveying services.

1.1.6. The Surveyor shall provide a dgn of the existing ROW within the project limits. The map will show existing centerline/baseline with stationing and show found property markers and calculated points along the existing ROW lines.

1.2. Field Surveys

As necessary, to supplement the aerial mapping, provide a supplemental ground survey of obscure areas, drainage structures, manholes, pipe sizes and flow lines with inverts outside of the pavement and bridge structures within the limits of the existing US 290 ROW. In addition, digital photographs shall be obtained by the Surveyor for each quadrant at each road intersection and digital photographs of street signs within the

project corridor.

2. AERIAL MAPPING

2.1 TASKS TO BE COMPLETED

i. Aerial Photography

ii. The Engineer's Surveyor shall provide aerial photography for low altitude aerial mapping appropriate for detailed design.

iii. Ground Control Accuracy Standards

- The Engineer's Surveyor shall provide horizontal ground control that meets standards of accuracy required by the Mobility Authority and as described in the TxDOT Survey Manual, latest edition, or the TSPS Manual of Practice for Land Surveying in the State of Texas, as may be applicable.
- The Engineer's Surveyor shall provide vertical ground control that meets standards of accuracy required by the Mobility Authority and as described in the TxDOT Survey Manual, latest edition, or the TSPS Manual of Practice for Land Surveying in the State of Texas, as may be applicable.

iv. Paneling Placement Specifications

- For purposes of this Contract, standards and specifications shall be in accordance with established guidelines and recommended or approved by the Mobility Authority.

v. Aerial Photography Standards and Specifications

- For purposes of this Contract, standards and specifications shall be in accordance with established guidelines and recommended or approved by the Mobility Authority.

vi. LiDAR Technology

- The use of LiDAR Technology (mobile, terrestrial, or aerial) will be acceptable when approved by the Mobility Authority and the accuracies of the specified tasks it will be used for are met or exceeded.

DELIVERABLES

The Engineer's Surveyor shall provide:

- Digital Orthophotos
- A photo index of the scanned aerial film frames or digital image frames for each frame of photography in the project.

2.2 DGN, DTM and TIN Files

The Engineer's Surveyor shall prepare DGN, DTM and TIN files covering the specific work location, meeting standards and specifications as required.

i. Horizontal Ground Control Accuracy Standards

The Engineer's Surveyor shall provide horizontal ground control that meets standards of accuracy required by the Mobility Authority and as described in the TxDOT Survey Manual, latest edition, or the TSPS Manual of Practice for Land Surveying in the State of Texas, as may be applicable.

ii. Vertical Ground Control Accuracy Standards

The Engineer's Surveyor shall provide vertical ground control that meets standards of accuracy required by the Mobility Authority and as described in the TxDOT Survey Manual, latest edition, or the TSPS Manual of Practice for Land Surveying in the State of Texas, as may be applicable.

iii. Map Accuracy Standard

Aerial mapping must meet or exceed the requirements for ASPRS Class 1 standard for 1" = 40' scale mapping with a one-foot contour interval.

Field verification of adherence to the required accuracy specification is at the discretion of the Mobility Authority.

iv. Statement of Map Accuracy

For maps that are not field checked but have been compiled to meet the Mobility Authority's accuracy standard, the Engineer's Surveyor shall include the following statement along with the Photogrammetrist's seal on the delivered hard copy and digital versions of the map:

"This map was compiled to meet the ASPRS Standard for Class 1 map accuracy."

If the map was checked and found to conform to this spatial accuracy standard, the statement above and the following statement must also be included on the delivered hard copy and digital versions of the map, and in the field check

summary:

"This map was checked and found to conform to the ASPRS Standard for Class 1 map accuracy."

DELIVERABLES

The Engineer's Surveyor shall provide:

· DGN, DTM and TIN files on a medium and in a format acceptable to the Mobility Authority.

· Orthophotography (created using the DTM) in tiff format (3 banded) with world files. If digital, depending on intended use, deliverable formats must include:

- Raw tiff image – rectified – 4 Band Tiff (for archive only).
- Color photography – rectified – 3 Band Tiff and Mr. Sid.
- Infrared Photography – rectified – 3 Band Tiff and Mr. Sid.

3. HORIZONTAL AND VERTICAL CONTROL FOR AERIAL MAPPING

3.1 TASKS TO BE COMPLETED

i. Prepare and submit an Aerial Ground Control Layout showing the proposed control and offsite control points, and aerial ground control points, for approval by the Mobility Authority.

ii. Establish and determine the coordinates of the offsite and control points, and aerial ground control points.

iii. Establish and determine the elevations of the offsite and control points, and aerial control points.

iv. Place aerial ground control target material at the established points and maintain until the photographs from the flight are approved.

v. Prepare, to scale, a Survey Control Index Sheet, a Horizontal and Vertical Control Sheet, and an individual control data sheet for each offsite and control point, and aerial control point.

3.2 TECHNICAL REQUIREMENTS

i. Aerial photography control surveys must be performed under the direct

supervision of a RPLS currently registered with the TBPLS

ii. The coordinate location of the aerial control points shall be based on acceptable methods, conducted by the Engineer's Surveyor, and must meet the standards of accuracy as set forth below:

Reference may be made to standards of accuracy for horizontal control traverses, as described in the TxDOT Survey Manual, latest edition, or the TSPS Manual of Practice for Land Surveying in the State of Texas, as may be applicable.

iii. The elevation of the aerial control points must be based on acceptable methods, conducted by the Engineer's Surveyor, and shall meet the standards of accuracy as set forth below:

Reference may be made to standards of accuracy for horizontal control traverses, as described in the TxDOT Survey Manual, latest edition, or the TSPS Manual of Practice for Land Surveying in the State of Texas, as may be applicable.

iv. The elevation of aerial control points based on side shots or short traverses must meet the following criteria:

- Side shots or short traverses must begin and end on vertical ground control as described above.
- Standards, procedures, and equipment used must be such that the vertical location relative to the control may be reported to within 0.02 of one (1) foot.

DELIVERABLES

i. Submit a final aerial control point layout showing the location of the points and labeled with their respective alpha-numeric designations.

ii. Submit a plot and computer graphics of an 11 inch by 17 inch index map showing an overall view of the project and the relationship of primary monumentation and control used in the preparation of the project, signed, and sealed by a RPLS, and as directed by the Mobility Authority.

iii. Submit the graphics files and scanned images of the control data sheets.

iv. Submit a written statement describing the datum used along with copies of relevant NGS and data sheets

v. Submit a written tabulation of aerial control points with their respective

alpha-numeric designations, surface coordinates (for center panel points only), and elevations.

7. TOLLING AND INTELLIGENT TRANSPORATION SYSTEMS (ITS)

i. PROJECT COORDINATION

The Engineer shall coordinate issues and communications with Mobility Authority's internal resource areas through the Mobility Authority's Project Manager. The Mobility Authority will communicate the resolution of issues and provide the Engineer direction and reference material such as-builts through the Mobility Authority's Project Manager. The Engineer shall attend a Tolling and ITS kick-off meeting with CTRMA ITS and Operations Staff to review goals, needs, and objectives of the toll and ITS systems. The Engineer shall coordinate and attend coordination meeting with Mobility Authority's Toll System Integrator to review physical and electrical infrastructure requirements and standards of the tolling system.

ii. TOLLING AND ITS PLANNING WORKSHOPS

The Engineer shall gather existing ITS information from field reviews and documentation provided by the Mobility Authority including as-builts, as-lets, and other available information on the corridor and adjacent corridors. The Engineer shall attend up to two workshops with the Mobility Authority's ITS and Operations Staff and Toll System Integrator to review and discuss future ITS and tolling infrastructure needs for consideration within the schematic design. The Engineer shall develop an exhibit in KMZ or PDF format for each workshop that depicts the schematic design to date, proposed guide sign layouts and text, gantry and toll equipment pad locations, and pertinent existing ITS information. The workshops will help to determine guide sign placement and messaging, potential dynamic message sign locations and needs, gantry location and roadside infrastructure placement and needs, ITS duct bank location opportunities providing adequate utility buffers, etc. to be considered in the final schematic design, construction estimate, and ROW footprint.

iii. DELIVERABLES

- ITS Workshop exhibits
- ITS Workshop comment log and meeting minutes

ATTACHMENT D

Key Personnel

1.) Project Manager - Srikanth Koneru
2.) Environmental Task Lead – Shane Valentine, P.G.
3.) Schematic Task Lead – Trey A. Neal
4.) Structural Task Lead – Lee Freiberg
5.) Drainage Task Lead – Chad Cormack
6.) Traffic Task Lead – Matthew G. Best
7.) Public Involvement Specialist – Brittani B. Kaim

ATTACHMENT E

FEE SCHEDULE
(Final Cost Proposal)

This attachment provides the basis of payment and fee schedule**. The basis of payment for this contract is indicated by an "X" in the applicable box.** The basis shall be supported by the Final Cost Proposal (FCP) included with each Work Authorization. If more than one basis of payment is used, each one must be supported by a separate FCP.

"X"	Basis	
☐	Lump Sum	The lump sum shall be equal to the maximum amount payable. The lump sum includes all direct and indirect costs and profit. For payment the Engineer is not required to provide evidence of actual hours worked, travel, overhead rates or other evidence of cost, but must submit billing information in a form acceptable to the Mobility Authority as required by Article 4 A & B including classifying work, partial or completed, according to the Table of Deliverables. The Mobility Authority will agree to pay Engineer, and the Engineer will agree to accept as full and sufficient compensation and reimbursement for the performance of all Services as set forth in this Contract and the Work Authorization, a Lump Sum amount for the specified category of services. The Lump Sum will include compensation for Engineer's services and services of subconsultants, if any. Appropriate amounts will be incorporated in the Lump Sum to account for labor, overhead, profit, and reimbursable expenses. The portion of the Lump Sum amount billed for Engineer's Services will be based upon Engineer's estimate, as approved by the Authority's Director of Engineering, of the proportion of the total Services completed during the billing period to the Lump Sum amount.

	Unit Cost	The unit cost(s) for each type of unit and number of units are shown in the FCP. The unit cost includes all direct and indirect costs and profit. For payment, the Engineer is not required to provide evidence of actual hours worked, travel, overhead rates or any other cost data. The FCP may include special items, such as equipment which are not included in the unit costs. Documentation of these special costs may be required. The maximum amount payable equals the total of all units times their respective unit cost plus any special direct items shown. The Mobility Authority will agree to pay the Engineer, and the Engineer will agree to accept as full and sufficient compensation and reimbursement for the performance of all Services as set forth in this Contract and the Work Authorization, an agreed upon unit price multiplied by the number of units completed for each billing. Each invoice submitted shall identify the specific Contract task(s) and completed work product/deliverable for the agreed upon price outlined in the Work Authorization.
	Specified Rate Basis	The specified rates for each type of labor are shown in the FCP below. The FCP may include special items, such as equipment which are not included in the specified rates. The specified rate includes direct labor and indirect cost and profit. The Mobility Authority may request documentation of reimbursable direct costs including hours worked. Documentation of special item costs may be required. The specified rate is not subject to audit. Revisions to the specified rates may be proposed no more frequently than once per calendar year, and no sooner than 12 months after the Effective Date and are subject to written approval of the Executive Director. The Mobility Authority will agree to pay the Engineer, and the Engineer will agree to accept as full and sufficient compensation and reimbursement for the performance of all Services as set forth in this Contract and the Work Authorization, an amount equal to the cumulative hours charged to the specific Project by each class of Engineer's employees multiplied by the Standard Hourly Rates for each applicable billing class for all Services performed on the specific Project, plus reimbursable expenses and sub consultant's charges, if any.
X	Cost Plus	The Mobility Authority will agree to pay, and the Engineer will agree to accept as full and sufficient compensation and reimbursement for the performance of all Services as set forth in this Contract and the Work Authorization, hourly rates for the staff working on the assignment computed as follows: *Direct Labor Cost x (1.0 + Overhead Rate) x (1.0 + 10 %, in decimal form).* The invoice must itemize labor rates, hours worked, other direct costs and indirect costs. The Engineer may be required to provide documentation of hours worked and any eligible direct costs claimed. The provisional overhead rate charged is subject to audit and adjustment to actual rates incurred. The FCP below shows the hourly rates for labor, other direct expenses including but not limited to travel and allowable materials, and provisional overhead rate. Actual wages must be within the allowable range shown on the Final Cost Proposal.

Without prior approval by the Executive Director, the Mobility Authority shall not reimburse the Engineer for expenses associated with relocating personnel to complete the services described by this Contract. Roadway tolls incurred by the Engineer or any of its subconsultants in connection with performance of the Services will not be reimbursable under this Contract. Reimbursement shall be limited to the terms of any financial assistance or Project agreements with TxDOT or other third parties. Travel expenses will be limited to the rates published by the Texas Comptroller of Public Accounts.

Engineer acknowledges that all expenses and costs paid or reimbursed by the Mobility Authority using federal or state funds shall be paid or reimbursed in accordance with, and subject to, applicable policies of the Mobility Authority and other applicable state and federal laws, including the applicable requirements of OMB Circular A-87, which may reduce the amount of expenses and costs reimbursed to less than what was incurred.

*The **MAXIMUM AMOUNT PAYABLE** is $19,958,257.74.

* The maximum amount payable must be based on the contract scope. The work authorization fee schedules will be derived from this attachment.

ATTACHMENT F

Work Schedule

to be provided with each work authorization

ATTACHMENT G

Computer Graphics for Document and Information Exchange

to be provided with each work authorization

ATTACHMENT H
Subcontracting

HDR Engineering, Inc. planned subcontract team members at the Contract effective date:

Aguirre & Fields, LP
Concept Development & Planning, LLC
Corsair Consulting, LLC
EDGE Engineering, PLLC
GGE Design & Consulting, LLC
HVJ South Central Texas - M&J, Inc.
Kimley-Horn and Associates, Inc.
McGray and McGray Land Surveyors, Inc.
The Estes Group, LLC
The Rios Group, LLC
WSP USA, Inc.