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

RESOLUTION NO. 16-049

APPROVING A CONTRACT AND WORK AUTHORIZATION NO. 1
FOR CP&Y INC. TO PROVIDE DESIGN SERVICES
FOR THE 290E/SH 130 DIRECT CONNECTORS PROJECT

WHEREAS, by Resolution No. 16-019 dated March 30, 2016, the Board of Directors authorized the Executive Director to negotiate a professional engineering services contract with CP&Y Inc. for the design of one or more direct connectors at the intersection of SH 130 and the Manor Expressway; and

WHEREAS, the Executive Director and CP&Y have discussed and agreed to a proposed contract and Work Authorization No. 1 for CP&Y to preliminary and final PS&E design of three (3) direct connectors at the 290 East / SH 130 Interchange and ramp improvements; and

WHEREAS, the Executive Director recommends that the Board approve the proposed contract in substantially the form attached hereto as Exhibit A.

NOW THEREFORE, BE IT RESOLVED that the proposed contract and Work Authorization No. 1 with CP&Y is hereby approved.

BE IT FURTHER RESOLVED that the Executive Director is hereby authorized to finalize and execute contract and Work Authorization No. 1 on behalf of the Mobility Authority in substantially the form attached hereto as Exhibit A.

Adopted by the Board of Directors of the Central Texas Regional Mobility Authority on the 27th day of July, 2016.

Submitted and reviewed by:

Geoffrey Petrov, General Counsel

Approved:

Ray A. Wilkerson
Chairman, Board of Directors

Exhibit A

CONTRACT FOR ENGINEERING SERVICES

Cost Plus Fixed Fee,
Unit Cost, Lump Sum, or Specified Rate
Specific Deliverable with Work Authorizations

THIS CONTRACT FOR ENGINEERING SERVICES (the "Contract") is made by and between the Central Texas Regional Mobility Authority, 3300 N. I-35, Suite 300, Austin, Texas 78705, hereinafter called "Mobility Authority," and CP&Y, Inc., having its principal business address at 13809 Research Blvd, Suite 300, Austin, TX 78750 hereinafter called "Engineer," for the purpose of contracting for engineering services.

WITNESSETH

WHEREAS, the Mobility Authority desires to contract for engineering services generally described as transportation and engineering design services; 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.), 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 Engineer will furnish items and perform those services for fulfillment of the Contract as identified in Exhibit B of the Attachment B - Work Authorization(s) (the "Services"). All Services provided by the Engineer shall comply with the terms and conditions of this Contract and any Work Authorizations issued pursuant hereto, and shall 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.

ARTICLE 2
COMPENSATION

Compensation for the Engineer's Services and other aspects of the mutual obligations concerning the Engineer's Services and payment therefore are as follows:

A. Basis for Compensation. Subject to the terms of a Work Authorization issued pursuant to Article 4 below (including any maximum amount to be paid as stated therein), the Mobility Authority agrees to pay, and the Engineer agrees to accept as full and sufficient

compensation and reimbursement for the performance of all Services as set forth in this Agreement, hourly rates for the staff working on the assignment computed as follows:

Direct Labor Cost x (1.0 + OH Rate) x (1.0 + Profit (%)).

where Direct Labor Cost equals salary divided by 2080; OH Rate equals the Engineer's most recent auditable overhead rate under 48 C.F.R. Part 31, Federal Acquisition Regulations (FAR 31) or otherwise approved overhead rate pursuant to subarticle 2.B; and Profit (%) reflects a ten percent (10%) profit. The range of Direct Labor Costs for the classifications of employees working for the Mobility Authority as of the effective date of this Agreement is reflected in Attachment A. Revisions to Direct Labor Cost ranges for employee classifications and the auditable overhead rate may be proposed no more frequently than once per calendar year, and are subject to the written approval of the Executive Director or his designee. No increase shall be made to the specified profit percentage. The first adjustment to the auditable overhead rate shall be considered no earlier than one year after the execution of this contract. All adjustments shall be agreed to in writing by the Mobility Authority prior to implementation, and the Mobility Authority shall have the right to review and/or audit the Engineer's Direct Labor Costs and auditable overhead rates upon written request. Once approved, the range of Direct Labor Costs and auditable overhead rate will be used going forward until the next annual adjustment is approved. Changes to the auditable overhead rate will not be applied retroactively to Direct Labor Costs incurred in the previous year. If the Engineer or a sub consultant of the Engineer does not have a Far 31 overhead rate, they may submit, for Mobility Authority approval, alternate documentation supporting an appropriate auditable overhead rate. If an auditable overhead rate is not submitted or available, fixed hourly rates must be submitted per subarticle 2.I. During the term of this Agreement the Engineer shall provide to the Executive Director or his designee, prior to requesting any adjustment to its auditable overhead rate, a copy of the report establishing a new FAR rate for the Engineer.

The payment of the hourly rates and allowed costs shall constitute full payment for all Services, liaisons, products, materials, and equipment required to deliver the Services.

B. Limitations on Rates Utilized. The Engineer represents that at all times, subject to the limitations on timing and approval in subarticle 2.A, throughout the term of this Contract that it shall not use an auditable overhead rate that exceeds the rate determined in accordance with FAR 31 (or successor regulations); and shall be based on actual salary amounts for the individuals performing the work; that the Direct Labor Costs shall not exceed the ranges reflected in Attachment A and shall be based on actual salary amounts for the individuals performing the work.

C. Expenses. As indicated above, and subject to the terms of any Work Authorization, the compensation computed in accordance with subarticles 2.A. and B. is anticipated by the Mobility Authority and the Engineer to be full and sufficient compensation and reimbursement for the Services, and includes all customary out-of-pocket expenses anticipated to result from the Engineer's performance under the Contract that are included in the computation of the auditable overhead rate, such as office supplies, telecommunications systems, postage, general photocopying, computer hardware/software and service charges, and similar costs. To the extent not otherwise included in the Engineer's auditable overhead rate, non-reimbursable expenses shall also include all tolls incurred by Engineer or any of its sub consultants in connection with the

performance of the Services. Notwithstanding the foregoing, the Engineer shall be entitled to reimbursement for reasonable out-of-pocket expenses actually incurred by the Engineer that are necessary for the performance of its duties under this Contract and which are not included in the auditable overhead rate, said expenses being limited to travel costs (at rates which may not exceed those applicable to Mobility Authority employees), printing costs, automobile expenses being reimbursed at the federal mileage rates for travel originating from the office of the Engineer employee or sub consultant, and other expenses directly approved, in advance, by the Executive Director or his designee. Except for automobile expenses paid at the federal mileage rate and travel paid at state approved rates (if available), all such reimbursement shall be at one-hundred percent (100%) of the actual cost thereof paid by the Engineer to unaffiliated entities; provided, however, that aggregate amounts in excess of $2,000 for which the Engineer intends to seek reimbursement pursuant to this subarticle 2.C. must be approved in advance and in writing by the Executive Director or his designee, except when such advance approval is impractical due to a bona fide emergency situation. Except as otherwise authorized in a validly issued Work Authorization, and only then to the extent reimbursable by the Texas Department of Transportation ("TxDOT") under the terms of any form of financial assistance agreement, the Mobility Authority shall not reimburse the Engineer for travel, lodging, and similar expenses incurred by the Engineer to bring additional staff to its local office or to otherwise reassign personnel to provide basic engineering support of the Engineer's performance of the Services, provided, however, that the Mobility Authority shall reimburse, but only in accordance with the terms of this subarticle 2.C., such costs incurred by the Engineer to bring to its local office or the Mobility Authority's facilities, with advance approval by the Executive Director or his designee, staff with specialized skills or expertise required for the Services and not customarily available from a staff providing general consulting civil engineering services of the type described in this agreement.

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 actually incurred.

D. Non-compensable Time. Time spent by the Engineer's employees or sub consultants 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. Time spent by the Engineer's personnel or sub consultants in an administrative or supervisory capacity not related to the performance of the Services shall not be compensable. Time spent on work that is in excess of what would reasonably be considered appropriate for the performance of such Services shall not be compensable.

E. Effect of Payments. No payment by the Mobility Authority shall relieve the Engineer of its obligation to deliver timely the Services required under this Contract. If after approving or paying for any service, product or other deliverable, the Mobility Authority determines that said service, product or deliverable does not satisfy the requirements of this Contract, the Mobility Authority may reject same and, if the Engineer fails to correct or cure same within a reasonable period of time and at no additional cost to the Mobility Authority, the Engineer shall return any compensation received therefore. In addition to all other rights provided in this

Contract, the Mobility Authority shall have the right to offset any amounts owed by the Engineer pursuant to the terms of this Contract upon providing the Engineer prior written notice thereof.

F. No Adjustments to Direct Labor Costs and Auditable Overhead Rate. Except as otherwise expressly provided in subarticle 2.A. above, the Mobility Authority and the Engineer shall not make adjustments to the Direct Labor Costs or the auditable overhead rate during the term of this Contract. The Mobility Authority and the Engineer do not anticipate that any services, work, deliverables or expenses of any nature shall be undertaken or incurred by the Engineer on behalf of the Mobility Authority that constitute "Extra Work" or otherwise fall outside the terms of this Contract. Unless the parties otherwise expressly agree in writing to the contrary, all work of any nature undertaken by the Engineer or its sub consultants during the term of this Contract on behalf of the Mobility Authority shall be conclusively presumed to have been undertaken under, and be subject to, the terms of this Contract.

G. Commercial Pricing. Federal Acquisition Regulations allow for payment of direct auditable expenditures and commercial pricing of certain products. The Engineer may engage in commercial pricing when legally permissible, not in contravention of federal regulations, and subject to express approval by the Board of Directors.

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. The Engineer shall take all reasonable steps to acquire all goods and services subject to reimbursement by the Mobility Authority under this Contract on a tax-free basis pursuant to the Mobility Authority's tax-exempt status described in subarticle 2.H. This provision applies only to the extent the Mobility Authority's tax exempt status can reasonably be extended to purchases made directly by the Engineer.

I. Compensation of Sub Consultants. It is anticipated that the Engineer may utilize the services of sub consultants to respond to certain assignments under this Contract. The selection and services to be assigned to sub consultants must be approved in advance by the Executive Director or his designee. All sub consultants providing services under this Contract shall be subject to, and compensated or reimbursed in accordance with, all requirements of Article 2, provided that each sub consultant shall utilize (i) its own Direct Labor Costs and (ii) if available, its own auditable overhead rate. For sub consultants that do not have auditable overhead rates computed in accordance with 48 C.F.R. Part 31, the Engineer shall provide a schedule of sub consultant billing rates or alternative overhead rate pursuant to subarticle 2.B for the Mobility Authority's review and written approval by the Executive Director or his designee (including any periodic adjustments thereto).

ARTICLE 3
PAYMENT REQUIREMENTS

A. Monthly Invoices. The Engineer shall request payment for Services rendered and costs incurred by submitting the original and one copy of an itemized invoice in a form acceptable to the Mobility Authority. The Engineer is authorized to submit requests for payment no more

frequently than monthly and no later than one-hundred and twenty (120) days after costs are incurred.

B. Form of Invoices. The invoice shall show: (1) the Work Authorization number for each Work Authorization included in the billing; (2) the total amount earned to the date of submission; and (3) 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 invoice shall be in a form provided or approved by the Mobility Authority.

C. 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, provided that if all or a portion of the Services reflected in the invoice are to be reimbursed by TxDOT through a financial assistance agreement between TxDOT and the Mobility Authority, the Mobility Authority shall make a good faith effort to pay such amounts within thirty (30) days of receipt of such payments from TxDOT.

D. Withholding Payments. The Mobility Authority reserves the right to withhold payment 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 (30) day period following receipt of the invoice; (2) pending verification of satisfactory work performed; or (3) if required reports (including third-party verifications, if any) are not received.

E. Invoice and Progress Report Submittal Process. The protocol for invoice and progress report submittal, review, and approval will be as follows:

(1) A progress report shall be submitted to Mobility Authority at least once each calendar month including, but not limited to, the following items:

- Summary of activities for the period;
- Anticipated activities next period; and
- Updated project schedule.

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

(3) The Mobility Authority and/or the GEC Manager (as defined below) will review the invoices for supporting documentation, compliance with the Contract, and consistency with the submitted progress report;

(4) The invoice will either be recommended for approval by Mobility Authority and/or GEC Manager, or the Mobility Authority and/or GEC Manager will return it to the Engineer for required correction; and

(5) Upon satisfactory review and approval of the invoice, the Mobility Authority will submit it to the Mobility Authority CFO for payment.

F. Audit. The Mobility Authority shall have the 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 any pending litigation has been completely and fully resolved and the Mobility authority approves of the destruction of records, whichever occurs last. The Mobility Authority or any of its duly authorized representatives, TxDOT, 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 4
WORK AUTHORIZATIONS

A. Use. Services performed shall be in strict accordance with the scope, schedule, and budget set forth in each Work Authorization issued pursuant to this Contract, and no Services shall be performed which are not the subject of a validly issued Work Authorization. The Mobility Authority will issue Work Authorizations using the form attached as Attachment B to authorize all work under this Contract. No work shall begin on the activity until the Work Authorization is approved and fully executed. All work must be completed on or before the completion date specified in the Work Authorization.

B. Contents. Each Work Authorization shall include: (1) 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 fixed fee, unit cost, lump sum, or specified rate; (5) a Work Authorization budget as described in subarticle C below; and (6) DBE Requirements. The Engineer is not to include additional Contract terms and conditions in the Work Authorization.

C. Work Authorization Budget. A Work Authorization budget shall be prepared by the Engineer and shall set forth in detail the following: (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 using the fees set forth in Attachment A; (3) a work plan that includes a list of the work to be performed; and (4) a maximum cost (not-to-exceed) amount or unit or lump sum cost and the total cost or price of the Work Authorization.

D. No Guaranteed Work. Work Authorizations will be issued at the sole discretion of the Mobility Authority. While it is the Mobility Authority'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 in accordance with the terms thereof.

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 in the form identified and attached hereto as Attachment C. Supplemental Work Authorizations, if required, must be executed by both parties within the period of performance specified in the Work Authorization. The Engineer shall allow adequate time for review and approval of the Supplemental Work Authorization by the Mobility Authority.

(1) Notice. If the Engineer is of the opinion that any assigned work is beyond the scope of this Contract and constitutes additional work beyond the Services to be provided under this Contract, it shall promptly notify the Mobility Authority and submit written justification presenting the facts of the work and demonstrating how the work constitutes supplementary work.

(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 Mobility Authority's approval. The Mobility Authority shall analyze the proposed justification, work hour estimate and cost. Upon approval of the need, the Mobility Authority shall negotiate the Supplemental Agreement scope with the Engineer, and then process the final Supplemental, subject to final written approval by the Mobility Authority.

(3) 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 Work Authorization.

G. Deliverables. Upon satisfactory completion of the Work Authorization, the Engineer shall submit the deliverables as specified in the executed Work Authorization to the Mobility Authority for review and acceptance.

ARTICLE 5
SCHEDULE

A. Progress meetings. As required and detailed in the Work Authorizations, the Engineer shall from time to time during the progress of the work confer with the Mobility Authority. The Engineer shall prepare and present such information as may be pertinent and

necessary or as may be requested by the Mobility Authority in order to evaluate features of the work.

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

C. Audits. If federal or state 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 and TxDOT.

D. Reports. The Engineer shall promptly advise the Mobility Authority 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 a statement of the action taken or contemplated, and any Mobility Authority or federal assistance needed to resolve the situation; and

(2) favorable developments or events that enable meeting the work schedule goals sooner than anticipated.

E. Corrective Action. Should the Mobility Authority determine that the progress of work does not satisfy the milestone schedule set forth in a Work Authorization, the Mobility Authority shall review the work schedule with the Engineer to determine the nature of corrective action needed.

F. More Time Needed. If the Engineer determines or reasonably anticipates that the work authorized in a Work Authorization cannot be completed within the work schedule contained therein, the Engineer shall promptly notify the Mobility Authority and shall follow the procedure set forth in the Work Authorization. The Mobility Authority may, at its sole discretion, modify the work schedule to incorporate an extension of time.

ARTICLE 6
SUSPENSION OF WORK AUTHORIZATION

A. Notice. Should the Mobility Authority desire to suspend a Work Authorization but not terminate the Contract, the Mobility Authority may verbally notify the Engineer followed by written confirmation, giving fifteen (15) days prior notice. Both parties may waive the fifteen (15) day notice requirement in writing.

B. Reinstatement. A Work Authorization may be reinstated and resumed in full force and effect within sixty (60) days of receipt of written notice from the Mobility Authority to resume the work. Both parties may waive the sixty (60) day notice in writing.

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

ARTICLE 7
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 Mobility Authority 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 Mobility Authority 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 Mobility Authority 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 this work.

C. Errors/Omissions. The Engineer shall make revisions to the work authorized in this Contract or Work Authorization(s) that are necessary to correct errors or omissions appearing therein, when required to do so by the Mobility Authority. No additional compensation shall be paid for this work.

ARTICLE 8
OWNERSHIP OF DATA

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, and other documents created or collected under the terms of this Contract are the property of the Mobility Authority.

B. Disposition of Documents. All documents prepared by the Engineer and all documents furnished to the Engineer by the Mobility Authority shall be delivered to the Mobility Authority upon request by the Mobility Authority. The 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 express written permission by the Mobility Authority.

C. Release of Design Plan. The Engineer (1) will not release any roadway design plan created or collected under this Contract except to its subproviders 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 subproviders, including costs, damages, or other liability resulting from improper use. Neither the Engineer nor any subprovider may charge a fee for any portion of the design plan created by the Mobility Authority.

ARTICLE 9
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.

B. Confidentiality. The Engineer shall not disclose information obtained from the Mobility Authority under this Contract without the express written consent of the Mobility Authority.

ARTICLE 10
PERSONNEL, EQUIPMENT AND MATERIAL

A. Engineer Resources. The Engineer shall furnish and maintain quarters 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 Contractor 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 Mobility Authority may instruct the Engineer to remove any employee from association with work authorized in this Contract if, in the sole opinion of the Mobility Authority, 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.

C. Replacement of Key Personnel. The Engineer must notify the Mobility Authority in writing as soon as possible, but no later than three (3) business days after a Key Personnel, specified in Attachment D, is removed from association with this Contract, giving the reason for removal.

D. Mobility Authority Approval of Replacement Personnel. The Engineer may not replace Key Personnel, as designated in the applicable Work Authorization, without prior consent of the Mobility Authority. The Mobility Authority must be satisfied that the Key Personnel

replacement is qualified to provide the authorized services. If the Mobility Authority determines that the Key Personnel replacement is not acceptable, the Engineer may not use that person in that capacity and shall replace him or her with one satisfactory to the Mobility Authority within thirty (30) days.

E. Ownership of Acquired Property. Except to the extent that a specific provision of this Contract states to the contrary, the Mobility Authority shall own all intellectual property acquired or developed under this Contract and all equipment purchased by the Engineer or its subcontractors under this Contract. All intellectual property and equipment owned by the Mobility Authority shall be delivered to the Mobility Authority when the Contract or applicable Work Authorization terminates, or when it is no longer needed for work performed under this Contract, whichever occurs first.

ARTICLE 11
SUBCONTRACTING

A. Prior Approval. The Engineer shall not assign, subcontract or transfer any portion of professional services related to the work under this Contract unless specified in an executed Work Authorization or otherwise without prior written approval from the Mobility Authority.

B. DBE Compliance. The Engineer's subcontracting program shall comply with the requirements of Exhibit E of the Work Authorization (DBE Requirements).

C. Required Provisions. All subcontracts for professional services shall include the provisions included in this Contract and any provisions required by law. The Engineer is authorized to pay subproviders in accordance with the terms of the subcontract, and the basis of payment may differ from the basis of payment by the Mobility Authority to the Engineer.

D. Prior Review. Subcontracts for professional services in excess of $25,000 may be reviewed by the Mobility Authority, in its sole discretion, prior to performance of work thereunder.

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 subcontractor, sub consultant, or other third party performing work for or on behalf of the Engineer.

F. Invoice Approval and Processing. All sub consultants 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), and in the event that the cycles are not concurrent, a detailed explanation will be submitted to the Mobility Authority.

ARTICLE 12
INSPECTION OF WORK

A. Review Rights. The Mobility Authority, TxDOT, and the U. S. Department of Transportation, when federal funds are involved, and any of their authorized representatives shall

have the right at all reasonable times to 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 subprovider, the Engineer shall provide and require its subproviders to provide all reasonable facilities and assistance for the safety and convenience of the Mobility Authority, state or federal representatives in the performance of their duties.

ARTICLE 13
SUBMISSION OF REPORTS

All applicable study reports shall be submitted in preliminary form for approval by the Mobility Authority before a final report is issued. The Mobility Authority's comments on the Engineer's preliminary report must be addressed in the final report.

ARTICLE 14
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 Contract shall not be considered as specifying the exclusive remedy for any default, but all remedies existing at law and in equity may be availed of by either party and shall be cumulative.

C. Excusable Delays. Except with respect to defaults of subproviders, 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.

ARTICLE 15
TERMINATION

A. Causes. The Contract may be terminated by any of the following conditions:

(1) by mutual agreement and consent, in writing from both parties;

(2) by the Mobility Authority 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 22, Gratuities, or Exhibit E, DBE 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 Mobility Authority in its sole discretion, not subject to the mutual consent of the Engineer, by giving thirty (30) days written notice of termination to the Engineer; or

(5) by satisfactory completion of all services and obligations described herein.

B. Measurement. Should the Mobility Authority 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 Mobility Authority 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 Mobility Authority terminate this Contract under paragraph A (3) or (4) above, the Engineer shall not incur costs during the thirty-day notice period in excess of the amount incurred during the preceding thirty (30) days and only as necessary to terminate the work in progress.

C. Value of Completed Work. If the Engineer defaults in the performance of this Contract or if the Mobility Authority terminates this Contract for fault on the part of the Engineer, the Mobility Authority 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. Calculation of Payments. The Mobility Authority shall use the fee structure established by the applicable Work Authorization in determining the value of the work performed up to the time of termination. In the event that a cost plus fixed fee basis of payment is utilized in a Work Authorization, any portion of the fixed fee not previously paid in the partial payments shall not be included in the final payment.

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 17.

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 16
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. When required, the Engineer shall furnish the Mobility Authority with satisfactory proof of its compliance therewith.

ARTICLE 17
INDEMNIFICATION

THE ENGINEER SHALL INDEMNIFY AND HOLD HARMLESS THE MOBILITY AUTHORITY AND ITS OFFICERS, DIRECTORS, EMPLOYEES, CONSULTANTS, AND AGENTS (WHICH, FOR THE PURPOSES OF THIS AGREEMENT, SHALL INCLUDE THE MOBILITY AUTHORITY'S GEC, GENERAL COUNSEL, BOND COUNSEL, FINANCIAL ADVISORS, TRAFFIC AND REVENUE ENGINEERING CONSULTANTS, TOLL OPERATIONS/COLLECTIONS FIRMS, AND UNDERWRITERS) 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, AND AGENTS WITH RESPECT TO THE ENGINEER'S PERFORMANCE OF THE WORK TO BE ACCOMPLISHED UNDER THIS AGREEMENT. IN SUCH EVENT, THE ENGINEER SHALL ALSO INDEMNIFY AND HOLD HARMLESS THE MOBILITY AUTHORITY, ITS OFFICERS, DIRECTORS, EMPLOYEES, CONSULTANTS, AND AGENTS (AS DEFINED ABOVE) FROM ANY AND ALL REASONABLE AND NECESSARY EXPENSES, INCLUDING REASONABLE ATTORNEYS' FEES, INCURRED BY THE AUTHORITY IN LITIGATING OR OTHERWISE RESISTING SAID CLAIMS, COSTS OR LIABILITIES. IN THE EVENT THE MOBILITY AUTHORITY, ITS OFFICERS, DIRECTORS, EMPLOYEES, CONSULTANTS, AND AGENTS (AS DEFINED ABOVE), IS/ARE FOUND TO BE PARTIALLY AT FAULT, THE ENGINEER SHALL, NEVERTHELESS, INDEMNIFY THE MOBILITY AUTHORITY FROM AND AGAINST THE PERCENTAGE OF FAULT ATTRIBUTABLE TO THE ENGINEER OR ITS OFFICERS, DIRECTORS, EMPLOYEES, AND AGENTS OR TO THEIR CONDUCT.

ARTICLE 18
ROLE OF GENERAL ENGINEERING CONSULTANT

The Mobility Authority will utilize a General Engineering Consultant ("GEC") to assist in its management of this Contract. The GEC is an independent contractor and is authorized by the Mobility Authority to provide the management and technical direction for this Contract on behalf of the Mobility Authority. All the technical and administrative provisions of the Contract shall be managed by the GEC, and the Engineer shall comply with all of the GEC's directives that are within the purview of the Contract. Decisions concerning Contract amendments and adjustments, such as time extensions and Supplemental Work Authorizations, shall be made by the Mobility Authority; however, requests for such amendments or adjustments shall be made through the GEC, who shall forward such requests to the Mobility Authority with its comments and recommendations.

Should any dispute arise between the General Engineering Consultant and the Engineer, concerning the conduct of this Contract, either party may request a resolution of said dispute by the Executive Director of the Mobility Authority or his designee, whose decision shall be final. The parties shall first try to resolve the dispute at the lowest level practical. In the event that an agreement cannot be reached, the Engineer may schedule a meeting with the GEC Program Manager. If an agreement cannot be reached at this level, then a meeting will be scheduled with the Mobility Authority and the GEC Program Manager, so the Engineer can present its case. The Mobility Authority's decision in the matter will be final. In no case will the Engineer go directly to the Mobility Authority with a dispute unless the Engineer believes that the GEC is violating, or is directing the Engineer to take an action which would violate, any laws or similar provisions described in Article 16 or any ethical obligations owed to the Mobility Authority.

ARTICLE 19
ENGINEER'S RESPONSIBILITY

A. Accuracy. The Engineer shall have total responsibility for the accuracy and completeness of the documents prepared under this Work Authorization and shall check all such material accordingly. The documents will be reviewed by the Mobility Authority's GEC, as defined in Article 18 above, for conformity with the Mobility Authority's procedures and the terms of the Contract, as well as coordination with adjacent contracts. Review by the GEC does not include detailed review or checking of designs or major components and related details or the accuracy with which such designs are depicted in the plans. The responsibility for accuracy and completeness of such items shall remain solely that of the Engineer. The Engineer shall promptly make necessary revisions or corrections resulting from its errors, omissions, or negligent acts without compensation.

B. Errors and Omissions. The Engineer's responsibility for all questions arising from design errors and/or omissions will be determined by the Mobility Authority. The Engineer shall not be relieved of the responsibility for subsequent correction of any such errors or omissions or for clarification of any ambiguities until after the construction phase of the project has been completed. In the event that the Mobility Authority discovers a possible design error or omission, the Mobility Authority shall notify the Engineer and seek to involve the Engineer in determining the most effective solution with respect to time and cost, provided that the Mobility Authority shall ultimately determine the solution that is chosen.

C. 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.

D. Resealing of Documents. Once the work has been sealed and accepted by the Mobility Authority, the Mobility Authority, as the owner, will notify the Engineer, 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 20
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 21
INSURANCE

Prior to beginning the services designated in this Agreement, the Engineer shall obtain and furnish certificates to the Mobility Authority for the following minimum amounts of insurance:

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.

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 Agreement.

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 Agreement in the event of their loss or destruction, until such time as the work has been delivered to the Mobility 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 subcontractors and subconsultants (including, but not limited to design subcontractors 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.

G. General for All Insurance. The Engineer shall promptly, upon execution of this Agreement, furnish certificates of insurance to the Mobility Authority 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 21.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 21.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 Mobility Authority.

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 Agreement or for a longer term as may be otherwise provided for hereunder. Insurance furnished under subarticles 21.a., b., c., d. and f., above, shall name the Mobility Authority as additional insured and shall protect the Mobility 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 Agreement. Certificates shall also indicate that the contractual liability assumed in Article 17, above, is included.

The insurance carrier shall include in each of the insurance policies required under subsections 21.a., b., c., d., e., and 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. Subproviders. In the event a subprovider selected by the Engineer to perform work associated with this Contract is unable to secure insurance coverage in the amounts set forth in subarticles 21.b., d., and f. . above, Engineer may provide to the Mobility Authority an explanation of coverages that a subprovider does possess, why those coverages are adequate to cover the potential exposure for the work to be performed by the subprovider, and an acknowledgement that the Engineer remains liable for the work performed under the contract, including that performed by the subcprovider. The Mobility Authority may decide, in is sole discretion, whether to accept the coverages available to the subprovider

ARTICLE 22
GRATUITIES

A. Employees Not to Benefit. Mobility Authority policy mandates that employees of the Mobility Authority shall not accept any benefit, gift or favor from any person doing business with or who reasonably speaking may do business with the Mobility Authority under this Contract. 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 23
DISADVANTAGED BUSINESS ENTERPRISE REQUIREMENTS

The Engineer agrees to comply with the requirements set forth in Exhibit E, DBE Requirements, of the Work Authorization and the assigned goal established by the Mobility Authority.

ARTICLE 24
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 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, the Texas Department of Transportation ("TxDOT"), 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 25
CIVIL RIGHTS COMPLIANCE

A. Compliance with Regulations. The Engineer shall comply with the regulations of the Department of Transportation, Title 49, Code of Federal Regulations, Parts 21, 24, 26 and 60 as they relate to nondiscrimination; also Executive Order 11246 titled Equal Employment Opportunity as amended by Executive Order 11375.

B. Nondiscrimination. The Engineer, with regard to the work performed by it during the Contract, shall not discriminate on the grounds of race, color, sex, or national origin in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

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 subcontractor or supplier shall be notified by the Engineer of the Engineer's obligations under this Contract and the Regulations relative to nondiscrimination on the grounds of race, color, sex, or national origin.

D. Information and Reports. The Engineer shall provide all information and reports required by the Regulations, or directives issued pursuant thereto, and shall 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 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 shall so certify to the Mobility Authority or the FHWA, as appropriate, and shall 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 shall 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) cancellation, termination, or suspension of the Contract, in whole or in part.

F. Incorporation of Provisions: The Engineer shall include the provisions of Article 25A through E in every subcontract, including procurement of materials and leases of equipment, unless exempt by the Regulations or directives issued pursuant thereto. The Engineer shall take such action with respect to any subcontract or procurement as the Mobility Authority or the FHWA may direct as a means of enforcing such provisions including sanctions for noncompliance provided, however, that in the event the Engineer becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the Engineer may request the Mobility Authority to enter into such litigation to protect the interests of the Mobility Authority; and, in addition, the Engineer may request the United States to enter into such litigation to protect the interests of the United States.

ARTICLE 26
PATENT RIGHTS

The Mobility Authority and the U. S. Department of Transportation 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 27
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 dispute 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 provisions of Article 18 in proceeding with such disputes.

ARTICLE 28
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 Mobility Authority.

ARTICLE 29
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 30
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 31
CONFLICT OF INTEREST

A. Representation by Engineer. The undersigned Engineer represents that such firm 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. The Mobility Authority shall exercise reasonable care and diligence to prevent any actions or conditions that could result in a conflict with the Mobility Authority's interests.

B. Environmental Disclosure. If the Engineer will prepare an environmental impact statement or an environmental assessment 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 impact statement or environmental assessment is prepared.

ARTICLE 32
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 33
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 Mobility Authority authorization 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 34
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:

In the case of the Engineer:

Robin Handel, P.E.
Vice President
CP&Y
13809 Research Blvd, Suite 300
Austin, TX 78750

Email: RHANDEL@cpyi.com

In the case of the Mobility Authority:

Mike Heiligenstein, Executive Director
Central Texas Regional Mobility Authority
3300 North IH 35, Suite 300
Austin, TX 78705

Email: mstein@ctrma.org

with a copy to:

Justin Word, Director of Engineering
Central Texas Regional Mobility Authority
3300 North IH 35, Suite 300
Austin, TX 78705

Email: jword@ctrma.org

A party may change the information provided in this article for notification purposes by providing notice to the other party of the new information and the effective date of the change.

ARTICLE 35
BUSINESS DAYS AND DAYS

For purposes of this Contract, "business days" shall mean any day the Mobility Authority is open for business and "days" shall mean calendar days.

ARTICLE 36
INCORPORATION OF PROVISIONS

Attachments A through D are attached hereto and incorporated into this Contract as if fully set forth herein.

ARTICLE 37
PRIORITY OF DOCUMENTS/ORDER OF PRECEDENCE

This Contract, and each of the Attachments (together, the "Contract Documents"), are an essential part of the agreement between the Mobility Authority and the Engineer, and a requirement occurring in one is as binding as though occurring in all. The Contract Documents are intended to be complementary and to describe and provide for a complete Contract. In the event of any conflict among the Contract Documents or between the Contract Documents and other documents, the order of precedence shall be as set forth below:

A. Supplemental Work Authorizations;

B. Work Authorizations;

C. Contract Amendments;

D. This Contract.

Additional details and more stringent requirements contained in a lower priority document will control unless the requirements of the lower priority document present an actual conflict with the requirements of the higher level document. Notwithstanding the order of precedence among Contract Documents set forth in this Article 37, in the event of a conflict within a Contract Document or set of Contract Documents with the same order of priority (including within documents referenced therein), the Mobility Authority shall have the right to determine, in its sole discretion, which provision applies.

IN WITNESS WHEREOF, the **Mobility Authority** and the **Engineer** have executed this Contract in duplicate.

THE ENGINEER	**CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY**
_____	_____
(Signature)	(Signature)
James J. Roohms, P.E.	Mike Heiligenstein
(Printed Name)	
COO, Senior Vice President	Executive Director
(Title)	
_____	_____
(Date)	(Date)

Attachments and Exhibits to Contract for Engineering Services

Attachments	**Title**
A	Rate Schedule
B	Work Authorization No. 1
C	Supplemental Work Authorization
D	Key Personnel

ATTACHMENT A

Rate Schedule

THIS PAGE IS LEFT BLANK

ATTACHMENT A - Rate Schedule
SPECIFIED RATE PAYMENT BASIS
AND
LUMP SUM PAYMENT BASIS

PRIME NAME: CP&Y, Inc.

Direct Labor

Labor/Staff Classification	Negotiated Hourly Base Rate	Contract Rate
Principal	$80.00	$255.27
Senior Project Manager	$73.00	$232.93
Project Manager	$70.00	$223.36
Senior Engineer	$60.00	$191.45
Project Engineer	$48.00	$153.16
Design Engineer	$40.50	$129.23
EIT	$33.00	$105.30
Senior Engineer Specialist	$48.00	$153.16
Senior Engineer Tech	$38.00	$121.25
Engineer Tech	$30.00	$95.73
CADD Tech	$25.00	$79.77
Admin/Clerical	$27.00	$86.15
		$0.00
		$0.00
		$0.00
		$0.00

Audited Overhead Rate:	190.08%
Negotiated Profit Rate:	10%

ATTACHMENT A - Rate Schedule
SPECIFIED RATE PAYMENT BASIS
AND
LUMP SUM PAYMENT BASIS

SUBPROVIDER NAME: HDR Engineering, Inc.

Direct Labor

Labor/Staff Classification	Negotiated Hourly Base Rate	Contract Rate
Principal	$82.00	$232.65
Senior Project Manager	$78.00	$221.30
Project Manager	$72.00	$204.28
Senior Engineer	$68.00	$192.93
Project Engineer	$55.00	$156.05
Design Engineer	$48.00	$136.19
EIT	$36.00	$102.14
Senior Engineer Tech	$33.00	$93.63
Engineer Tech	$26.00	$73.77
Admin/Clerical	$29.00	$82.28
		$0.00
		$0.00

Audited Overhead Rate:	157.93%
Negotiated Profit Rate:	10%

ATTACHMENT A - Rate Schedule
SPECIFIED RATE PAYMENT BASIS
AND
LUMP SUM PAYMENT BASIS

SUBPROVIDER NAME: K Friese & Associates, Inc.

Direct Labor

Labor/Staff Classification	Negotiated Hourly Base Rate	Contract Rate
Principal	$66.00	$191.29
Senior Project Manager	$75.00	$217.37
Project Manager	$65.00	$188.39
Senior Engineer	$58.00	$168.10
Project Engineer	$42.00	$121.73
Design Engineer	$37.00	$107.24
EIT	$31.00	$89.85
Senior Engineering Tech	$30.00	$86.95
Admin/Clerical	$25.00	$72.46
		$0.00
		$0.00
Audited Overhead Rate: 163.48%		
Negotiated Profit Rate: 10%		

ATTACHMENT A - Rate Schedule
SPECIFIED RATE PAYMENT BASIS
AND
LUMP SUM PAYMENT BASIS

SUBPROVIDER NAME: P.E. Structural Consultants, Inc.

Direct Labor

Labor/Staff Classification	Negotiated Hourly Base Rate	Contract Rate
Principal	$68.50	$194.55
Senior QC Engineer	$55.00	$156.21
Senior Engineer/Project Manager	$51.50	$146.27
Project Engineer	$40.00	$113.61
Design Engineer	$36.25	$102.96
EIT	$30.75	$87.34
Senior Engineer Tech (CAD Mgr)	$41.50	$117.87
Engineer Tech	$30.00	$85.21
Junior Engineer Tech	$20.00	$56.80
Admin/Clerical	$18.00	$51.12

Audited Overhead Rate:	158.20%
Negotiated Profit Rate:	10%

ATTACHMENT A - Rate Schedule
SPECIFIED RATE PAYMENT BASIS
AND
LUMP SUM PAYMENT BASIS

SUBPROVIDER NAME: Corsair Consulting, LLC

Direct Labor

Labor/Staff Classification	Negotiated Hourly Base Rate	Contract Rate
Project Manager	$75.00	$212.85
Senior Engineer	$54.00	$153.25
Project Engineer	$46.00	$130.55
Design Engineer	$37.00	$105.01
EIT	$32.00	$90.82
Senior Engineer Tech	$32.00	$90.82
Engineer Tech	$25.00	$70.95
Admin/Clerical	$19.00	$53.92
		$0.00
		$0.00
		$0.00
		$0.00

Audited Overhead Rate:	158.00%
Negotiated Profit Rate:	10%

ATTACHMENT A - Rate Schedule
SPECIFIED RATE PAYMENT BASIS
AND
LUMP SUM PAYMENT BASIS

SUBPROVIDER NAME: Maldonado-Burkett Intelligent Transportation Systems, LLP

Direct Labor

Labor/Staff Classification	Negotiated Hourly Base Rate	Contract Rate
Project Manager	$90.00	$253.07
Senior Engineer	$80.00	$224.95
Project Engineer	$70.00	$196.84
Design Engineer	$60.00	$168.72
EIT	$43.00	$120.91
Senior Engineer Tech	$53.00	$149.03
Engineer Tech	$40.00	$112.48
Administrative Supervisor	$30.00	$84.36
		$0.00
		$0.00
		$0.00

Audited Overhead Rate:	155.63%
Negotiated Profit Rate:	10%

ATTACHMENT A - Rate Schedule
SPECIFIED RATE PAYMENT BASIS
AND
LUMP SUM PAYMENT BASIS

SUBPROVIDER NAME: **Inland Geodetics, LLC**

Direct Labor	Contract Rate
Surveying Services (SS)	
RPLS - Project Manager	$136.00
Registered Professionsal Land Surveyor	$132.00
Licensed State Land Surveyor	$132.00
Survey Technician	$98.00
2 - Person Survey Crew (Includes GPS and Robotic Total Stations. Mileage not included.)	$138.00
3 - Person Survey Crew (Includes GPS and Robotic Total Stations. Mileage not included.)	$160.00
4 - Person Survey Crew (Includes GPS and Robotic Total Stations. Mileage not included.)	$183.00
Additional Crewmember	$42.00
GPS Field Operator & Vehicle	$118.00
Clerical Support	$54.00

Contract hourly rates include labor, overhead, and profit.

ATTACHMENT A - Rate Schedule
SPECIFIED RATE PAYMENT BASIS
AND
LUMP SUM PAYMENT BASIS

SUBPROVIDER NAME: **Surveying and Mapping, Inc.**

Direct Labor	Contract Rate
Surveying Services (SS)	
RPLS - Project Manager	$187.00
RPLS - Task Leader	$177.00
Senior Survey Technician (Must be Surveyor in Training (SIT), or have a minimum of five year's Surveying experience)	$120.00
Survey Technician	$100.00
1 - Person Survey Crew (Includes GPS and Robotic Total Stations. Mileage not included.)	$110.00
2 - Person Survey Crew (Includes GPS and Robotic Total Stations. Mileage not included.)	$165.00
3 - Person Survey Crew (Includes GPS and Robotic Total Stations. Mileage not included.)	$195.00
4 - Person Survey Crew (Includes GPS and Robotic Total Stations. Mileage not included.)	$215.00
Flagger	$45.00
Abstractor (Property Deed Researcher, Courthouse or Internet research)	$75.00
Admin/Clerical	$75.00
Mobile Mapping Services	
Mobile Mapping Project Manager	$142.00
Mobile Project Coordinator	$137.45
Mobile Mapping LiDAR Processing Technician	$120.50
Mobile Mapping Field Acquisition Specialist	$126.25
Aerial Mapping Services	
Aerial Project Coordinator	$142.00
Certified Photogrammetrist	$137.45
Analytical Triangulation Specialist	$96.74
Aerial Mapping Technician	$92.48
Orthophoto Secialist	$94.62
Mapping Editor	$87.95
Aerial Office Technician	$77.02
SUE / Utility Coordination Services	
SUE / UC Project Manager	$187.00
Senior Engineer - PE	$177.00
Engineer-In-Training	$120.00
Senior Engineer Tech	$105.00
Engineer Tech	$90.00
Senior CADD Operator	$105.00
CADD Operator	$85.00
Senior Utilities Coordinator	$155.00
Utilities Coordinator	$124.00
Field Coordinator	$115.00
Utility Inspector	$95.00

Contract hourly rates include labor, overhead, and profit.

ATTACHMENT A - Rate Schedule
Unit Cost Basis

SUBPROVIDER NAME: Corsair Consulting, LLC

Services to be Provided	Test Code	Unit	Cost
Field Drilling Services			
1.Drilling Rig Mobilization/Demobilization (No more than one per project, regardless the number of drill holes)			
a. Truck Mounted Rig		each	$ 700.00
b. Marsh Buggy Mounted Rig		each	$ 1,200.00
2. Soil Boring (Drilling with truck mounted rig, logging, recovering undisturbed core sample and grouting of borehole):			
a. With Texas Cone Penetration Test (TCP) every 5 feet interval, (0'- 50')		feet	$ 30.00
b. With Texas Cone Penetration Test (TCP) every 5 feet interval, (50' -100')		feet	$ 35.00
c. With Texas Cone Penetration Test (TCP) every 5 feet interval, (100' -150')		feet	$ 40.00
d. Without Texas Cone Penetration Test (TCP)< 60'		feet	$ 27.00
e. Without Texas Cone Penetration Test (TCP)> 60'		feet	$ 30.00
f. Augering		feet	$ 15.00
g. Drilling & Sampling - Soft Rock-Carbide Bit		feet	$ 21.00
h. Drilling & Sampling - Hard Rock-Diamond Bit		feet	$ 26.00
3. Surcharge for Drilling using Marsh Buggy		feet	$ 6.00
4. Piezometer - 2"(includes all materials, including cap)			
a. In existing boring		feet	$ 22.00
b. In new land wash boring		feet	$ 30.00
c. Steel Manhole Cover for Piezometer		each	$ 400.00
5. Underground Utility Clearance for Boring Location		hr	$ 75.00
6. 3-Man Crew (Driller,logger & helper) travel to/from job site, per day		hr	$ 180.00
7. n/a - intentionally left blank			
8. Pavement Coring for Soil Boring Access (up to 6-in diameter):			
a. Up to 10 inches thickness		inch	$ 130.00
b. Additional thickness over 10 inches		inch-each	$ 15.00
9. Vehicle Charge		hour	$ 9.00
10. Traffic Control -(Per TMUTCD)			
a) Traffic Signs		day	$ 450.00
b) Crash Truck w/attenuator		day	$ 950.00
c) Certified Flagman		hr	$ 60.00
d) Flashing Arrow Board		day	$ 55.00
11.Traffic Control - Off Duty Police Officer		hr	$ 55.00
12. Dozer for Site Clearing for Soil Boring Access		day	$ 1,750.00
13. Non-Destructive Deflection Testing			
a. Equipment Mobilization		per mile	$ 4.25
b. Dynaflect		day	$ 1,850.00
c. Falling Weight Deflection (FWD)		day	$ 2,250.00
d. Heavy Weight Deflection (HWD)		day	$ 2,650.00
* The cost of mobilization/demobilization for water boring (including floating equipment and support boat) will be per quotation per job site.			
Geotechnicial Lab Testing Services			
Unconfined Compressive Strength (Soil)	ASTM D2166	each	$ 60.00
One Dimensional Consolidation Properties of Soil	ASTM D2435	each	$ 350.00
Direct Shear Test of Soils Under Consolidated Drained Conditions	ASTM D3080	set of 3	$ 500.00

ATTACHMENT A - Rate Schedule
Unit Cost Basis

Permeability of Silt and Clays	ASTM D5084	each	$ 300.00
Determination of Moisture Content in Soils	TEX-103-E	each	$ 8.00
Determination of Soil Constants Including:			
Liquid Limit of Soils (LL)	TEX-104-E	each	$ 38.00
Plasticity Index (PI)	TEX-106-E	each	$ 38.00
Plastic Limit of Soils (PL)	TEX-105-E	each	$ 38.00
Bar Linear Shrinkage for Soils	TEX-107-E	each	$ 35.00
Determining the Specific Gravity of Soils	TEX-108-E	per test	$ 50.00
Determination of Particle Size Analysis of Soils Text (Part I) - Retained +40	TEX-110-E	each	$ 45.00
Determination of Particle Size Analysis of Soils Text (Part II) - Hyrometer Analysis	TEX-110-E	each	$ 115.00
Amount of Minus No. 200 Sieve Material of Soils	TEX-111-E	each	$ 35.00
Laboratory Compaction Characteristics and Moisture-Density Relationship of Base Materials Includes: Liquid Limit and Plastic Limit	TEX-113-E	per test	$ 180.00
Laboratory Compaction Characteristics and Moisture-Density Relationship of Subgrade, Embankment Soils, and Backfill Material (Part I)	TEX-114-E	per test	$ 170.00
Laboratory Compaction Characteristics and Moisture-Density Relationship of Subgrade, Embankment Soils, and Backfill Material (Part II)	TEX-114-E	per test	$ 170.00
Laboratory Compaction Characteristics and Moisture-Density Relationship of Subgrade, Embankment Soils, and Backfill Material (Part III)	TEX-114-E	per test	$ 170.00
Ball Mill method for Determining the Disintegration of Flexible Base Material	TEX-116-E	per test	$ 140.00
Triaxial Compression for Disturbed Soils and Base Materials (Part I) Incudes: LL,PL, Gradation, and MD Curve	TEX-117-E	per test	$ 1,250.00
Triaxial Compression for Disturbed Soils and Base Materials (Part II) Incudes: LL,PL, Gradation, and MD Curve	TEX-117-E	per test	$ 1,250.00
Soil-Cement Testing (Part I) (Includes Tex-113-E)	TEX-120-E	per series	$ 250.00
Soil-Cement Compressive Strength, (Part II)	TEX-120-E	per test	$ 200.00
Soil-Lime Testing (Part I) (Includes Tex-113-E)	TEX-121-E	per series	$ 350.00
Soil-Lime Compressive Strength, (Part II)	TEX-121-E	per test	$ 150.00
ASTM D4767 (single-stage) (includes moisture, PI, -200 and unit weight)/each	TEX-131-E	per test	$ 350.00
Consolidated Undrained Triaxial Compression Test for Undisturbed Soils (CU) or ASTM D4767 (multi-stage) (includes moisture, PI, -200 and unit weight)/each	TEX-131-E	per test	$ 1,000.00
Unconfined Compressive Strength (Rock)		each	$ 60.00
Determination of Sulfate content		each	$ 120.00
Resilient Moduouls Testing (3-points)		each	$ 1,650.00
Bentonite for backfilling of bore holes		linear foot	$ 10.00

Unit costs billed should correspond to the fiscal or calendar year, if applicable, in which the work was done. If unit costs by year are included, the unit costs for the last year shown apply to all later years. If only one set of unit cost figures is included, with no year designation, the unit costs shown apply to all later years.

Documentation of hours worked is not required.

ATTACHMENT A - Rate Schedule
Unit Cost Basis

SUBPROVIDER NAME: Surveying and Mapping, Inc.

Services to be Provided	Test Code	Unit	Cost
SUE Services			
Level C and D. Includes labor and equipment for records research, CADD, and mapping.	N/A	LF	$ 0.75
Level B (Designation). Includes labor and equipment for records research, designating, engineering, surveying, and CADD.	N/A	LF	$ 1.50
Level A (Location, Test Holes). Includes labor and equipment for vacuum excavation, engineering, surveying, and CADD.			
0 to 5 ft.	N/A	each	$ 1,125.00
> 5 to 8 ft.	N/A	each	$ 1,460.00
> 8 to 13 ft.	N/A	each	$ 1,875.00
> 13 to 20 ft.	N/A	each	$ 2,450.00
> 20 ft.	N/A	per vertical foot	$ 225.00

Unit costs billed should correspond to the fiscal or calendar year, if applicable, in which the work was done. If unit costs by year are included, the unit costs for the last year shown apply to all later years. If only one set of unit cost figures is included, with no year designation, the unit costs shown apply to all later years.

Documentation of hours worked is not required.

ATTACHMENT A - Rate Schedule
Unit Cost Basis

SUBPROVIDER NAME: HDR Engineering, Inc.

Services to be Provided	Test Code	Unit	Cost
Field Drilling Services			
24-Hour Automated Tube Counts - Volume (per direction)	N/A	per counter/day	$ 130.00
24-Hour Automated Tube Counts - Bi-directional	N/A	per counter/day	$ 140.00
24-Hour Automated Tube Counts - Urban Freeway Main Lanes (per direction)	N/A	per counter/day	$ 240.00
24-Hour Automated Tube Counts - Speed or Class	N/A	per counter/day	$ 150.00
Intersection Turning Movement Counts	N/A	per counter/hour/day	$ 50.00
Turning Movement Count (12-hour Manual) Minor Intersection	N/A	each	$ 550.00
Turning Movement Count (12-hour Manual) Major Intersection	N/A	each	$ 1,100.00
2-hour Turning Movment Count, Minor Intersection, Weekday	N/A	each	$ 100.00
2-hour Turning Movment Count, Major Intersection, Weekday	N/A	each	$ 200.00
2-hour Turning Movment Count, Minor Intersection, Weekend	N/A	each	$ 150.00
2-hour Turning Movment Count, Major Intersection, Weekend	N/A	each	$ 300.00
Speed Survey (2hr per location)	N/A	per location	$ 130.00
Intersection Diagrams / Sketches	N/A	per intersection	$ 50.00
Intersection Photography	N/A	per intersection	$ 30.00
Video Origin & Destination (capture)	N/A	per camera /per lane/per hour	$ 350.00
GPS Bluetooth Travel Time Runs	N/A	hourly	$ 65.00
24-Hour Classification Counts	N/A	per counter/day	$ 150.00

Unit costs billed should correspond to the fiscal or calendar year, if applicable, in which the work was done. If unit costs by year are included, the unit costs for the last year shown apply to all later years. If only one set of unit cost figures is included, with no year designation, the unit costs shown apply to all later years.

Documentation of hours worked is not required.

ATTACHMENT A - Rate Schedule

Other Direct Expenses
All Rates Shown Apply To Prime Provider and All Sub-Providers

OTHER DIRECT EXPENSES				
ODE Description	**Unit**	**Max Rate**	**Fixed/Max**	**ODE Rate**
Lodging/Hotel - Taxes and Fees	day/person	Current State Rate	M	-
Lodging/Hotel (Taxes/fees not included)	day/person	Current State Rate	M	-
Meals (Excluding alcohol & tips) (Overnight stay required)	day/person	Current State Rate	M	-
Mileage	mile	Current State Rate	F	–
Rental Car Fuel	day		M	$ 40.00
SUV or ATV Rental (Includes taxes and fees; Insurance costs will not be reimbursed)	day		M	$ 100.00
Construction Truck (Includes operation, and maintenance costs; Insurance costs will not be reimbursed)	day		F	$ 80.00
Construction Truck (Includes operation, and maintenance costs; Insurance costs will not be reimbursed)	month		F	$ 1,200.00
Construction Truck 4X4 (Includes operation and maintenance costs; Insurance costs will not be reimbursed)	day		M	$ 125.00
Construction Truck 4x4 (Includes operation and maintenance costs; Insurance costs will not be reimbursed)	month		M	$ 1,600.00
Rental Car Fuel	gallon		M	$ 4.00
Rental Car (Includes taxes and fees; Insurance costs will not be reimbursed)	day		M	$ 55.00
Air Travel - In State - Short Notice (Coach)	Rd Trip/person		M	$ 550.00
Air Travel - In State - 2+ Wks Notice (Coach)	Rd Trip/person	Coach Fare	M	$ 400.00
Air Travel - Out of State - 2+ Wks Notice (Coach)	Rd Trip/person		M	$ 650.00
Air Travel - Out of State - Short Notice (Coach)	Rd Trip/person		M	$ 700.00
Air Travel (Use with Indefinite Deliverable Contracts)	Rd Trip/person	Coach Fare	M	$ 475.00
Oversize, special handling or extra baggage airline fees (with advance coordination with TxDOT)	each	Current Airline Rate	M	$ 100.00
Taxi/Cab fare	each/person		M	$ 25.00
Parking	day		M	$ 20.00
Standard Postage	letter	Current Postal Rate	F	–
Certified Letter Return Receipt	each	Current Postal Rate	F	–
Overnight Mail - letter size	each	Current Postal Rate	M	–
Overnight Mail - oversized box	each		M	$ 35.00
Materials and Shipping	per package		M	$ 30.00
Courier Services	each		M	$ 30.00
Photocopies B/W (11" X 17")	each		F	$ 0.20
Photocopies B/W (8 1/2" X 11")	each		F	$ 0.10
Photocopies Color (11" X 17")	each		F	$ 1.20
Photocopies Color (8 1/2" X 11")	each		F	$ 0.65
Cardstock Color (8 1/2" X 11")	each		F	$ 1.00
Digital Ortho Plotting	sheet		F	$ 1.50
Plots (B/W on Bond)	per sq. ft.		F	$ 0.50
Plots (Color on Bond)	per sq. ft.		F	$ 1.00
Plots (Color on Photographic Paper)	per sq. ft.		F	$ 4.00
Color Graphics on Foam Board	square foot		F	$ 4.00
Presentation Boards 30" X 40" Color Mounted	each		M	$ 60.66
Report Printing	each		M	$ 25.00
Report Binding and tabbing	each		F	$ 4.25
Drawing Binders (variable depth for 11" X 17" paper)	each		M	$ 8.00
Notebooks	each		M	$ 5.00
Reproduction of CD/DVD	each		M	$ 3.00
CDs	each		F	$ 1.00
4" X 6" Digital Color Print	picture		F	$ 0.25

ATTACHMENT A - Rate Schedule

Newspaper Advertisement	per publication		M	$ 2,800.00
Court Reporter	page		M	$ -
Court Reporter (Public Meetings, Hearings & Transcription)	day		M	$ 500.00
Translator (English to Spanish, other language as appropriate, or Sign Language) for Public Involvement	event		M	$ 500.00
Translator (English to Spanish, other language as appropriate, or Sign Language)	hour		M	$ 100.00
Written Translation Services	word		F	$ 0.16
Custodian for Public Involvement	hour/custodian		M	$ 25.00
Sound Technician for Public Involvement	event		M	$ 250.00
Public Involvement Facility Rental (estimate)	4 hours		M	$ 750.00
Public involvement Facility Rental (estimate)	8 hours		M	$ 3,000.00
Public Involvement Facility Rental (estimate)	hour		M	$ 200.00
Public Involvement Facility Rental	event		M	$ 1,600.00
Audio - Equipment Rental	each		M	$ 150.00
Audio - Visual Equipment Rental	event		M	$ 250.00
Public Involvement Grahpic Artist	event		F	$ 60.00
Professional Narrator for Public Involvement	event		F	$ 100.00
Professional Narrator for Public Involvement	hour		F	$ 100.00
Property Record Fees (Courthouse and Courthouse Direct Record Fees)	Per Parcel		M	$ 24.00
Public Notices - Mass Mailing (500 pieces)	per mailing		M	$ -
Public Notices - Mass Mailing/with Self Addressed Return Envelope (500 pieces)	per mailing	#N/A	M	–
Electronic Message Signs	day		M	$ 150.00
Transearch Count-Level Database with counties in neighboring states' BEA's (BEA level beyond TX borders)(Cost is per Unit with Maxumum Total Cost per contract not to exceed $250,000)	per Unit		M	$ 5,000.00
FEMA FIS (Manual)	each		M	$ 5.00
FEMA FIS Backup Data Request	each		M	$ 300.00
FEMA Map Revision Submittal (CLOMR/LOMR) (Submittal Fee Only)	each		M	$ 8,250.00
FEMA Model/Floodplain Hardcopy	each		M	$ 250.00
Railroad - Flagger (Service provided by RR)	hour	Actual Cost	M	$ -
Railroad - Insurance in addition to STD Minimum Required (Minimum coverage of $1 Million required by RR.)	each	Actual Cost	M	–
Railroad - Permit [Note: Read and then delete this note. Most railroad companies charge a fee of $500 for the permit to access their property.]	each	Actual Cost	M	$ -
Railroad - Safety Training (If required - Heavy Rail Safety Training Certificate, includes classroom training and employee certification card.)	Per Person	Actual Cost	M	$ -
Traffic Control Services, Arrow Boards and Attenuator trucks - Large Project (Includes labor, equipment and fuel)	day		M	$ 3,000.00
Traffic Control Services, Arrow Boards and Attenuator trucks - Medium Project (Includes labor, equipment and fuel)	day		M	$ 2,350.00
Traffic Control Services, Arrow Boards and Attenuator trucks - Small Project (Includes labor, equipment and fuel)	day		M	$ 1,500.00
Attenuator trucks - (Lane/Shoulder Closure) (Includes labor, equipment and fuel)	day		M	$ 950.00
Attenuator trucks - (No Lane Closure) (Includes labor, equipment and fuel)	day		M	$ 500.00
Environmental Field Supplies (lathes, stakes, flagging, spray paint, etc.)	day		M	$ 45.00
Specialized locating equipment (Sonde, beacon, rodder, etc.)	day		M	$ 50.00
Pavement coring	each		M	$ 250.00
Flashing Arrow Board	day		M	$ 500.00
Portable Message Board	day		M	$ 200.00
Law Enforcement/Uniform Officer (including vehicle)	hour		M	$ 55.00
Required Permit Fees (non- railroad)	each		M	$ 75.00

ATTACHMENT A - Rate Schedule

NDT Testing Supplies	each	#N/A	M	–
Shelby Tubes Transportation Box	each	#N/A	M	–
Boat with Motor	day		M	$ 400.00
Bulldozer Rental	each	#N/A	M	$ 1,350.00
Fathometer	day		M	$ 90.00
Backhoe Rental	day		M	$ 1,200.00
Map, Tapes, and Supplies	each		F	$ 3.50
Rental Equipment - Gasoline Powered Auger	day		M	$ 60.00
Underwater Diving Equipment Rental (Tanks, Boats, Trailers, etc.)	each	#N/A	M	–
ManLift Equipment Rental or Bridge Inspection Equipment Rental	each	#N/A	M	–
Barge Rental for Off Shore Driling	each	#N/A	M	$ 50,000.00
Mobilization and Demobilization Barge for Submerged Areas	each	#N/A	M	$ 20,000.00
Mobilization and Demobilization of Drilling Rig (Trips over 100 miles from	each	#N/A	M	$ 1,000.00
GPS Receiver (rates applied to actual time GPS units are in use)	hour		M	$ 25.00
GPS RTK (rates applied to actual time GPS units are in use)	hour		F	$ 25.00
GPS Static (rates applied to actual time GPS units are in use)	hour		F	$ 25.00
Map Records	sheet		M	$ 4.00
Deed Copies	sheet		F	$ 2.00
Certified Deed Copies	sheet		F	$ 10.00
Historical Aerial Images	unit		M	$ 90.00
Aerial Photographs (1" = 500' scale)	each		M	$ 24.00
Type II ROW Monument - Excavated/Drilled, rocks, rocky soil. 2-4 inch depth (includes crew time, equipment, materials, rentals, & labor). Brass Marker supplied by TxDOT	each		F	$ 275.00
Type II ROW Monument - Poured 2-3 Feet (includes One Call, crew time, equipment, materials, rentals, labor). Brass Marker supplied by TxDOT	each		F	$ 475.00
Survey Boundary Taxes (If this line item is billed, a Tax Resale	each	#N/A	M	–
Reprographics	per sq. ft.		F	$ 4.00
Wood Core Boxes (Applies to large projects and long term storage)	each	#N/A	M	–
Terrestrial Laser Scanner (rates applied to actual time scanner unit is in	hour		F	$ 90.00
Ground Target (includes paint, panel material, etc.)	each		F	$ 25.00
Ground Penetrating Radar (equipment only)	day		F	$ 400.00
LiDAR Mobile Mapping System (Includes Vehicle Operator, LiDAR Technician, and fuel) (Does not include travel to project.)	day			$ 7,200.00
Mobilization for Helicopter and Aerial Sensors (Includes Aircraft, Pilot, Sensor Operator, and fuel) (Does not include travel to project.)	project			$ 25,000.00
Helicopter Equipment LiDAR - Project Flight Miles (On project flight miles)	per mile		F	$ 60.00
Helicopter Equipment LiDAR - Transit Miles (including turn, maneuver miles and local airport to project)	per mile		F	$ 15.00
Mobilization for Fixed Wing Aircraft and Aerial Sensors (Includes Aircraft, Pilot, Sensor Operator, and fuel) (Does not include travel to project.)	project			$ 25,000.00
Fixed Wing Airborne LiDAR - Project Flight Miles (On project flight miles)	per mile		F	$ 20.00
Fixed Wing Airborne LiDAR - Transit Miles (including turn, maneuver	per mile		F	$ 8.00
Aerial Photography - Airborne GPS/IMU Data collection/Processing	Per Project		F	$ 2,250.00
Aerial Photography - Project Flight Miles (On project flight miles)	Per Mile		F	$ 35.00
Aerial Photography - Transit miles (including turn, maneuver miles and local airport to project)	Per Mile		F	$ 8.00
Photo Lab Service - Black and White Processing (film, development, scanning)	Per Frame		F	$ 19.00
Photo Lab Service - Color Infrared Processing (film, development,	Per Frame		F	$ 27.00
Photo Lab Service - Color Processing (film, development, scanning)	Per Frame		F	$ 35.00
Photo Lab Service - Digital image processing	Per Frame		F	$ 27.00

ATTACHMENT A - Rate Schedule

Photo Lab Service - Enlargements, Lamination, Mounting	per sq. ft.		F	$ 6.00
Photo Processing Technician	hour		F	$ 98.17
Lidar Workstation	hour		F	$ 25.00

ATTACHMENT B

WORK AUTHORIZATION
WORK AUTHORIZATION NO. 01
CONTRACT FOR ENGINEERING SERVICES

THIS WORK AUTHORIZATION is made pursuant to the terms and conditions of Article 4 of the Contract for Engineering Services (the Contract) entered into by and between the Central Texas Regional Mobility Authority (the Mobility Authority) and CP&Y, Inc., (the Engineer) dated _____.

PART I. The Engineer will perform engineering services generally described as plans, specifications and estimates for the south to west, north to west and east to south direct connectors and associated interchange improvements at 290E and SH130, Manor Expressway Phase III Project, in accordance with the project description attached hereto in Exhibit B and made a part of this Work Authorization. The responsibilities of the Mobility Authority and the Engineer as well as the work schedule are further detailed in Exhibits A, B, and C which are attached hereto and made a part of the Work Authorization.

PART II. The maximum amount payable under this Work Authorization is $7,055,388.00 and the method of payment is Lump Sum. This amount is based upon the Engineer's estimated Work Authorization costs included in Exhibit D, Fee Schedule/Budget, which is attached and made a part of this Work Authorization. DBE participation shall be tracked and documented as detailed in Exhibits E, F, and G.

PART III. Payment to the Engineer for the services established under this Work Authorization shall be made in accordance with the appropriate sections of the Contract.

PART IV. This Work Authorization shall become effective on the date of final acceptance of the parties hereto and shall terminate upon completion of the work, unless extended by a supplemental Work Authorization as provided in Article 4 of the Contract.

PART V. This Work Authorization does not waive the parties' responsibilities and obligations provided under the Contract.

IN WITNESS WHEREOF, this Work Authorization is executed in duplicate counterparts and hereby accepted and acknowledged below.

THE ENGINEER	**CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY**
_____	_____
(Signature)	(Signature)
James J. Roohms, P.E.	Mike Heiligenstein
(Printed Name)	
COO, Senior Vice President	Executive Director
(Title)	
_____	_____
(Date)	(Date)

LIST OF EXHIBITS

Exhibits	Title
A	Services to Be Provided by the Mobility Authority
B	Services to Be Provided by the Engineer
C	Work Schedule
D	Fee Schedule/Budget
E	DBE Participation Forms (E-1 through E-7)
F	Disadvantaged Business Enterprise (DBE) for Federal Funded Professional or Technical Services Contracts – See Exhibit E Instructions
G	Disadvantaged Business Enterprise (DBE) for Race-Neutral Professional or Technical Services Contracts – See Exhibit E Instructions

EXHIBIT A

SERVICES TO BE PROVIDED BY THE MOBILITY AUTHORITY

The Mobility 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 of notice to proceed.
2. Render reviews, decisions and approval as promptly as necessary to allow for the expeditious performance of the Services to be provided by the Engineer.
3. Provide timely review and decisions in response to the Engineer's request for information and/or required submittals and deliverables, in order for the Engineer to maintain the agreed-upon work schedule.
4. Maintain the Project's Website.
5. Provide the Engineer with relevant data available to the Mobility Authority related to people, agencies and organizations interested in the proposed project.
6. Provide the Project's pavement design for both proposed and temporary conditions.
7. Provide the existing schematic designs for 290E and SH130.
8. Prepare the Project's environmental studies.
9. Provide available project data relevant to the Project including but not limited to as-built plans, preliminary cost estimates, existing ROW plans, CADD files, reports, studies, traffic data/volumes, etc.
10. Provide direction of the Project aesthetic theme for the Engineer's development of the aesthetic details.
11. Lead and coordinate necessary public involvement activities with support from the Engineer.
12. Provide a Project Manager responsible for coordinating with the Engineer.
13. Interface with local, regional, State and Federal agencies or other entities on behalf of the Engineer.
14. Secure all required permits and agreements with supporting documentation provided by the Engineer.
15. Provide information related to the Mobility Authority's Green Roads Program.
16. Provide information related to tolling requirements and system integration.
17. Provide value engineering facilitator and support staff if required.
18. Lead the Project bid process.

EXHIBIT B

SERVICES TO BE PROVIDED BY THE ENGINEER

THIS PAGE IS LEFT BLANK

EXHIBIT B
Services to be Provided by the Engineer
Manor Expressway Phase III Project

The Design Consultant Engineer ("Engineer"), shall be responsible for the work described in this Scope of Services ("Services") for the Manor Expressway Phase III Project ("Project"). The Engineer will coordinate with Mobility Authority Staff and their 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 preliminary and final PS&E 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 all other members of their project team to verify that all deliverables meet the established schedule and quality requirements.

The Engineer will be expected to deliver a final set of construction plans and bid documents suitable for construction bidding. The Project design involves the construction of three (3) direct connectors at the 290E/SH130 Interchange (South SH130 to West 290E, East 290E to South SH130, and North SH130 to West 290E) and ramp improvements/modifications on 290E and SH130. The proposed improvements shall be designed with allowance for the ultimate planned improvements to SH130 including frontage roads, ramps, and additional main lanes.

The Mobility Authority is taking lead on design and construction for the Project, but the Project will be fully coordinated with TxDOT and will be required to meet all 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.

MAJOR WORK ELEMENTS

Data Collection/Preliminary Design

Perform research and obtain historical project information including as-built plans, environmental documents, existing utility locations, signalization plans and timing, hydraulic and hydrologic data, geotechnical studies and boring logs, and others. Perform field surveys that will assist with preliminary design including geotechnical survey, design survey, SUE, traffic counts and others.

The Services will include Preliminary Design for the Project. Major tasks include: Environmental (evaluate compliance and planning documents and understand environmental permits, issues and commitments, preparation of exhibits and information if a re-evaluation

should be necessary), Drainage (hydrologic studies, preliminary hydraulic analysis/design), Traffic Evaluation (traffic count evaluation, traffic modeling, reports and recommendations), Stakeholder coordination and assistance with public involvement (presentation support, reporting support), and Preliminary Design including: geometric alignments, bridge type/size/location studies, preliminary structural design for bridges and retaining walls, cross-section development, intersection design/configuration, preliminary traffic control plans, traffic operations study, determination of aesthetic theme, Storm Water Pollution Prevention Plan (SW3P), identify potential utility conflicts, establish preliminary illumination locations, and cost estimates. Design will need to prioritize introduction of sustainability features into the project design and the bid documents should incorporate sustainability requirements for construction methods and materials.

Final Design

Final Design Services will include continuation of stakeholder coordination and assistance with public involvement, finalization of reports and studies, and final design and the preparation of the PS&E documents for the Project. Major design tasks include: Roadway (geometry, retaining walls, earthwork, plan production), Drainage (H&H studies, culvert and storm drain, detention design and coordination), Structures (bridges, walls, miscellaneous drainage structures, foundations), Traffic (pavement markings, small and large signs, overhead sign structures, signalization, illumination, toll facility infrastructure coordination, ITS system duct bank coordination), Miscellaneous (traffic control plans, guardrail, landscape planting and hardscape), support during the bidding process and any other incidental items necessary for the proposed project.

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

EXHIBIT B
Services to be Provided by the Engineer
Manor Expressway Phase III Project

1. DATA COLLECTION / PRELIMINARY DESIGN

1.1. Environmental Document Review/Coordination

Major elements of work include the following: The Engineer will review the environmental commitments and innovations included in the past environmental documents for the SH130 Project and the 290E (Manor Expressway Project) and the Mobility Authority's Green Roads Program. The Project is anticipated to be completed under a Reevaluation Consultation Checklist (RCC) under one of the previous environmental documents. Preparing the RCC and coordination with TxDOT is not included in the scope of this contract as this effort will be performed by others. The Engineer will coordinate with TxDOT and the Mobility Authority to assess the required actions that may be associated with design modifications (if any) that result from preliminary design and final design phases. The Engineer will provide information, exhibits, and tables as necessary to assist in the preparation of the RCC.

1.2. Public Involvement Assistance

The Engineer will provide support for various meetings (including MAPO's), coordination, and communication with the public and other agencies as requested by the Mobility Authority. Support will include attending meetings, producing displays, providing information for website and information sheet development.

1.3. Data Collection

The Engineer shall collect, review and evaluate data described including: Available "as-built plans", existing schematics, right-of-way maps, SUE mapping, existing cross sections, existing planimetric mapping, Environmental Documents (State EA), driveway permits, utility permits, draft toll systems facility/ITS infrastructure guidelines and plans, etc. The Engineer is responsible for any adjustments to electronic files received by others, as described above, in order to verify that the position of all files are on the exact same georeferenced coordinate system as the Project's Control.

The Engineer will perform sufficient field investigations to gather information for the development of the construction plans. Drainage, signing, structures, ITS and toll infrastructure elements shall be field verified.

1.4. Geotechnical Investigation

1.4.1. General Requirements

1.4.1.1. Perform geotechnical investigations and testing according to TxDOT's Geotechnical Manual (latest edition) and TxDOT's Test Methods, or ASTM Standards if no corresponding TxDOT Methods exist. Supplement existing boring logs performed by others with new borings for the design of bridge substructures, retaining walls, and sign structure foundations. All proposed boring locations shall be identified by the Engineer and shown on a boring layout, reviewed and approved by the Mobility Authority prior to performing geotechnical investigations.

1.4.1.2. The Engineer shall be responsible for arranging for utility locations prior to

drilling borings.

1.4.1.3. Provide a traffic control plan in accordance with TxDOT Standards for all work to be performed adjacent to traffic.

1.4.1.4. Record GPS coordinates of each bore hole using hand-held GPS unit utilizing project survey control. Bore holes will be marked for surveying of ground elevations and coordinates in order to locate in the plans.

1.4.1.5. Backfill borings, less than 20 feet with cuttings from the boring or gravel. Patch pavements with cold mix asphalt or concrete (match existing paving surface of affected road or drive. All borings with depths greater than or equal to 20 feet must be plugged with a non-shrink grout from the bottom of the hole to within three (3) feet of the surface. The remainder of the hole must be backfilled with cuttings from the boring or gravel. All borings must be backfilled or plugged within four (4) days of completion of the drilling operations. Voids may be filled with gravel.

1.4.2. Pavement Design

1.4.2.1. Review the Pavement Design Report and existing boring logs performed by others and make recommendations for adjustments if deemed beneficial or warranted.

1.4.3. Bridges

1.4.3.1. Supplement existing boring and boring logs performed by others as necessary to complete the bridge design. Bridge borings shall be drilled to a minimum depth of 50’ below top of existing ground.

1.4.3.2. Analyze subsurface conditions and Texas Cone Penetrometer Test results for each bridge location.

1.4.3.3. Develop recommendations for suitable foundation type, allowable bearing and skin friction resistance in the soil profile encountered, and minimum required penetration depths for each bridge location. Provide final tip elevations recommendations as they relate to possible axial design loads.

1.4.3.4. Perform laboratory testing to include: USCS Soil Classification, Atterberg limits, particle size analysis (D50 and D95), moisture content and unconfined compression tests.

1.4.3.5. At bridge locations, for each bent and abutment provide soil parameters and other necessary data so that the structural engineer can determine point-of-fixity. Also included necessary data for lateral analysis of drilled shafts.

1.4.3.6. Identify potential drilled shaft construction problems related to groundwater, caving soils, very hard rock layers or karst features.

1.4.4. Retaining Walls

1.4.4.1. Supplement existing boring and boring logs performed by others as necessary to complete the retaining wall design. Retaining wall borings shall be drilled to a minimum depth of 20’ below the bottom of proposed walls.

1.4.4.2. Perform laboratory testing to characterize the uniformity and strength for the

soils that will be supporting MSE walls and soil and rock conditions for design of drilled shaft walls. Laboratory testing will include: USCS Soil Classification, Atterberg limits, particle size analysis, moisture content**,** soil consolidation, consolidated drained direct shear test and unconfined compression tests.

1.4.4.3. Analyze the bearing, overturning, eccentricity and sliding resistance of the foundation soils at each wall location.

1.4.4.4. Analyze the stability of each wall for rotational stability with respect to deep-seated shearing movements by performing slope stability analyses.

1.4.4.5. Analyze settlement of retaining walls.

1.4.4.6. Analyze global stability of retaining walls

1.4.4.7. Compare anticipated wall applied bearing pressures with the allowable bearing resistance to determine whether or not the foundation soils need to be strengthened to support the walls.

1.4.4.8. For spread footing walls, recommend the design soil lateral earth pressure and provide bearing capacity, sliding and slope stability analyses and evaluate the settlement of the wall.

1.4.5. Geotechnical Report

The Engineer will prepare a draft geotechnical report that will present recommendations for the design of the bridge foundations, retaining wall foundations, and sign structures including:

1.4.5.1. Site vicinity and geology map.

1.4.5.2. Generalized subsurface conditions, as well as groundwater conditions encountered during drilling operations.

1.4.5.3. Engineering and construction considerations, structural fill requirements and earthwork recommendations.

1.4.5.4. Wincore Version 3.1 logs in English units, laboratory test results, and plan of borings with station and offset and top of hole elevations.

1.4.5.5. Recommended foundation type, minimum embedment, allowable end bearing and skin friction resistance in the founding material encountered.

1.4.5.6. Soil parameters and other data provided to structural engineers for use in determining point-of-fixity of bridge foundations for bridge column design and lateral analysis of drilled shafts.

1.4.5.7. Recommended bearing and sliding resistance for design of MSE walls. Where the allowable bearing resistance is likely to be exceeded by the walls bearing pressure, recommendations for increasing wall anchor lengths or improving the foundation soils will be presented to provide adequate bearing capacity. Develop parameters for RW(MSE)DD standard sheet.

1.4.5.8. Rotational stability analyses and settlement analyses results for each retaining wall location. At wall locations where stability and/or settlement may be of concern the Engineer shall develop conceptual approaches to improve the rotational stability and/or settlement. Upon review by the Mobility Authority

the Engineer will further develop the selected concept.

1.4.5.9. Identification of potential foundation construction problems with recommendations to mitigate or avoid the problems.

1.4.5.10. Existing boring logs performed by others will be presented in the appendix to supplement the new borings for bridge structures, retaining walls and sign and toll gantry structures. The intent is to have one report for the limits of this project. The Engineer assumes no liability for the accuracy of borings performed by others.

1.4.5.11. Minimum side slope and slope stability recommendations for storm water detention basins.

1.4.5.12. Calculated D50 and D95 soil size within potential scour locations for scour analysis computations.

1.4.5.13. Recommended bearing and sliding resistance of the spread footing walls. Where the allowable bearing resistance is likely to be exceeded by the wall pressure, improving the foundation soil will be presented to provide adequate bearing capacity.

1.4.5.14. Provide recommendations for backfill material and drainage for retaining walls.

1.4.5.15. Geophysical study results will be included with the draft geotechnical report.

1.4.6. Deliverables

1.4.6.1. Submit three (3) draft copies of the geotechnical report for review and comment to the Mobility Authority in *.pdf and hard copy formats. One draft copy of the geotechnical report shall also be kept on file with the Engineer for future reference.

1.5. Surveying

The Engineer shall coordinate survey requirements with the Mobility Authority. If data is needed outside of the limits of the apparent ROW, the Engineer will obtain written right of entry (ROE) from respective property owners or their authorized representatives and any tenants. The Engineer will contact affected land owners from which ROE has been obtained prior to commencing any work on private property. The Engineer anticipates that the Mobility Authority will handle problems regarding any and all refusal to grant ROE or communication with land owners who are hostile with respect to the completion of this scope of services. The Engineer will document any interactions with land owners while performing the work. Gaining ROE from all land owners in a timely manner, if applicable, will be critical to the success and efficiency in meeting deadlines for this project. If ROE is required for other tasks – the ROE request should include those other tasks even if performed by a different firm.

1.5.1. Project Control

Utilize the TxDOT-Austin District VRS network to establish up to twenty (20) primary horizontal and vertical control points. Primary control points (5/8” iron rods with “INLAND Control” plastic caps) will be set for horizontal and vertical control in a location that will likely be undisturbed by construction or State

maintenance. This project will be placed on the horizontal and vertical datum [NAD83/93/NAVD88 values (Texas State Plane, Central Zone)] with the surface adjustment factor of 1.00011. Elevations will be derived from GPS observations using Geoid 2012A model. Secondary control points (5/8" iron rods with "INLAND Control" plastic caps) will be set and tied to primary control as needed. A benchmark system shall be established for additional vertical control on approx. 1000 foot intervals. Digital levels will be run through all survey control points to confirm the established elevations.

The Engineer shall set up to 30 targets along the existing roadway within the below described design survey limits (1.5.2.1 and 1.5.2.2) to be set as control for the Airborne LiDAR and imagery collection. The horizontal and vertical values for these targets will be based on the project control (to be established and provided by Engineer) and positioned using a minimum of two (2) RTK vectors from the project control set.

1.5.2. Topographic Survey and Asbuilt

Supplemental design survey within the Project limits as necessary including the following:

1.5.2.1. Within the apparent existing ROW lines of SH130 from approximately 2,400' south of Blue Bluff Road to 2,800' north of FM734 with the following cross flights centered on SH130:

- 1,900' at Blue Bluff Road
- 3,700' at the Cap Metro Rail crossing
- 2,800' at FM734

1.5.2.2. Airborne LiDAR of the roadway and out to the project boundaries is to be collected in the limits described in section 1.5.2.1. Calibrate and merge airborne LiDAR data with field survey data into one point cloud for mapping and extraction purposes. Imagery will be collected during the airborne LiDAR acquisition as well so orthophotos can be made for the entire project area.

1.5.2.3. In support of the LiDAR operations, the Engineer will utilize conventional or GPS survey methods to collect supplemental design survey data within the above described design survey limits that may be obscured to LiDAR data collection. The estimated length of this supplemental survey along the longitudinal edge of pavement is 16,000 linear feet. In such areas, conventional survey methods will be utilized to collect cross-sections and break lines at approximate 50-foot intervals within the above described project limits. Major grade-break lines necessary to produce a one-foot interval contour DTM will be collected, as well as any visible improvements including driveways (with type noted), driveway pipes, drop inlets and drainage structures (noting size, material and flowline elevation), edge of pavement, edge (shoulder) line, crown (physical centerline), guardrail, fences, signs (with text) and mailboxes, visible utilities and visible evidence of underground utilities. Collect 1"=50' planimetric features of the entire project area to TxDOT specifications.

1.5.2.4. Collect design survey data and cross sections for four (4) cross-culverts. Six (6) cross sections at each cross-culvert will be located at the upstream and downstream headwalls, upstream and downstream right-of-way, and 100 feet beyond the upstream and downstream right-of-way. Cross-culvert locations are at the following locations:

- Culvert 6 – approximately 150 feet east of Decker Lane on 290E
- Culvert 7 – approximately 900 feet east of Decker Lane on 290E
- Culvert 10B – approximately 1900 feet north of 290E on SH130
- Culvert 10E – approximately 1200 feet south of 290E on SH130

1.5.2.5. Collect design survey data for the existing bridge structures from conventional survey methods to supplement the airborne LiDAR data within the above described design survey limits or as directed. Bridge structure components to be collected will include, but not limited to, corners of the bridge deck, two (2) points along the toe of each bridge rail within each span, bridge abutments caps, backwalls and wingwalls, interior bent caps, outside low chord elevations, and column locations (noting size, location, and material) only

1.5.2.6. The surveyor will collect sample data of the entire project to "ground truth" the LiDAR deliverables as a QA/QC task. This sample will have cross sectional information of both earthen and improved entities within the project limits. This sample will be approx. a 10% random sample or a cross section at approximately 1000-foot intervals, or as directed, throughout the project.

1.5.2.7. Stake the location of up to seventy (70) geotechnical soil borings using X, Y and Z coordinates to be provided by the Mobility Authority. The Surveyor will then locate the seventy (70) drilled soil borings as placed and drilled by the geotechnical consultant.

1.5.2.8. Collect supplemental design survey data along the SH130 bridges over the CapMetro RailRoad ROW. In such areas low chords and top of rail shots only shall be collected and included in the appended 2D planimetric file. Collecting DTM breaklines and including these bridge details in the appended 3D DTM or TIN file is outside of this scope of services.

1.5.2.9. Provide temporary signs, traffic control, flags, safety equipment, etc. to perform the survey task described hereon

1.5.2.10. Control traffic in and near surveying operations adequately to comply with the latest edition of the Texas Manual on Uniform Traffic Control Devices. In the event field personnel must divert traffic or close traveled lanes, the Engineer shall prepare a Traffic Control Plan for approval by the Mobility Authority prior to commencement of field work. A copy of the approved plans shall be in the possession of field personnel on the job site at all times and shall be made available to Mobility Authority personnel upon request. The Mobility Authority shall be contacted prior to any work in the Project ROW.

1.5.2.11. Merge and append the LiDAR data and the supplemental design survey data to the original aerial mapping file, as provided by the State, to create a seamless 2D, DTM and TIN file. Bridge data may be in a separate .dgn file. Survey

data to be obtained by the Engineer will be developed and delivered in 2D Microstation format. The 3D Microstation file will also be supplied showing all spot points and break lines. The DTM will be compatible with GEOPAK and Microstation and all level symbology, location, and formats will comply with Mobility Authority's Microstation Graphic File Format prior to delivery. If any AutoCAD to Microstation conversions have taken place, it will be the Surveyors responsibility to verify all such formatting is maintained.

1.5.2.12. The Engineer shall perform an as built survey of new construction (interim project) at the intersection of the SBFR of SH130 for 800 feet north of the 290 WB intersection. Additionally, the Engineer will survey a portion of the WBFR of US290 from the SBWB DC of SH130 for 3500 feet westerly thereof to the entry ramp near Blue Goose Road. This task will be performed after Aerial LiDAR operations.

1.5.2.13. The Engineer shall depict the record right-of-way (ROW) within the project files. The Engineer shall perform sufficient field work to verify the ROW site conditions.

1.5.3. Design Survey Deliverables:

1.5.3.1. Merged and unmerged 2D dgn (V8) file with planimetrics including survey control and bench marks

1.5.3.2. Merged and unmerged 3D MicroStation (V8) file with spot points and break lines clearly delineated on separate levels. Provide combined TIN file.

1.5.3.3. 2D dgn of re-established project horizontal and vertical control verified and provided by the surveyor.

1.5.3.4. ASCII text file containing the survey data points

1.5.3.5. GEOPAK file and field book copies

1.5.3.6. Calibrated .las files of the LiDAR data

1.5.3.7. Calibration reports

1.5.3.8. Ortho photography

1.6. Subsurface Utility Engineering and Utility Coordination

1.6.1. Project Overview

For the purposes of this Section, the project encompasses an area described by the following:

Along Highway 290E, from a point 2000' east of the centerline intersection with Harris Branch Parkway, approximately 3300' northeast to a point 250' southwest of the centerline intersection of 290E and SH130, extending the width between the westbound 290E frontage road and mainlane centerline as well as the full northwest and southwest corners of the 290E and SH130 interchange.

Along SH130, from a point 300' north of the centerline intersection of SH130 and FM 734 (E. Parmer Lane), approximately 4300' south to the centerline intersection of SH130 and 290E, extending the width between the southbound SH130 frontage

road and the mainlane centerline

Along SH130, from the centerline intersection of SH130 and 290E, approximately 4900' south and southeast to a point 2250' north of the centerline intersection of SH130 and Blue Bluff, for a width of 550' centered on the SH130 centerline.

Along SH130, from a point 2250' north of the centerline intersection of SH130 and Blue Bluff, approximately 2250' south and southeast to the centerline intersection of SH130 and Blue Bluff Road, for a width of 275' west of the SH130 centerline.

1.6.2. Definitions

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

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

1.6.2.2. Quality Level C – Surface Visible Feature Survey: Quality Level D information from existing records is correlated with surveyed surface-visible features. It includes Quality Level D information.

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

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

1.6.3. Designate (Quality Level B)

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

1.6.3.1. Compile "As Built" information from plans, plats and other location data as provided by the utility owners.

1.6.3.2. Designate, record, and mark the horizontal location of all existing utility facilities and their service laterals to proposed ROW using non-destructive surface geophysical techniques. No storm sewer facilities are to be designated unless authorized by the Mobility Authority. A non-water base paint, utilizing the APWA color code scheme, shall be used on all surface markings of underground utilities. It is estimated 51,000 LF of Level B designation may be required for the Project.

1.6.3.3. Correlate utility owner records with designating data and resolve discrepancies using professional judgment. A color-coded composite utility facility plan with

utility owner names, quality levels, line sizes and subsurface utility locate (test hole) locations, shall be prepared and delivered to the Utility Authority. It is understood by both the Engineer and the Utility Authority that the line sizes of designated utility facilities detailed on the deliverable are from the best available records and that an actual line size is normally determined from a test hole vacuum excavation. A note will be placed on the quality level B deliverable that states "lines sizes are from best available records".

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

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

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

1.6.3.7. This information will be provided in the latest version of AutoCAD or Microstation, as requested by the Mobility Authority. The electronic file will be delivered on CD, DVD or Newforma File Transfer as requested by the Mobility Authority.

1.6.3.8. A hard copy of the quality level B information will be provided in 22” x 34” format and will be signed, sealed and dated by the Engineer.

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

Locate means to obtain precise horizontal and vertical position, material type, condition, size and other data that may be obtainable about the utility facility and its surrounding environment through exposure by non- destructive excavation techniques that maintains the integrity of the utility facility.

1.6.4.1. Review requested test hole locations and advise the Mobility Authority in the development of an appropriate locate (30 test holes) work plan relative to the existing utility infrastructure and proposed highway design elements.

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

1.6.4.3. Neatly cut and remove existing pavement material, such that the cut not to exceed 0.10 square meters (1.076 square feet) unless unusual circumstances exist.

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

- Elevation of top and/or bottom of utility tied to the datum of the furnished plan.
- Identify a minimum of two benchmarks utilized. Elevations shall be within

an accuracy of 15mm (.591 inches) of utilized benchmarks.

- Elevation of existing grade over utility at test hole location.
- Horizontal location referenced to project coordinate datum.
- Outside diameter of pipe or width of duct banks and configuration of non-encased multi-conduit systems.
- Utility facility material(s).
- Utility facility condition.
- Pavement thickness and type.
- Coating/Wrapping information and condition.
- Unusual circumstances or field conditions.

1.6.4.5. Excavate test holes in such a manner as to prevent any damage to wrappings, coatings, cathodic protection or other protective coverings and features. Water excavation will only be utilized with written approval from the Mobility Authority.

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

1.6.4.7. Back fill all excavations with appropriate material, compact backfill by mechanical means, and restore pavement and surface material.

1.6.4.8. Furnish and install an above ground marker directly above center line of the utility facility.

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

1.6.4.10. Plot utility location position information to scale and provide a comprehensive utility plan sign and sealed by the responsible Engineer. This information shall be provided in the latest version of the CAD format used by the Mobility Authority. The electronic file will be delivered on CD or via Newforma File Transfer. When requested by the Mobility Authority, the SUE information must be over laid on the Mobility Authority's design plans.

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

1.6.5. Utility Adjustment Coordination

Utility Adjustment Coordination shall include utility coordination meetings with individual utility companies, communication and coordination with utilities, and preparation of utility agreement assemblies including utility agreements, joint use

agreements, notice of proposed installation and advanced funding agreements. Utility(ies) or utility(ies) shall mean (1) a public, private, cooperative, municipal and/or government line, facility or system used for the carriage, transmission and/or distribution of cable television, electric power, telephone, telegraph, water, gas, oil, petroleum products, steam, chemicals, hydrocarbons, telecommunications, sewage, storm water not connected with the drainage of the Project, and similar substances that directly or indirectly serve the public, and/or (2) a Private Pipeline. The term "Utility" or "utility" specifically excludes (a) storm water facilities connected to the drainage of the project, (b) ITS, and (c) street lights and traffic signals.

1.6.5.1. The Engineer shall coordinate all activities with the Mobility Authority, or their designee, to facilitate the orderly progress and timely completion of the Mobility Authority design phase. The Engineer shall be responsible for the following:

- Work Plan. Coordinate a work plan including a list of the proposed meetings and coordination activities, and related tasks to be performed, a schedule and an estimate. The work plan must satisfy the requirements of the project and must be approved by the Mobility Authority prior to commencing work.
- Orientation. Prepare and present, in collaboration with Mobility Authority staff, instruction and orientation sessions as required by the Mobility Authority. The instruction shall introduce the subsurface utility engineering process, demonstrate the technology and facilitate the preparation of work orders, billings, and contract related documentation.
- Initial Project Meeting. Attend an initial meeting and an on-site inspection (when appropriate) to establish familiarity with existing conditions, project requirements and prepare a written report of the meeting.
- External Communications. The Engineer shall coordinate all activities with the Mobility Authority and its consultants or other contractors or representatives, as authorized by the Mobility Authority. Also, the Engineer shall provide the Mobility Authority copies of diaries, correspondence and other documentation of work-related communications between the Engineer, utility owners and other outside entities when requested by the Mobility Authority.
- Progress Meetings. The Engineer shall implement a schedule of periodic meetings with each utility company and owner or owner's representatives for coordination purposes. Such meetings shall commence as early as possible in the design process and shall continue until completion of the project. The Engineer shall notify the Mobility Authority at least two (2) business days in advance of each meeting to allow the Mobility Authority the opportunity to participate in the meeting. The Engineer shall provide and produce meeting minutes of all meetings with said utility companies, owners or owners' representatives within seven (7) business days. The

frequency of such meetings shall be appropriate to the matters under discussion with each utility owner.

1.6.5.2. As required the Engineer shall coordinate with the local utilities committees to present a foot print of the Mobility Authority's projects with represented utility companies and owners. The Engineer shall also coordinate with any other utility committees which may include county, city, or other officials, if needed.

1.6.5.3. The Engineer shall provide initial project notification letters to all affected utility companies, owners, and other concerned parties, if needed.

1.6.5.4. The Engineer shall provide the Mobility Authority and all affected utility companies and owners a Utility Contact List for each project with all information such as: (a) Owner's Name; (b) Contact Person; (c) Telephone Numbers; (d) Emergency Contact Number; (e) E-mail addresses; (f) as well as all pertinent information concerning their respective affected utilities and facilities, including but not limited to: size, number of poles, material, and other information which readily identifies the utilities companies' facilities.

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

1.6.6. Utility Agreements For Utility Adjustments

The Engineer shall coordinate which utilities conflict with highway construction or the "Utility Accommodation Rules" (UAR), and make the utility company aware of these conflicts. The Engineer shall assist the utility companies in the preparation of required agreements associated with the funding of adjustments and the occupation of State right of way. It is assumed that no utility agreements will be required for the construction of this project. If determined to be necessary, these services will be handled under task 2.6, Special Design per Mobility Authority Request.

1.6.7. General Requirements

1.6.7.1. The Engineer shall determine the location of all existing utilities including ITS and toll infrastructure within the project area, as described above, using Quality Level B standards. The Engineer shall compile "As-Built" information from plans, plats and other location data as provided by utility owners. A color-coded composite utility facility plan with utility owner names, quality levels and line sizes will be prepared and delivered to the GEC. It is understood by both the Engineer and the GEC that the line sizes of utility facilities detailed on the deliverable are from the best available records and that an actual line size is normally determined from a test hole vacuum excavation. All above ground appurtenance locations must be included in the deliverable to the GEC. This information will be provided in the latest version of Microstation or Geopak used by the Mobility Authority. The electronic file will be delivered on CD. A hard copy is required and must be signed, sealed and dated by the Engineer.

1.6.7.2. The Engineer shall maintain and update a Utility Conflict List to include phone log and all correspondence to the utility owners. The Engineer shall provide the most current copy of the conflict list to the GEC at each milestone submittal, and shall be responsible for coordination with utility companies to resolve conflicts. The Utility Conflict List shall identify the owner of the facility, the contact person (with address and telephone number), location of conflict (station and offset), type of facility, expected clearance date, status, effect on construction and type of adjustment necessary.

1.6.7.3. After identifying potential conflicting utilities, and in coordination with the GEC, the Engineer shall arrange for and attend utility meetings with all utility owners and other interested parties or agencies that are identified to be within the proposed project's area. The purpose of this meeting is to verify that all utility owners and area entities are aware of the scope and relevant details of the proposed project. The Engineer shall be responsible for writing and documenting the meeting minutes and other follow-up work with utility owners, if necessary.

1.6.7.4. The Engineer shall determine prior to the 30% milestone submittal if Quality Level A and B Subsurface Utility Engineering (SUE) will be required for this project.

1.6.7.5. The Engineer shall coordinate with the utility companies. The Engineer shall attend meetings at the 30% Design submittal with the various utility companies to discuss potential conflicts.

1.6.7.6. The Engineer shall incorporate existing utility survey and SUE work into the preliminary design for presentation at a utility coordination meeting.

1.6.7.7. Contact One-Call to facilitate the location of existing buried utilities. Tie the surface features of existing utilities within the project limits as marked by One-Call.

1.7. Preliminary Design and Incorporation of Innovative and Sustainable Components

The Engineer shall update project specific geometric and drainage criteria and summarize all design criteria and standards in a revised Design Summary Report (DSR). The Engineer will furnish copies of this report to the Mobility Authority for review and approval prior to preliminary design. The Engineer shall review the current approved Schematic and check all design values to verify conformance with the design criteria established in the approved DSR. The Engineer shall notify the Mobility Authority if elements of the schematic do not meet the specified Design Criteria.

1.7.1. The Engineer shall proceed with preliminary design as follows:

1.7.1.1. The Engineer shall refine the horizontal and vertical alignment elements of the Schematic for conformance to the proposed design criteria.

1.7.1.2. The Engineer shall incorporate components of the Mobility Authority's Green Roads Program and provide recommendations to the Mobility Authority for incorporation of innovative and sustainable components to the project.

1.7.1.3. Determine vertical clearances at grade separations and overpasses, taking into

account the appropriate super-elevation rate.

1.7.1.4. Schematic refinements shall include changes to cross sections and geometry to optimize and finalize bridge limits and span arrangements, retaining wall limits, location of overhead sign structures and toll gantries (if included), development of feasible construction sequence, and cost saving measures to reduce construction cost.

1.7.1.5. The Engineer shall develop a preliminary schematic layout.

1.7.1.6. Coordinate any modifications to the Schematic with the Mobility Authority and TxDOT.

1.7.1.7. The Engineer will coordinate with the Mobility Authority in identifying proposed bridges and retaining walls that would provide an opportunity for applying an aesthetics theme or Green Roads approach. The Engineer shall prepare an exhibit to show what aesthetic/sustainable features could be applied at each specific location for review and approval by the Mobility Authority.

1.7.1.8. Notify the Mobility Authority of any additional ROW needs or access easements.

1.7.1.9. Notify the Mobility Authority of any modifications to the Schematic that may have an impact on the environmental documents.

1.7.1.10. The Engineer shall prepare an updated preliminary cost estimate for discussion.

1.7.1.11. Develop updated proposed Cross-Sections. The cross-sections should illustrate utilities at their existing location.

1.7.2. Deliverables:

1.7.2.1. Submit ten (10) copies of a Schematic layout illustrating the modified typical sections, horizontal and vertical geometry, retaining wall locations, bridge limits and bent locations in *.pdf, CADD, and hard copy formats.

1.7.2.2. Submit ten (10) 11x17 copies of the proposed design cross-sections including utilities based on the proposed assignments in *.pdf, CADD, and hard copy formats.

1.7.2.3. Submit ten (10) copies of the preliminary cost estimate in both electronic and hard copy formats.

1.7.2.4. Provide exhibits indicating locations of sustainability and aesthetic improvements in *.pdf, CADD, and hard copy formats.

1.8. Roadway Design

1.8.1. Basic Plan Sheets

1.8.1.1. Prepare the preliminary PS&E Title Sheet for a local letting by the Mobility Authority.

1.8.1.2. Prepare preliminary Project Layout Sheets at a scale of 1″=200′ that clearly indicates the limits of the entire project.

1.8.2. Roadway Plans & Geometry

1.8.2.1. Develop preliminary Proposed Typical Sections Sheets for the Project

mainlanes, direct connectors, ramps, and frontage roads where work will be performed.

1.8.2.2. Develop preliminary Existing Typical Sections Sheets depicting the existing conditions of the project roadways.

1.8.3. Grading and Details

1.8.3.1. The Engineer will develop a preliminary Open Roads 3D DGN and DTM to model the proposed direct connectors and approaches.

1.8.3.2. The Engineer will cut preliminary Design Cross Sections from the Open Roads DTM at 100-foot stations at a minimum stretching across the entire ROW of the Project as necessary for the determination of cut and fill quantities and limits of disturbance.

1.9. Drainage Design

1.9.1. Review existing Drainage Analyses/Reports.

1.9.2. Hydraulic Report: Engineer will perform all drainage design with a specific hydrologic and hydraulic study. The Engineer will design and construct the outfalls to avoid any adverse impacts for the Ultimate Design (includes all eight direct connectors). The offsite hydrology may be modeled utilizing HEC-HMS. The cross-culverts shall be modeled using HEC-RAS or FHWA HY-8. The criteria below are meant to clarify and supplement but not supersede the TxDOT Hydraulic Design Manual. Should any apparent conflicts arise, the Engineer should consult the Mobility Authority for clarification.

1.9.2.1. Obtain and review best available hydrologic and hydraulic models. When appropriate these will be used to develop existing and proposed conditions models.

1.9.2.2. Identify all existing drainage outfalls within the limits of the project. Delineate drainage area boundaries for each drainage outfall including any area outside the limits of the project that drain to the outfall. Existing storm drain systems will be located and analyzed to the extent necessary for this study. Measure the existing impervious cover within each drainage area and compute the time of concentration and runoff curve number for each drainage area.

1.9.2.3. Compute existing condition flows at all outfalls draining into receiving streams. Utilize 24-Hour rainfall depths in the Atlas of Depth-Duration Frequency of Precipitation Annual Maxima for Texas (USGS/TxDOT Report 2004-5041) and rainfall distributions employed in the most recent FEMA studies of the watersheds of interest to compute discharges for 2, 5, 10, 25, 50, 100 year rainfall frequencies.

1.9.2.4. Delineate proposed condition drainage area boundaries. Include areas that are outside the project that drain to the proposed outfalls. Coordinate the drainage area delineation with adjacent projects, if applicable. Measure the proposed condition impervious cover within each drainage area and compute the runoff

curve number and the proposed condition time of concentration. Existing land use condition will be assumed for drainage areas outside the proposed ROW unless there is knowledge of any planned development. The Engineer shall coordinate with the Mobility Authority to obtain any information pertaining to any planned developments adjacent to the Project Corridor. If it is determined that a planned development is eminent and will utilize any part of the Project drainage conveyance system within the Project ROW, then the proposed build out conditions of the development shall be used in calculating runoff. Preliminary proposed condition storm drains will be located and sized.

1.9.2.5. Compute proposed condition flows at all proposed outfalls draining into receiving streams. Utilize rainfall data as defined in Paragraph 2 above.

1.9.2.6. Determine hydrologic impacts from the proposed project by comparing the existing and proposed flow rates at each outfall, taking into account the hydrographs from upstream watersheds.

1.9.2.7. For non-FEMA regulated outfalls, the primary criterion for no adverse impact is no more than one foot accumulative increase in water surface elevation of the 100-year rainfall frequency and no additional structures or significant properties in the 100-year rainfall frequency area of inundation. Engineer should use HY-8 or HEC-RAS or equivalent modeling approach to evaluate changes in water surface elevation. The community floodplain administrator will be notified of the project in accordance with TxDOT Hydraulic Design Manual Impacts of the 2, 5, 10, 25, 50-year events should also be evaluated. Engineer will evaluate (on a case by case basis) structures or properties that could potentially be impacted by comparing levels of the structures or properties with the water surface elevations. Engineer will present results of impact analysis to the Mobility Authority.

1.9.2.8. Determine mitigation alternatives if the proposed project could have an adverse impact. The mitigation alternatives may include storm water detention basins and/or adjustments to proposed drainage area boundaries, possible adjustment to roadway profiles and adjustment of preliminary storm drains to accommodate required mitigation alternatives. Mitigation alternatives will be coordinated with the Mobility Authority.

1.9.2.9. If detention is chosen as the alternative for mitigation, the design of the pond will achieve mitigation of impacts for 2, 5, 10, 25, 50, and 100 year rainfall events for the ultimate design and future development of 290E. In the case where two adjacent drainage areas discharge to the same watercourse, an adverse impact is determined, and it would be difficult to provide detention for one of the areas, the detention pond for the other area could be sized such that the combined proposed flow from both areas does not result in adverse impacts. Consideration should be made on the stream reach that does not receive detention to verify no adverse impact. Distance downstream for these confluences would be determined on a case by case basis. Engineer will provide proper documentation of such situations to the satisfaction of the

Mobility Authority.

1.9.2.10. It is assumed that eight (8) new detention basins will be required for the project. The eight locations assumed include:

- Two (2) ponds along 290E west of the intersection with SH130. The design and capacity of the existing detention basins located along 290E will be reviewed to determine if use of these basins for proposed detention is feasible
- Two (2) ponds along SH130 north of the intersection with 290E
- Two (2) ponds along SH130 south of the intersection with 290E
- Two (2) ponds along 290E east of the intersection with SH130

1.9.2.11. The Engineer will provide support for the Mobility Authority coordination for any approvals and permits required.

1.9.2.12. Submit a report that discusses the pertinent site information, analysis assumptions, hydrologic and hydraulic analyses, and the proposed design of any mitigation measures. Report should include a table that lists existing flows, proposed flows without mitigation, and proposed flows with mitigation (if mitigation proposed). A draft report with recommended mitigation measures will be submitted at the Initial Design Submittal.

1.9.3. Storm Water Pollution Prevention Plan (SW3P)

Temporary storm water management devices will be needed to minimize the sediment runoff during construction of this project. The Engineer will consider any and all applicable BMPs including: non-disturbance area delineation (preserving existing vegetation), temporary and permanent seeding or sodding, erosion control blankets, diversion dikes or swales, temporary mulch, silt fence, sand bags, rock filter dams, sediment traps, and construction exits, etc. The Engineer shall provide information to support the environmental document.

1.9.4. Deliverables

1.9.4.1. Electronic version of the validated Project Specified Unit Hydrograph Model

1.9.4.2. Electronic versions of the H&H Models (HEC-RAS, HEC-HMS) and applicable data and maps

1.9.4.3. Electronic version of the preliminary Hydraulic Report in both *.doc and *.pdf Formats

1.9.4.4. Electronic versions of the Storm Drainage Model (Geopak Drainage), applicable data and maps

1.10. Structural Design

All bridge design shall be in conformance with the latest edition of the State's *LRFD Bridge Design Manual, Bridge Project Development Manual, Bridge Detailer's Manual,* and AASHTO *LRFD Bridge Design Specifications*.

1.10.1. Bridge Foundation Design Study: The Engineer shall coordinate with the geotechnical task lead to evaluate whether alternative foundation designs that may be beneficial to the project. The study should include the options considered, the cost associated with the various options, benefits and drawbacks and final

recommendations.

1.10.2. The Engineer shall prepare a Bridge Type and Cost report that documents the analyses comparing costs for each bridge length versus pavement/embankment/retaining walls, to determine optimum bridge lengths and submit the report to the GEC. The Mobility Authority will approve this analysis prior to preparation of the bridge layouts.

1.10.3. Preliminary Bridge Layout & Typical Sections: The Engineer shall prepare preliminary bridge layout plans, elevations, and typical sections for the bridge types listed below in the Estimated Bridge Limits Table.

1.10.4. The preliminary development of bridge layouts includes preliminary development of bridge geometry.

Estimated Bridge Limits Table

Bridge	Approx. Length	Approx. Width	Estimated # of Spans
SH130 SB to 290E WB Direct Connector		Varies	
SH130 NB to 290E WB Direct Connector		38’	
290E EB to SH130 SB Direct Connector		38’	

1.11. Retaining Wall Design

1.11.1. The Engineer shall determine if walls are required and verify the need for and length of the retaining walls.

1.11.2. The Engineer shall prepare a Retaining Wall Type and Cost report that documents the analyses comparing costs for each wall type and submit the report to the GEC. The Mobility Authority will approve this analysis prior to preparation of the retaining wall layouts.

1.12. Signing, Markings and Signalization

1.12.1. Review the Preliminary Signage Schematic and make revisions as needed to reflect modifications made to the Schematic (if any). Provide justification for deletion of any large guide sign. Also, provide justification for the inclusion of any new larger. Justifications shall be reviewed and approved by the Mobility Authority prior to design.

1.12.2. Include proposed pavement markings on the Preliminary Schematic.

1.13. Traffic Control Plan

1.13.1. The Engineer shall prepare a conceptual Traffic Control Plan/Sequence of Construction Layout that defines the main phases of construction. This layout will be developed in conjunction with the geometric refinements and the preliminary design cross section. Commitments included in the Environmental Assessment

shall be taken into account if applicable during the development of the conceptual layout.

1.13.2. The Engineer will define lane closure requirements and develop a conceptual Lane Rental plan for review and approval of the Mobility Authority. Proposed project milestones will be developed for review and approval of the Mobility Authority. Lane Rental and Project Milestones approved by the Mobility Authority will be incorporated into the Traffic Control Narrative and General Notes.

1.13.3. The Engineer shall develop a preliminary construction schedule for the major phases of work.

1.13.4. The Engineer will participate in one Constructability workshop to review the Traffic Control Plan.

1.13.5. The Engineer will analyze the impacts to mainlane traffic volumes on both SH130 and 290E for each phase of the TCP. The Engineer will provide the results of this analysis to the Mobility Authority for use in a toll revenue impact analysis. It is anticipated that this analysis will be required in discussions with both the Mobility Authority and TxDOT in securing approval of the conceptual TCP and proposed lane closures.

1.14. Intelligent Transportation Systems (ITS)

1.14.1. The Engineer shall coordinate with the Mobility Authority's Director of Operations and TxDOT to obtain information related to the existing infrastructure.

1.14.2. The Engineer shall prepare an ITS Layout that defines the locations through field verification of duct banks, ground boxes, conduit systems, DMS signs, traffic detection devices, CCTV cameras, etc. to be used for design purposes as well as included in the plans for the contractor's information. The design should be in accordance with TxDOT's existing Concept of Operations (CONOPS) for the area.

1.14.3. Existing duct bank and conduit systems shall be included in the design cross sections where appropriate.

1.14.4. The existing ITS infrastructure should be avoided, but if unavoidable, any needed modifications should be coordinated through the Mobility Authority and TxDOT.

1.14.5. Prepare a report justifying the equipment used on the project with cost justification.

1.15. Illumination

1.15.1. The Engineer shall prepare a conceptual Illumination Layout based on 3D model of the roadway using AGI 32 to determine photometric characteristics that defines the safety lighting locations needed.

1.15.2. Prepare a report summarizing the lighting design justifying the recommendations.

1.15.3. The Engineer shall perform lighting warrant studies for full interchange lighting and safety lighting.

1.15.4. Assess the need FAA clearance of high mast lighting locations due to a number of airports in the area.

1.15.5. The Mobility Authority's goal is to provide an average illuminance level of between 0.6- and 0.8-foot candles on the roadway pavement. Illumination uniformity shall comply with the AASHTO Roadway Illumination Design Guide

requirements.

1.15.6. Engineer shall design for LED luminaires that conform to TxDOT DMS 11011 shall be used at all proposed conventional lighting locations.

1.15.7. The Engineer shall coordinate with utility providers to establish preliminary service pole locations if existing services are not feasible.

1.15.8. The Engineer will design the illumination modifications and additions for 290E to be consistent with the existing components utilized on the 290E.

1.15.9. The Engineer will design the illumination modifications and additions for SH130 to be consistent with the existing components utilized on SH130.

1.16. Toll Facilities Infrastructure

1.16.1. The Engineer shall coordinate with the Mobility Authority to obtain details and directives for the Toll Facilities Infrastructure Design.

1.16.2. The Engineer shall include all preliminary civil infrastructure elements required for tolling facilities to the design plans on the Preliminary Schematic.

1.16.3. The Engineer shall coordinate with the Mobility Authority's System Integrator (SI) to determine infrastructure required at each tolling site.

1.17. Traffic Operations Modeling

The Engineer shall conduct traffic modeling and analysis to support the interchange design effort. The Engineer shall review, collect, and analyze traffic data (including percent trucks, design hourly volume, and directional distribution), existing roadway features (including weaving sections, merge sections, diverge sections, number of lanes, and intersection geometry), traffic flow patterns, and signal operations.

1.17.1. Collect peak hour turning movement counts (AM (7:00-9:00) and PM (4:00-6:00)) at the following intersections:

1.17.1.1. Parmer Ln. at SH130 (diamond)

1.17.1.2. Harris Branch Pkwy. at 290E (diamond)

1.17.1.3. 290E at SH130 (box diamond)

1.17.1.4. Blue Bluff Rd. at SH130 (partial diamond)

1.17.2. Mainlanes Collect 24-hour bi-directional traffic counts (With Vehicle Classification) at the following locations:

1.17.2.1. SH130, north of Parmer Ln. ramps

1.17.2.2. 290E, west of Giles Ln./Johnny Morris Rd. ramps

1.17.2.3. 290E, east of SH130 ramps

1.17.2.4. SH130, south of Blue Bluff Rd. ramps

1.17.3. Ramps Collect 24-hour bi-directional traffic counts at the following locations:

1.17.3.1. SH130

- Parmer Ln. (3)
- 290E (3)

- Blue Bluff Rd. (3)

1.17.3.2. 290E

- Giles Ln./Johnny Morris Rd., east of Giles Ln./Johnny Morris Rd. (2)
- Harris Branch Pkwy. (3)
- EB-to-NB DC (with vehicle classification)
- SH130 (3)

1.17.4. Frontage Roads Collect 24-hour bi-directional traffic counts at the following locations:

1.17.4.1. Parmer Ln., west of SH130
1.17.4.2. Parmer Ln., east of SH130
1.17.4.3. SH130 SBFR to WB 290E RT ramp
1.17.4.4. 290E, between Giles Ln./Johnny Morris Rd. and Harris Branch Pkwy. ramps
1.17.4.5. 290E, between SH130 ramps and Parmer Ln.
1.17.4.6. Blue Bluff Rd., west of SH130
1.17.4.7. Blue Bluff Rd., east of SH130

1.17.5. Conduct a field review of the existing roadways, within the study area limits, to note and verify lane configurations, roadway geometrics and observe existing traffic operations on the study area network to note operational problems and existing traffic patterns to calibrate AM and PM existing models.

1.17.6. Obtain existing traffic signal timing and phasing information from the operating agency.

1.17.7. Code and calibrate existing AM and PM peak Vissim models.

1.17.8. Develop Opening Year volumes for the AM peak and PM peak hours. The volume forecasts will be based on TxDOT historical traffic counts, CAMPO 2040 travel demand model outputs, and information provided by Mobility Authority. Traffic projections will be made for the 290E and SH130 main lanes and ramps in the study area and the intersections listed for data collection.

1.17.9. Using the existing calibrated traffic model as the base, code AM and PM peak hour Vissim models to reflect transportation network configurations associated with the proposed roadway improvements. Two (2) scenarios shall be modeled as listed below for Opening Year traffic volume conditions:

1.17.9.1. Construction of 3 new DCs at the interchange of 290E and SH130
1.17.9.2. Construction of 3 new DCs at the interchange of 290E at SH130 and frontage road improvements south of 290E.

1.17.10. Summarize results of the analysis in a technical memorandum. The results will include intersection analysis, weaving analysis, and merge/diverge analysis to support the roadway design

1.18. Miscellaneous

1.18.1. The Engineer shall prepare a Construction Cost Estimate. A copy shall be submitted to the Mobility Authority in Microsoft Excel formal.

1.18.2. Determine locations and extent of Preliminary Landscape Plantings and Hardscape Plans based upon aesthetics and landscaping elements included in Manor Expressway.

1.18.3. The Engineer shall prepare preliminary aesthetic details for bridge and retaining wall elements. The Engineer will develop details with guidance and direction of the Mobility Authority on the aesthetic theme. Engineer shall incorporate aesthetic elements into the project that match those on SH130 and or Manor Expressway. The Mobility Authority will provide the aesthetic guidelines for the Engineer to incorporate into the final design.

1.18.4. All team members involved in the preparation of engineering plans, studies and reports shall have established QA/QC procedures and shall conform to those procedures during the life of the Project. To verify that adequate procedures will be employed to provide quality products, the Engineer will submit for approval for their proposed QA/QC Plan to be used on this project. The Mobility Authority will provide independent QA/QC audits to verify project compliance with this plan. The Engineer shall have a Quality Control Plan in effect during the entire time work is being performed under this project.

1.19. Coordination, Meetings & Invoicing

1.19.1. The Engineer will participate and attend up to six (6) project workshops with specialty consultants, TxDOT, and the Mobility Authority to establish the project issues, concerns, and objectives of the Project that will influence the configuration of the proposed Project and further define the Scope of Services to be provided by the Engineer.

1.19.2. The Engineer will participate and attend bi-weekly design coordination meetings with the Mobility Authority. The Engineer shall also conduct periodic meetings with the Engineer's internal team of sub-consultants.

1.19.3. The Engineer will participate and attend monthly design coordination meetings with the TxDOT.

1.19.4. The Engineer shall attend up to a total of eight (8) Stakeholder meetings (e.g. Cap Metro, Toll Operations Division, City of Austin, City of Manor, and Travis County, etc.) and provide support for the development of exhibits when requested by the Mobility Authority.

1.19.5. The Engineer shall prepare project development protocols for: communication, file naming, and documentation. The Engineer shall submit, for Mobility Authority review and approval, the file structure and naming schemes proposed to be used for Project computer generated drawings and plans.

1.19.6. Follow invoice procedures as described in the Contract.

2. FINAL DESIGN

2.1. Stakeholder Coordination and Public Involvement Assistance

The Engineer will continue to provide support for various meetings, coordination, and communication with the public and other agencies as requested by the Mobility Authority.

Support will include providing information for website and information sheet development.

2.2. Data Collection
The Engineer shall complete and finalize any remaining data collection efforts.

2.3. Geotechnical Investigation

2.3.1. The Engineer will respond to Mobility Authority comments and prepare a final geotechnical report that will present recommendations for the design of the bridge foundations, retaining wall foundations, sign structures, culverts and toll gantry foundations (if needed).

2.3.2. Deliverables

2.3.2.1. Submit three (3) final copies of geotechnical report that incorporate review comments. One (1) additional final copy of the geotechnical report that incorporates review comments shall also be kept on file with the Engineer for future reference.

2.3.2.2. Provide signed and sealed sheets of boring logs for insertion into the construction plan set.

2.3.2.3. Coordinate with Engineer and review and verify conformance with recommendations provided in the geotechnical report.

2.3.2.4. Provide electronic copies of Soil Boring locations in MicroStation dgn file.

2.3.2.5. Provide complete soil boring data files in Wincore format.

2.4. Supplemental Surveying

2.4.1. No work performed.

2.5. Utility Coordination and Design

2.5.1. The Engineer shall coordinate with the utility companies including TxDOT and the Mobility Authority related to the ITS/Tolling infrastructure. The Engineer shall attend meetings at the 60% Design and Pre-Final submittals with the various utility companies to discuss potential conflicts.

2.5.2. The Engineer shall evaluate and accommodate reasonable changes to plans as necessary or as requested by the Mobility Authority to avoid utility conflicts.

2.5.3. Illustrate existing and proposed utility locations on Roadway Plan sheets.

2.5.4. Show existing utility locations in the proposed cross sections with each submittal.

2.5.5. Illustrate existing and proposed (where applicable) utility crossings on Roadway Profile sheets.

2.5.6. Review all utility designs prepared by others for conflicts with construction plans.

2.6. Special Design Per Mobility Authority Request
At the request of the Mobility Authority, the Engineer may be required to produce special design details which are not included in the current schematic or specifically scoped effort. The Engineer shall initiate these efforts after obtaining Mobility Authority approval and shall consider these efforts as part of the Project scope. Budget for these extra tasks shall be allocated and tracked separately from other scoped items.

2.7. Final Roadway Design

2.7.1. Basic Plan Sheets

2.7.1.1. Prepare the final PS&E Title Sheet.

2.7.1.2. Complete the detailed Index of Sheets that identifies each sheet location in the plan set, as well as its corresponding sheet number. The Engineer will update the Index of Sheets throughout the submittal process to allow for easier reference during the review process.

2.7.1.3. Prepare final Project Layout Sheets at a scale of 1″=200′ that clearly indicates the limits of the entire project.

2.7.1.4. Prepare Survey Control Sheets that clearly indicate the benchmark locations and associated control information. These sheets will later be sealed by a RPLS for submittal.

2.7.2. Roadway Plans & Geometry

The Engineer will:

2.7.2.1. Develop final Proposed Typical Sections Sheets for the Project mainlanes, direct connectors, ramps, and frontage roads to which work will be completed.

2.7.2.2. Complete final Existing Typical Sections Sheets depicting the existing conditions of the project roadways.

2.7.2.3. Complete Roadway Plan and Profile sheets. Drawings will be prepared at a scale of 1”=100’ H and 1”=10’ V for the following elements:

- Southbound SH130 to westbound 290E direct connector.
- Northbound SH130 to westbound 290E direct connector.
- Eastbound 290E to southbound SH130 direct connector.
- Westbound 290E exit ramp to Harris Branch Pkwy.
- Southbound SH130 exit ramp north of 290E.
- Southbound SH130 exit ramp to Blue Bluff Rd.
- Northbound SH130 entrance ramp from Blue Bluff Rd.

2.7.2.4. Prepare Intersection details showing spot elevations and contours. Drawings will be prepared at a scale of 1”=100’ H and 1”=10’ V.

2.7.2.5. Develop Ramp Gore Layouts at the intersection of each ramp with its adjacent roadways. These layouts will show proposed grading, as well as station, offsets, curb radius and curb locations. Drawings will be prepared at a scale of 1” = 40’

2.7.2.6. Develop miscellaneous grading details. These layouts will show proposed grading, as well as station, offsets, curb radius and curb locations. Drawings will be prepared at a scale of 1” = 40’.

2.7.2.7. Prepare Horizontal Alignment Data Sheets depicting the horizontal geometric information for the project roadways to be included in the construction plan set.

2.7.2.8. Prepared Miscellaneous Curve Data Sheets depicting the horizontal geometric information for roadway curves that are not concentric to roadway alignments.

2.7.2.9. Develop Superelevation Data Sheets to be included in the PS&E set. These sheets will define the pavement cross slopes for individual roadway alignments and describe transition locations and values. Profile graphs will be required as backup documentation to illustrate there will be no ponding issues created within superelevation transition zones.

2.7.2.10. Prepare Removal Layouts showing the locations for the removal of pavement, structures and other miscellaneous items. Drawings will be prepared at a scale of 1"=100'.

2.7.3. Grading and Details

2.7.3.1. The Engineer will complete the Open Roads 3D DGN and DTM to model the proposed project elements.

2.7.3.2. Prepare Design Cross Sections at 50-foot stations along the mainlanes, direct connectors, ramps, frontage roads and other locations as necessary for the determination of cut and fill quantities and limits of construction. No cross sections will be needed at bridge locations. Cross sections shall display existing or proposed storm sewer and utility elements, including the existing ITS conduit system.

2.7.3.3. Develop Miscellaneous Roadway Detail sheets for the project. The sheets will depict details required that are not defined in TxDOT standard detail sheets. When possible Statewide TxDOT or Austin District standards will be used for the project development.

2.8. Drainage Design

2.8.1. Hydraulic Report:

Refine the hydrologic and hydraulic studies performed in the preliminary phase, which will include:

2.8.1.1. Identify any new or relevant data.

2.8.1.2. Verify validity of previous hydrologic studies.

2.8.1.3. Review previous studies, reports, and plans.

2.8.1.4. Revise the Hydraulic Report as needed.

2.8.2. Bridge and Culvert Plan Sheets

2.8.2.1. Hydraulic Data Sheets: The Engineer will prepare hydraulic data sheets for bridges over creeks and any culvert within the project if applicable.

2.8.2.2. External Drainage Area Maps: The Engineer will finalize previously determined drainage areas from the hydrologic analysis and prepare exterior drainage area map sheets at a scale of 1"=200' or a scale acceptable to the Mobility Authority. The Engineer will show structure locations and, for large drainage basins, will indicate pertinent hydraulic information on these sheets.

2.8.2.3. Culvert layouts: The Engineer will prepare culvert plan and profile layouts at

a scale of 1"=40'H and 1"=20'V that will depict culvert geometry for reconstruction or lengthening, as well as the applicable hydraulic information.

2.8.3. Storm Drain Plan Sheets

The Engineer will address the required project storm drain systems as follows:

2.8.3.1. Storm Drain Computations: The Engineer will analyze and design any modifications to existing or proposed storm drain systems. Computations and design information will be presented on the appropriate plan sheets.

2.8.3.2. Interior Drainage Area Maps: The Engineer will prepare interior drainage area map plan sheets at an appropriate scale for any drainage areas that are modified. These maps will depict drainage area boundaries and flow direction arrows. Each drainage area will be identified with a unique number corresponding to run-off information from the calculation sheets.

2.8.3.3. Drainage Plan and Profile Sheets: The Engineer will prepare drainage plan and profile sheets depicting locations of inlets, manholes, storm drains, culverts, utilities, channel improvements, ditch locations, cross-sections and flowlines as required. These sheets will be prepared at a scale of 1"=100'. Storm drain profiles will be prepared at a scale of 1"=100' H and 1"=10' V. Enclosed storm drain plans and profiles will show pipe size and type, inverts, slope, existing and proposed ground lines above the pipe, pertinent hydraulic information, and locations and sizes of inlets and junctions. The design storm HGL shall be clearly plotted and depicted on the Drainage Plan and Profile Sheets.

2.8.3.4. Detention Ponds Layouts and Details: The Engineer will prepare detention pond layouts and details depicting the grading, inlet and outlet structure locations, cross-sections, flowlines, and additional details for the ponds. These sheets will be prepared at a scale of 1" =40'.

2.8.3.5. Ditch Layout Schedule: The Engineer will prepare a tabular ditch layout schedule that depicts pertinent information about the roadside ditch geometry and design based on normal depth computations. This table will include station, offset, flow line elevation, ditch lining material, as well as ditch bottom width. The tables will be shown on the drainage plan sheets.

2.8.3.6. Channel Layouts: The Engineer will prepare culvert layouts depicting all pertinent channel information including alignment, profile, grading, section details, channel lining material, hydraulic computations and HGL.

2.8.3.7. Drainage Detail Sheets: The Engineer shall use TxDOT standard details where practical. The Engineer shall provide drainage design details for "non-standard" drainage structures in instances where TxDOT standard details cannot be utilized.

2.8.3.8. Temporary Drainage Facilities: The Engineer will develop temporary drainage facilities necessary to allow staged construction of the project. The Engineer will design required temporary drainage structures for a 5-year frequency event, and include structure size, flow line elevations and approximate

structure location in the traffic control plan sheets. The Engineer will evaluate temporary drainage ditches between temporary drainage structures and outfall locations and designate a typical ditch section in the plans along with plan notes for the contractor to maintain positive drainage for these temporary ditches.

2.8.3.9. Trench Protection Determination: The Engineer will identify storm drain and culvert construction areas that will require trench protection or special shoring and indicate this information on the plans.

2.8.4. Storm Water Pollution Prevention Plan (SW3P)

2.8.4.1. Erosion and Sediment Control Plans: Temporary storm water management devices will be needed to minimize the sediment runoff during construction of this project. The Engineer will develop a temporary erosion and sediment control plan for the length of the project that complements the design and construction phasing of the project, and will include notes that indicate the contractor is responsible for detailed sequencing of the devices. The Engineer will consider the following design components: non-disturbance area delineation (preserving existing vegetation), temporary and permanent seeding or sodding, erosion control blankets, diversion dikes or swales, temporary mulch, silt fence, sand bags, rock filter dams, sediment traps, and construction exits. Permanent erosion control measures will be included on these sheets if needed.

2.8.4.2. SW3P: The Engineer will prepare SW3P summary plan sheet(s) in accordance with Texas Pollution Discharge Elimination System (TPDES) regulations and TxDOT practices. The Engineer will use TxDOT SW3P text sheet(s) to summarize erosion and sediment control measures.

2.8.4.3. Erosion and Sediment Control Details: The Engineer will prepare Erosion and sediment control details for any related items that are not covered by TxDOT standard details. Compost Manufactured Topsoil (CMT) will be utilized wherever possible for erosion control.

2.8.4.4. Environmental Issues, Permits and Commitments: The Engineer will update the EPIC sheet as necessary and include in the final plans.

2.8.5. Deliverables

2.8.5.1. Electronic version of the hydrologic model

2.8.5.2. Electronic versions of the hydraulic model(s)

2.8.5.3. Electronic version of the Hydrologic Report in both *.doc and *.pdf Formats

2.8.5.4. Three (3) 8 ½”x 11” Bound Paper copies of the Hydrologic Report

2.8.5.5. Electronic version of the Storm Drainage Model, applicable data and maps

2.8.5.6. PS&E Sheets

- Offsite Drainage Area Maps and Calculations
- Onsite Drainage Area Maps

- Storm Sewer Plan and Profile Sheets
- Culvert Hydraulic Data Sheets
- Culvert Layout Sheets
- EPIC Sheet
- SW3P
- SW3P Layouts
- Drainage and Environmental Mitigation Details

2.9. Structural Design

All bridge design shall be in conformance with the latest edition of the State's *LRFD Bridge Design Manual, Bridge Project Development Manual, Bridge Detailer's Manual*, and AASHTO *LRFD Bridge Design Specifications (HL 93 Loading).*

2.9.1. The Engineer shall incorporate, into the final design of the bridge elements, aesthetic design features and details as determined in the preliminary engineering phase.

2.9.2. Bridge Layouts: The Engineer shall finalize Bridge Layout plans, elevations and typical sections.

2.9.3. The Engineer shall generate final design calculations and final detail drawings for the Project structures. Structural design calculations and final detail drawings will be in accordance with standard requirements of TxDOT. The Engineer's designer and checker shall both check calculations and sign the front page of each individual calculation package. The Engineer shall submit structural design calculations and quantity calculations for review at the Final submittal. The Engineer shall coordinate interim over the shoulder reviews at the request of the Mobility Authority and GEC.

2.9.4. The Engineer shall develop a Boring Log Key map layout indicating locations of geotechnical boring.

2.9.5. Boring Log Elevations: The Engineer will include boring logs for each geotechnical borings on separate sheets.

2.9.6. Estimated Quantities and Bearing Seat Elevations: The Engineer shall provide bridge quantity summaries at 60%, Pre-Final and Final Plan submittals. The bridge elevations shall be limited to bearing seat elevations only.

2.9.7. Abutment details and calculations shall be provided for custom abutments.

2.9.8. Interior Bent details and calculations shall be provided for custom interior bent details (caps and columns).

2.9.9. Footings: Details and calculations shall be provided for footing elements.

2.9.10. Framing Plan: For steel girder design, this effort includes design of steel girders and field splices.

2.9.11. Slab Plan: The slab plan includes the development of prestressed beam designs.

2.9.12. Foundation Design: Details for foundation layouts and calculations shall be provided for foundation elements

2.9.13. Drainage Details: The Engineer shall provide details for concealed drainage for

bridge deck scuppers. Drainage slots in bridge rails shall not be used for the mainlane structures. These sheets will be developed with combined details for use on various structures.

2.9.14. Aesthetic Design: The Engineer shall finalize detailed drawings for aesthetic features compatible with the project aesthetic theme.

2.9.15. Miscellaneous Details: The details shall include Structural Details for aesthetics. These sheets will be developed with combined details for use on various structures.

2.9.16. Standard Details: The Engineer will use the latest TxDOT standard details for beams, diaphragms, railings, expansion joints, riprap, etc. wherever possible. Prepare any project-specific modified standards necessary for inclusion in the PS&E package. Sign, seal and date all project-specific modified standards.

2.9.17. Specifications: The Engineer will develop specifications as needed for bridge structures.

2.10. Retaining Wall Design

The Engineer shall provide layouts (scale Max:1"=40' and Min: 1"=100'), elevations, quantity estimates, summary of quantities, typical cross sections, and structural details of all retaining walls within the project.

2.10.1. The Engineer shall determine if walls are required and verify the need for and length of the retaining walls. The Engineer shall make proposals to the Mobility Authority regarding most suitable wall type for each application.

2.10.2. Engineer will prepare Retaining Wall Key Map depicting the various wall locations. Soil boring locations will also be depicted on these sheets.

2.10.3. Engineer will prepare retaining wall layout sheets showing plan and profile of retaining walls. Engineer will provide associated details in plan and profile views. Engineer shall provide soil boring profiles on separate plan sheets.

2.10.4. Engineer will prepare structural details for soil nail walls if used.

2.10.5. Engineer will identify temporary shoring needs and prepare layouts as necessary.

2.10.6. Engineer will prepare Retaining Wall Typical Sections sheets.

2.10.7. Engineer will prepare Retaining Wall Horizontal Alignment Data Sheets depicting the horizontal geometric information for the project retaining walls to be included in the construction plan set.

2.10.8. Prepare Layout Plan which includes:

- **2.10.8.1.** Designation of reference line
- **2.10.8.2.** Beginning and ending retaining wall stations
- **2.10.8.3.** Offset from reference line
- **2.10.8.4.** Horizontal curve data
- **2.10.8.5.** Total length of wall
- **2.10.8.6.** Indicate face of wall
- **2.10.8.7.** All wall dimensions and alignment relations (alignment data as necessary)
- **2.10.8.8.** Soil core hole locations

2.10.9. Prepare Elevation Plan:

- **2.10.9.1.** Top of wall elevations

2.10.9.2. Existing and finished ground line elevations
2.10.9.3. Limits of measurement for payment
2.10.10. Type, limits and anchorage details of railing (If applicable)
2.10.11. Provide details related to the interface of retaining wall at bridge abutments.
2.10.12. Provide all boring logs utilized within their design. Borings shall be shown on wall plans at actual location with log information. Separate logs shall be submitted to the GEC for records purposes.
2.10.13. The Engineer shall finalize detailed drawings for aesthetic features compatible with the project aesthetic theme.
2.10.14. The Engineer will assemble the necessary retaining wall standard details.

2.11. Signing, Markings and Signalization

2.11.1. The Engineer shall prepare layouts, specifications, and details for striping, pavement markings, and signing. Layouts will be prepared at a scale of 1" = 100' and will depict striping, delineator, pavement markings and small and large signs. The Engineer shall coordinate with the GEC (and other Engineers as required) for overall temporary and final signing strategies including toll signing and placement of signs outside contract limits. The Engineer shall provide the following information on signing and pavement marking layouts:

2.11.1.1. Roadway layout.
2.11.1.2. Center line with station numbering.
2.11.1.3. ROW lines.
2.11.1.4. Designation of arrow used on exit direction signs.
2.11.1.5. Culverts and other structures that present a hazard to traffic.
2.11.1.6. Existing signs to remain, to be removed, or to be relocated.
2.11.1.7. Proposed signs (illustrated and numbered).
2.11.1.8. Existing overhead sign bridges to remain, to be revised, removed or relocated.
2.11.1.9. Proposed overhead sign bridges including toll signing, indicating location by plan.
2.11.1.10. The Engineer shall detail permanent pavement markings and channelization devices on plan sheets. Pavement marking plans shall accommodate toll gantry areas within the limits of the Project. The Engineer shall coordinate with the Mobility Authority (and Toll System Integrator if necessary) for overall temporary, interim, and final pavement marking strategies. Pavement markings shall be selected from the latest TxDOT standards.
2.11.1.11. Proposed markings (illustrated and quantified) which include pavement markings, object markings and delineation.
2.11.1.12. The location of interchanges, mainlanes, grade separations, direct connectors and ramps.
2.11.1.13. The number of lanes in each section of proposed highway and the location of changes in numbers of lanes.
2.11.1.14. Direction of traffic flow on all roadways

2.11.2. Small Sign Detail: Engineer shall provide detail sheets for non-standard small signs. These sheets shall show the overall dimension of the signs by determining letter size and spacing.

2.11.3. Large Sign Details: Engineer shall provide detail sheets for all large guide signs. These sheets shall show dimensions, layout of text, directional arrows and shields, borders and colors.

2.11.4. Overhead Sign Structures Elevations: Engineer shall provide overhead sign structure elevations including walkway and electrical service conduit for future ITS facilities.

2.11.5. Overhead Sign Structure Details: Engineer shall provide overhead sign structure details which incorporate project aesthetic theme. Sign foundation will require special design.

2.11.6. Traffic Signal Plans: Design of traffic signals are not anticipated in this Project.

2.12. Traffic Control Plan

2.12.1. Prepare Detailed Traffic Control Plan Sheets at a scale of 1″=100′. This plan will describe the maintenance of traffic and sequence of work for each phase of the proposed construction. Detour alignments, location of work areas, temporary paving, temporary shoring, signing, adjustments to operations of the traffic signals, barricades and other details will be required to describe the traffic control plan. Any adjustments to the operations of the traffic signals will be coordinated through the City of Austin. The Engineer will verify that proper drainage can be maintained during each phase of construction.

2.12.2. Prepare Traffic Control Typical Sections for each stage of the construction sequence to clearly delineate the position of the existing traffic with respect to the proposed construction. Temporary traffic barriers and pavement markings will also be shown and dimensioned.

2.12.3. Develop TCP Overview Plans for each stage of traffic control. These plans will include advance warning signs for the Project on existing roadways being impacted approaching the construction and will act as key maps for each phase of TCP and shall be developed at a 1”=400’ scale.

2.12.4. Prepare a detailed Sequence of Construction narrative and submit it to the Mobility Authority for review. The Engineer will revise and incorporate the narrative into the plans. The narrative will include a phase-by-phase, step-by-step written account of the proposed activities throughout the construction process. This is intended to be a narrative account of the activities shown in the Traffic Control Plan layouts.

2.12.5. Prepare Detour Layout Sheets showing plan & profiles where required to define the geometry for detours required in the Traffic Control Plans. Detour layouts will be prepared at a scale of 1″=100′ H and 1″=10′ V. The Engineer will provide the pavement design section for temporary detours.

2.12.6. Develop Traffic Control Details for items not covered by TxDOT standard drawings.

2.12.7. Attend one Safety Review Meeting to present the proposed traffic handling scheme to the Mobility Authority, TxDOT and TOD. The Engineer will incorporate the comments from the review into the traffic control plans.

2.12.8. Prepare an Engineer's Opinion of Construction Schedule to determine an approximate duration for each phase of construction. The schedule will be prepared using Microsoft Project or SureTrak and delivered at 90% and Final submittals.

2.12.9. Update analysis performed under 1.13.6 for discussions with Mobility Authority, TxDOT, and TOD to secure approval of proposed TCP and lane closures.

2.12.10. Road Closure Layouts: The Engineer shall prepare temporary road closure layouts where required for beam hanging operations and other short term road closures. The Engineer will be required to coordinate with the appropriate entities for any proposed road closures prior to including the road closure in the plans.

2.12.11. Advanced Signing Layouts. The Engineer shall provide a detailed layout and arrangement of construction signs, construction pavement marking, traffic control devices (including temporary signals and signal heads).The TCP shall include locations of portable changeable message sign devices at all key locations both within the project limits, and outside the right-of-way for each phase of construction.

2.13. Intelligent Transportation Systems (ITS)

2.13.1. The Engineer shall develop final ITS Layout for Mobility Authority review and approval if required. The Engineer shall coordinate with the Mobility Authority and it's System's Integrator to obtain additional details and directives for the ITS Design.

2.13.2. The Engineer shall provide plans for the infrastructure and power required for the ITS system. Plans shall include duct bank, ground boxes, conduit, electric cables and meter, traffic monitoring device structure, structures for CCTV cameras, and foundations for cabinets. The Engineer shall include all applicable standards, specifications, details and estimates for the system in the plan set. .

2.14. Illumination

2.14.1. The Engineer shall design safety lighting at ramp merge locations, auxiliary lanes, and other locations as required. The Engineer shall provide lighting calculation exhibit(s) for the illumination design.

2.14.2. The illumination design documents will be prepared by the Engineer for the Project as a single set of illumination plans and incorporate them into the PS&E package. The Engineer shall coordinate and provide plans drawings, at a scale of 1" = 100', showing the locations of all components of the illumination system. The Engineer shall include all applicable standards, specifications, details and estimates for the system in the plan set.

2.15. Toll Facilities Infrastructure Design

The Toll Facilities Infrastructure design shall be covered under additional services 3.0.

2.16. Miscellaneous

2.16.1. Milestone submittals. The Engineer shall produce 30%, 60%, pre-final and final submittals.

2.16.2. The Engineer shall develop landscape planting and hardscape plans as determined during the preliminary design and as coordinated with the Mobility Authority. It is assumed that the Project may require minor modifications of existing landscape and hardscape facilities at the 290E/SH130 interchange. This task shall include landscape planting and hardscape plans specifications and estimate quantities for incorporation into the plan set.

2.16.3. The Engineer will tabulate quantities and prepare Summary Sheets at the 60%, Pre-Final and Final submittals for the following: Traffic Control (per phase), Earthwork, Roadway, Drainage related items including inlets, manholes, and storm drain pipes, Retaining Walls, Bridges, Pavement Markings, Small / Large Signs, Erosion Control and SW3P, Signals, Illumination, ITS, and Toll Facilities infrastructure.

2.16.4. The Engineer shall develop Exhibit A documents for use in coordination with Cap Metro RR and assist the Mobility Authority in the coordination efforts and development of the Agreement with Cap Metro.

2.16.5. Standards, Specifications and Estimate

2.16.5.1. Download the appropriate TxDOT Standards from the State's web site. The Engineer will revise and seal any Standard that requires modification. All other standards will have their title blocks filled out with the applicable project data and printed for inclusion in the final plan set. The Engineer will utilize Austin District Standards where applicable.

2.16.5.2. The Engineer shall provide (signed and sealed) any necessary details required to supplement standard details.

2.16.5.3. Prepare a tabulation of applicable Specifications, Special Specifications and Special Provisions for submission with the pre-final and final PS&E package.

2.16.5.4. Prepare General Notes utilizing TxDOT most recent version for inclusion in the pre-final and final plan set.

2.16.5.5. Prepare a Construction Cost Estimate at the 60%, Pre-Final and Final PS&E submittal, and supply a copy to the Mobility Authority in Microsoft Excel format.

2.16.6. Prior to each milestone submittal (30%, 60%, Pre-Final and Final), the Engineer shall conduct a review in accordance with the QA/QC procedures outlined in the Engineer's Quality Control Plan.

2.16.7. Final Design plans, calculations, and cost estimates prepared by Engineer are to be thoroughly reviewed and checked before submittal to the Mobility Authority for review. The Engineer has total responsibility for the accuracy and

completeness of the plans and related designs prepared under this project and shall check all such material accordingly. The plans will be reviewed by the Mobility Authority and TxDOT for conformity with the Mobility Authority's procedures and the terms of the project. The Mobility Authority will provide independent QA/QC audits to verify project compliance with this plan. The Engineer shall have a Quality Control Plan in effect during the entire time work is being performed under this project.

2.16.8. The Engineer will submit a pdf electronic copy and two (2) 11" X 17" paper copies at the, 60%, and Pre-Final submittal. Final PS&E submittal shall include two (2) 11" X 17" paper copies in addition to the signed, sealed and dated 11" x 17" Final Hard Copy and pdf electronic copy including electronic copies of all supporting documentation, CAD files and paperwork.

2.17. Coordination, Meetings & Invoicing

2.17.1. The Engineer will participate and attend up to six (6) project workshops with specialty consultants, TxDOT, and the Mobility Authority to establish the project issues, concerns, and objectives of the Project that will influence the location and configuration of the proposed Project and further define the Scope of Services to be provided by the Engineer.

2.17.2. The Engineer will participate and attend bi-weekly design coordination meetings and production meetings with the Mobility Authority. The Engineer shall also conduct periodic meetings with the Engineer's internal team of sub-consultants.

2.17.3. The Engineer will participate and attend monthly design coordination meetings with TxDOT.

2.17.4. The Engineer shall attend up to a total of six (6) Stakeholder meetings (e.g. Cap Metro, Toll Operations Division, City of Austin, City of Manor, and Travis County, etc.) and provide support for the development of exhibits when requested by the Mobility Authority.

2.17.5. The Engineer will participate in the submittal review process and attend comment resolution meetings for the various submittal milestones. The Engineer will respond to reviewer comments in tabular format for each submittal with explanations included for any items in disagreement. The Engineer will then attend a comment resolution meeting following each submittal to discuss and resolve review comments.

2.17.6. Follow invoice procedures as described in the Contract.

2.17.7. The Engineer shall provide assistance to the Mobility Authority during the bidding process including development of bid tabulations.

2.17.8. The Engineer shall attend a scheduled pre-bid meeting.

EXHIBIT C

WORK SCHEDULE

Engineer shall perform the Services and deliver the related Documents (if any) according to the following schedule:

Services defined herein are expected to be substantially complete within fourteen (14) months from the date this Work Authorization becomes effective. This Work Authorization will not expire until all tasks associated with the Scope of Services are complete. This does not preclude the rights of the Parties provided under Article 15 of the Contract.

EXHIBIT D

FEE SCHEDULE/BUDGET

	CP&Y, Inc.	HDR Engineering, Inc.	K. Friese & Associates, Inc.	P.E. Structural Consultants, Inc.	Corsair Consulting, LLC	Maldonado-Burkett ITS, LLP	Inland Geodetics, LLC	Surveying and Mapping, LLC	TOTAL
1.0 PRELIMINARY DESIGN									
1.1 - ENVIRONMENTAL DOCUMENT REVIEW/COORDINATION	$ 24,104								$ 24,104
1.2 - PUBLIC INVOLVEMENT COORDINATION	$ 43,504			$ -					$ 43,504
1.3 - DATA COLLECTION	$ 16,637			$ 2,674					$ 19,311
1.4 - GEOTECHNICAL INVESTIGATION	$ 15,894			$ 439	$ 157,495				$ 173,828
1.4A - GEOTECHNICAL DRILLING / TESTS					$ 268,294				$ 268,294
1.5 - SURVEYING	$ 9,975						$ 100,438	$ 186,199	$ 296,612
1.6 - SUBSURFACE UTILITY ENGINEERING AND UTILITY COORDINATION	$ 15,728							$ 67,273	$ 83,001
1.6A - SUE LOCATION SERVICES								$ 136,205	$ 136,205
1.7 - PRELIMINARY DESIGN	$ 206,691		$ 1,159	$ 861					$ 208,711
1.8 - ROADWAY DESIGN	$ 105,346								$ 105,346
1.9 - DRAINAGE DESIGN	$ 7,664		$ 47,156						$ 54,820
1.10 - STRUCTURAL DESIGN	$ 445,147	$ 21,676							$ 466,823
1.11 - RETAINING WALL DESIGN	$ 21,640								$ 21,640
1.12 - SIGNING, MARKINGS AND SIGNALIZATION	$ 31,264								$ 31,264
1.13 - TRAFFIC CONTROL PLAN	$ 19,139	$ 116,293							$ 135,432
1.14 - INTELLIGENT TRANSPORTATION SYSTEMS (ITS)	$ 7,406					$ 33,294			$ 40,700
1.15 - ILLUMINATION	$ 5,986					$ 39,311			$ 45,297
1.16 - TOLL FACILITIES INFRASTRUCTURE DESIGN	$ 10,370			$ 2,874		$ 14,217			$ 27,461
1.17 - TRAFFIC OPERATIONS MODELING	$ 11,602	$ 75,289							$ 86,891
1.18 - MISCELLANEOUS	$ 39,790	$ 23,980		$ 2,195		$ 8,357			$ 74,322
1.19 - COORDINATION, MEETINGS & INVOICING	$ 124,369	$ 25,524	$ 14,051	$ 17,098	$ 8,310	$ 10,910			$ 200,262
1.0 PRELIMINARY DESIGN - SUB TOTAL	**$ 1,162,256**	**$ 262,762**	**$ 62,366**	**$ 26,141**	**$ 434,099**	**$ 106,089**	**$ 100,438**	**$ 389,677**	**$ 2,543,828**
2.0 FINAL DESIGN									
2.1 - PUBLIC INVOLVEMENT & STAKEHOLDER COORDINATION	$ 44,305			$ 4,953					$ 49,258
2.2 - DATA COLLECTION	$ 7,932			$ 6,165					$ 14,097
2.3 - GEOTECHNICAL INVESTIGATION	$ 5,265			$ 974	$ 16,660				$ 22,899
2.4 - SURVEYING	$ 2,923								$ 2,923
2.5 - UTILITY COORDINATION AND DESIGN	$ 24,123								$ 24,123
2.6 - SPECIAL DESIGN PER MOBILITY AUTHORITY REQUEST	$ 199,994								$ 199,994
2.7 - FINAL ROADWAY DESIGN	$ 433,179								$ 433,179
2.8 - DRAINAGE DESIGN	$ 17,231		$ 82,243	$ 50,672					$ 150,146
2.9 - STRUCTURAL DESIGN	$ 1,617,831			$ 31,436					$ 1,649,267
2.10 - RETAINING WALL DESIGN	$ 240,948			$ 17,203					$ 258,151
2.11 - SIGNING, MARKINGS AND SIGNALIZATION	$ 163,417			$ 64,779					$ 228,196
2.12 - TRAFFIC CONTROL PLAN	$ 30,160	$ 262,428							$ 292,588
2.13 - INTELLIGENT TRANSPORTATION SYSTEMS	$ 6,576					$ 26,939			$ 33,515
2.14 - ILLUMINATION	$ 6,216					$ 32,323			$ 38,539
2.15 - TOLL FACILITY DESIGN	$ -					$ -			$ -
2.16 - MISCELLANEOUS	$ 291,784	$ 138,683	$ 21,395	$ 69,146	$ 9,700	$ 32,601			$ 563,309
2.17 - COORDINATION, MEETINGS & INVOICING	$ 219,791	$ 35,363	$ 27,209	$ 26,878	$ 8,741	$ 25,982			$ 343,964
2.0 FINAL DESIGN - SUB TOTAL	**$ 3,311,675**	**$ 436,474**	**$ 130,847**	**$ 272,206**	**$ 35,101**	**$ 117,845**	**$ -**	**$ -**	**$ 4,304,148**
OTHER DIRECT EXPENSES	**$ 10,810**	**$ 21,505**	**$ 966**	**$ 1,974**	**$ 66,975**	**$ 2,610**	**$ 19,610**	**$ 82,962**	**$ 207,412**
SUB TOTAL - ENGINEERING DESIGN SERVICES	**$ 4,484,741**	**$ 720,741**	**$ 194,179**	**$ 300,321**	**$ 536,175**	**$ 226,544**	**$ 120,048**	**$ 472,639**	**$ 7,055,388**
PERCENTAGE	63.6%	10.2%	2.8%	4.3%	7.6%	3.2%	1.7%	6.7%	100.0%
DBE %			2.8%	4.3%	7.6%	3.2%	1.7%		19.5%

EXHIBIT E

INSTRUCTIONS
DBE PARTICIPATION

The following pages contain seven (7) different forms (Forms E-1 through E-7) covering participation of DBE providers and subproviders. The correct form to use is determined by whether or not a DBE goal has been set for the contract. The following pages contain separate reporting forms for federally funded DBE participation. **Select the forms that are appropriate for your contract and <u>delete the rest</u> along with these instructions from the Work Authorization.**

Federally Funded Contracts
Exhibit F, Disadvantaged Business Enterprise (DBE) for Federal-Aid Professional or Technical Services Contracts ♦ This provision is applicable to federally funded contracts with assigned DBE goals. ♦ The appropriate forms for this provision are Forms E-1, E-2, E-3, E-4, E-5, E-6 and E-7. Examples of each form required is included in the contract. The native forms that will need to be submitted can be downloaded from the Mobility Authority's website. ♦ Note: a completed Form E-2 will be required with each Work Authorization, if a DBE will be performing work. If a non-DBE subprovider is used, insert N/A (not applicable) on the line provided on the Form E-2. ♦ Form E-4 must be submitted monthly to the Mobility Authority even if there is no invoice being submitted or subcontracting to report. ♦ Form E-4 must be submitted with each invoice to the appropriate agency contact for payment.
Exhibit G, Disadvantaged Business Enterprise (DBE) for Race Neutral Professional or Technical Services Contracts ♦ This provision is applicable to federally funded contracts with no DBE goal assigned. ♦ If no subcontractors will be used, the appropriate forms for this provision are E-3 and E-5 forms. Examples of each form required is included in the contract. The native forms that will need to be submitted can be downloaded from the Mobility Authority's website. ♦ Note: If subcontractors are used, the required forms would be Forms E-1, E-2, E-3, E-4, E-5, E-6 and E-7. A copy of each form required is in the contract. ♦ Form E-4 must be submitted monthly to the Mobility Authority even if there is no invoice being submitted or subcontracting to report. ♦ Form E-4 must be submitted with each invoice to the appropriate agency contact for payment.
Form E-4, Texas Department of Transportation/Mobility Authority Subprovider Monitoring System for Federally Funded Contracts. This is a DBE Monthly Progress Report. ♦ Required for all federally funded contracts. ♦ This form is required monthly and must be submitted to the Mobility Authority even if there is no invoice being submitted or subcontracting to report. ♦ This form must be submitted with each invoice to the appropriate agency contact for payment.
Form E-7, Federal Subprovider and Supplier Information Required for all federally funded contracts.

FORM E-1

Central Texas Regional Mobility Authority
Subprovider Monitoring System
Commitment Worksheet

Contract #:16290E22704E Assigned Goal: 10% Federally Funded X State Funded ___

Prime Provider: CP&Y, Inc. Total Contract Amount: $7,055,388.00

Prime Provider Info: DBE ___ HUB _X__ Both ___

Vendor ID #: _17517204149_____ DBE/HUB Expiration Date: __HUB – 08/31/2016_____

(First 11 Digits Only)

If no subproviders are used on this contract, please indicate by placing "N/A" on the 1st line under Subproviders.

Subprovider(s) (List All)	**Type of Work**	**Vendor ID #** (First 11 Digits Only)	**D=DBE H=HUB**	**Expiration Date**	**$ Amount or % of Work ***
HDR Engineering, Inc.	Traffic Control, Traffic, Landscape	14706805687	n/a		$720,741 (10.2%)
K. Friese & Associates, Inc.	Drainage	14813046878	H D	5/29/18	$194,179 (2.8%)
P.E. Structural Consultants, Inc.	Structural	18105688628	H D	5/22/18	$300,321 (4.3%)
Corsair Consulting, LLC	Geotechnical	14546874299	H D	1/29/17	$536,175 (7.6%)
Maldonado-Burkett ITS, LLP	Illumination, ITS	12614763394	H D	1/27/17	$226,544 (3.2%)
Inland Geodetics, LLC	Survey	12040216991	H D	10/24/18	$120,048 (1.7%)
Surveying and Mapping, LLC	Survey, SUE	17427049741	n/a		$472,639 (6.7%)
Subprovider(s) Contract or % of Work* Totals					$2,570,647 (36.4%)

*For Work Authorization Contracts, indicate the % of work to be performed by each subprovider.

Total DBE **or** HUB Commitment Dollars $ 1,377,267.00

Total DBE **or** HUB Commitment Percentages of Contract 19.5 %
(Commitment Dollars and Percentages are for Subproviders only)

FORM E-2
Disadvantaged Business Enterprise (DBE) Program Commitment Agreement Form

This commitment is subject to the award and receipt of a signed contract from the Texas Department of Transportation for the subject project.

Project #: Manor Expressway Phase III Project	**County:**	**Contract-CSJ:**

Items of work to be performed (attach a list of work items if more room is required):

Bid Item #	Item Description	Unit of Measure	Unit Price	Quantity	Total Per Item
1.0	Preliminary Design				$62,366
2.0	Final Design				$130,847
	Other Direct Expenses				$966
				Total	$194,179

Add Ro

The contractor certifies by signature on this agreement that subcontracts will be executed between the prime contractor and the DBE subcontractors as listed on the agreement form. If a DBE Subcontractor is unable to perform the work as listed on this agreement form, the prime contractor will follow the substitution/replacement approval process as outlined in the Contract DBE Special Provision.

IMPORTANT: The signatures of the prime contractor and the DBE, and the total commitment amount must always be on the same page.

Prime Contractor: CP&Y, Inc.		Name/Title (please print): Robin Handel, P.E. / Vice President
Address: 13809 Research Blvd, Suite 300, Austin, TX 78750		Signature:
Phone: 512-349-0700	Fax: 512-349-0727	
E-mail: rhandel@cpyi.com		Date:
DBE: K. Friese & Associates, Inc.		Name/Title (please print):
Vendor No.:14813046878		
Address: 1120 S. Capital of Texas Highway, CityView 2, Suite		Signature:
Phone: 512-338-1704	Fax: 512-338-1784	
E-mail: VMcEvoy@kfriese.com		Date:
Subcontractor (if the DBE will be a second tier sub):		Name/Title (please print):
Address:		Signature:
Phone:	Fax:	
E-mail:		Date:

The Texas Department of Transportation maintains the information collected through this form. With few exceptions, you are entitled on request to be informed about the information that we collect about you. Under §§552.021 and 552.023 of the Texas Government Code, you also are entitled to receive and review the information. Under §559.004 of the Government Code, you are also entitled to have us correct information about you that is incorrect.

FORM E-2
Disadvantaged Business Enterprise (DBE) Program Commitment Agreement Form

This commitment is subject to the award and receipt of a signed contract from the Texas Department of Transportation for the subject project.

Project #: Manor Expressway Phase III Project	**County: Travis**	**Contract-CSJ:**

Items of work to be performed (attach a list of work items if more room is required):

Bid Item #	Item Description	Unit of Measure	Unit Price	Quantity	Total Per Item
1.0	Preliminary Design				$26,141
2.0	Final Design				$272,906
	Other Direct Expenses				$1,974
				Total	$300,321

Add Ro

The contractor certifies by signature on this agreement that subcontracts will be executed between the prime contractor and the DBE subcontractors as listed on the agreement form. If a DBE Subcontractor is unable to perform the work as listed on this agreement form, the prime contractor will follow the substitution/replacement approval process as outlined in the Contract DBE Special Provision.

IMPORTANT: The signatures of the prime contractor and the DBE, and the total commitment amount must always be on the same page.

Prime Contractor: CP&Y, Inc.	Name/Title (please print): Robin Handel, P.E. / Vice President
Address: 13809 Research Blvd, Suite 300, Austin, TX 78750	Signature:
Phone: 512-349-0700 Fax: 512-349-0727	
E-mail: rhandel@cpyi.com	Date:
DBE: P.E. Structural Consultants, Inc.	Name/Title (please print):
Vendor No.:18105688628	
Address: 8436 Spicewood Springs Road, Austin, TX 78759	Signature:
Phone: 512-250-5200 Fax: 512-250-5222	
E-mail: lpowell@pestructural.com	Date:
Subcontractor (if the DBE will be a second tier sub):	Name/Title (please print):
Address:	Signature:
Phone: Fax:	
E-mail:	Date:

The Texas Department of Transportation maintains the information collected through this form. With few exceptions, you are entitled on request to be informed about the information that we collect about you. Under §§552.021 and 552.023 of the Texas Government Code, you also are entitled to receive and review the information. Under §559.004 of the Government Code, you are also entitled to have us correct information about you that is incorrect.

FORM E-2
Disadvantaged Business Enterprise (DBE) Program Commitment Agreement Form

Form SMS.4901
(Rev. 06/08)
Page 1 of 1

This commitment is subject to the award and receipt of a signed contract from the Texas Department of Transportation for the subject project.

Project #: Manor Expressway Phase III Project	**County: Travis**	**Contract-CSJ:**

Items of work to be performed (attach a list of work items if more room is required):

Bid Item #	Item Description	Unit of Measure	Unit Price	Quantity	Total Per Item
1.0	Preliminary Design				$434,099
2.0	Final Design				$35,101
	Other Direct Expenses				$66,975
				Total	$536,175

Add Ro

The contractor certifies by signature on this agreement that subcontracts will be executed between the prime contractor and the DBE subcontractors as listed on the agreement form. If a DBE Subcontractor is unable to perform the work as listed on this agreement form, the prime contractor will follow the substitution/replacement approval process as outlined in the Contract DBE Special Provision.

IMPORTANT: The signatures of the prime contractor and the DBE, and the total commitment amount must always be on the same page.

Prime Contractor: CP&Y, Inc.	Name/Title (please print): Robin Handel, P.E. / Vice President
Address: 13809 Research Blvd, Suite 300, Austin, TX 78750	Signature:
Phone: 512-349-0700 Fax: 512-349-0727	
E-mail: rhandel@cpyi.com	Date:
DBE: Corsair Consulting, LLC	Name/Title (please print):
Vendor No.: 14546874299	
Address: 16800 Joe Barbee Dr., Pflugerville, TX 78660	Signature:
Phone: 512-342-8877 Fax: 512-565-9356	
E-mail: clintharris@corsairus.com	Date:
Subcontractor (if the DBE will be a second tier sub):	Name/Title (please print):
Address:	Signature:
Phone: Fax:	
E-mail:	Date:

The Texas Department of Transportation maintains the information collected through this form. With few exceptions, you are entitled on request to be informed about the information that we collect about you. Under §§552.021 and 552.023 of the Texas Government Code, you also are entitled to receive and review the information. Under §559.004 of the Government Code, you are also entitled to have us correct information about you that is incorrect.

FORM E-2
Disadvantaged Business Enterprise (DBE) Program Commitment Agreement Form

This commitment is subject to the award and receipt of a signed contract from the Texas Department of Transportation for the subject project.

Project #: Manor Expressway Phase III Project	**County: Travis**	**Contract-CSJ:**

Items of work to be performed (attach a list of work items if more room is required):

Bid Item #	Item Description	Unit of Measure	Unit Price	Quantity	Total Per Item
1.0	Preliminary Design				$106,089
2.0	Final Design				$117,845
	Other Direct Expenses				$2,610
				Total	$226,544

Add Ro

The contractor certifies by signature on this agreement that subcontracts will be executed between the prime contractor and the DBE subcontractors as listed on the agreement form. If a DBE Subcontractor is unable to perform the work as listed on this agreement form, the prime contractor will follow the substitution/replacement approval process as outlined in the Contract DBE Special Provision.

IMPORTANT: The signatures of the prime contractor and the DBE, and the total commitment amount must always be on the same page.

Prime Contractor: CP&Y, Inc.	Name/Title (please print): Robin Handel, P.E. / Vice President
Address: 13809 Research Blvd, Suite 300, Austin, TX 78750	Signature:
Phone: 512-349-0700 Fax: 512-349-0727	
E-mail: rhandel@cpyi.com	Date:
DBE: Maldonado-Burkett ITS, LLP	Name/Title (please print):
Vendor No.: 12614763394	
Address: 2205 Western Trails Blvd., Suite B, Austin, TX 78745	Signature:
Phone: 512-916-1386 Fax:	
E-mail: karl@mbitsgroup.com	Date:
Subcontractor (if the DBE will be a second tier sub):	Name/Title (please print):
Address:	Signature:
Phone: Fax:	
E-mail:	Date:

The Texas Department of Transportation maintains the information collected through this form. With few exceptions, you are entitled on request to be informed about the information that we collect about you. Under §§552.021 and 552.023 of the Texas Government Code, you also are entitled to receive and review the information. Under §559.004 of the Government Code, you are also entitled to have us correct information about you that is incorrect.

FORM E-2
Disadvantaged Business Enterprise (DBE) Program Commitment Agreement Form

Form SMS.4901
(Rev. 06/08)

This commitment is subject to the award and receipt of a signed contract from the Texas Department of Transportation for the subject project.

Project #: Manor Expressway Phase III Project	**County: Travis**	**Contract-CSJ:**

Items of work to be performed (attach a list of work items if more room is required):

Bid Item #	Item Description	Unit of Measure	Unit Price	Quantity	Total Per Item
1.0	Preliminary Design				$100,438
	Other Direct Expenses				$19,610
				Total	$120,048

Add Ro

The contractor certifies by signature on this agreement that subcontracts will be executed between the prime contractor and the DBE subcontractors as listed on the agreement form. If a DBE Subcontractor is unable to perform the work as listed on this agreement form, the prime contractor will follow the substitution/replacement approval process as outlined in the Contract DBE Special Provision.

IMPORTANT: The signatures of the prime contractor and the DBE, and the total commitment amount must always be on the same page.

Prime Contractor: CP&Y, Inc.	Name/Title (please print): Robin Handel, P.E. / Vice President
Address: 13809 Research Blvd, Suite 300, Austin, TX 78750	Signature:
Phone: 512-349-0700 Fax: 512-349-0727	
E-mail: rhandel@cpyi.com	Date:
DBE: Inland Geodetics, LLC	Name/Title (please print):
Vendor No.: 12040216991	
Address: 1504 Chisholm Trail Rd., Suite 103, Round Rock, TX 78681	Signature:
Phone: 512-238-1200 Fax: 512-238-1251	
E-mail: Steve@inland-geo.com	Date:
Subcontractor (if the DBE will be a second tier sub):	Name/Title (please print):
Address:	Signature:
Phone: Fax:	
E-mail:	Date:

The Texas Department of Transportation maintains the information collected through this form. With few exceptions, you are entitled on request to be informed about the information that we collect about you. Under §§552.021 and 552.023 of the Texas Government Code, you also are entitled to receive and review the information. Under §559.004 of the Government Code, you are also entitled to have us correct information about you that is incorrect.

To ensure prompt and efficient handling of your project file we are requesting that all commitments to be presented to the Office of Civil Rights, using this basic format.

FORM E-3

Texas Department of Transportation

DBE Prime Contractor To Non-DBE Subcontractors

Form SMS.4902
(Rev. 05/08)

Project: _____ Contract CSJ: _____

County: _____ District: _____

Letting Date: _____ For Month of (Mo./Yr.): _____

Contractor: _____ Contract Amount: _____

Name of Non-DBE Subcontractor	$ Amount Paid This Period	Total $ Amount Paid to Date

Send this report to the District DBE Coordinator. Report is due within 15 days following the end of each calendar month.

Signature: _____ Date:
_____Company Official

The Texas Department of Transportation maintains the information collected through this form. With few exceptions, you are entitled on request to be informed about the information that is collected about you. Under §§552.021 and 552.023 of the Texas Government Code, you also are entitled to receive and review the information. Under §559.004 of the Government Code, you are also entitled to have us correct information about you that is incorrect.

FORM E-4

TxDOT Department of Transportation
DBE Monthly Progress Report

Form SMS. 4903
(Rev. 07/08)

Project: Manor Expressway Phase III

Contract CSJ: _____

County: Travis

District: Austin

Letting Date: _____

For Month of (Mo./Yr.): _____

Contractor: _____

Contract Amount: $7,055,388.00

DBE Goal: 10%

DBE Goal Dollars: $705,539

Vendor Number	Name of DBE Sub/Supplier	* RC or RN	** DBE $ Amt Paid for Work Performed this Period (X)	*** $ Amt Paid to Non-DBE 2nd Tier Subs and Haulers (Y)	Amt Paid to DBEs to Date (X-Y)	For TxDOT use Only
14813046878	K. Friese & Associates, Inc.					
18105688628	P.E. Structural Consultants, Inc.					
14546874299	Corsair Consulting, LLC					
12614763394	Maldonado-Burkett ITS, LLP					
12040216991	Inland Geodetics, LLC					

* Race Conscious or Race Neutral.
Goal/commitment progress report amount and/or race-neutral amount. **Do not subtract non-DBE second-tier subcontracts and haulers from this column.
*** Report amount of payment DBE subcontractors paid to non-DBE subcontractors/haulers.

If using a non-DBE hauling firm that leases from DBE truck owner-operators, payments made to each owner-operator must be reported separately.

Any changes to the DBE commitments approved by the department must be reported to the area engineer.*

Submissions of this report for periods of negative DBE activity is required. This report is required until all DBE subcontracting or material supply activity is completed.
I hereby certify that the above is a true and correct statement of the amounts paid to the DBE firms listed above.

Signature: _____ Date: _____

This report must be sent to the are engineer's office within 15 days following the end of the calendar month.

The Texas Department of Transportation maintains the information collected through this form. With few exceptions, you are entitled on request to be informed about the information that is collected about you. Under §§552.021 and 552.023 of the Texas Government Code, you also are entitled to receive and review the information. Under §559.004 of the Government Code, you are also entitled to have us correct information about you that is incorrect.

FORM E-5
Central Texas Regional Mobility Authority Subprovider Monitoring System for Federally Funded Contracts
Progress Assessment Report for month of (Mo./Yr.) _____/_____

Contract #: 16290E22704E
Original Contract Amount: $7,055,388.00
Date of Execution: _____
Approved Supplemental Agreements: _____
Prime Provider: CP&Y, Inc.
Total Contract Amount: $7,055,388.00
Work Authorization No. 1
Work Authorization Amount: $7,055,388.00

If no subproviders are used on this contract, please indicate by placing "N/A" on the 1st line under Subproviders.

DBE	All Subproviders	Category of Work	Total Subprovider Amount	% Total Contract Amount	Amount Paid This Period	Amount Paid To Date	Subcontract Balance Remaining
x	K. Friese & Associates, Inc.	Engineering	$194,179	2.8%			
x	P.E. Structural Consultants, Inc.	Engineering	$300,321	4.3%			
x	Corsair Consulting, LLC	Engineering	$536,175	7.6%			
x	Maldonado-Burkett ITS, LLP	Engineering	$226,544	3.2%			
x	Inland Geodetics, LLC	Surveying	$120,048	1.7%			
	HDR Engineering, Inc.	Engineering	$720,741	10.2%			
	Surveying & Mapping, LLC	Surveying	$472,639	6.7%			

Fill out Progress Assessment Report with each estimate/invoice submitted, *for all subcontracts*, and forward as follows:
1 Copy with Invoice - Contract Manager/Managing Office
1 Copy – CTRMA DBE Liaison, c/o Atkins, _____, Austin, Texas

I hereby certify that the above is a true and correct statement of the amounts paid to the firms listed above.

Robin Handel, P.E.		512-349-0700	
Print Name - Company Official /DBE Liaison Officer	Signature	Phone	Date
rhandel@cpyi.com		512-349-0727	
Email		Fax	

FORM E-6

DBE Final Report

Form SMS. 4904
(Rev. 09/10)

The DBE final report form should be filled out by the contractor and submitted to the appropriate district office upon completion of the project. One copy of the report must be submitted to the area engineer's office. The report should reflect all DBE activity on the project. The report will aid in expediting the final estimate for payment. If the DBE goal requirements were not met, documentation supporting good faith efforts must be submitted.

Project: Manor Expressway Phase III____ Contract CSJ: _____

County: Travis_____ Control Project: _____

Letting Date: _____ DBE Goal: _____10%_____

Contractor: _____ Contract Amount: ____$7,055,388.00_____

Vendor Number	Name of DBE Sub/Supplier	* RC or RN	** DBE $ Amt Paid for Work Performed this Period (X)	*** $ Amt Paid to Non-DBE 2nd Tier Subs and Haulers (Y)	Amt Paid to DBEs to Date (X-Y)	For TxDOT use Only
14813046878	K. Friese & Associates, Inc.					
18105688628	P.E. Structural Consultants, Inc.					
14546874299	Corsair Consulting, LLC					
12614763394	Maldonado-Burkett ITS, LLP					
12040216991	Inland Geodetics, LLC					

* Race Conscious or Race Neutral.
**Goal/commitment progress report amount and/or race-neutral amount. Do not subtract non-DBE second-tier subcontracts and haulers from this column.
*** Report amount of payment DBE subcontractors paid to non-DBE subcontractors/haulers.

Was there a project under-run caused by a TxDOT change order that impacted DBE Goal attainment?
_____ Yes _____ No Change Order Number _____

This is to certify that _____ % of the work was completed by Disadvantaged Business Enterprises as stated above.

By _____ Per: _____
Name of General Contractor Contractor's Signature

Subscribed and sworn to before me, this _____ day of _____, A.D. _____

_____ _____
Notary Public **County**

FORM E-7

Federal Subprovider and Supplier Information

The Provider shall indicate below the name, address and phone number of all successful and unsuccessful subproviders and/or suppliers that provided proposals/quotes for this contract prior to execution. You may reproduce this form if additional space is needed.

Name	Address	Phone Number
HDR Engineering, Inc.	4401 West Gate Blvd., Suite 400 Austin, TX 78745	512-912-5100
K. Friese & Associates, Inc.	1120 S. Capital of Texas Highway CityView 2, Suite 100, Austin, TX 78746	512-338-1704
P.E. Structural Consultants, Inc.	8436 Spicewood Springs Road, Austin, TX 78759	512-250-5200
Corsair Consulting, LLC	16800 Joe Barbee Dr. Pflugerville, TX 78660	512-342-8877
Maldonado-Burkett ITS, LLP	2205 Western Trails Blvd., Suite B, Austin, TX 78745	512-916-1386
Inland Geodetics, LLC	1504 Chisholm Trail Rd., Suite 103, Round Rock, TX 78681	512-238-1200
Surveying and Mapping, LLC	4801 Southwest Parkway, Building Two, Suite 100, Austin, Texas 78735	512-447-0575

The information must be provided and returned with the contract.

_____ _____

Signature Date

Robin Handel, P.E. rhandel@cpyi.com 512-349-0700

Printed Name Email Phone#

EXHIBIT F

Disadvantaged Business Enterprise (DBE)
for Federal-Aid Professional or Technical Services Contracts
Special Provision

1) **PURPOSE.** The purpose of this attachment is to carry out the U.S. Department of Transportation's ("DOT") policy of ensuring nondiscrimination in the award and administration of DOT assisted contracts and creating a level playing field on which firms owned and controlled by minority or socially and economically disadvantaged individuals can compete fairly for DOT assisted contracts.

2) **POLICY.** It is the policy of the DOT, the Central Texas Regional Mobility Authority (the "Mobility Authority") and the Texas Department of Transportation (the "Department") that Disadvantaged Business Enterprises (DBEs) as defined in 49 CFR Part 26, Subpart A and the Department's Disadvantaged Business Enterprise Program ("DBE Program"), shall have the opportunity to participate in the performance of contracts financed in whole or in part with Federal funds. The Mobility Authority and the Department previously entered into a Memorandum of Understanding Regarding the Adoption of the Texas Department of Transportation's Federally-Approved Disadvantaged Business Opportunity Program by the Central Texas Regional Mobility Authority (the "MOU") dated effective February 1, 2007. The MOU provides that the Mobility Authority has adopted the Department's DBE Program with the consent of the Federal Highway Administration for contracts financed in whole or in part with Federal funds. Consequently, the Disadvantaged Business Enterprise requirements of 49 CFR Part 26, and the Department's DBE Program, apply to this contract as follows:

a. The Provider will offer Disadvantaged Business Enterprises, as defined in 49 CFR Part 26, Subpart A and the Department's DBE Program, the opportunity to compete fairly for contracts and subcontracts financed in whole or in part with Federal funds. In this regard, the Provider shall make a good faith effort to meet the Disadvantaged Business Enterprise goal for this contract.

b. The Provider and any subprovider(s) shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Provider shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT assisted contracts. The requirements of this Special Provision shall be physically included in any subcontract.

c. When submitting the contract for execution by the Mobility Authority, the Provider must complete and furnish Form E-1 which lists the commitments made to certified DBE subprovider(s) that are to meet the contract goal and Form E-2 which is a commitment agreement(s) containing the original signatures of the Provider and the proposed DBE(s). For Work Authorization Contracts, Form E-1 is required at the time of submitting the contract for execution by the Mobility Authority. Form E-2 will be required to be completed and attached with each work authorization number that is submitted for execution, if the DBE will be performing work**.** Any substitutions or changes to the DBE subcontract amount shall be subject to prior written approval by the Mobility Authority. If non-DBE subprovider is performing work, insert N/A (not applicable) on the line provided.

d. Failure to carry out the requirements set forth above shall constitute a material breach of this contract and may result; in termination of the contract by the Mobility Authority; in a deduction of the amount of DBE goal not accomplished by DBEs from the money due or to become due to the Provider, not as a penalty but as liquidated damages to the Mobility Authority; or such other remedy or remedies as the Mobility Authority deems appropriate.

3) **DEFINITIONS.**

a. "Mobility Authority" means the Central Texas Regional Mobility Authority.

b. "Department" means the Texas Department of Transportation (TxDOT).

c. "Federal-Aid Contract" is any contract between the Mobility Authority and a Provider which is paid for in whole or in part with U. S. Department of Transportation ("DOT") financial assistance.

d. "Provider" is any individual or company that provides professional or technical services.

e. "DBE Joint Venture" means an association of a DBE firm and one (1) or more other firm(s) to carry out a single business enterprise for profit for which purpose they combine their property, capital, efforts, skills and knowledge, and in which the DBE is responsible for a distinct, clearly defined portion of the work of the contract and whose share in the capital contribution, control, management, risks and profits of the joint venture are commensurate with its ownership interest.

f. "Disadvantaged Business Enterprise" or "DBE" means a firm certified as such by the Department in accordance with 49 CFR Part 26 and listed on the Department's website under the Texas Unified Certification Program.

g. "Good Faith Effort" means efforts to achieve a DBE goal or other requirement of this Special Provision which, by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirement.

h. "Race-neutral DBE Participation" means any participation by a DBE through customary competitive procurement procedures.

i. "DBE Liaison" shall have the meaning set forth in Section 5.e. herein.

4) **PERCENTAGE GOAL.** The goal for Disadvantaged Business Enterprise participation in the work to be performed under this contract is 10% of the contract amount. This goal is established in accordance with the provisions of the MOU.

5) **PROVIDER'S RESPONSIBILITIES.** A DBE prime may receive credit toward the DBE goal for work performed by his-her own forces and work subcontracted to DBEs. A DBE prime must make a good faith effort to meet the goals. In the event a DBE prime subcontracts to a non-DBE, that information must be reported to the Mobility Authority on Form E-3.

a. A Provider who cannot meet the contract goal, in whole or in part, shall document the "Good Faith Efforts" taken to obtain DBE participation. The following is a list of the types of actions that may be considered as good faith efforts. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases.

(1) Soliciting through all reasonable and available means the interest of all certified DBEs who have the capability to perform the work of the contract. The solicitation must be done within sufficient time to

allow the DBEs to respond to it. Appropriate steps must be taken to follow up initial solicitations to determine, with certainty, if the DBEs are interested.

(2) Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the Provider might otherwise prefer to perform the work items with its own forces.

(3) Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

(4) Negotiating in good faith with interested DBEs by making a portion of the work available to DBE subproviders and suppliers and selecting those portions of the work or material needs consistent with the available DBE subproviders and suppliers.

(5) The ability or desire of the Provider to perform the work of a contract with its own organization does not relieve the Provider's responsibility to make a good faith effort. Additional costs involved in finding and using DBEs is not in itself sufficient reason for a Provider's failure to meet the contract DBE goal, as long as such costs are reasonable. Providers are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.

(6) Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities.

(7) Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or Provider.

(8) Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials or related assistance or services.

(9) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBEs.

(10) If the Department's Director of the Business Opportunity Programs Office or the Mobility Authority's DBE Liaison determines that the Provider has failed to meet the good faith effort requirements, the Provider will be given an opportunity for reconsideration by the Department or the Mobility Authority, as appropriate.

NOTE: The Provider must not cause or allow subproviders to bid their services.

b. The preceding information shall be submitted directly to the Chair of the Consultant Selection Team responsible for the project.

c. The Provider shall make all reasonable efforts to honor commitments to DBE subproviders named in the commitment submitted under Section 2.c. of this attachment. Where the Provider terminates or removes a DBE

subprovider named in the initial commitment, the Provider must demonstrate on a case-by-case basis to the satisfaction of the Mobility Authority that the originally designated DBE was not able or willing to perform.

d. The Provider shall make a good faith effort to replace a DBE subprovider that is unable or unwilling to perform successfully with another DBE, to the extent needed to meet the contract goal. The Provider shall submit a completed Form E-2 for the substitute firm(s). Any substitution of DBEs shall be subject to prior written approval by the Mobility Authority. The Mobility Authority may request a statement from the firm being replaced concerning its replacement prior to approving the substitution.

e. The Provider shall designate a DBE liaison officer ("DBE Liaison") who will administer the DBE program and who will be responsible for maintenance of records of efforts and contacts made to subcontract with DBEs.

f. Providers are encouraged to investigate the services offered by banks owned and controlled by disadvantaged individuals and to make use of these banks where feasible.

6) **ELIGIBILITY OF DBEs.**

a. The Department certifies the eligibility of DBEs, DBE joint ventures and DBE truck-owner operators to perform DBE subcontract work on DOT financially assisted contracts. Under the terms of the MOU, only DBEs certified as eligible to participate on Department roadway construction projects and listed on the Department's website under the Texas Unified Certification Program are eligible to participate on Mobility Authority roadway construction projects.

b. This certification will be accomplished through the use of the appropriate certification schedule contained in the Department's DBE program and adopted by the Mobility Authority under the terms of the MOU.

c. The Department publishes a Directory of Disadvantaged Business Enterprises containing the names of firms that have been certified to be eligible to participate as DBEs on DOT financially assisted contracts. The directory is available from the Department's Business Opportunity Programs Office. The Texas Unified Certification Program DBE Directory can be found on the Internet at: http://www.dot.state.tx.us/services/business_opportunity_programs/tucp_dbe_directory.htm .

d. Only DBE firms certified at the time the contract is signed or at the time the commitments are submitted are eligible to be used in the information furnished by the Provider as required under Section 2.c. and 5.d. above. For purposes of the DBE goal on this contract, DBEs will only be allowed to perform work in the categories of work for which they were certified.

7) **DETERMINATION OF DBE PARTICIPATION.** A firm must be an eligible DBE and perform a professional or technical function relating to the project. Once a firm is determined to be an eligible DBE, the total amount paid to the DBE for work performed with his/her own forces is counted toward the DBE goal. When a DBE subcontracts part of the work of its contract to another firm, the value of the subcontracted work may be counted toward DBE goals only if the subprovider is itself a DBE. Work that a DBE subcontracts to a non-DBE firm does not count toward DBE goals.

A DBE subprovider may subcontract no more than 70% of a federal aid contract. The DBE subprovider shall perform not less than 30% of the value of the contract work with assistance of employees employed and paid directly by the DBE; and equipment owned or rented directly by the DBE. DBE subproviders must perform a commercially useful function required in the contract in order for payments to be credited toward meeting the

contract goal. A DBE performs a commercially useful function when it is responsible for executing the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself . When a DBE is presumed not to be performing a commercially useful function, the DBE may present evidence to rebut this presumption.

A Provider may count toward its DBE goal a portion of the total value of the contract amount paid to a DBE joint venture equal to the distinct, clearly defined portion of the work of the contract performed by the DBE.

Proof of payment, such as copies of canceled checks, properly identifying the Mobility Authority's contract number or project number may be required to substantiate the payment, as deemed necessary by the Mobility Authority.

8) **RECORDS AND REPORTS.**

a. After submission of the initial commitment reported (Form E-1), required by Section 2.c. of this attachment, the Provider shall submit Monthly Progress Assessment Reports (Forms E-4 and E-5), after contract work begins, on DBE involvement to meet the goal and for race-neutral participation. One copy of each report is to be sent monthly to the Mobility Authority as provided in Section 8.b. below and should also be submitted with the Provider's invoice. **Only actual payments made to subproviders are to be reported. These reports will be required until all subprovider activity is completed.** The Mobility Authority may verify the amounts being reported as paid to DBEs by requesting copies of canceled checks paid to DBEs on a random basis.

b. DBE subproviders should be identified on the report by name, type of work being performed, the amount of actual payment made to each during the billing period, cumulative payment amount and percentage of the total contract amount. These reports will be due within fifteen (15) days after the end of a calendar month. Reports are required even when no DBE activity has occurred in a billing period.

c. All such records must be retained for a period of four (4) years following final payment or until any investigation, audit, examination, or other review undertaken during the four (4) years is completed, and shall be available at reasonable times and places for inspection by authorized representatives of the Mobility Authority, the Department or the DOT.

d. Prior to receiving final payment, the Provider shall submit a Final Report (Form E-6), detailing the DBE payments. The Final Report is to be sent to the Mobility Authority and one (1) copy is to be submitted with the Provider's final invoice. If the DBE goal requirement is not met, documentation of the good faith efforts made to meet the goal must be submitted with the Final Report.

9) **COMPLIANCE OF PROVIDER.** To ensure that DBE requirements of this DOT-assisted contract are complied with, the Mobility Authority and/or the Department will monitor the Provider's efforts to involve DBEs during the performance of this contract. This will be accomplished by a review of DBE Monthly Progress Reports (Form E-4), submitted to the Mobility Authority by the Provider indicating his progress in achieving the DBE contract goal, and by compliance reviews conducted by the Mobility Authority or the Department. The DBE Monthly Progress Report (Form E-4) must be submitted at a minimum monthly to the Mobility Authority, in addition to with each invoice to the appropriate agency contact.

The Provider shall receive credit toward the DBE goal based on actual payments to the DBE subproviders with the following exceptions and only if the arrangement is consistent with standard industry practice. The Provider shall immediately contact the Mobility Authority in writing if he/she withholds or reduces payment to any DBE subprovider.

(1) A DBE firm is paid but does not assume contractual responsibility for performing the service;

(2) A DBE firm does not perform a commercially useful function;

(3) Payment is made to a DBE that cannot be linked by an invoice or canceled check to the contract under which credit is claimed;

(4) Payment is made to a broker or a firm with a brokering-type operation; or

(5) Partial credit is allowed, in the amount of the fee or commission provided the fee or commission does not exceed that customarily allowed for similar services, for a bona fide service, such as professional, technical, consultant, or managerial services, and assistance in the procurement of essential personnel, facilities, equipment, materials, or supplies required for performance of the contract.

A Provider's failure to comply with the requirements of this Special Provision shall constitute a material breach of this contract. In such a case, the Mobility Authority reserves the right to terminate the contract; to deduct the amount of DBE goal not accomplished by DBEs from the money due or to become due the Provider, not as a penalty but as liquidated damages to the Mobility Authority; or such other remedy or remedies as the Mobility Authority deems appropriate.

EXHIBIT G

Disadvantaged Business Enterprise (DBE) for Race-Neutral Professional or Technical Services Contracts Special Provision

It is the policy of the DOT, the Central Texas Regional Mobility Authority (the "Mobility Authority") and the Texas Department of Transportation (the "Department") that Disadvantaged Business Enterprises (DBEs) as defined in 49 CFR Part 26, Subpart A and the Department's Disadvantaged Business Enterprise Program ("DBE Program"), shall have the opportunity to participate in the performance of contracts financed in whole or in part with Federal funds and it is the DOT's policy that a maximum feasible portion of the Department's and the Mobility Authority's overall DBE goal be met using race-neutral means. The Mobility Authority and the Department previously entered into a Memorandum of Understanding Regarding the Adoption of the Texas Department of Transportation's Federally-Approved Disadvantaged Business Opportunity Program by the Central Texas Regional Mobility Authority (the "MOU") dated effective February 1, 2007. The MOU provides that the CTRMA has adopted the Department's DBE Program with the consent of the Federal Highway Administration for contracts financed in whole or in part with Federal funds. Consequently, if there is no DBE goal, the DBE requirements of 49 CFR Part 26, apply to this contract as follows:

The Provider will offer DBEs as defined in 49 CFR Part 26, Subpart A, the opportunity to compete fairly for contracts and subcontracts financed in whole or in part with federal funds. Race-Neutral DBE participation on projects with no DBE goal should be reported on the Form E-3. Payments to DBEs reported on Form E-3 are subject to the following requirements:

DETERMINATION OF DBE PARTICIPATION.

A firm must be an eligible DBE and perform a professional or technical function relating to the project. Once a firm is determined to be an eligible DBE, the total amount paid to the DBE for work performed with his/her own forces must be reported as race-neutral DBE participation. When a DBE subcontracts part of the work of its contract to another firm, the value of the subcontracted work should not be reported unless the subcontractor is itself a DBE.

A DBE subprovider may subcontract no more than 70% of a federal aid contract. The DBE subprovider shall perform not less than 30% of the value of the contract work with assistance of employees employed and paid directly by the DBE; and equipment owned or rented directly by the DBE. DBE subproviders must perform a commercially useful function required in the contract. A DBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself. When a DBE is presumed not to be performing a commercially useful function, the DBE may present evidence to rebut this presumption.

A Provider must report a portion of the total value of the contract amount paid to a DBE joint venture equal to the distinct, clearly defined portion of the work of the contract performed by the DBE.

Proof of payment, such as copies of canceled checks, properly identifying the Mobility Authority's contract number or project number may be required to substantiate the payment, as deemed necessary by the Mobility Authority.

The Provider and any subprovider shall not discriminate on the basis of race, color, national origin or sex in the award and performance of contracts. These requirements shall be physically included in any subcontract.

Failure to carry out the requirements set forth above shall constitute a material breach of this contract and, may result in termination of the contract by the Mobility Authority or other such remedy as the Mobility Authority deems appropriate.

ATTACHMENT C

SUPPLEMENTAL WORK AUTHORIZATION NO. ____
TO WORK AUTHORIZATION NO. ____
CONTRACT FOR ENGINEERING SERVICES

THIS SUPPLEMENTAL WORK AUTHORIZATION is made pursuant to the terms and conditions of Article 4 of the Contract for Engineering Services (the Contract) entered into by and between the Central Texas Regional Mobility Authority (the Mobility Authority) and _____ (the Engineer) dated _____.

The following terms and conditions of Work Authorization No. ____ are hereby amended as follows:

This Supplemental Work Authorization shall become effective on the date of final execution of the parties hereto. All other terms and conditions of Work Authorization No. ____ not hereby amended are to remain in full force and effect.

IN WITNESS WHEREOF, this Supplemental Work Authorization is executed in duplicate counterparts and hereby accepted and acknowledged below.

THE ENGINEER	**CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY**
_____	_____
(Signature)	(Signature)
_____	_____
(Printed Name)	Mike Heiligenstein
_____	_____
(Title)	Executive Director
_____	_____
(Date)	(Date)

ATTACHMENT D

KEY PERSONNEL

Title	Engineer Employee
Project Manager	Robin Handel
Deputy Project Manager/Lead Structural Engineer	Tom Ashcraft
Lead Roadway Engineer	Paul Schrader
Lead Drainage Engineer	Vicki McEvoy
ITS/Infrastructure Engineer	Karl Burkett
Traffic Engineer	Benedict Patrick