



**CENTRAL TEXAS
Regional Mobility Authority**

Authorize execution of a contract and initial work authorization with Jacobs Engineering Group Inc. for environmental engineering services for the MoPac South Project.

Strategic Plan Relevance:	Regional Mobility
Department:	Engineering
Associated Costs:	\$5,999,205.00
Funding Source:	General Fund, Reimbursed with Rider 42 funds
Board Action Required:	Yes

Description of Matter: On February 29, 2012, the Mobility Authority's Board of Directors authorized the issuance of a Request for Qualifications (RFQ) from teams interested in providing preliminary engineering and environmental services necessary to implement the MoPac South Project from Cesar Chavez south to SH 45 in Travis County. The RFQ was issued on September 21, 2012. Five responses were received on October 12, 2012 in response to the RFQ and were evaluated by a Selection Committee. On December 5, 2012, the Board approved the recommended team and authorized negotiation of a contract for preliminary engineering and environmental services based on the Selection Committee's recommendation.

This contract provides for the alternatives development and evaluation, environmental studies, public involvement, preliminary engineering, design, field survey, hydraulic studies, and schematic development for the proposed MoPac South Project and MoPac South Overpasses Project (Projects) located in Travis County, Texas.

The proposed contract and initial work authorization addresses the anticipated project requirements and the level of effort and the associated fee is appropriate. The Executive Director recommends the Board approve the contract and authorize his execution of the proposed contract in the form or substantially the same as the form included as backup to this agenda item.

Reference documentation:	Draft Resolution
	Proposed Contract and initial work authorization.

Contact for further information: Wesley M. Burford, P.E., Director of Engineering

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

RESOLUTION NO. 13-___

**AUTHORIZING EXECUTION OF A CONTRACT AND INITIAL WORK
AUTHORIZATION WITH JACOBS ENGINEERING GROUP INC. FOR
ENVIRONMENTAL ENGINEERING SERVICES RELATED TO
THE MOPAC SOUTH EXPRESS LANE PROJECT.**

WHEREAS, by Resolution No. 12-078, approved on December 5, 2012, the Board of Directors authorized the Executive Director to negotiate a professional services contract with Jacobs Engineering Group Inc. to provide preliminary engineering and environmental services for the MoPac South Project; and

WHEREAS, the Executive Director and Jacobs Engineering Group Inc. have agreed on a proposed professional services contract for the requested services and an initial work authorization under that contract, and the Board has received in its backup material for this resolution a copy of the proposed contract and initial work authorization for review and consideration (the "Proposed Contract"); and

WHEREAS, the Executive Director recommends Board approval of the Proposed Contract and initial work authorization in the form or substantially the same form as provided in the backup material to this resolution.

NOW, THEREFORE, BE IT RESOLVED that Board hereby approves the Proposed Contract and initial work authorization with Jacobs Engineering Group Inc. for the MoPac South Project; and

BE IT FURTHER RESOLVED that the Board hereby authorizes the Executive Director to finalize and execute the Proposed Contract and initial work authorization on behalf of the Mobility Authority in the form or substantially the same form as provided in the backup material to this resolution.

Adopted by the Board of Directors of the Central Texas Regional Mobility Authority on the 27th day of March, 2013.

Submitted and reviewed by:

Approved:

Andrew Martin, General Counsel
Central Texas Regional Mobility Authority

Ray A. Wilkerson
Chairman, Board of Directors
Resolution Number 13-___
Date Passed: 3/27/13

CONTRACT FOR ENGINEERING SERVICES
Cost Plus, 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, 301 Congress Avenue, Suite 650, Austin, Texas 78701, hereinafter called the "Authority" or "CTRMA," and Jacobs Engineering Group Inc., having its principal business address at 2705 Bee Cave Road, Suite 300, Austin, Texas 78746, hereinafter called "Engineer," for the purpose of contracting for engineering services.

WITNESSETH

WHEREAS, the Authority desires to contract for engineering services generally described as MoPac South Project and MoPac South Overpasses Project and,

WHEREAS, the Authority has selected the Engineer to provide the needed services and the Engineer has agreed to provide the services subject to the terms and conditions hereinafter set forth.

NOW, THEREFORE, the 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 Authority and the Engineer will furnish items and perform those services for fulfillment of the Contract as identified in Attachment A ("Services to be Provided by the Authority"), and Attachment B ("Services to be Provided by the Engineer"). All services provided by the Engineer shall comply with the terms and conditions of the Authority's Project Manual for the MoPac South Project, a copy of which is attached hereto as Attachment D ("Project Manual") 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

Basis of Payment and Reimbursement of Eligible Costs. The basis of payment shall be identified in each Work Authorization. Reimbursement of costs incurred under a Work Authorization shall be in accordance with each Work Authorization. To be eligible for reimbursement, the Engineer's costs must (1) be incurred in accordance with the terms of a valid Work Authorization; and (2) comply with cost principles set forth at 48 CFR Part 31, Federal

Acquisition Regulation (FAR 31). Satisfactory progress of work shall be maintained as a condition of payment.

ARTICLE 3 PAYMENT REQUIREMENTS

A. Monthly Billing Statements. The Engineer shall request reimbursement of costs incurred by submitting the original and one copy of an itemized billing statement in a form acceptable to the Authority. The Engineer is authorized to submit requests for reimbursement no more frequently than monthly and no later than one-hundred and twenty (120) days after costs are incurred.

B. Billing Statement. The billing statement 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 billing statement shall indicate if the work has been completed or if the billing is for partial completion of the work. The billing statement shall be substantially in the form provided by the Authority.

C. Thirty Day Payments. Upon receipt of a billing statement that complies with all invoice requirements set forth in this Article, the Authority shall make a good faith effort to pay the amount, which is due and payable within thirty (30) days.

D. Withholding Payments. The Authority reserves the right to withhold payment of the Engineer's billing statement 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; (2) pending verification of satisfactory work performed; or (3) if required reports are not received.

E. Required Reports.

(1) As required in Attachment H (“DBE Requirements”), the Engineer shall submit Progress Assessment Reports to report actual payments made to Disadvantaged Business Enterprises. One copy shall be submitted with each billing statement and one copy shall be submitted to the Authority’s address included in Article 35 hereof.

(2) Prior to contract closeout, the Engineer shall submit a Final Report (Exhibit H-4) to the Authority’s address set forth in Article 35 hereof.

(3) The Engineer shall submit a separate report with each billing statement showing the percent completion of the work accomplished during the billing period and the percent completion to date, and any additional written report requested by the Authority to document the progress of the work.

F. Audit. The 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 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 4 WORK AUTHORIZATIONS

A. Use. The Authority will issue Work Authorizations using the form attached as Attachment C-1 to authorize all work under this Contract. The Authority shall not be responsible for actions by the Engineer or any costs incurred by the Engineer relating to work not directly associated with or prior to the execution of a Work Authorization. Terms and conditions governing the use of Work Authorizations are set forth in this Article 4. 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; (2) a period of performance with a beginning and ending date; (3) a full description of the work to be performed; (4) a work schedule with milestones; (5) a cost not to exceed amount, (6) the basis of payment whether cost plus, cost plus fixed fee, unit cost, lump sum, or specified rate; and (7) a Work Authorization budget calculated using fees set forth in an exhibit to the Work Authorization. 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 at the hourly rates established in the Work Authorization; (3) a work plan that includes a list of the work to be performed; and (4) a 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 discretion of the Authority. While it is the 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 Authority's or the Engineer's responsibilities and obligations established in this Contract. The Engineer shall promptly notify the Authority of any event that will affect completion of the Work Authorization.

F. Supplemental Work Authorizations. Before additional work may be performed or additional costs incurred, 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-2. 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 Authority.

F-1. Notice. If the Engineer is of the opinion that any assigned work is beyond the scope of this Contract and constitutes additional work, it shall promptly notify the Authority and shall follow the procedure set forth in Section 3.3 of the Project Manual.

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

F-3. Limitation of Liability. The 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 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 Authority. The Engineer shall prepare and present such information as may be pertinent and necessary or as may be requested by the Authority in order to evaluate features of the work.

B. Conferences. At the request of the 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 Authority, or at other locations designated by the Authority. These conferences shall also include evaluation of the Engineer's services and work when requested by the Authority.

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

D. Reports. The Engineer shall promptly advise the 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 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 Authority determine that the progress of work does not satisfy the milestone schedule set forth in a Work Authorization, the 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 Authority and shall follow the procedure set forth in Section 4.7 of the Project Manual. The 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 Authority desire to suspend a Work Authorization but not terminate the Contract, the Authority may verbally notify the Engineer followed by written confirmation, giving thirty (30) days notice. Both parties may waive the thirty-day notice in writing.

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

C. Limitation of Liability. The Authority shall have no liability for work performed or costs incurred prior to the date authorized by the 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 but the 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, the Engineer shall make such revisions as requested and as directed by the Authority. This will be considered as additional work and paid for as specified under Article 4F, Supplemental Work Authorizations.

B. Work Does Not Comply with Contract. If the Engineer submits work that does not comply with the terms of this Contract, the Authority shall instruct the Engineer to make

such revision as is necessary to bring the work into compliance with the Contract. No additional compensation shall be paid for this work.

C. Errors/Omissions. The Engineer shall make revisions to the work authorized in this Contract that are necessary to correct errors or omissions appearing therein, when required to do so by the 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 Authority.

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

ARTICLE 9 PUBLIC INFORMATION AND CONFIDENTIALITY

A. Public Information. The 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 Authority under this Contract without the express written consent of the 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 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 Authority may instruct the Engineer to remove any employee from association with work authorized in this Contract if, in the sole opinion of the 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 Authority in writing as soon as possible, but no later than three business days after a project manager or other key personnel is removed from association with this Contract, giving the reason for removal.

D. Authority Approval of Replacement Personnel. The Engineer may not replace the project manager or key personnel, as designated in the applicable Work Authorization, without prior consent of the Authority. The Authority must be satisfied that the new project manager or other key personnel is qualified to provide the authorized services. If the Authority determines that the new project manager or key personnel is not acceptable, the Engineer may not use that person in that capacity and shall replace him or her with one satisfactory to the Authority within forty-five (45) days.

E. Ownership of Acquired Property. Except to the extent that a specific provision of this Contract states to the contrary, the 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 Authority shall be delivered to the Authority when the contract 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 Authority.

B. DBE Compliance. The Engineer's subcontracting program shall comply with the requirements of Attachment H ("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 Authority to the Engineer.

D. Prior Review. Subcontracts for professional services in excess of \$25,000 may be reviewed by the 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.

ARTICLE 12 INSPECTION OF WORK

A. Review Rights. The 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 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 Authority before a final report is issued. The 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 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 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;
- (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 Authority for reasons of its own, not subject to the mutual consent of the Engineer, by giving thirty (30) days notice of termination in writing to the Engineer;
- (5) by the Authority, if the Engineer violates the provisions of Article 22, Gratuities, or Attachment H (“DBE Requirements”); or
- (6) by satisfactory completion of all services and obligations described herein.

B. Measurement. Should the 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 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 Authority terminate this Contract under paragraph A (4) or (5) 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.

C. Value of Completed Work. If the Engineer defaults in the performance of this Contract or if the Authority terminates this Contract for fault on the part of the Engineer, the 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 Authority; (4) the cost to the Authority of employing another firm to complete the required work; (5) the time required to employ another firm to complete the work; and (6) other factors which affect the value to the Authority of the work performed.

D. Calculation of Payments. The 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 Authority and the Engineer under this Contract, except for those provisions that establish responsibilities that extend beyond the Contract period.

F. Payment of Additional Costs. If termination of this Contract is due to the failure of the Engineer to fulfill its Contract obligations, the Authority may take over the project and prosecute the work to completion, and the Engineer shall be liable to the Authority for any additional cost to the 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, and licensing laws and regulations. When required, the Engineer shall furnish the Authority with satisfactory proof of its compliance therewith.

ARTICLE 17 INDEMNIFICATION

A. Errors, Omissions, Negligent Acts. The Engineer shall save harmless the Authority and its officers and employees from all claims and liability due to activities of itself, its agents, or employees, performed under this Contract, but only to the extent or degree on a comparative basis of fault resulting from an error, omission, or negligent act of the Engineer or of any person employed or contracted by the Engineer.

B. Attorney Fees. The Engineer shall also save harmless the Authority from any and all expense, including, but not limited to, reasonable attorney fees and court costs that may be incurred by the Authority in litigation or otherwise resisting said claim or liabilities that may be imposed on the Authority to the extent caused by the Engineer's, its agents', subcontractors' or employees' error, omission, or negligent act referenced in Section 17A above.

ARTICLE 18 ENGINEER'S RESPONSIBILITY

A. Accuracy. The Engineer shall have total responsibility for the accuracy and completeness of the construction contract documents and related design prepared under this project and shall check all such material accordingly. The plans will be reviewed by the Authority's GEC, as defined in Article 19 below, for conformity with the 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 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 Authority discovers a possible design error or omission, the 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 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 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 Authority, the Authority, as the owner, will notify the Engineer, in writing, of the possibility that a 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 19 ROLE OF GENERAL ENGINEERING CONSULTANT

The Authority will utilize a General Engineering Consultant ("GEC") to assist in its management of this Contract. The GEC is authorized by the Authority to provide the management and technical direction for this Contract on behalf of the 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 Authority; however, requests for such amendments or adjustments shall be made through the GEC, who shall forward such requests to the 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 Authority, whose decision shall be final. The parties shall follow the procedure set forth in Section 4.9 of the Project Manual in attempting to resolve such dispute. Neither the GEC nor the Engineer shall submit requests for resolution without the full knowledge and consent of the other party.

**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 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**

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

A. Comprehensive General Liability Insurance or Commercial General Liability Insurance. If coverages are specified separately, they must be at least these amounts:

Bodily Injury	\$1,000,000 each occurrence
Property Damage	\$1,000,000 each occurrence \$2,000,000 for aggregates

Manufacturers' or Contractor Liability Insurance is not an acceptable substitute for Comprehensive General Liability Insurance or Commercial General Liability Insurance.

B. Professional Liability Insurance. Engineer shall provide and maintain professional liability coverage, with limits not less than \$3,000,000 per claim and \$3,000,000 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.

**ARTICLE 22
GRATUITIES**

A. Employees Not to Benefit. Authority policy mandates that employees of the Authority shall not accept any benefit, gift or favor from any person doing business with or who reasonably speaking may do business with the 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 Authority.

B. Liability. Any person doing business with or who reasonably speaking may do business with the Authority under this Contract may not make any offer of benefits, gifts or favors to 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 Attachment H (“DBE Requirements”) with an assigned goal or a zero goal, as determined by the 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 Authority or any of its duly authorized representatives, the FHWA, the U. S. Department of Transportation, Office of Inspector General, and the Comptroller General shall have access to the Engineer’s Records 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 to Implement Title VI of the Civil Rights Act of 1964. During the performance of the Contract, the Engineer, for itself, its assignees and successors in interest, agrees as follows:

(1) Compliance with Regulations. The Engineer shall comply with the regulations relative to nondiscrimination in Federally-assisted programs of the U. S. Department of Transportation (hereinafter, “DOT”) Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time (hereinafter referred to as the “Regulations”), relate to

nondiscrimination.

(2) 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 procurements of materials and leases of equipment. The Engineer shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

(3) Solicitations for Subcontracts, Including Procurements 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 procurements 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.

(4) 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 its facilities as may be determined by the Authority or the Texas Department of Transportation to be pertinent to ascertain compliance with such Regulations, orders and instructions. 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 Authority, or the Texas Department of Transportation as appropriate, and shall set forth what efforts it has made to obtain the information.

(5) Sanctions for Noncompliance. In the event of the Engineer's noncompliance with the nondiscrimination provisions of this Contract, the Authority shall impose such Contract sanctions as it or the Texas Department of Transportation may determine to be appropriate, including, but not limited to: (a) withholding of payments to the Engineer under the Contract until the Engineer complies; and/or (b) cancellation, termination, or suspension of the Contract, in whole or in part.

(6) Incorporation of Provisions: The Engineer shall include the provisions of subparagraphs (A)(1) through (A)(6) of this Article 25 in every subcontract, including procurements 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 Authority or the Texas Department of Transportation 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 Authority to enter into such litigation to protect the interests of the Authority; and, in addition, the Engineer may request the United States to enter into such litigation to protect the interests of the United States.

B. Nondiscrimination in the Selection of Employees and Contractors. The Engineer shall comply with the requirements set forth in Form FHWA-1273, attached as Attachment E (“Form 1273”).

ARTICLE 26 PATENT RIGHTS

The 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 COMPUTER GRAPHICS FILES

The Engineer agrees to comply with Computer Graphics Files for Document and Information Exchange documentation as provided by the Authority.

ARTICLE 28 DISPUTES

A. Disputes Not Related to Contract Services. The Engineer shall be responsible for the settlement of all contractual and administrative issues arising out of any procurement made by the Engineer in support of the services authorized herein. With respect to disputes among the Engineer and its subconsultants, the Engineer shall follow the procedure set forth in the first paragraph of Section 4.9 of the Project Manual.

B. Disputes Concerning Work or Cost. The Executive Director of the Authority shall decide all questions, difficulties and dispute of any nature whatsoever that may arise under or by reason of this Agreement, and his decision upon all claims, questions and disputes shall be final. The Engineer shall comply with the provisions of the second paragraph of Section 4.9 of the Project Manual in proceeding with such disputes.

ARTICLE 29 SUCCESSORS AND ASSIGNS

The Engineer and the 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 Authority.

**ARTICLE 30
SEVERABILITY**

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

**ARTICLE 31
PRIOR CONTRACTS SUPERSEDED**

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

**ARTICLE 32
CONFLICT OF INTEREST**

A. Representation by Engineer. The 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 Authority or which in any way conflicts with the interests of the Authority. The Authority shall exercise reasonable care and diligence to prevent any actions or conditions that could result in a conflict with the 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 33
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; provided, however that the Authority shall be entitled to unilaterally make modifications to the Project Manual (Attachment D), which shall become a part of this Contract, so long as such modifications do not materially increase the Engineer's Scope of Work or cost related to this Contract.

**ARTICLE 34
SIGNATORY WARRANTY**

The undersigned signatory for the Engineer hereby represents and warrants that he or she is an officer of the organization for which he or she has executed this Contract and that he or she

has full and complete authority to enter into this Contract on behalf of the firm. These representations and warranties are made for the purpose of inducing the Authority to enter into this Contract.

**ARTICLE 35
NOTICES**

All notices to either party by the other required under this Contract shall be delivered personally or sent by certified or U.S. mail, postage prepaid, addressed to such party at the following addresses:

Engineer: Jimmy Robertson, AICP Jacobs Engineering Inc. 2705 Bee Cave Road, Suite 300 Austin, Texas 78746	Authority: Wesley M. Burford, P.E. Director of Engineering Central Texas Regional Mobility Authority 301 Congress Ave, Suite 650 Austin, Texas 78701
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All notices shall be deemed given on the date so delivered or so deposited in the mail, unless otherwise provided herein. Either party may change the above address by sending written notice of the change to the other party. Either party may request in writing that such notices shall be delivered personally or by certified U.S. mail and such request shall be honored and carried out by the other party.

**ARTICLE 36
BUSINESS DAYS AND DAYS**

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

**ARTICLE 37
INCORPORATION OF PROVISIONS**

All attachments and exhibits attached to and referenced by this Contract are incorporated into this Contract as if fully set forth herein.

**ARTICLE 38
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 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 (without Attachments A, B and D);
- E. Project Manual (Attachment D); and
- F. Services to be Provided by Engineer and Authority (Attachments A and B).

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 38, 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 Authority shall have the right to determine, in its sole discretion, which provision applies.

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

THE ENGINEER

**CENTRAL TEXAS REGIONAL
MOBILITY AUTHORITY**

(Signature)

Judd T. Willmann, P.E.

Operations Manager

(Date)

(Signature)

Mike Heiligenstein

Executive Director

(Date)

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

Attachments	Title
A	Services to Be Provided by the Authority
B	Services to Be Provided by the Engineer
C	Work Authorization and Supplemental Work Authorization
D	“MoPac South Project” Project Manual
E	Form FHWA 1273
H-FG	Disadvantaged Business Enterprise (DBE) for Federal Funded Professional or Technical Services Contracts – See Attachment H Instructions
H – FN	Disadvantaged Business Enterprise (DBE) for Race-Neutral Professional or Technical Services Contracts – See Attachment H Instructions
Exhibits	Title
H – 1	Subprovider Monitoring System Commitment Worksheet
H – 2	Subprovider Monitoring System Commitment Agreement
H – 3	Monthly Progress Assessment Report
H - 4	Subprovider Monitoring System Final Report
H - 5	Federal Subproviders and Supplier Information

ATTACHMENT A

SERVICES TO BE PROVIDED BY THE AUTHORITY

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

1. Authorize the Engineer in writing to proceed.
2. Render reviews, decisions and approvals 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. Provide the traffic engineering studies for the alternatives analysis, environmental analyses, and operations analysis for the schematic design.
5. Maintain the Projects Website.
6. Provide the Engineer with relevant data available to the Mobility Authority related to people, agencies and organizations interested in the proposed project.

ATTACHMENT B

SERVICES TO BE PROVIDED BY THE ENGINEER

The ENGINEER shall perform work generally consisting of alternatives development and evaluation, environmental studies, public involvement, preliminary engineering, design, field survey, hydraulic studies, and schematic development for the Central Texas Regional Mobility Authority's (Mobility Authority) proposed MoPac South Project and MoPac South Overpasses Project (Projects) located in Travis County, Texas. Work to be performed under this contract shall be in compliance with applicable environmental laws, rules and regulations governing the development of transportation projects including but not limited to 23 CFR 771, the Federal Highway Administration's (FHWA) Technical Advisory 6640.A, the Texas Department of Transportation's (TxDOT) Environmental and Public Involvement rules, and TxDOT and/or FHWA guidance in effect at the time of contract execution.

The MoPac South Project Limits are anticipated to extend from Cesar Chavez Street on the North to Slaughter Lane to the South and will include consideration of a park and ride location (proposed locations to be provided by Capital Metro). Limits for the MoPac South Overpasses Project are anticipated to be Davis Lane to the North and La Crosse to the South, and will include the consideration of overpasses at Slaughter Lane and La Crosse Avenue.

The ENGINEER shall complete the following tasks:

- A comprehensive investigation and documentation of appropriate environmental components
 - 1 Environmental Assessment (EA) – MoPac South Project
 - 1 Categorical Exclusion (CE) – MoPac South Overpass Project
- Development and evaluation of reasonable alternatives and recommendation of preferred alternative.
- Public involvement
- Design surveying
- Pertinent hydrologic and hydraulic engineering
- Traffic engineering and level of service analysis
- Development of a geometric schematic for the preferred alternative

ATTACHMENT C

WORK AUTHORIZATION

C-1

**WORK AUTHORIZATION NO. ____
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 Authority) and Jacobs Engineering Group Inc. (the Engineer) dated _____.

PART I. The Engineer will perform engineering services generally described as _____ in accordance with the project description attached hereto and made a part of this Work Authorization. The responsibilities of the 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 \$ _____ and the method of payment is _____. This amount is based upon the Engineer's estimated Work Authorization costs included in Exhibit D, Fee Schedule, which is attached and made a part of this Work Authorization. The basis for payment will be as follows: _____.

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)

(Printed Name)

Mike Heiligenstein

(Title)

Executive Director

(Date)

(Date)

LIST OF EXHIBITS

- | | |
|----------------|---|
| Exhibit A | Scope of Services to be provided by the Authority |
| Exhibit B | Scope of Services to be provided by the Engineer |
| Exhibit C | Work Schedule |
| Exhibit D | Fee Schedule/Budget |
| Attachment H-2 | DBE subprovider Form |

ATTACHMENT C

**C-2
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 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)

(Printed Name)

(Title)

(Date)

(Signature)

Mike Heiligenstein

Executive Director

(Date)

ATTACHMENT D
MOPAC SOUTH PROJECT
PROJECT MANUAL

Attachment D

Central Texas Regional Mobility Authority MoPac South Project

Draft Project Manual



**CENTRAL TEXAS
Regional Mobility Authority**

DRAFT March, 2013

Prepared by:
HNTB Corporation

Attachment D
**MoPac South Project
Project Manual**

- 1.0** Introduction
 - 1.1 Project Description
 - 1.2 Project Manual Purpose & Use
- 2.0** Team Organization
 - 2.1 Project Team
 - 2.1.1 CTRMA
 - 2.1.2 General Engineering Consultant
 - 2.1.3 TxDOT
 - 2.1.4 Specialty Consultants
 - 2.1.5 Environmental and Design Consultant
 - 2.2 Roles and Responsibility Matrix
 - 2.3 Team Members Contact Information
- 3.0** Contract Administration
 - 3.1 Contract Compliance
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- 4.0** Communication and Coordination
 - 4.1 Communication Protocol
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 - 4.2.1 CTRMA Coordination
 - 4.2.2 TxDOT Coordination
 - 4.2.3 Specialty Consultant Coordination
 - 4.2.4 Environmental and Design Consultant Coordination
 - 4.2.5 Deleted
 - 4.3 External Communications
 - 4.4 Meetings
 - 4.4.1 Production
 - 4.4.2 Design Coordination
 - 4.4.3 Environmental Coordination
 - 4.4.4 CTRMA Critical Issues
 - 4.5 Meeting Documentation

Attachment D

- 4.5.1 Meeting Minutes
- 4.5.2 Action Items
- 4.6 Project Issues
- 4.7 Schedule Extension
- 4.8 Recovery Plans
- 4.9 Dispute Resolution
- 5.0** Quality Management
 - 5.1 QA/QC Procedures
 - 5.2 “Over The Shoulder” Reviews
- 6.0** Plan Submittal and Review Process
 - 6.1 Plan Submittals
 - 6.2 Submittal Process and Review Timeline
 - 6.3 Document Review
 - 6.4 Review Comments Resolution
- 7.0** CADD Standards
 - 7.1 File Structure
 - 7.2 Naming Convention

Attachment D

1.0 Introduction

1.1 Project Description

The Central Texas Regional Mobility Authority (CTRMA) is proposing to conduct Environmental Studies for the MoPac South Project and MoPac South Overpass. Project Limits are anticipated to extend from Cesar Chavez Street on the North to Slaughter Lane to the South and will include consideration of a park and ride location (proposed locations to be provided by Capital Metro). Limits for the MoPac South Overpasses Project are anticipated to be Davis Lane to the North and La Crosse to the South, and will include the consideration of overpasses at Slaughter Lane and La Crosse Avenue.

The environmental study phase will include:

- A comprehensive investigation and documentation of appropriate environmental components
 - 1 Environmental Assessment (EA) – MoPac South Project
 - 1 Categorical Exclusion (CE) – MoPac South Overpass Project
- Development and evaluation of reasonable alternatives and recommendation of preferred alternative.
- Public involvement
- Design surveying
- Pertinent hydrologic and hydraulic engineering
- Traffic engineering and level of service analysis
- Development of a geometric schematic for the preferred alternative
- Traffic and Revenue Studies

1.2 Project Manual Purpose & Use

This Project Manual establishes the operational procedures, communication protocols and other guidelines that will be used in organizing, directing, and coordinating the resources required for the MoPac South Project. It also outlines the administrative and technical procedures to be utilized in managing the Project. All major services to be provided on the MoPac South Project are outlined in the Roles and Responsibility Matrix that can be found in a subsequent segment of this Manual.

Members of the Project Team, including the CTRMA, Texas Department of Transportation (TxDOT), General Engineering Consultant (GEC), Specialty Consultants, and Environmental and Design Consultant, are required to follow the guidelines set forth in this document. Segments of this document will be updated and distributed as needed throughout the project life.

Attachment D

2.0 Team Organization

2.1 Project Team

The MoPac South Project Team is comprised of staff from several agencies and firms. Staff from CTRMA, TxDOT, GEC, Specialty Consultants, and the Environmental and Design Consultant will all have to work effectively and efficiently together as a single team to ensure the successful delivery of the Project.

2.1.1 CTRMA

The CTRMA is ultimately responsible for delivering the Project to the traveling public and will be the agency responsible for operating and maintaining the facility upon completion of construction. Due to limited resources, the CTRMA will rely on support services from TxDOT, GEC, Specialty Consultants, and the Environmental and Design Consultant to assist with the delivery of the Project.

2.1.2 General Engineering Consultant

HNTB Corporation serves as the GEC providing overall management and administrative services to the CTRMA in the development of the MoPac South Project. In this capacity, the GEC will serve as an extension of CTRMA's staff and will be the agent through whom all communication is carried out between the CTRMA and TxDOT, the Specialty Consultants, and the Environmental and Design Consultant. The GEC is authorized by the CTRMA to provide the management and technical direction for this Project on behalf of the CTRMA, and all the technical and administrative provisions for this Project will be managed by the GEC. The Specialty and Environmental and Design Consultants shall comply with all of the GEC's directives. The GEC's responsibilities include ensuring that the Project is progressing according to the Project Schedule, to coordinate work activities, monitor progress, and review environmental documents and design drawings.

2.1.3 TxDOT

TxDOT will support CTRMA by providing resources and expertise to assist with the development and delivery of the Project. Services will include design oversight and review, approvals, and auditing responsibilities as required for the Project.

2.1.4 Specialty Consultants

Specialty Consultants will be retained by CTRMA to provide specialized services. These services might include public involvement, traffic analysis, and right of way acquisition depending on the various needs of the Project.

2.1.5 Environmental and Design Consultant

The Environmental and Design Consultant will be retained by CTRMA to provide specialized services for the development of environmental studies and schematic design. The Environmental and Design Consultant is responsible for delivering a quality product on schedule and within budget.

Attachment D

2.2 Roles and Responsibility Matrix

Table 2-1 outlines the general work activities and responsibilities of the CTRMA, TxDOT, GEC, Specialty Consultants, and the Environmental and Design Consultant. The lead responsibility for the completion of a work task is defined as Primary Responsibility (P). Other roles are recognized for Approval (A), Oversight (O), Coordination (C), and Review (R). The following Roles and Responsibility Matrix provides a general overview of the roles and responsibilities of the MoPac South Project Team.

Table 2-1 - Draft
MoPac South Project - Responsibility Assignment Matrix

Work Activity	CTRMA	TxDOT	GEC	Specialty Consultant	Env and Design Consultant
Contract Administration					
Contract Administration	A	R	P		
Invoice Approval and Processing	A	R	P		
Project Management					
Project Management/Coordination	A	C	P	C	C
Progress Reports	A	C	C	C	P
Schedules	A	C	C	C	P
Recovery Plans	A	C	P	C	P
Project Documentation	A	C	O	C	P
Filing System	A	C	O	C	P
Communication and Coordination					
Internal Communications					
CTRMA Coordination			P		
TxDOT Coordination	P		P		
Specialty Consultant Coordination	C		P	C	
Env Design Consultant Coordination	C		P		C
External Communications					
Meetings					
Production	C	C	O,R	C	P
Design Coordination	C		O,R	C	P
Environmental Coordination	C	C	O,R	C	P
CTRMA Critical Issues	C	C	P	C	C
Dispute Resolution	A	C	P	C	C
Design					
Design Coordination	C	C	C	C	P
Operational Analysis	A	R	O, R	P	C
Environmental					
Environmental Coordination	C	C	C	C	P
Document Preparation	A	R	O,R	C	P
Agency Coordination	A	C	O	C	P
Public Involvement	A	R	O,R	C	P
Quality Management					
QA/QC Procedures	A		O,R	P	P
Design and Document Review	A	R	O,R	C	C
"Over The Shoulder" Reviews		R	P		
KEY: P = Primary Responsibility A = Approval O = Oversight C = Coordination R = Review					

Attachment D

2.3 Team Members Contact Information

Table 2-2 provides a listing of all team members with their name, telephone number, and e-mail address.

Table 2-2
MoPac South Project - Team Members Contact List

Discipline/Role	Name	Organization	E-mail	Work Phone	Cell Phone
CTRMA					
Director of Engineering	Wes Burford	CTRMA	wburford@ctrma.org	(512)996-9778	(512)913-4478
Director of Operations	Tim Reilly	CTRMA	treilly@ctrma.org	(512)996-9778	
Director of Communications	Steve Pustelnyk	CTRMA	spustelnyk@ctrma.org	(512)996-9778	(512)680-9997
Director of Community Development	Mario Espinoza	CTRMA	mespinoza@ctrma.org	(512)996-9778	
General Counsel	Andrew Martin	CTRMA	nielson@ctrma.org	(512)996-9778	
GEC					
GEC Program Manager	Heather Reavey	HNTB	Hreavey@hntb.com	(512)691-2217	
GEC Project Manager	Loretta Schietinger	HNTB	lschietinger@hntb.com	(512) 691-2220	(512) 563-3644
Program Support	Michelle Dippel	HNTB	Mdippel@hntb.com	(512)691-2228	(512) 539-6909
Program Support	Mark Cissell	HNTB	mcissell@hntb.com	(512)691-2229	(512) 410-9561
Program Support	Elizabeth Story	HNTB	estory@hntb.com		
TxDOT Environmental					
Project Manager	Stacey Benningfield	TxDOT Austin District	Stacey.Benningfield@txdot.gov	(512)832-7369	
Environmental Consultant					
Project Manager	Jimmy Robertson	Jacobs	Jim.Robertson@jacobs.com	(512)732-7581	(512) 241-9806
Public Involvement Task Leader	Robena Jackson	Group Solutions RJW	rj@groupsolutionsrjw.com	(512)448-4459	
Hydrology & Hydraulics Task Leader	Joe Skidmore	K Friese & Associates	jskidmore@kfriese.com	(512)338-1704	
Schematic Design Task Leader	Bryan Copeland	Jacobs	Bryan.Copeland@jacobs.com	(214)920-8123	
Survey Task Leader	Jeff Curci	Jacobs	Jeff.Curci@jacobs.com	(512)314-3189	
Traffic Consultant					
T&R	Christopher Mwalwanda	CDM Smith	mwalwandace@cdmsmith.com	512.652.5355	512.944.9980

3.0 Contract Administration

The GEC will perform administrative services as spelled out in the Contracts between CTRMA and the individual Environmental and Design Consultant. The GEC will administer the Contracts to confirm that the terms are met. The GEC will verify that any modifications to the Contracts, such as time extensions and Supplemental Agreements are necessary and conform to the original Contract. Administrative procedures to be followed by the Environmental and Design Consultant in reporting, invoicing, and submitting documents are described in this Project Manual.

3.1 Contract Compliance

The GEC will monitor Specialty Consultants and Environmental and Design Consultant's work and progress for compliance with the Contract. This will include coordination meetings as required to discuss the Project and work progress, formal reviews of the contract plans and specifications, as described in this Project Manual, and other reasonable, intermittent reviews as deemed necessary by the GEC.

3.2 Invoice Approval and Processing

Specialty Consultants and Environmental and Design Consultants and their subconsultants shall prepare and submit monthly invoices and project report information as defined below. All subconsultants shall prepare and submit their invoices on the same billing cycle as the prime Specialty or Environmental and Design consultant, and in the event that the cycles are not concurrent, a detailed explanation will be submitted to the GEC Manager.

3.2.1 Invoice and Progress Report Format

The invoice and progress report format will contain the information and backup documentation as follows:

- Original signature of appropriate personnel of the Consultant
- Dates of the billing period
- Past months activities and accomplishments
- Pending issues and decisions
- Problem areas and recommended corrective actions
- Next month's planned activities
- Current period budget status summary (showing task percent complete vs. cost percent complete per task)
- Job to date Budget status summary (showing task percent complete vs. cost percent complete per task)
- Total amount of Work Authorization spent to date
- Total amount of Work Authorization spent in current period
- DBE utilization payout curve

- Schedule update (GANNT chart showing baseline schedule vs. actual schedule)

A sample format in electronic format will be provided to the Consultants for their use.

3.2.2 Invoice and Progress Report Submittal Process

The protocol for invoice and progress report submittal, review, and approval will be as follows:

- The invoice and progress report shall be submitted to CTRMA no later than the 10th day of each calendar month;
- In the event that invoices are not submitted on a monthly basis, a monthly submittal of the progress report information will be required nevertheless;
- The CTRMA or GEC Manager will review the invoices for supporting documentation, compliance with the Contract, and consistency with the submitted progress report;
- The invoice will either be recommended for approval by CTRMA or GEC Manager, or the CTRMA or GEC Manager will return it to the Specialty or Environmental and Design Consultant for required correction; and
- Upon satisfactory review of the invoice, the CTRMA will submit it to the CTRMA CFO for payment.

3.3 Supplemental Agreements

In the event that a substantial change in the Scope of Services is deemed necessary for the satisfactory completion of the Project, the Consultant should immediately contact the GEC Manager. The Consultant shall submit to the GEC Manager written justification presenting the facts of the work authorization and demonstrating how the work authorization constitutes supplementary work. If the change in Scope of Services constitutes a change in fee, the Consultant shall also submit a revised schedule and detailed cost proposal. A change in cost is considered only in the case of a change in the Scope of Services. The GEC Manager shall analyze the proposed justification, work hour estimate and cost. Upon approval of the need, the GEC Manager shall negotiate the Supplemental Agreement scope and/or fee between CTRMA and the Specialty or Environmental and Design Consultant, and then process the final Supplemental, subject to final approval by the CTRMA.

4.0 Communication and Coordination

4.1 Communication Protocol

The MoPac South Project will involve several firms and public agencies, along with CTRMA, TxDOT, and the GEC. With such a diverse group, it is essential that communication be well-coordinated, timely and well documented.

4.2 Internal Communications

The GEC will serve as the agents for communication that is carried out between CTRMA, TxDOT, Specialty Consultants, and the Environmental and Design Consultant. To ensure that all electronic communications are addressed efficiently, all emails from the Environmental and Design Consultant or Specialty Consultants should be sent to the GEC Manager and the GEC Program Support Team as identified in the Organization Chart.

4.2.1 CTRMA Coordination

One of the GEC's primary roles is to serve as an extension of CTRMA staff to manage and coordinate the development of the MoPac South Project. Therefore, the GEC will coordinate directly with CTRMA. The Specialty Consultants, Environmental and Design Consultant, and TxDOT shall coordinate with the CTRMA through the GEC in regards to the Project.

4.2.2 TxDOT Coordination

TxDOT will provide resources to the CTRMA to assist with the development of the Project and therefore, will be responsible for management, coordination, and production of activities as required. As an extension of CTRMA staff, the GEC will coordinate with TxDOT during the development of the Project.

4.2.3 Specialty Consultant Coordination

The GEC will coordinate with all Specialty Consultants on behalf of CTRMA. The Environmental and Design Consultant shall not communicate directly with a Specialty Consultant unless directed to do so by the GEC. Written summaries of all such contacts by the Environmental and Design Consultant shall be provided to the GEC Manager and the GEC Program Support Team.

4.2.4 Environmental and Design Consultant Coordination

The Environmental and Design Consultant shall manage and coordinate the environmental study and preliminary design efforts for the Project. The GEC shall monitor and report to the CTRMA on the performance and progress of these efforts, and will work to achieve a quality project within schedule and budget.

4.2.5 Deleted

4.3 External Communications

There will be occasions when communications fall outside the Project Team. Members of the public, media, or public officials may contact CTRMA, TxDOT, GEC, Specialty Consultant, or Environmental and Design Consultant personnel for project information. No team member should provide any project-related information to the public, media, or public officials unless instructed to do so.

It is critical that contacts from these groups be managed to ensure that every question is appropriately answered and documented. For that reason, all written and verbal communications from members of the public, media, and public officials shall be IMMEDIATELY referred to:

Mr. Steve Pustelnyk
Director of Communications
CTRMA
301 Congress Avenue, Suite 650
Austin, Texas 78701
Work Phone: (512)996-9778
Cell Phone: (512)680-9997
Fax: (512)996-9784
E-mail: spustelnyk@ctrma.org

4.4 Meetings

In order to effectively manage and coordinate the MoPac South Project, routine coordination meetings will be conducted throughout the implementation of the Project with attendees varying depending on the purpose of the meeting. The following meetings will be conducted:

4.4.1 Production

Production Meetings will be held on a monthly basis for the purpose of reporting on the project status. The meeting will be facilitated by the GEC with the Project Manager reporting on the status of their respective projects.

Attendees should include, but not be limited to TxDOT/CTRMA Liaison, CTRMA, TxDOT staff, GEC staff, Environmental and Design Consultant, and Specialty Consultant staff.

4.4.2 Design Coordination

Design Coordination Meetings are to be held on a bi-weekly basis to discuss progress, discuss issues, develop resolutions to issues, and ensure that information is coordinated to and from the other disciplines. The meeting will be facilitated by the GEC.

Attendees should include the TxDOT/CTRMA Liaison, GEC, Design Manager and Environmental and Design Consultant staff.

4.4.3 Environmental Coordination

Environmental Coordination Meetings are to be held on a bi-weekly basis to discuss progress of environmental document preparation, discuss issues, develop resolutions to issues, and ensure that information is coordinated to and from the other disciplines. The meeting will be facilitated by the GEC.

Attendees should include the TxDOT/CTRMA Liaison, TxDOT Environmental staff, GEC, and Environmental and Design Consultant staff.

4.4.4 CTRMA Critical Issues

The GEC will facilitate Critical Issues meetings as required with CTRMA to keep the CTRMA apprised of issues critical to the implementation of the Project.

Attendees will include CTRMA, TxDOT/CTRMA Liaison, and GEC.

4.5 Meeting Documentation

4.5.1 Meeting Minutes

The GEC will be responsible for assigning an individual to document all meetings with the development and distribution of Meeting Minutes.

4.5.2 Action Items

The GEC will be responsible for assigning an individual to document and distribute all Action Items to each of the meeting attendees. The Action Items will include:

- Description of the task
- Responsible party
- Date committed in the meeting for completing the task

4.6 Project Issues

Due to the importance of adhering to the Project Schedule, it is imperative that project issues be escalated quickly in order to facilitate expedited resolutions. Specialty and Environmental and Design Consultants should notify the GEC Manager immediately of any issues that potentially impact progress on a project.

4.7 Schedule Extension

As soon as the Specialty or Environmental and Design Consultants anticipate a deviation from the baseline schedule, the Consultant shall promptly notify the GEC Manager. If the Consultant anticipates a time extension, the Consultant shall submit to the GEC Manager a request for a time extension. The GEC Manager shall review the request, giving careful consideration to any impact the time may have on the Project Schedule and to the circumstances which led to the request for additional time. At the completion of the review, the GEC Manager will submit a written recommendation concerning the request for additional time to CTRMA for approval.

4.8 Recovery Plans

Should there be any deviation from the baseline critical path schedule, the GEC Manager will develop a Recovery Plan outlining options and a recommendation

that will enable the Project to maintain the previously established baseline schedule. The GEC Manager will evaluate the plan and submit it to CTRMA for review. Once approved by CTRMA, the revised activities or process will be incorporated into the Master Project Schedule.

4.9 Dispute Resolution

In the event that the Environmental and Design Consultant or Specialty Consultant has a dispute, the Consultant shall first try to resolve the dispute at the lowest level practical. In the event that an agreement cannot be reached, the Consultant may schedule a meeting with the GEC Manager. If an agreement cannot be reached at this level, then a meeting will be scheduled with the CTRMA and GEC Manager, so the Consultant can present its case. CTRMA's decision in the matter will be final. In no case will the Consultant go directly to CTRMA with a dispute.

5.0 Quality Management

5.1 QA/QC Procedures

All team members involved in the preparation of studies, reports, data collection, and engineering drawings shall have established QA/QC procedures and shall conform to those procedures during the life of the Project. Engineering drawings, calculations, and cost estimates prepared by the Specialty Consultants and the Environment and Design Consultant are to be thoroughly reviewed and checked before submittal to the GEC or CTRMA for review. The input data and parameters, as well as the output of computer generated calculations and cost estimates are to be checked. In addition to the checking of plans and calculations, the results are to be reviewed for reasonableness.

Studies, reports and conceptual designs are unique, and require a "peer" type of quality control review throughout production. The products must be prepared and reviewed by experienced professional staff to verify that the methods, procedures, assumptions, theories, conclusions and recommendations are appropriate.

The Environmental and Design Consultant 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 GEC and TxDOT for conformity with the CTRMA's procedures and the terms of the Project, as well as continuity with adjacent design segments.

To ensure that adequate procedures will be employed to provide quality products and uniformity, Consultants will submit for approval its proposed QA/QC Plan to be used on this program. CTRMA will provide independent QA/QC audits to verify project compliance with this plan. The Consultants shall have a quality control plan in effect during the entire time work is being performed under this Project.

Letters of transmittal of plans, studies and reports to the CTRMA or the GEC will contain a statement that these products have been checked and/or reviewed in conformance with their approved QA/QC Plan.

5.2 “Over The Shoulder” Reviews

The GEC and the TxDOT/CTRMA Liaison shall visit the Consultants’ offices as required to monitor production, observe document and plan preparation, and to resolve issues in a timely manner.

6.0 Document Submittal and Review Process

6.1 Preliminary Design and Environmental Document Submittals

The GEC and TxDOT will concurrently review submittals and project documents at key stages of development for compliance with the accepted engineering practice. The GEC and TxDOT will check subsequent revisions to submittals and project documents to ensure all comments have been adequately addressed. The Consultant will retain complete responsibility for the accuracy and adequacy of documents.

Documents will be reviewed for conformance to:

- The scope of work
- Project design criteria and design manuals
- CTRMA Policies
- TxDOT Policies
- Applicable regulations
- Accuracy and completeness of the design or document
- Constructability and maintainability requirements
- Cost-effective design
- Incorporation of previous comments on the documents

Documents will be reviewed for the following deficiencies:

- Missing data
- Inappropriate or improper design
- Inadequate coordination
- Mislabeled information
- Mis-referenced data
- Misspelled words

6.2 Document Review

The GEC Manager will distribute the plans to the GEC discipline reviewers and TxDOT following acceptance of the submittal.

The reviewers will document their comments in a tabular format which includes the following information:

- Reviewer Name
- Discipline Reviewed
- Comment Number
- Comment

The comments will be written using the following guidelines:

- The comment should be worded to provide guidance
- If possible, the comments will be statements and not questions
- TxDOT and the GEC will comment on the plans, or items on the plans, that need clarification, revision or correction
- All comments will be made with the appropriate stage of plan preparation in mind

Once the GEC Manager has received all review comments, they are consolidated into one set of comments, assuring that no conflicts or ambiguities exist between the comments from TxDOT and the GEC discipline reviewers. The consolidated review comments will be furnished to the Consultant within ten (10) working days of the submittal approval.

6.3 Review Checklists

Items essential to preliminary design and environmental document preparation may be reviewed utilizing checklists. Checklists that are used will be provided to the Environmental and Design Consultant and should be used as a general guideline.

6.4 Review Comments Resolution

The Environmental and Design Consultant will have five (5) working days to respond to the reviewers' comments in tabular format. The responses will be in the form of "agree" or "disagree". Should the Design Consultant "disagree" with a comment, an explanation should be included to document a reason for the "disagreement".

Following the Environmental and Design Consultant's response to comments, a dispute resolution meeting will be conducted to discuss the review comments.

7.0 CADD Standards

7.1 File Structure

The directories shown below represent the minimum amount of information required to archive projects but they do not limit the Environmental and Design Consultant from creating additional subdirectories under these headings to store

additional project data. Care should be taken to assure this minimum structure on the archive CDs.

<u>Directory</u>	<u>Types of data</u>
Design	All .DGN files – Mapping, Sheet Files, Master Design Files, dat files .gpk files, .prj files, design cross section files, etc.
Hydraulics Drainage	Input & Output Culvert Analysis, Bridge Analysis
Electrical	Electrical input and output files, correspondence, everything except .dgn files
Signing	Signing input and output files, correspondence, everything except .dgn files
Standards	All Standard Sheets used for the Job
Construction	Field change documentation except for .dgn files.

7.2 Naming Convention

For those files within the “design” subdirectory, a standard naming convention shall be followed. File names should appear on all plan sheets produced for the Project. The file naming convention will be as shown below. Not all plan sets will include all of the listed sheets.

<u>Sheet File Type</u>	<u>Naming Convention</u>
Title Sheet	abcTTLwxyz.DGN
Supplemental Index	abcINDXwxyz.DGN
General Notes & Spec. Data	abcGNOTwxyz.DGN
Estimate & Quantities	abcE&Qwxyz.DGN
Consolidated Summaries	abcSUMwxyz.DGN
Horizontal and Vertical Control	abcHVCwxyz.DGN
Project Layout	abcPRJLOWxyz.DGN
Typical Sections	abcTYPwxyz.DGN
Traffic Control Plans	abcTCPwxyz.DGN
Horizontal Alignment Data	abcHADwxyz.DGN
Bench Mark Data	abcBMwxyz.DGN
Table of Cross Slopes	abcCSwxyz.DGN
Plan & Profile Sheets	abcPPwxyz.DGN
Landscape Sheets	abcLANDwxyz.DGN
Irrigation Sheets	abcIRRIwxyz.DGN
Detail Sheets (any)	abcDETwxyz.DGN
Drainage Area Maps	abcDAwxyz.DGN
Hydraulic Data Sheets	abcHDwxyz.DGN
Storm Sewer Plan & Profiles	abcSSwxyz.DGN
Culvert Cross Sections	abcCULwxyz.DGN
Water Quality Facilities	abcWQwxyz.DGN
Retaining Wall Sheets	abcRETwxyz.DGN
Bridge Layouts	abcBRwxyz.DGN
Bridge Quantities/Bearing Seat Info	abcBRQUANwxyz.DGN
SW3P Info Sheet	abcSW3Pwxyz.DGN
Erosion Control (Temp & Perm)	abcECwxyz.DGN
Signing Layouts	abcSIGNwxyz.DGN
Pavement Markers (incl. Delineation)	abcPMLowxyz.DGN
Signalization Sheets (includes electrical service sheets)	abcSIGwxyz.DGN
Illumination Sheets	abcILLIwxyz.DGN
Roadway Cross Sections	abcXS.DGN
Master Design File	abcMDFwxyz.DGN
Alignment File	abcALNwxyz.DGN

Where “abc” will be use to describe the Facility Name, the user should use the Facility Name to identity the files as follows:

- “abc” for MoPac South should be MSP

Where “wxyz” will be use to describe the Roadway Segment number, if applicable, and the file number (i.e. “wx” = 01 for Roadway Segment 1 and “yz” = 01 for file number 1). The file number could be expanded to 02, 03 when additional files are needed.

The files name preferably should be all capital letters. The following are sample file names that may be used for this Project:

<u>File Name</u>	<u>Description</u>
MSPATTL0101.DGN	MSP Title Sheet, Segment 1, File 1
MSPPAV0101.DGN	MSP Proposed Pavement file, File 1
MSPALN0101.DGN	MSP Horizontal Alignments file, File 1
MSPPP0102.DGN	MSP Plan and Profile sheet, File 2

ATTACHMENT E
MOPAC SOUTH PROJECT
FORM FHWA-1273

**REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS**

- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under

this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar

with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions

of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or

will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program. Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-

Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly

rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;

(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is

evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.

2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this

covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which

this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the

department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

**ATTACHMENT A - EMPLOYMENT AND MATERIALS
PREFERENCE FOR APPALACHIAN DEVELOPMENT
HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS
ROAD CONTRACTS**

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

ATTACHMENT H
INSTRUCTIONS
DBE PARTICIPATION

The following pages contain five (5) different Exhibits to Attachment H (inclusive of Attachment H-FG and H-FN) 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 delete the rest along with these instructions from the final contract.**

Federally Funded Contracts
<p>Attachment H-FG, Disadvantaged Business Enterprise (DBE) for Federal Funded Professional or Technical Services Contracts</p> <ul style="list-style-type: none"> ◆ This provision is applicable to federally funded contracts with assigned DBE goals. ◆ The appropriate forms for this provision are Exhibits H-1, H-2, H-3 , H-4 and H-5. A copy of each form is required in the contract. ◆ Note: if the contract requires work authorizations, a completed Exhibit H-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 H-2 form. ◆ Exhibit H-3 must be submitted monthly to the Authority even if there is no invoice being submitted or subcontracting to report. ◆ Exhibit H-3 must be submitted with each invoice to the appropriate agency contact for payment.
<p>Attachment H-FN, Disadvantaged Business Enterprise (DBE) for Race Neutral Professional or Technical Services Contracts</p> <ul style="list-style-type: none"> ◆ 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 Exhibits H-3 and H-5. A copy of each form is required in the contract. ◆ Note: If subcontractors are used, the required forms would be Exhibits H-1, H-2, H-3, H-4 and H-5. A copy of each form is required in the contract. ◆ Exhibit H-3 must be submitted monthly to the Authority even if there is no invoice being submitted or subcontracting to report. ◆ Exhibit H-3 must be submitted with each invoice to the appropriate agency contact for payment.
<p>Exhibit H-3, Texas Department of Transportation/Authority Subprovider Monitoring System for Federally Funded Contracts. This is a Monthly Progress Assessment Report.</p> <ul style="list-style-type: none"> ◆ Required for all federally funded contracts. ◆ This form is required monthly and must be submitted to the 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.
<p>Exhibit H-5, Federal Subprovider and Supplier Information Required for all federally funded contracts.</p>

ATTACHMENT H-FG

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 "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 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, 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 Authority, the Provider must complete and furnish Exhibit H-1 which lists the commitments made to certified DBE subprovider(s) that are to meet the contract goal and Exhibit H-2 which is a commitment agreement(s) containing the original signatures of the Provider and the proposed DBE(s). For Work Authorization Contracts, Exhibit H-1 is required at the time of submitting the contract for execution by the Authority. Exhibit H-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 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 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 Authority; or such other remedy or remedies as the Authority deems appropriate.

3) **DEFINITIONS.**

- a. “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 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 12.7% 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 Authority.

- 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 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 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 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 Exhibit H-2 Form for the substitute firm(s). Any substitution of DBEs shall be subject to prior written approval by the Authority. The 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 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 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 Authority's contract number or project number may be required to substantiate the payment, as deemed necessary by the Authority.

8) **RECORDS AND REPORTS.**

- a. After submission of the initial commitment reported (Exhibit H-1), required by Section 2.c. of this attachment, the Provider shall submit Monthly Progress Assessment Reports (Exhibit H-3), 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 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 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 Authority, the Department or the DOT.
- d. Prior to receiving final payment, the Provider shall submit a Final Report (Exhibit H-4), detailing the DBE payments. The Final Report is to be sent to the 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 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 Monthly Progress Assessment Reports (Exhibit H-3), submitted to the Authority by the Provider indicating his progress in achieving the DBE contract goal, and by compliance reviews conducted by the Authority or the Department. The Monthly Progress Assessment Report (Exhibit H-3) must be submitted at a minimum monthly to the 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 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 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 Authority; or such other remedy or remedies as the Authority deems appropriate.

12/06

ATTACHMENT H-FN

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 "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 Authority's overall DBE goal be met using race-neutral means. The 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 Exhibit H-3 Form. Payments to DBEs reported on Exhibit H-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 Authority's contract number or project number may be required to substantiate the payment, as deemed necessary by the 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 Authority or other such remedy as the Authority deems appropriate.

EXHIBIT H-1

**Central Texas Regional Mobility Authority
Subprovider Monitoring System
Commitment Worksheet**

Contract #: _____ Assigned Goal: ____ Federally Funded _____ State Funded _____

Prime Provider: Jacobs Engineering Group Inc. _____ Total Contract Amount: \$ _____

Prime Provider Info: DBE ___ HUB ___ Both ___

Vendor ID #: _____ DBE/HUB Expiration Date: _____

(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 *
Subprovider(s) Contract or % of Work* Totals					

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

Total DBE or HUB Commitment Dollars

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

EXHIBIT H-2

**Central Texas Regional Mobility Authority
Subprovider Monitoring System Commitment Agreement**

This commitment agreement is subject to the award and receipt of a signed contract from the Central Texas Regional Mobility Authority. **NOTE: Exhibit H-2 is required to be attached to each contract that does not include work authorizations. Exhibit H-2 is required to be attached with each work authorization. Exhibit H-2 is also required to be attached to each supplemental work authorization. If DBE/HUB Subproviders are used, the form must be completed and signed. If no DBE/HUB Subproviders are used, indicate with "N/A" on this line: _____ and attach with the work authorization or supplemental work authorization.**

Contract #: _____ Assigned Goal: _____ % Prime Provider: _____

Work Authorization (WA)#: _____ WA Amount: _____ Date: _____

Supplemental Work Authorization (SWA) #: _____ to WA #: _____ SWA Amount: _____

Revised WA Amount: _____

Description of Work <i>(List by category of work or task description. Attach additional pages, if necessary.)</i>	Dollar Amount <i>(For each category of work or task description shown.)</i>
Total Commitment Amount (Including all additional pages.)	\$ _____

IMPORTANT: The signatures of the prime and the DBE/HUB and Second Tier Subprovider, if any (both DBE and Non-DBE) and the total commitment amount must always be on the same page.

Provider Name: Address: Phone # & Fax #: Email:	Name: _____ <i>(Please Print)</i> Title: _____ <hr/> <p align="center">Signature Date</p>
DBE/HUB Sub Provider Subprovider Name: VID Number: Address: Phone # & Fax #: Email:	Name: _____ <i>(Please Print)</i> Title: _____ <hr/> <p align="center">Signature Date</p>
Second Tier Sub Provider Subprovider Name: VID Number: Address: Phone # & Fax #: Email:	Name: _____ <i>(Please Print)</i> Title: _____ <hr/> <p align="center">Signature Date</p>
VID Number is the Vendor Identification Number issued by the Comptroller. If a firm does not have a VID Number, please enter the owner's Social Security or their Federal Employee Identification Number (if incorporated).	

EXHIBIT H-4

**Central Texas Regional Mobility Authority
Subprovider Monitoring System
Final Report**

The Final Report Form should be filled out by the Prime Provider and submitted to the Contract Manager and the CTRMA DBE Liaison for review upon completion of the contract. The report should reflect **all subcontract activity** on the project. The report will aid in expediting the final estimate for payment. If the HUB or DBE goal requirements were not met, documentation supporting good faith efforts **must** be submitted.

DBE Goal: _____% **OR** HUB Goal: %
 Total Contract Amount: \$ _____ Total Contract Amount: \$ _____
 Contract Number: _____

Vendor ID #	Subprovider	Total \$ Amt Paid to Date
TOTAL		

This is to certify that _____% of the work was completed by the HUB or DBE subproviders as stated above.

By: Prime Provider

Per: Signature

Subscribed and sworn to before me, this _____ day of _____, 20__

_____ Notary Public _____ County

My Commission expires: _____

ATTACHMENT C

WORK AUTHORIZATION

C-1

**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 Authority) and Jacobs Engineering Group Inc. (the Engineer) dated _____.

PART I. The Engineer will perform engineering services generally described as MoPac South Project and MoPac South Overpasses Project in accordance with the project description attached hereto and made a part of this Work Authorization. The responsibilities of the 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 \$5,999,205.00 and the method of payment is Cost Plus. This amount is based upon the Engineer's estimated Work Authorization costs included in Exhibit D, Fee Schedule, which is attached and made a part of this Work Authorization.

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)

Judd T. Willmann, P.E.

Operations Manager

(Date)

(Signature)

Mike Heiligenstein

Executive Director

(Date)

LIST OF EXHIBITS

Exhibit A	Scope of Services to be provided by the Authority
Exhibit B	Scope of Services to be provided by the Engineer
Exhibit C	Work Schedule
Exhibit D	Fee Schedule/Budget
Attachment H-2	DBE subprovider Form

ATTACHMENT A

SERVICES TO BE PROVIDED BY THE AUTHORITY

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

1. Authorize the Engineer in writing to proceed.
2. Render reviews, decisions and approvals 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. Provide the traffic engineering studies for the alternatives analysis, environmental analyses, and operations analysis for the schematic design.
5. Maintain the Projects Website.
6. Provide the Engineer with relevant data available to the Mobility Authority related to people, agencies and organizations interested in the proposed project.

SERVICES TO BE PROVIDED BY THE ENGINEER

I. INTRODUCTION

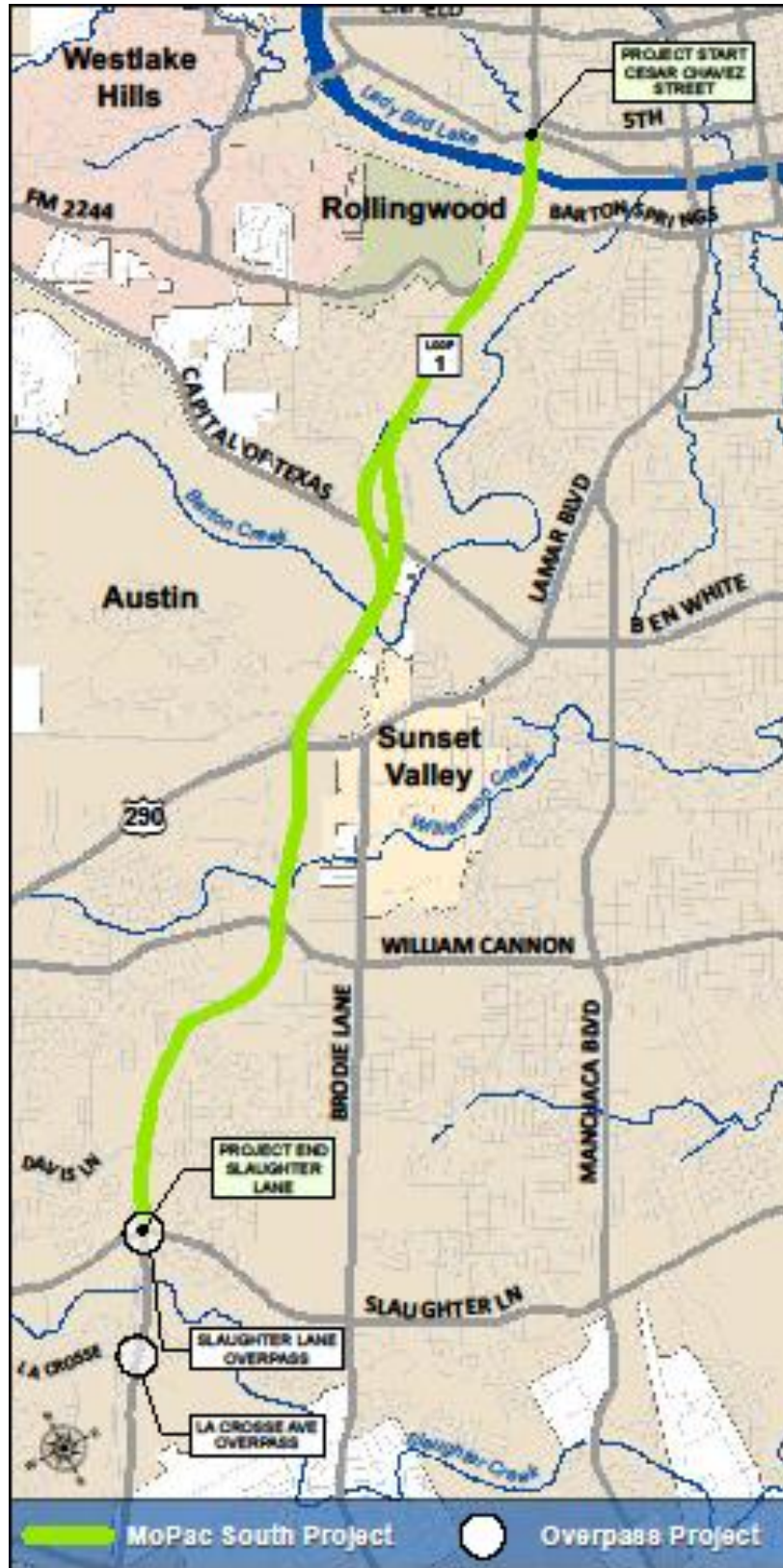
The ENGINEER shall perform work generally consisting of alternatives development and evaluation, environmental studies, public involvement, preliminary engineering, design, field survey, hydraulic studies, and schematic development for the Central Texas Regional Mobility Authority's (Mobility Authority) proposed MoPac South Project and MoPac South Overpasses Project (Projects) located in Travis County, Texas. Work to be performed under this contract shall be in compliance with applicable environmental laws, rules and regulations governing the development of transportation projects including but not limited to 23 CFR 771, the Federal Highway Administration's (FHWA) Technical Advisory 6640.A, the Texas Department of Transportation's (TxDOT) Environmental and Public Involvement rules, and TxDOT and/or FHWA guidance in effect at the time of contract execution.

The MoPac South Project Limits are anticipated to extend from Cesar Chavez Street on the North to Slaughter Lane to the South and will include consideration of a park and ride location (proposed locations to be provided by Capital Metro). Limits for the MoPac South Overpasses Project are anticipated to be Davis Lane to the North and La Crosse to the South, and will include the consideration of overpasses at Slaughter Lane and La Crosse Avenue.

The ENGINEER shall complete the following tasks:

- A comprehensive investigation and documentation of appropriate environmental components
 - 1 Environmental Assessment (EA) – MoPac South Project
 - 1 Categorical Exclusion (CE) – MoPac South Overpass Project
- Development and evaluation of reasonable alternatives and recommendation of preferred alternative.
- Public involvement
- Design surveying
- Pertinent hydrologic and hydraulic engineering
- Traffic engineering and level of service analysis
- Development of a geometric schematic for the preferred alternative

Location Map



II. PROJECTS MANAGEMENT AND ADMINISTRATION

The ENGINEER shall designate one Project Manager to be responsible throughout the contract for project management and all communications with the Mobility Authority. The ENGINEER shall perform project administration and coordination duties, including contract administration, project management, meeting minutes of all meetings and telephone conversations, and other related administrative tasks associated with the project, including:

A. PROJECTS MANAGEMENT AND ADMINISTRATION

Task 1: Progress Reports and Invoices

For each Project, prepare monthly invoices and progress reports for the work tasks, provide evidence of work accomplished during the time period since the previous report. Monthly progress reports shall be submitted and shall include: activities completed, initiated, or ongoing during the reporting period; activities planned for the coming period; problems encountered and actions to remedy them; overall status, including a tabulation of percentage complete by task; and updated project schedules.

Task 2: Record Keeping and File Management

The ENGINEER shall maintain all records and files related to the project throughout the duration of the services. See Section on **Submittals and Deliverables** for additional information.

Task 3: Correspondence

For each Project, prepare written materials, letters, survey forms etc. used to solicit information or collect data for the project and submit them to the Mobility Authority for review and approval prior to use or distribution. A letter of transmittal shall accompany each document submittal to the Mobility Authority. At a minimum, the letter of transmittal shall include the Project Name, State CSJ number, County, and project limits.

Task 4: Schedule

For each Project, prepare a detailed, graphic schedule linking Work Authorization tasks, subtasks, critical dates, milestones, deliverables and the required reviews using the latest version of Primavera [the Mobility Authority General Engineering Consultant (GEC) will utilize Primavera P6 for project master schedule] or SureTrak® software in accordance with the State's Administrative Circular No. 17-93. The project schedule shall be in a format, which depicts the order and interdependence of the various tasks, subtasks, milestones, and deliverables for each of the tasks identified therein. Progress shall be reviewed monthly for conformance to the contracted work schedule and should these reviews indicate a substantial

change in progress, a recovery plan will be developed by the ENGINEER and provide to the Mobility Authority.

B. COORDINATION

The ENGINEER shall schedule and attend meetings to coordinate among project team members and the Mobility Authority. The ENGINEER shall be responsible for project coordination for the review of deliverables with relevant project team members including TxDOT, FHWA, and agencies. A Project Management Plan shall be developed by the ENGINEER for submission to the Mobility Authority to document the project team members and the communication protocols. The ENGINEER shall attend up to 36 progress/coordination meetings with the Mobility Authority. In preparation for each meeting, the ENGINEER shall prepare and distribute a Meeting Agenda which shall include a brief description of the meeting objectives, a list of the topics to be covered and who shall facilitate the discussion of each topic. When action items arise from the meeting discussion, an assignment of responsibility, a priority level and due date for each action item shall be made immediately and distributed amongst the team. The ENGINEER shall prepare all meeting minutes. This task includes a team project kick-off meeting.

C. QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

The ENGINEER shall develop a quality assurance and quality control (QA/QC) plan for submittal to the Mobility Authority. The plan shall outline the overall QA/QC process and address conformance to the plan for each specific deliverable. For each deliverable a QA/QC certification shall be provided to the Mobility Authority, and shall confirm that reviews have been completed in conformance with the QA/QC plan. The QA/QC plan shall be updated as needed to reflect changes in staff or changes in regulations.

The ENGINEER shall provide peer review at all levels. For each deliverable (including those submitted by sub-consultants), the ENGINEER shall have evidence of their internal review and mark-up of that deliverable as preparation for submittal. The Mobility Authority may require the ENGINEER to submit the ENGINEER's internal mark-up (red-lines) or comments developed as part the ENGINEER's quality control step. The Mobility Authority, at its sole discretion, may reject the actual deliverable should the ENGINEER fail to provide the evidence of quality control. The ENGINEER shall clearly label each document submitted for quality assurance as an internal mark-up document.

D. SUBMITTALS AND DELIVERABLES

The ENGINEER shall deliver each submittal in accordance with the milestones shown in the contracted Work Schedule. The ENGINEER shall provide both original and processed data to the Mobility Authority on a compact disk or other approved medium. Each data set shall be fully compatible with the computer system and program formats in use by the Mobility Authority at the time of submission, without

further modification or conversion. The program formats used by the Mobility Authority are: Microsoft Word for word processing; MicroStation V8 for graphics applications and Computer Aided Civil Engineering (CAiCE), GEOPAK, and Survey Data Management System (SDMS) for survey data. Variations from these software applications or other requirements listed above shall only be allowed if requested in writing by the ENGINEER and approved by the Mobility Authority.

Deliverables applicable to each task are listed under each Task Description.

The ENGINEER shall develop electronic deliverables in compliance with the Mobility Authority electronic requirements. In addition, PDF files of all sheets shall be submitted. For the purpose of this Contract, the ENGINEER shall label each CD and shall include the following:

- Project Name
- County
- Project Limits
- Date of the CD Burn
- Volume sequence (*i.e.* Disk 1 of 3)

The ENGINEER shall create each CD in accordance with the following standard directory structure:

Directory\Control-Section-Job Number Types of Data

- a. Documents: Design Summary Report (DSR), General Project Correspondence, and Excel files. Estimator file-State's Estimator files, traffic data, schedules, web site data, project coordination, value engineering.
- b. Schematic: All (*.dgn) files – Mapping, Sheet Files, Master Design Files, (*.dat) files, (*.gpk) files, (*.prj) files, design cross section files, etc.
- c. Environmental: Environmental documentation may include but is not limited to: Environmental Assessment, noise analysis, public involvement, aesthetics, ROW, etc.
- d. Design: All (*.dgn) files – Mapping, Sheet Files, Master Design Files, survey files, utility files, (*.dat) files, (*.gpk) files, (*.prj) files, design cross section files, etc.
- e. Hydraulics: Drainage Input & Output files for: (1) any software used for analysis and design of each storm drain, culvert, bridge, or any other project-specific hydraulic facility such as pump stations, detention ponds or permanent storm water features, and (2) Hydraulic Engineering Center-Hydraulic Modeling System (HEC-HMS) and HEC-River Analysis System (HEC-RAS) files.
- f. PS&E – All PS&E Documents

The ENGINEER shall create a "readme" file placed under the "documents" subdirectory. The readme file shall be composed of the minimum directory structure

detailed above and modified to list particular files that are contained under the various subdirectories.

Deliverables

- Monthly invoices and progress reports
- Detailed graphic schedules for each project
- Project Management Plan

III. MOPAC SOUTH PROJECT

A. ROUTE AND DESIGN STUDIES

Task 1: Alternatives Development and Analysis

Subtask A: Preliminary Alternatives Development

The ENGINEER shall prepare up to six (6) simple line diagrams, not including the No-Build and Transportation System Management (TSM) and Travel Demand Management (TDM) alternatives, identifying the locations where the alternative is depressed, at-grade or elevated. Up to three conceptual typical sections shall be prepared for each preliminary alternative to accompany the line diagram.

In assessing various alternatives (including the No-Build Alternative), the following design, engineering, and environmental considerations shall be documented, as appropriate:

- a. Constructability
- b. Conceptual Design including special design considerations at various locations (Colorado River, Barton Creek, etc.)
- c. Construction Costs
- d. Engineering Costs
- e. Right-of-way Costs and utility impacts
- f. Operation and Maintenance
- g. Level of Service for managed lanes, mainlanes, ramps and frontage roads
- h. Air and Noise Impacts
- i. Edwards Aquifer/Water Quality Impacts
- j. Displacements/Relocations
- k. Threatened & Endangered Species (including habitat and existing preserve land) Impacts
- l. Vegetation
- m. Wildlife
- n. Visual Impacts
- o. Wetland/Waters of the U.S. Impacts
- p. Floodplain Impacts
- q. Hazardous Materials Impacts
- r. Land Use Features (schools, hospitals, churches, etc.)
- s. Geology and Soils Impacts

- t. Indirect/Cumulative Impacts
- u. Socioeconomic/Environmental Justice Impacts
- v. Historic and Archeological Impacts

Subtask B: Alternatives Finalization and Analysis

- a. The ENGINEER shall document and evaluate the Universe of Alternatives taking into account feedback from cooperating and participating Agencies, with broad based discussion and comparison and shall utilize a fatal flaw analysis to identify Preliminary Alternatives.
- b. The ENGINEER shall prepare for, plan, and conduct a one-day workshop with representatives of the Mobility Authority, TxDOT (Austin District and ENV) and FHWA to review the draft Preliminary Alternatives. The ENGINEER shall present the results of their assessments and the group shall evaluate for consistency in level of detail, and then collaboratively identify Reasonable Alternatives to be evaluated further. Upon identification of reasonable alternatives for further consideration, the ENGINEER shall integrate environmental stewardship and sustainability strategies into the reasonable alternatives. The ENGINEER will include the evaluation and incorporation (as reasonable and feasible) of the Mobility Authority's Green Mobility Challenge Concepts. Environmental stewardship and sustainability strategies are developed to address such issues as improved quality of access to goods and services, improved air quality, noise reduction, improved water quality, protection of habitat and open space, historic preservation, increased social equity, economic development, and a satisfying quality of life, in addition to local goals consistent with the overall project purpose and need.
- c. The ENGINEER shall prepare for, plan and conduct an Agency (Resource/ FHWA/ Sponsor) Update Meeting (one of six Technical Work Group meetings) to review the draft Purpose and Need, draft Coordination Plan, alternatives development methodology, and reasonable alternatives. A letter shall be sent to the agencies inviting them to attend the Agency Update Meeting. A PowerPoint presentation shall be prepared for this meeting. Handouts shall be prepared and submitted to the Mobility Authority for approval prior to the meeting. The ENGINEER's Project Manager and up to three (3) additional staff representatives shall attend this meeting. A summary of the meeting summary shall be prepared.
- d. The ENGINEER shall perform the associated environmental analyses of the reasonable alternatives and shall combine this data with the engineering and traffic assessments provided by the Mobility Authority into a draft Reasonable Alternatives Evaluation Matrix.
- e. The ENGINEER shall attend a workshop with representatives of the Mobility Authority, TxDOT (Austin District and ENV) and FHWA to review the draft

Reasonable Alternatives Evaluation Matrix. The ENGINEER shall present the results of their assessments and the group shall evaluate for consistency in level of detail, and then collaboratively identify a Preferred Alternative.

Deliverables

- Line diagrams and typical sections of the Preliminary Alternatives (hard copies and electronic files)
- Line diagrams and typical sections of the Reasonable Alternatives with sustainability and stewardship strategies (hard copies and electronic files.)
- Summary of Preliminary Alternatives
- PowerPoint presentation for Agency Update Meeting
- Handouts for Alternatives Workshop #1 and #2
- Summaries of Alternatives Workshop #1 and #2
- Handouts for Agency Update Meeting (up to 50 copies)
- Summary of Agency Update Meeting
- Line diagrams and typical sections of the Reasonable Alternatives (hard copies and electronic files)
- Preliminary set of detailed environmental, engineering and traffic evaluation criteria
- Draft and Final Reasonable Alternatives Evaluation Matrix (Final shall be incorporated into EA)

Task 2: Design Criteria

The ENGINEER shall use design criteria as set forth in Roadway Design Manual, Bridge Design Manual, Hydraulic Design Manual, and other deemed necessary State approved manuals. In addition, the ENGINEER shall prepare the Design Summary Report, (DSR). The ENGINEER shall prepare all work in accordance with the latest version of applicable State procedures, specifications, manuals, guidelines, standard drawings, standard specifications or previously approved special provisions and special specifications to include: the Roadway Design Manual, Hydraulic Design Manual, the Texas Manual on Uniform Traffic Control Devices (TMUTCD), Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges, 2004, and other State approved manuals. When design criteria are not identified in State manuals, the ENGINEER shall notify the Mobility Authority and refer to the American Association of State Highway and Transportation Officials (AASHTO), A Policy on Geometric Design of Highways and Street, (latest Edition). In addition, the ENGINEER shall follow the guidelines shown in the PS&E Preparation Manual which the ENGINEER may download from the TxDOT website. The ENGINEER shall obtain written concurrence from the Mobility Authority prior to proceeding with a design if any questions arise during the design process regarding the applicability of the design criteria.

Deliverables

- Design Summary Report

Task 3: Preliminary Cost Estimates

The ENGINEER shall develop a preliminary construction cost estimate for all reasonable build alternatives using most current relevant industry unit prices.

Deliverables

- Preliminary cost estimates

Task 4: Design Schematics

For the Preferred Alternative, the ENGINEER shall:

- a. The ENGINEER will develop the geometric design that will include the refinement of the proposed typical sections and a fully calculated geometric design that includes all necessary horizontal and vertical alignments.
- b. The ENGINEER will develop preliminary design cross sections at 200' increments and at other intermediate locations as necessary (such as drainage channels, retaining wall limits, bridge limits, etc.). The cross sections will be used to identify the preliminary ROW requirements and assist in locating proposed retaining walls, bridge locations, etc. Earthwork quantities derived from the cross sections will be used in the development of the preliminary construction cost estimate.
- c. The ENGINEER will prepare a geometric schematic plan and profile drawing in accordance with the Chapter 1, Section 3, of the State's *Roadway Design Manual*. The limits of the geometric schematic shall be based on the logical termini with appropriate transitions on each end. The ENGINEER shall deliver 3 copies of the schematic design to the Mobility Authority for approval.
- d. The ENGINEER will perform basic preliminary engineering to determine general bent placements and structure depths for all bridge widening and new bridges including direct connections.
- e. The ENGINEER will develop preliminary designs for noise barriers for use in the Noise Workshops:
 1. Assess the feasibility of each proposed location and recommend a construction type most appropriate for each site.
 2. Identify issues associated with proposed barriers and drainage constraints.
 3. Assess the feasibility of aesthetic treatments and collect sample cost estimates for various aesthetic treatments
 4. Identify limits of clearing and impacts associated with proposed barriers.

5. Provide preliminary quantities and construction cost estimates for each proposed barrier.
6. Prepare typical details for aesthetic concept development.
7. Revise details for preferred aesthetic treatments and wall types.
8. Develop preliminary wall layouts

Deliverables

- Geometric schematic for preferred alternative utilizing the TxDOT Austin District Schematic Checklist (in both DGN and PDF formats).
- Preliminary design cross sections in both electronic and roll format
- Preliminary quantities and construction cost estimates for each proposed noise barrier
- Preliminary wall layouts.

Task 5: Design Concept Conference

The ENGINEER shall organize and conduct a Design Concept Conference (DCC) in accordance with TxDOT's Project Development Process Manual. In preparation for the DCC, the ENGINEER shall finalize the Design Summary Report (DSR) to serve as a checklist for the minimum required design considerations. The DCC should include representatives from the Mobility Authority, TxDOT (Austin District and ENV), and FHWA.

Task 6: Traffic Engineering Studies

The Mobility Authority's traffic consultant will conduct the traffic engineering studies for the EA Alternatives Analysis and Operations Analysis for the schematic design. The ENGINEER will be required to coordinate with the traffic consultant and provide supporting information related to geometry and access points.

The ENGINEER shall:

- a. Provide traffic pattern diagrams related to the reasonable alternatives including Mainlane ramps and weave areas, interchange configurations, and express lane access to aid in traffic analysis to support the air quality analysis, MSAT analysis, traffic noise analysis, and level of service and operations analysis.
- b. Provide Microstation files of the reasonable and preferred alternative
- c. Attend meetings with the Mobility Authority's traffic consultant

Deliverables

- Traffic pattern diagrams for reasonable alternatives
- Microstation files for use by traffic consultant
- Meeting minutes for meetings with the traffic consultant

B. SOCIAL, ECONOMIC AND ENVIRONMENTAL STUDIES AND PUBLIC INVOLVEMENT

The ENGINEER shall provide environmental and public involvement services necessary to produce an EA for the Project.

Task 1: Preliminary Environmental Constraints

Subtask A: Constraints Identification

The ENGINEER shall perform a desktop review of environmental constraints within the study area. Constraints to be identified include but are not limited to:

- a. Cemeteries
- b. Parks, Preserves, Trails & Greenbelts
- c. Soils
- d. Balcones Canyonlands Conservation Plan (BCCP) Karst zones
- e. Known karst features
- f. Edwards Aquifer Recharge & Contributing Zones
- g. Hazardous material sites
- h. Historic Properties
- i. Archeological sites
- j. City of Austin water quality protection lands
- k. BCCP Golden-cheeked Warbler & Black-capped Vireo habitat zones
- l. Data from the Texas Parks and Wildlife Department's Natural Diversity Database
- m. United States Fish and Wildlife Service's Critical Habitat Mapper
- n. National Wetland Inventory Data
- o. Floodplains
- p. National Hydrography Dataset
- q. Land uses identified through aerial photo interpretation
- r. Existing and planned development

The above information shall be mapped in Geographic Information System (GIS).

Subtask B: Project Scope for Environmental Review Document (EA)

The ENGINEER shall complete a draft Project Scope for Environmental Review Document for the EA. The completed draft will be submitted to Mobility Authority and TxDOT (Austin District and ENV) for review and approval. A workshop with Mobility Authority and TxDOT (Austin District and ENV) may be required to complete the process. Upon approval, the ENGINEER shall draft an Environmental Classification Letter to be submitted to TxDOT for review and approval (Austin District and ENV) and upon approval, submitted to FHWA.

Deliverables

- Constraints Map
- Project Scope for Environmental Review Document
- Environmental Classification Letter
- Meeting Minutes, if meetings related to this task are held.

Task 2: Environmental Process Initiation**Subtask A: Notification Letter**

The Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU) Section 6002, Efficient Environmental Reviews for Project Decision Making, requires changes to the environmental process which are mandatory for environmental impact statements and optional for EAs. Per this guidance, a project notification letter with the purpose of notifying FHWA of the initiation of the NEPA process for the Project shall be prepared and submitted to the Mobility Authority for review that shall include a description of proposed work, termini, length, general location and anticipated Federal approvals. This letter shall include documentation to demonstrate logical termini for the project.

Subtask B: Resource and Regulatory Agency Coordination

The ENGINEER shall identify and create a database of potential participating and cooperating agencies, including but not limited to the following: Texas Parks and Wildlife Department (TPWD), United States Fish and Wildlife Service (USFWS), United States Army Corps of Engineers (USACE), Texas Commission on Environmental Quality (TCEQ), Texas Historical Commission (THC), City of Austin, Travis County and the Barton Springs Edwards Aquifer Conservation District. Participating agencies shall consist of Federal, State, Tribal, regional and local government agencies with an interest in the project. Cooperating agencies are Federal participating agencies that are invited to be cooperating agencies because they either have jurisdiction by law regarding some aspect of the proposed project or they possess special expertise applicable to the proposed project.

A letter shall be sent to the agencies, in the potential participating and cooperating agencies database, inviting them to be part of the project. The letter shall contain project information, a project area map, a description of the process, and a deadline for participating and coordinating agency responses. The ENGINEER shall track the responses received from the participating and cooperating agencies.

In addition to establishing the participating and cooperating agencies, the ENGINEER shall coordinate with the various agencies throughout the duration of this Work Authorization in order to obtain input, clarification and guidance and to facilitate timely reviews and approvals.

Subtask C: Technical Reports

The ENGINEER shall prepare a technical report for environmental subject areas determined to be of concern for the project. The technical reports shall incorporate guidance provided during meetings with TxDOT, Mobility Authority, and resource agencies, as applicable. Technical reports shall document existing conditions, methods used, study areas evaluated, and direct impacts assessed for each subject area. The technical reports shall be subject to two rounds of review by the TxDOT District, TxDOT ENV, and Mobility Authority.

Subtask D: Purpose and Need Statement

SAFETEA-LU requires that additional approval processes and procedures, including a draft Purpose and Need approval by FHWA, are required before proceeding to the first project Scoping Meeting. Additionally, participating agencies and the public will be solicited and an "opportunity for involvement" must be afforded during the Purpose and Need statement development process. Backup documentation including recent articles explaining existing/future transportation problems within the study area and the need for this project shall be compiled to substantiate the Purpose and Need ultimately approved. The Draft Purpose and Need Statement, including backup documentation, shall be submitted to the Mobility Authority for review and subsequent submittal to and review by TxDOT (Austin District and ENV) and FHWA prior to the first Scoping Meeting. The Draft Purpose and Need statement shall be presented during the first Scoping Meeting to provide an "opportunity for involvement" by the public.

Subtask E: Coordination Plan

SAFETEA-LU requires that the lead agencies establish a plan for coordinating public and agency participation and comment during the environmental review process. The purposes of the coordination plan are to facilitate and document the lead agencies' structured interaction with the public and other agencies and to inform them of how the coordination shall be accomplished. The ENGINEER shall prepare the Draft Coordination Plan for the Project to:

- a. Identify cooperating and participating agencies;
- b. Outline how the lead agencies have divided the responsibilities for compliance with the various aspects of the environmental review process, such as the issuance of invitations to participating agencies;
- c. Outline how the lead agencies shall provide the opportunities for input from the public and other agencies, in accordance with applicable laws, regulations, and policies. The plan also shall identify coordination points, such as:

1. Scoping activities.
 2. Development of Purpose and Need.
 3. Identification of the range of alternatives.
 4. Collaboration on methodologies.
 5. Completion of the EA.
 6. Identification of the preferred alternative and the level of design detail.
 7. Issuance of the FONSI.
 8. Completion of permits, licenses, or approvals after the FONSI.
- d. Establish a process for ongoing coordination;
- e. Establish a schedule of milestones; and
- f. Identify which persons, organizations, or agencies that should be included at each coordination point, as well as timeframes for input by those persons, organizations, and agencies.

The ENGINEER shall make the Draft Coordination Plan available for review and comment at the Initial Agency Briefing and Kickoff Meeting and Public Scoping Meeting. Comments received from the Mobility Authority, TxDOT (Austin District and ENV), FHWA, Initial Agency Briefing/Kickoff Meeting, and Public Scoping Meeting #1 shall be incorporated into the Coordination Plan.

Subtask F: Initial Agency (Resource/FHWA/Sponsor) Briefing and Kick-off Meeting

An agency briefing and kick-off meeting shall be conducted by the ENGINEER to review the draft Purpose and Need for action, including technical backup materials and the draft Agency Coordination Plan. The purpose of the meeting is to solicit input from participating agencies and proposed cooperating agencies. A letter shall be drafted and sent prior to the Initial Agency Briefing and Kickoff Meeting to the agencies in the potential coordinating and participating agencies databases inviting them to the Initial Agency Briefing and Kickoff Meeting. Two (2) updates based on comments received from the Mobility Authority to the invitation letters are included for scoping purposes.

The ENGINEER shall assist the Mobility Authority with mailing the invitation letters and shall track the responses received to the meeting invitations.

The ENGINEER shall prepare for, plan and conduct the meeting in cooperation with the Mobility Authority. The ENGINEER shall prepare a PowerPoint presentation and provide project notebooks for the attendees that include project background information, study area map, draft schedule, Draft Purpose and Need, Draft Coordination Plan, or other project related material that has been previously prepared as part of other tasks. All information included as part of the project notebook shall be submitted to the Mobility Authority and approved prior to including

in the project notebook. The attendees are anticipated to be TxDOT District, ENV, FHWA and resource agency staff. A summary of the meeting shall be prepared.

Deliverables

- Notification Letter
- Participating and Cooperating Agency Coordination Letters (up to 50)
- Purpose and Need package to be submitted to FHWA
- Draft Coordination Plan (electronic files for each revision)
- Letters Announcing Initial Agency Briefing and Kickoff Meeting (Up to 50 letters)
- Initial Agency Briefing and Kickoff Meeting Project Notebooks (1" Binders with Handouts) up to 50 hardcopies
- Initial Agency Briefing PowerPoint Presentation
- Meeting Summary

Task 3: Data Collection/Existing Conditions/Environmental Analysis

Subtask A: Existing Conditions

The ENGINEER shall assess the existing conditions of the corridor and provide an overall analysis of the existing conditions and features for the proposed project. This task shall incorporate all previous studies for the corridor and other available project data to identify the existing conditions and features that have a potential influence on the project. The ENGINEER shall submit a technical memorandum of the Existing Condition Analysis prior to submittal of the EA.

Deliverable

- Existing Conditions Technical Memorandum

The following subtask deliverables for socioeconomic and environmental studies shall be conducted for the Preferred Alternative for inclusion in the environmental document.

Subtask B: Analysis of Social and Economic Conditions (including relocations and disproportionate impacts):

- a. The ENGINEER shall use appropriate and most current data sources, such as the 2010 U. S. Census, windshield surveys, maps, and aerial photographs to assess the existing conditions for socioeconomic conditions and land use in the study area. Potential social conditions to be documented include:
 1. Demographics (population, ethnic/racial distribution, income) based on the most recent census or projections there from.
 2. Other populations (disabled, elderly).
 3. Land uses in the project area (community services, schools, etc.).
 4. Mobility patterns.

5. Safety (data).
 6. Other potential resources identified during data collection studies.
- b. The ENGINEER shall identify the property owners and tenants, as appropriate, adjacent to the roadway project.
 - c. The ENGINEER shall identify the availability of potential replacement housing or other replacement sites if necessary.
 - d. The ENGINEER shall identify the racial, ethnic and income level of affected individuals and communities, as available, to be used in subsequent analysis of the potential for disproportionate impacts on any minority or low-income individuals or communities.
 - e. The ENGINEER shall develop a project level Environmental Justice Toll Analysis.
 - f. The ENGINEER shall develop mitigation measures for social, economic and community impacts.
 - g. The ENGINEER shall use public contact and public involvement to gather information from individuals and communities regarding social impacts.
 - h. The ENGINEER shall identify, by use of land use plans and windshield surveys, current land uses and any anticipated land uses.
 - i. The ENGINEER shall evaluate travel modes and patterns in a study area in order to determine any impacts the project may have on access to homes, businesses and community services.
 - j. The ENGINEER shall identify and evaluate the potential for impacts to disabled and elderly individuals and populations. The ENGINEER shall use the most current U. S. Census and public contact to determine how the project may impact these individuals and populations.
 - k. The ENGINEER shall ensure federally conducted programs and activities are meaningfully accessible to Limited English Proficiency (LEP) individuals as required by Executive Order 13166.

Deliverables

- Project level Environmental Justice Toll Analysis

Subtask C: Geology and Soils Impacts

The ENGINEER shall identify and describe the existing earth resources in the study area, including soils and geologic features.

The ENGINEER shall also identify farmland impacts in the study area in accordance with the Farmland Protection Policy Act (7 U. S. C. 4201 et. seq.).

Subtask D: Environmental Justice

The ENGINEER shall perform an environmental justice analysis in accordance with requirements of Executive Order 12898 (on Environmental Justice).

Subtask E: Consideration of Pedestrians and Bicycles

The ENGINEER shall identify considerations affecting pedestrians and bicycles in accordance with requirements of FHWA Technical Advisory TA-T6640.8A (1987) and include data from the CAMPO 2035 Plan for bike/pedestrian facilities.

Subtask F: Air Quality Analysis

The ENGINEER shall perform an air quality analysis in accordance with the current approved version of the TxDOT Air Quality Guidelines. The ENGINEER shall contact TxDOT to request a copy of the current version of the guidelines and associated "recommended text"; obtain from the Mobility Authority's traffic consultant (Section III.A.6) the current and projected traffic volumes; and if required, based on design year Average Daily Traffic, ENGINEER will also obtain traffic models for the Build and No-Build scenarios, estimated time of completion and design year for the MSAT quantitative analysis.

The ENGINEER shall prepare a report on air quality to document the results and methods used in modeling and air quality background information. Specific documentation shall include:

- a. Modeling documentation shall include traffic volumes used in modeling; computer models used; current and future year carbon monoxide concentrations; and percentages of the National Ambient Air Quality Standards for current and future year.
- b. Air quality background information shall include: A paragraph discussing the attainment status of county or counties where project is located. A paragraph discussing the National Ambient Air Quality Standards. A statement indicating the project has been included in the current conforming metropolitan transportation plan (MTP) and transportation improvement plan (TIP). A discussion of congestion management systems for county or counties and a list of committed projects to reduce traffic congestion in county.
- c. The ENGINEER shall prepare a qualitative and quantitative MSAT analysis in accordance with TxDOT's most recent guidance on this subject.

Deliverables

- Air Quality Technical Memo

Subtask G: Traffic Noise Analysis

The ENGINEER shall perform a traffic noise analysis in accordance with the most current version of TxDOT's "Guidelines for Analysis and Abatement of Roadway Traffic Noise."

- a. The ENGINEER shall identify representative receivers that might be impacted by highway traffic noise and may benefit from feasible and reasonable noise abatement.
- b. The ENGINEER shall determine existing and predicted noise levels for representative receivers, as follows:
 1. The ENGINEER shall perform computer modeling of existing noise levels and predicted (future) noise levels. Computer modeling shall be accomplished with the FHWA Traffic Noise Model (TNM), Version 2.5 (or most current version), in areas where there is an existing roadway/traffic.
 2. The ENGINEER shall identify impacted receivers in accordance with State's absolute and relative impact criteria.
 3. The ENGINEER shall consider and evaluate all required noise abatement measures for impacted receivers in accordance with the feasible and reasonable criteria.
 4. The ENGINEER shall propose noise abatement measures that are both feasible and reasonable.
- c. The ENGINEER shall prepare a report documenting the results and methods used in the traffic noise analysis.
- d. The ENGINEER shall conduct Noise Workshops:
 1. The ENGINEER will conduct an initial internal workshop to review the location, length, height, utilities, ROW, constructability, vegetation impacts, etc. associated with each barrier. Participants will include the ENGINEER, the Mobility Authority, TxDOT, and the GEC.
 2. The ENGINEER will conduct up to four (4) noise workshops:
 - a. Develop talking points
 - b. Identify and document information to be communicated to the public (mailings, notices, advertising, etc.)
 - c. Develop a workshop agenda
 - d. Develop necessary exhibits such as:
 - i. aerial maps illustrating proposed barrier locations and property lines
 - ii. Graphics illustrating proposed barrier types (up to five)
 - iii. Graphic display of proposed surface treatments and colors
 - iv. Perspective drawings for example walls for workshops (up to five)

- v. Develop voting information and ballots
 - vi. Produce handouts for noise workshop participants
 - vii. Develop PowerPoint presentation
 - e. Identify and propose for approval locations for the four (4) workshops. The ENGINEER will make recommendations of locations that are a convenient distance to the proposed barrier location, attempt to identify meeting locations that are free of charge, and recommend up to four (4) facilities for approval.
3. The ENGINEER will notify property owners of the workshops:
 - a. Prepare a draft notification packet for review and approval by the Mobility Authority.
 - b. Notification packets will be sent via certified mail, return receipt requested, to adjacent property owners 30 days prior to the workshop
 - c. If a return receipt is not received within 15 days of the mailing, a phone call will be placed to the property owner of record.
 - d. Provide door-hangers on the adjacent properties 7 days prior to the workshop.
4. The ENGINEER will notify other interested parties and local elected officials:
 - a. Notify relevant elected officials
 - b. Notify City of Austin representatives
 - c. Notify other interested parties and neighborhood associations.
 - d. Post the schedule and meeting materials on the project website maintained by the Mobility Authority
5. The ENGINEER will compile documentation of workshop attendance. The ENGINEER will:
 - a. Record the attendance of property owners who are eligible to vote on the noise barrier.
 - b. Provide property owners with a name badge that clearly identifies their status as an eligible voter.
 - c. Record the attendance of other individuals, which may include representatives of neighborhood associations, community groups, agency staff, or elected officials.
 - d. Take photographs to document the meetings.
6. The ENGINEER will develop a draft summary of the results of the noise workshop process to document the outcome and provide design information to the design team. Upon review and approval of the draft summary, the ENGINEER will provide a Final Summary Report.

Deliverables

- Noise Analysis Technical Memo
- Noise workshops draft and final Summary Report

Subtask H: Water Quality Studies

The ENGINEER shall determine whether the proposed project has the potential to affect water quality as it relates to each reasonable alternative, addressing the following:

- a. TCEQ/TxDOT MOU.
- b. Surface water resources – identification of threatened and impaired water bodies as listed in the TCEQ’s 2008 303(d) list.
- c. Sources of public drinking water and assess any potential impacts.
- d. Edwards Aquifer (Recharge Zone and Contributing Zone) including a Groundwater Technical Report.
- e. Texas Pollutant Discharge Elimination System program.
- f. Geologic Assessment
- g. Input from Stakeholders

Subtask I: U.S. Army Corps of Engineers Permits/Waters of the U.S.

- a. Section 10 of the Rivers and Harbors Act (33 U.S.C. 403). For each reasonable alternative being considered, the ENGINEER shall determine whether the proposed project requires a Section 10 permit.
- b. Section 401 of the Clean Water Act (33 U.S.C. 1341). For each reasonable alternative being considered, the ENGINEER shall determine whether the proposed project requires a Section 401 water quality certification.
- c. Section 404 of the Clean Water Act (33 U.S.C. 1344). For each reasonable alternative being considered, The ENGINEER shall perform a Waters of the U.S. assessment based on the constraints map data and published data and field reconnaissance of the reasonable alternatives. For the Preferred Alternative, the ENGINEER shall determine whether the proposed project requires a Section 404 permit (Nationwide or Individual) and if necessary, shall perform coordination with the USACE. The ENGINEER will be required to prepare and submit any necessary 404 permitting.
- d. Draft Final and Final Report. The ENGINEER shall produce a draft final report of Waters of the U.S. The ENGINEER shall submit four copies of the draft final report to the Mobility Authority for review and approval. In the final report, ENGINEER shall address Mobility Authority comments on the draft final report. The ENGINEER shall submit four copies of the final report to the

Mobility Authority for review and approval.

Deliverables

- USACE 404 Permitting documentation (NWP or IP)
- Waters of the US report, draft and final

Subtask J: U.S. Coast Guard (USCG) Section 9 Permit (33 USC 401)

The ENGINEER shall determine whether streams or other water bodies crossed by a proposed transportation facility are navigable as defined in the U. S. Coast Guard Commandant. If required, the ENGINEER will be required to prepare and submit any necessary USCG permits.

Deliverables

- USCG permit

Subtask K: Water Body Modifications and Wildlife Habitat

The ENGINEER shall identify and assess the potential for water body modifications and the existing conditions of wildlife habitat in the study area in accordance with the requirements of FHWA Technical Advisory TA-T6640.8A (1987) and TAC Title 43, Part 1, Chapter 2, Subchapter B, Rule 2.22.

Subtask L: Invasive Species Studies

The ENGINEER shall address invasive species in accordance with the requirements of Executive Order 13112.

Subtask M: Beneficial Landscaping

The ENGINEER shall discuss beneficial landscaping in accordance with the requirements of Executive Memorandum of April 26, 1994.

Subtask N: Floodplain Impacts

The ENGINEER shall determine whether the proposed project has the potential to affect floodplains. Studies for floodplain impacts shall follow the requirements of Executive Order 11988 and 23 C.F.R. 650, Subpart A.

Subtask O: Wild and Scenic Rivers

The ENGINEER shall determine the project's foreseeable adverse effects on rivers in the National Wild and Scenic River System.

Subtask P: Threatened or Endangered Species

- a. The ENGINEER shall examine all available existing commercial and scientific

data to determine the likelihood that protected species, their habitat, or designated critical habitat (per 50 C.F.R. 17.94-95) could be impacted by the proposed project. Existing data shall include the records of the TPWD Natural Diversity Database, USFWS records or files, COA listed salamander data, BCCP zone maps, BCP Annual Reports and any other records available to the public. Surveys for Protected Species or Habitat of Protected Species. For the purposes of this contract, protected species shall include:

1. All species listed by the USFWS as threatened or endangered or proposed for listing as threatened or endangered (50 C.F.R. 17.11-12);
 2. All species that are candidates for review for listing by USFWS as threatened or endangered (per most recently updated list in Federal Register);
 3. Species listed as threatened or endangered species by TPWD (State of Texas Threatened and Endangered Species Listings, TPWD);
 4. Species protected by the Migratory Bird Treaty Act (50 C.F.R. 10.13).
 5. Consider including species covered under the USFWS Balcones Canyonlands Conservation Plan permit held by the City of Austin and Travis County.
- b. The ENGINEER shall conduct early coordination with TxDOT and the USFWS to determine the most appropriate regulatory process (§7, §10 or a combination) for clearance under the Endangered Species Act if habitat for listed species will be affected.
- c. Based upon the results of b. above, prepare BCCP Infrastructure Mitigation Application and/or Biological Assessment (BA) as appropriate for the proposed project.
- d. Habitat Analysis. For inclusion in the BCCP Infrastructure Mitigation Application/BA and for use in coordination with TPWD the ENGINEER shall perform an analysis/characterization of habitat for the study area. If the ENGINEER encounters protected species or habitat for protected species, the ENGINEER shall notify the Mobility Authority immediately. In accordance with Provision (4)(A)(ii) of the TxDOT – TPWD MOU, some habitats may be given consideration for non-regulatory mitigation during project planning (at the TxDOT Austin District's discretion).

Deliverables

- BCCP Infrastructure Mitigation Application/Biological Assessment

Subtask Q: Archeological Studies

The ENGINEER shall perform archeological investigations for the proposed project in accordance with TxDOT's Standards of Uniformity (SOU) in effect at the time of contract execution. The ENGINEER shall conduct such work as is necessary to receive concurrence for the Texas Historical Commission (THC) in accordance with

36 C.F.R. 60 and 13 TAC 26. Activities related to this could include background study and archeological surveys. Data recovery, if required, would be covered under a separate supplemental work authorization

Deliverables

- May include background study, Texas Antiquities Permit, and an Archeological Survey Report

Subtask R: Historic Resource Studies

The ENGINEER shall perform historic resource studies. Identification, evaluation and documentation tasks shall be completed in accordance with the provisions of the Secretary of the Interior's Standards for the Identification, Evaluation and Documentation (48 FR Parts 44716-42). Historic studies shall be performed and documented at sufficient levels to satisfy TxDOT's SOU for Historic Standing Structures and THC requirements for determining the presence of historically significant properties in the Area of Potential Effects (APE) in accordance with 36 C.F.R. 60 and 13 TAC 26.

Deliverables

- May include a research design, or a reconnaissance survey report.

Subtask S: Initial Assessment of Hazardous Materials

- a. The ENGINEER shall perform an initial assessment for potential hazardous materials impacts. The initial assessment shall determine the potential for encountering hazardous materials in the study area. The initial hazardous materials assessment shall also be in accordance with the American Society for Testing and Materials (ASTM) Environmental Site Assessment standard practices (ASTM E 1527 and ASTM E 1528) or equivalent (i.e., satisfies "due diligence" and "appropriate inquiry" requirements under the Comprehensive Environmental Response and Compensation Liability Act (42 USC 9601(35)(B))). The following components of the initial hazardous materials assessment shall be reviewed, assessed, and/or documented to an appropriate project-specific level:
 1. Existing and previous land use information from readily available resources (topographic maps, available aerial photos, right-of-way maps, files and other information);
 2. Initial site/corridor field surveys by the hazardous materials expert;
 3. A regulatory agency database search (list search) and/or review of regulatory agency files.
- b. The ENGINEER shall produce and submit to the Mobility Authority a technical report on the initial assessment for hazardous materials. The report shall include, when applicable, full list search reports, copies of agency file information, recommendations, and any other supporting information

gathered by the ENGINEER. The report also shall include a discussion of hazardous materials impacts suitable for inclusion in the EA.

Deliverables

- Hazardous Materials Technical Report

Subtask T: Visual Impacts

The ENGINEER shall identify visual impacts in accordance with the requirements of FHWA Technical Advisory TA-T6640.8A (1987) and prepare 2D renderings

Deliverables

- 2D renderings

Subtask U: Indirect Impacts

The Council on Environmental Quality (CEQ) regulations requires that all federal agencies consider the indirect effects of any proposed action. The ENGINEER shall identify indirect impacts in accordance with the requirements of FHWA Technical Advisory TA-T6640.8A (1987), NCHRP's Report 466: Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects (2002), NCHRP's Report 25-25, Task 22: Forecasting Indirect Land Use Effects of Transportation Projects (2007), and TxDOT's Guidance on Preparing Indirect and Cumulative Impact Analyses (September 2010) or most current version at contract execution. The ENGINEER will organize and conduct a collaborative judgment process with expert individuals. The ENGINEER shall document the indirect impacts analysis in a technical report. The results included in the technical report will also be used in the EA.

Deliverables

- Indirect Impacts Technical Report

Subtask V: Cumulative Impacts

The Council on Environmental Quality (CEQ) regulations requires that all federal agencies consider the cumulative effects of any proposed action. The ENGINEER shall identify cumulative impacts in accordance with the requirements of FHWA Technical Advisory TA-T6640.8A (1987), CEQ's handbook, Considering Cumulative Effects Under the National Environmental Policy Act (1997) and TxDOT's Guidance on Preparing Indirect and Cumulative Impact Analyses (September 2010) or most current guidance at contract execution. The ENGINEER shall document the cumulative impacts analysis in a technical report. The results included in the technical report will also be used in the EA.

Deliverables

- Cumulative Impacts Technical Report

Subtask W: Construction Impacts

The ENGINEER shall prepare a general discussion of construction impacts for each reasonable alternative for inclusion in the environmental document.

Subtask X: Section 4(f)/Section 6(f) Evaluations

The ENGINEER shall identify Section 4(f) properties in the study area in accordance with 49 USC 303 and assess the potential for project-related impacts on those properties. The properties identified shall include all property types listed in 23 C.F.R. 771.135 (49 USC 303).

The ENGINEER shall also identify any land use that has applied funds from the Land & Water Conservation Fund Act (LWCFA), 16 U.S.C. §§ 460I-4 to 460I-11 (commonly referred to as Section 6(f), as the provision was originally contained in Section 6(f)(3) of the LWCFA, Public Law 88-578 of 1962, before codification); and the Urban Park and Recreation Recovery Act (UPARRA), 16 U.S.C. §§ 2501 to 2514 restrict the future use of parklands or open spaces that have been improved with funds received through the LWCFA and UPARRA (collectively, "Section 6(f) resources").

- a. The ENGINEER shall use existing engineering data, archeological and historical studies, and parks records to determine whether 4(f)/6(f) properties may be present. If in the ENGINEER's opinion there is insufficient archeological, historic or engineering data upon which to base a determination of 4(f)/6(f) status, the ENGINEER shall contact the Mobility Authority to obtain further direction on how to proceed.
- b. The ENGINEER shall organize and analyze existing data to enable FHWA to make a determination of applicability in conformance with FHWA 4(f) Policy Paper (Sept. 24, 1987) and FHWA Technical Advisory T6640.8A (Oct. 30, 1987).

Task 4: Environmental Document Preparation**Subtask A: Draft Environmental Assessment (EA)**

- a. The ENGINEER shall prepare an EA which shall include discussions of purpose and need, existing and proposed design, alternative descriptions, alternatives analysis, air/noise computer modeling, historical/archeological assessment, wildlife and endangered species review, right-of-way, displacements, socioeconomic analysis and environmental justice impacts, water quality, wetlands, floodplains, aesthetics/visual effects, and construction impacts as well as indirect and cumulative impacts. Assume the EA will evaluate the No-Build Alternative and Preferred Alternative.
- b. The ENGINEER shall prepare exhibits including, but not limited to, the

- following: vicinity map, floodplain map, existing and proposed typical sections, line diagrammatic schematic, noise and air receiver location map, wetlands inventory map, USGS map, site photographs and hazardous sites map, as appropriate.
- c. Exhibits in the document shall be limited in size to 8 1/2" x 11" or 11" x 17" for ease of reproduction. Illustrations shall be developed using GIS (ArcView) and/or CADD (Microstation) software.
 - d. The ENGINEER shall schedule and attend a review meeting to be held with the Mobility Authority for the Project. The purpose of the review is for the ENGINEER to receive comments from the Mobility Authority, TxDOT (Austin District and ENV) and the FHWA.
 - e. The ENGINEER shall revise the EA, addressing those comments obtained from the Mobility Authority, TxDOT Austin District, TxDOT ENV, FHWA, and Agency review. .

Deliverables

- Draft EA
- Revised EA per review comments (6 review cycles)

Subtask B: Final EA

- a. After the public hearing, the ENGINEER shall update the environmental document. The ENGINEER shall address the engineering and environmental issues raised at the public hearing and effect disposition of same. This action is an important part of the study process and shall involve evaluating suggestions received as a result of the hearing. This shall be done in coordination with the Mobility Authority, TxDOT Austin District, TxDOT ENV and FHWA.
- b. The ENGINEER shall revise the draft environmental document to discuss changes to the preferred alternative in response to agency and public hearing comments, as required.
- c. The ENGINEER shall review the draft impacts section and revise this section to reflect the preferred alternative and pertinent comments received during the hearing. As appropriate, the ENGINEER shall include a summary of further agency comments and a discussion of results of agency coordination.
- d. The ENGINEER shall prepare and list public hearing comments and responses. This summary shall be included as an appendix to the environmental document, as appropriate.
- e. The ENGINEER shall submit the revised draft EA for Mobility Authority, TxDOT Austin District, TxDOT ENV and FHWA review.

- f. The ENGINEER shall revise the Final EA document to respond to Mobility Authority, TxDOT, FHWA, and Agency comments. Following final revisions, the ENGINEER shall provide to the Mobility Authority hard copies and CD ROMs of the Final EA.

Deliverables

- Draft Final EA
- Revised FINAL EA per review comments

Subtask C: FONSI/Final Approval

The ENGINEER shall prepare and submit to the Mobility Authority the Draft FONSI, as appropriate, for their use in obtaining final clearance of the Project. The Draft FONSI shall be submitted to the Mobility Authority following the submission and review of the Final EA.

Deliverables

- One electronic copy of a Draft FONSI

Task 5: Environmental Support Services**Subtask A: Administrative Record (AR)**

The ENGINEER shall establish, track, organize and manage the project's administrative record, which is the written record supporting the agency's decisions. The documents and materials shall be organized in chronological order by date and indexed. The index should include a brief description of each document. The index should be updated on a regular basis and a copy of the index provided to the Mobility Authority monthly. The administrative record shall be maintained by the ENGINEER throughout the duration of this work authorization. Documentation and materials to be compiled as part of the AR include:

- a. Privileged and non-privileged documents and materials (once the AR is compiled, protected documents and materials shall be retracted or removed from the record. The index shall identify the documents or materials, reflect that they are being withheld, and state on what basis they are being withheld.)
- b. Draft and final documents and materials
- c. Technical information, sampling results, survey information, engineering reports or studies
- d. E-Mail messages and attachments
- e. Correspondence and attachments

- f. Documented communications among organizations involved in the project
- g. Policies, guidelines, directives, and manuals relevant to the development of project NEPA documentation
- h. Modeling results and factual data
- i. Public involvement materials, communications, comments, and other information that documents public participation in the project
- j. Meeting minutes or transcripts
- k. Maps, drawings, and displays
- l. Photographs
- m. Field and personal notes (under special circumstances)
- n. Primary Sources

An index and a database of documents contained within the AR shall be created and maintained in chronological order by the ENGINEER. The index shall have a cover page that shall include the title of the project, date that the AR was originally compiled, date(s) AR was updated. In addition, the index would have a brief introduction and preface that explains the contents of the index, how it was organized, how to use the index, as well as a brief project description. The majority of the index would comprise a matrix that contains the following information for each item within the AR:

- a. Temporary number that corresponds to a number placed on the item
- b. Date of document or material development
- c. Author of document or material
- d. Recipient of document or material
- e. Title or Description of document or material
- f. Number of Pages

A permanent number may be placed on the documents when the AR is complete or is reviewed by appropriate personnel.

Each information item (see above) with regards to each AR item shall be designated as a separate field within the database. The database and index shall be burned onto a CD(s) and placed within the AR along with a hardcopy of the index (matrix).

The database can be used to prepare a variety of reports with regards to the AR sorted by any of the fields.

Provide an electronic copy of the AR on a compact disk (CD) and the documents not already in electronic format will be scanned. The scanned documents will be legible.

Deliverables

- Indexed Project Record (to be submitted monthly)
- Indexed and numbered Administrative Record, electronic file and hard copy

Task 6: Public Involvement

The ENGINEER shall perform public involvement activities in accordance with 43 TAC 2.40 – 2.50 as well as with the current version of TxDOT's environmental procedures manual.

Subtask A: Public Involvement Plan

The ENGINEER shall also develop a public involvement plan to facilitate meaningful participation to ascertain stakeholder input on initiatives to promote environmental stewardship and sustainability planning as part of the environmental decision-making process. Involvement must be early, inclusive, continuous and tailored to address the identified needs within the project area including LEP needs. The public involvement plan should include an education component to explain to the public the concepts and purpose of environmental stewardship and project sustainability. Five copies of the public involvement plan would be submitted to the Mobility Authority, TxDOT Austin District and TxDOT ENV for review and approval.

Deliverables

- Public Involvement Plan

Subtask B: Stakeholder Engagement

- a. The ENGINEER shall compile, maintain and update a mailing list of people, agencies and organizations interested in the proposed project. The Mobility Authority shall provide the ENGINEER with relevant data available to the Mobility Authority. This effort shall be in conjunction with the CE project.
- b. The ENGINEER shall provide content for inclusion on a Project Website or Public Engagement forum. Content could include, but not be limited to:
 1. Project description information
 2. Upcoming events and activities
 3. Project Reports and documentation
 4. Project newsletters and fact sheets
 5. Frequently Asked Questions

6. Links to audio and video recordings of project events such as open houses and hearings
 7. Links to related websites
 8. Public engagement forum questions and responses
- c. The ENGINEER shall write, develop, publish quarterly, full-color, project newsletters (2 11 x 17 pages maximum, double-sided, bi-fold), with the approval of the Mobility Authority, to individuals on the project mailing list. The newsletter shall incorporate factual project-related articles, text and graphics as instructed and/or approved by the Mobility Authority, TxDOT and project team. The project newsletters shall be used to provide project information updates and announce upcoming meetings and events. Project newsletters shall be distributed per newsletter version via email.
- d. Project Fact Sheets
The ENGINEER will:
1. Prepare Fact Sheets to provide more in depth information on special project topics than can be provided in the project newsletter (e.g. explanation of alternatives, noise analysis and mitigation options, etc.). The fact sheets will be no longer than two (2) two-sided pages with appropriate graphics.
 2. Mail fact sheets to community members upon request.
 3. Make the fact sheets available in PDF format on the project website and at public involvement activities including neighborhood and public meetings, project presentations, and noise workshops.
- e. Frequently Asked Questions (FAQs)
The ENGINEER will prepare FAQs, with responses, for approval by the Mobility Authority, TxDOT Austin District, TxDOT ENV and FHWA and posting on the project website.
- f. Community Engagement (in conjunction with the CE project):
1. Develop and maintain a list of potential community members (neighborhood associations, special interest groups, business associations, etc.) to contact for informal meetings/discussions.
 2. Send project information to community groups and offer to meet with them.
 3. Respond to requests from community members for meetings with project staff.
 4. Conduct up to 10 meetings with community groups to discuss the MoPac South Project.
 5. Coordinate with the Mobility Authority and TXDOT on meeting logistics.
 6. Maintain a complete correspondence file for the stakeholder meetings, including printed and electronic letters and other correspondence.
 7. Prepare a neighborhood meeting summary for each meeting.
- g. The ENGINEER shall coordinate and hold up to twenty (20) stakeholder

- interviews and meetings throughout the development of the Project. Stakeholders meetings would be held with targeted groups important to the consensus-building process and can be expected to be more issue-focused than the general stakeholder meetings. The ENGINEER will provide a summary of each meeting for submission to the Mobility Authority.
- h. NEPA TWG: Resource and Regulatory Agency Coordination: The ENGINEER will coordinate as necessary and/or as directed by the Mobility Authority, with the various governmental agencies, including but not be limited to the following: the City of Austin, CAMPO, USACE, United States Coast Guard, USFWS and other identified stakeholder agencies. The ENGINEER will coordinate with the Mobility Authority and GEC prior to initiating communication with the agencies. The Mobility Authority will approve the NEPA TWG members, distribution list and any letters/communications before distribution. It is anticipated that the NEPA TWG will meet six (6) times related to various topics. The ENGINEER will provide a summary of each meeting for submission to the Mobility Authority.
- i. The ENGINEER shall make all arrangements for up to three (3) Public/Scoping Meetings/Open Houses, and one (1) Public Hearing (4 events total). Each Public Meeting/Hearing shall be coordinated and held in accordance with the following:
1. The ENGINEER shall secure the meeting/hearing location, date and time (includes securing a/v equipment, chairs/tables, podium, etc.) In the interest of the community outreach and cost, the ENGINEER should ideally pursue non-commercial, community sites for the Public Meetings/Hearings when possible.
 2. The ENGINEER shall prepare and publish legal notices and Display Advertisements for each meeting/hearing. The ENGINEER shall prepare and distribute meeting notices for distribution to the contacts on project databases. The ENGINEER shall provide the Mobility Authority draft copies of legal notices and display ads at least three (3) weeks prior to first publication date.
 3. The ENGINEER shall prepare meeting/hearing handouts, agendas, name tags, sign-in sheets, speaker cards, comment cards and Power Point presentations with accompanying speech (a version for each meeting/hearing). Up to four (4) different line diagrams and up to fourteen (14) exhibit boards shall be prepared by the ENGINEER per meeting/hearing.
 4. The ENGINEER shall provide a translator (if needed), audio/video equipment (projector, screen, microphones, podium, etc.) (if needed).
 5. The ENGINEER shall provide a court reporter for each Public Meeting/Hearing.
 6. The ENGINEER shall compile and prepare responses to comments at each Public Meeting/Hearing.

7. The ENGINEER shall make up to four (4) rounds of revisions on all meeting materials. The ENGINEER shall obtain the Mobility Authority's approval on all materials prior to production or publication.
- j. The ENGINEER shall arrange up to four (4) pre-meetings (a pre-meeting prior to each series of public meeting or hearing) with the Mobility Authority and TxDOT to review all exhibits and other materials to be used at public meetings or hearings.
- k. The ENGINEER shall provide personnel to staff up to four (4) meetings/hearings including three (3) public involvement and coordination staff to perform registration, make presentations, and answer questions.
- l. The ENGINEER shall develop and submit to the Mobility Authority up to four (4) Public Meeting/Hearing Summary Reports and a Summary and Analysis of each public hearing that document the activities for each series of meetings/hearings conducted. These reports shall contain the outreach, notifications, and contacts conducted prior to the meetings/hearings; meeting/hearing details such as presentations, attendance, and pertinent details regarding the meeting/hearing; and a comment and response section that documents comments received before, during and after the meeting/hearing, and a response to each. The Public Meeting Summary Report and Public Hearing Summary and Analysis shall be sufficiently detailed to provide a full record of officially submitted comments from the meetings/hearings.

Deliverables

- Updated project database/ mailing list
- Website content as described above
- Twelve (12) full-color, project e-newsletters
- Eight (8) Fact Sheets
- Eight (8) Frequently Asked Questions (FAQs)
- List of potentially interested community groups
- Up to ten (10) community meeting summary reports
- Up to twenty (20) stakeholder interviews and meetings and associated summaries
- TWG meeting summaries (6)
- Up to four (4) Public Meeting/Hearing Summary and Analysis Reports

Subtask C: Elected Official/Agency Involvement and Coordination

This task is to assure coordination with local and regional jurisdictions and agencies related to the MoPac South Project; to actively solicit their participation in the planning and decision process for the project. The ENGINEER will work with the Mobility Authority to identify public agencies and jurisdictions that should be included

in the Project outreach program. This effort shall be in conjunction with the CE project.

The ENGINEER will:

- a. Work with the Mobility Authority and the TxDOT to identify elected officials at the local, regional, and federal levels who need to be briefed at key points in the project (e.g. city council members, board members of regional agencies, and federal elected representatives).
- b. Work with the Mobility Authority to prepare briefings of elected officials on a regular basis, in advance of major project related community events or activities.
- c. Prepare a briefing summary report to summarize all briefings.
- d. Support up to forty (40) briefings of elected officials.

Deliverables

- Updated project elected officials database/ mailing list
- Up to forty (40) elected official briefings and associated summaries

Subtask D: Media Outreach and Coordination

- a) The ENGINEER will work with the Mobility Authority to keep the public informed about the project.
- b) Issues Management. The ENGINEER will develop an advanced list of potential significant issues of public interest or concern and prepare contingencies for dealing with each issue and pre-prepared language or response outlines for each issue.
- c) Crisis Communications. The ENGINEER shall work with the Mobility Authority to assist in communications of a crisis nature requiring rapid response times, in particular to the local news media.

Subtask E: Rider 42 Outreach Requirements

The ENGINEER will provide fact sheets, maps, data, and other project information as requested by the Mobility Authority in support of the Mobility Authority's implementation of Rider 42 extended outreach activities.

Subtask F: Context Sensitive Solutions (CSS)

The ENGINEER will coordinate with the GEC to include the results of CSS activities into the project as necessary.

C. FIELD SURVEYING AND PHOTOGRAMMETRY

Task 1: Field Survey

Surveying services shall include, but are not limited to, design and environmental surveys (digital terrain models), use of geodetic methods to establish horizontal and vertical control network of the preferred alternative. Survey limits of the project will be MoPac right-of-way to right-of-way from Enfield Road to Slaughter Lane extending 500 feet from MoPac centerline down cross streets. In the areas of potential direct connects into downtown and onto Loop 360 the survey limits will extend from MoPac centerline approximately 2000 feet past Cesar Chavez to the end of the direct connects transition to the east along Cesar Chavez Street encompassing the right-of-way and approximately 2000 feet from MoPac's centerline to the west along Loop 360 encompassing the right-of-way to the first Barton Creek Mall entrance.

- a. The ENGINEER shall perform each survey in accordance with the TxDOT's latest practices, specifications, procedures and standards. Each survey shall meet or exceed the standards set in the Professional Land Surveying Practices Act, General Rules of Procedures and Practices promulgated by the Texas Board of Professional Land Surveying (TBPLS), the latest edition of the Texas Society of Professional Surveyors (TSPS) Manual of Practice for Land Surveying in the State of Texas, current Federal Geodetic Control Subcommittee's (FGCS) Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques, FGCS Standards and Specifications for Geodetic Control Networks, the State GPS Manual of Practice, and, the State Survey Guide, latest edition. Each survey shall be conducted in an organized and workman-like manner and shall be subject to the approval of the Mobility Authority.
- b. The ENGINEER shall use The North American Datum of 1983 (NAD83), Texas State Plane Coordinate System (SPCS) Central Zone, NAD83 CORS Adjustment, based upon state monuments. All coordinates and distances shown shall be project surface values expressed in units of survey feet. The project grid-to-surface combined adjustment factor shall be determined by the ENGINEER. The ENGINEER shall submit the proposed scale factor, in writing, to the Mobility Authority and TxDOT for approval. The ENGINEER shall base elevations on North American Vertical Datum 88 (NAVD88), unless otherwise directed by the Mobility Authority.
- c. The ENGINEER shall certify work performed under this contract as true and correct according to FGCS Standards, the State Survey Guide, latest edition, the State GPS Manual of Practice, latest edition or the TSPS Manual of Practice for Land Surveying in the State of Texas, as may be applicable.
- d. Survey standards for services that relate to surveying for engineering projects that are non-boundary related may be determined by the Mobility Authority,

- construction specifications, or design specifications.
- e. The ENGINEER shall provide a design survey for the preferred alternative route. This work may include right-of-entry, establishing control, leveling control, performing an aerial flight, aerial mapping and locating obscured areas. If the previously developed alternative route is used, this work shall consist of supplemental surveying.
 - f. The ENGINEER shall notify the Mobility Authority prior to performing the work if:
 1. Sufficient right-of-way monumentation cannot be found to re-establish the existing alignment and associated right-of-way lines.
 2. The work is delayed due to weather or other circumstances beyond the ENGINEER's direct control.
 - g. The ENGINEER shall perform design in compliance with the following technical requirements:
 1. Design survey shall be performed under the direct supervision of a Registered Professional Land Surveyor currently registered with the Texas Board of Professional Land Surveying. All survey work shall conform to the TxDOT Survey Manual latest addition and the TxDOT GPS Manual latest addition.
 2. Horizontal and Vertical ground control established by conventional methods conducted by the ENGINEER shall meet standards of accuracy as set forth in the TxDOT Survey Manual and the TSPS Manual of Practice for Land Surveying in the State of Texas to the category and condition delineated. The ENGINEER shall run vertical control using digital levels only unless otherwise approved by the Mobility Authority.
 3. Horizontal and/or vertical ground control used for design surveys based on GPS surveys shall meet standards of accuracy as set forth in the Federal Geodetic Control Committee publication entitled Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques, reprinted with corrections August 1, 1989, or the TxDOT GPS Manual of Practice, latest edition, as specified.
 4. Side shots or short traverse procedures used to determine horizontal and vertical locations shall meet the following criteria:
 - i. Side shots or short traverses shall begin and end on horizontal and vertical ground control as described in the TSPS Manual of Practice for Land Surveying in the State of Texas to the category and condition delineated.
 - ii. The ENGINEER shall use standards, procedures and equipment such that horizontal locations relative to the control may be reported within the following limits:
 - a. Bridges and other roadway structures less than 0.1 of one foot.
 - b. Utilities and improvements less than 0.2 of one foot.

- c. Cross-sections and profiles less than 1 foot.
 - d. Bore holes less than 3 feet.
 - iii. The ENGINEER shall use standards, procedures and equipment such that vertical locations relative to the control may be reported within the following limits:
 - a. Bridges and other roadway structures less than 0.02 of one foot.
 - b. Utilities and improvements less than 0.03 of one foot.
 - c. Cross-sections and profiles less than 0.1 of one foot.
 - d. Bore holes less than 0.5 of one foot.

Deliverables

- Design survey for Preferred Alternative

Task 2: Aerial Mapping

The purpose of aerial mapping is to provide planimetric digital mapping (DGN) and digital terrain modeling (DTM) in support of roadway design.

Subtask A: Photography Airborne Data Collection

Provide Airborne LiDAR and Digital Imagery to support aerial mapping appropriate for detailed design. The mapping corridor will have a total width 1000 feet, 500 feet left and right of the flight line along the primary alignment. The flight corridor will be from Enfield Road to 500' south of Slaughter Lane (approximately 9 miles).

To accommodate potential design options Airborne LiDAR and Digital Imagery will also be collected at two (2) additional cross streets at a distance of 2000 feet to the east towards downtown at Cesar Chavez and to the west to the first entrance of Barton Creek Mall along Loop 360 from the project (Mopac) centerline and will have a total width of 1000 feet, 500 feet left and right of the flight line of raw captured LiDAR and Imagery. 2D DGN, 3D DTM, and orthophotography for these 2 cross flights will be produced from ROW to ROW.

- a. TxDOT standards
- b. Translate all vector data to GEOPACK, ESRI, and MICROSTATION and project the data to GRID and SURFACE coordinates as required.
- c. Generate ortho-rectified images from the raw scans, with a pixel to ground resolution of 3-inches per pixel and 6-inches per pixel. Orthos will be seamless, butt-matching tiles in tif format and ECW format, and projected to GRID and SURFACE coordinates. Eight (8) total sets of ortho imagery with proper world files for correct geographic placement each image in both coordinate systems
- d. Digital orthophotography will produced using the captured Digital Imagery, which will collected in coincidence with the aerial LiDAR to give imagery to the corridor.
- e. Horizontal ground control provided shall meet standards of accuracy required

- by the Mobility Authority and as described in the FGCS Standards and Specifications for Geodetic Control Networks, latest edition, the Texas Department of Transportation Survey Manual, latest edition, the Texas Department of Transportation GPS Manual of Practice, latest edition, or the TSPS Manual of Practice for Land Surveying in the State of Texas, as may be applicable.
- f. Vertical ground control provided shall meet standards of accuracy required by the State and as described in the FGCS Standards and Specifications for Geodetic Control Networks, latest edition, the Texas Department of Transportation Survey Manual, latest edition, the Texas Department of Transportation GPS Manual of Practice, latest edition, or the TSPS Manual of Practice for Land Surveying in the State of Texas, as may be applicable.

Deliverables

- Calibrated .LAS files.
- Orthoimagery files.
- Certification that the Airborne data was captured on the date indicated, signed by the aircraft pilot or aerial photographer.
- Photo index and raw digital imagery of each frame of photography on CD or DVD.

Subtask B: DGN and DTM Files

- a. Prepare DGN files covering the specific work location, meeting standards and specifications as required.
- b. Prepare DTM files covering the specific work location, meeting standards and specifications as required.

Deliverables

- 2D DGN and 3D DTM files on a medium and in a format acceptable to the Mobility Authority, delivered on CD or DVD.
- Orthophotography (created using the DTM) delivered on CD or DVD in tiff format (3 banded) with world files.
- The TxDOT's Photogrammetry Mapping Legend supplemented by the Surveyor.

Task 3: Aerial Photography Control Surveys

The purpose of an aerial photography control survey is to provide ground control in support of aerial photogrammetry along the preferred alternative alignment, for the determined limits of the project.

- a. Establish panel points (20 secondary control points) in accordance with the approved panel layout as directed by the Mobility Authority. Maintain until the LiDAR from the flight is approved.

- b. Determine the coordinates of the panels and offsite control points.

Determine the elevations of the panels.

- c. Place panel material at the established points and maintain until the LiDAR from the flight is approved.
- d. Prepare, to scale, a Survey Control Index Sheet, for the twenty (20) secondary control points and the 11 primary control points.

Prepare a Horizontal and Vertical Control Sheet and an individual control Data sheet for each of the eleven (11) primary control points.

Perform ground surveys of obscured areas where LiDAR mapping is obscured by vegetation canopy or other obstructions.

QC check of aerial LiDAR mapping by ground survey cross-sections of hard surfaces approximately every 1000 feet (50 total).

Traffic Control for work within Right-of-Way

a. Technical Requirements

1. Aerial photography control surveys shall be performed under the direct supervision of a Registered Professional Land Surveyor currently registered with the Texas Board of Professional Land Surveying.
2. The coordinate location of center panel and wing panels based on acceptable methods, conducted by the ENGINEER, shall meet the standards of accuracy as set forth below:
3. Reference may be made to standards of accuracy for horizontal control traverses, as described in the FGCS Standards and Specifications for Geodetic Control Networks, latest edition, the Texas Department of Transportation Survey Manual, latest edition, the Texas Department of Transportation GPS Manual of Practice, latest edition, or the TSPS Manual of Practice for Land Surveying in the State of Texas, as may be applicable.
4. The elevation of center panel points and wing panel points based on acceptable methods, conducted by the ENGINEER, shall meet the standards of accuracy as set forth below:
5. Reference may be made to standards of accuracy for horizontal control traverses, as described in the FGCS Standards and Specifications for Geodetic Control Networks, latest edition, the Texas Department of Transportation Survey Manual, latest edition, the Texas Department of Transportation GPS Manual of Practice, latest edition, or the TSPS Manual of Practice for Land Surveying in the State of Texas, as may be applicable.
6. The elevation of wing panel points based on side shots or short traverses

shall meet the following criteria:

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

Deliverables

- Final panel layout showing the location of the panel points and labeled with their respective alpha-numeric designations.
- 11 inch by 17 inch index map showing an overall view of the project and the relationship of primary monumentation and control used in the preparation of the project, signed and sealed by a Registered Professional Land Surveyor, and as directed by the Mobility Authority.
- 11 inch by 17 inch horizontal and vertical control sheet showing the primary survey control monumentation used in the preparation of the project, signed and sealed by a Registered Professional Land Surveyor, and as directed by the Mobility Authority.
- 8 ½ inch by 11 inch data sheet for each panel point which shall include, but need not be limited to, a location sketch, a physical description of the point, surface coordinates, the elevation, and datums used, signed and sealed by a Registered Professional Land Surveyor.
- CD containing the graphics files and scanned images of the control data sheets.
- Typed statement describing the datum used along with copies of all relevant NGS, USCGS and State data sheets.
- Typed tabulation of all panel points with their respective alpha-numeric designations, surface coordinates (for center panel points only), and elevations.

Task 4: Establish Primary Control Points

The ENGINEER shall establish a minimum of eleven primary project control points (5/8" iron rods with State Control Caps set in concrete) using the StateCORS system (Level 2) as the basis for the project's Horizontal and Vertical coordinate system. These control points shall be located within the existing ROW. eleven (11) control points shall be required.

An 8 ½ inch by 11 inch survey control data sheet for each of the eleven (11) primary control points which shall include, but need not be limited to, a location sketch, a physical description including a minimum of two reference ties, surface coordinates, a surface adjustment factor, elevation, and the horizontal and vertical datum used.

The Survey Control Data sheets shall be signed and sealed by the supervising Registered Professional Land Surveyor.

Deliverables

- Four (4) Control drawings of the primary control and aerial mapping (secondary) control (to include datum and scale factor information) on a .pdf scan file of the control sheets. (Two copies delivered to the District Surveyor and two copies delivered to the Mobility Authority.)
- eleven (11) Individual Control Data Sheets shall be delivered for each of the eleven (11) primary control points for the project and a .pdf scan file.
- Four (4) CD-ROMs containing the files described above.

Task 5: Level Control

The ENGINEER shall verify and adjust the control vertically with digital differential leveling. The ENGINEER shall perform leveling throughout the entire limits or length of the Preferred Alternative. Primary and secondary control points shall be tied together to establish adjusted vertical control for the project. The ENGINEER shall base the adjusted vertical datum on the values derived for the adjusted primary control.

Task 6: Locate Existing Right-of-Way

- a. The ENGINEER shall use the preferred alternative alignment to reconstruct the existing approximate right-of-way lines of intersecting public roadways. The ENGINEER shall use the following to construct and reconstruct the associated right-of-way lines:
 1. Record information
 2. Right-of-way information from State strip maps
 3. Collected monumentation
 4. Visible evidence, existing fences or apparent monumentation along each respective intersecting roadway.
 5. Additional courthouse research of deeds/plats for the county roads or adjoining acreage tracts will be not performed at this time.
- b. The ENGINEER shall tie all collected survey data to the established project survey control.
- c. The ENGINEER shall reconstruct any drainage easements, in accordance with the State strip map.
- d. The ENGINEER shall collect and map available utility record information for existing major utility systems within the study area. Record information will consist of "as-built" or "record drawings" of these major existing utility systems. The major utility systems consist of overhead electric transmission lines, petroleum lines, and water/wastewater pipelines 24 inches in diameter and above within the existing right-of-way. Only these major utility systems apply to this service. Collection of this information will include, 1) using the Texas One-Call System to determine the major existing utility companies

- within the project limits, 2) contact each major utility company identified and any other major utility companies known to request record information of their existing systems, 3) review Texas Railroad Commission GIS maps for evidence of any petroleum pipeline systems within the project limits, and 4) provide a field reconnaissance of adjacent parallel roadways and roadways within the project limits to identify and collect utility marker posts showing major existing utility systems that may encroach on the project limits.
- e. The ENGINEER shall analyze the collected record information for duplications/missing information and shall prepare a map showing this information.
- f. The ENGINEER shall identify all utility easements that have an impact on the project limits.

Deliverables

- Identification of right-of-way boundary
- List and map of utility record information for existing major utility systems within the study area

In Karst Zones 1 and 2, ROE should be prepared that includes a 500' buffer.

Task 8: Supplemental Survey at Cross Roads and Railroad

The ENGINEER shall provide survey for cross roads and locate any drainage structures within the approximately 30 intersecting right-of-ways that will be mapped by aerial LiDAR.

If necessary, the ENGINEER shall survey the top of rail (at approximate 500' intervals) for the UPRR line up to 2000' north and south of the preferred alternative alignment.

Deliverables

- Cross section survey for intersecting roads and rail.

Task 9: Water Crossing Sections

The ENGINEER shall survey cross sections of waterbody crossings (at approximate 500' intervals) up to 2000' right and left from the proposed ROW of the preferred alternative alignment. Water bodies are to include Lady Bird Lake, Barton Creek, the drainage channel under MoPac approximately 100' north of Southwest Pkwy., drainage channel under MoPac between Monterey Oaks Blvd and William Cannon Blvd., the drainage channel under MoPac between Convict Hill Rd. and Latta Dr., and the drainage channel under MoPac just north of Davis Lane and adjacent to Dick Nichols Park for a total of six (6) water bodies to be surveyed. Assuming ten (10) waterbodies or areas of cross-sections.

Deliverables

- Cross section survey for water crossings.
- Two copies of the Surveyor's project field books.

D. DRAINAGE & WATER QUALITY**Task 1: General**

- a. Unless otherwise specified, the current online State Hydraulics Design Manual shall serve as the basis for all drainage policy, procedures, guidelines, report, and plan sheet documentation required for this project. The manual can be downloaded from the TxDOT's website. Likewise, the Austin District Hydraulics Engineer (DHE) should be consulted for guidance on policy, regulations, standards, and District preferences. Local drainage criteria shall not be used for the project without the prior approval of the Mobility Authority.
- b. Computation of floodplain impacts generally requires flood routing and the use of a unit hydrograph methodology that takes into consideration the effects of infiltration, storage, timing parameters, etc. The NRCS curve number method is preferred, but other unit hydrograph techniques could also be used. Coordination with the Mobility Authority and the DHE is required on the hydrologic method to be used if different than the NRCS curve number method for areas 200 acres or larger and the Rational Method for areas less than 200 acres.
- c. Detail ditch and/or storm sewer analysis is generally not expected at this level, which concentrates on addressing environmental and schematic drainage concerns. However, the effects on streams from addition of impervious cover, encroachments, changes in roadway horizontal and vertical alignments, and changes in topography, as a result of the roadway project, must be determined.

Task 2: Hydrology and Hydraulics – Non-FEMA Regulated Crossings

- a. Not including FEMA regulated crossings, the ENGINEER shall model the hydrology of all crossing structures along the preferred alternative.
- b. The ENGINEER shall model the hydraulics of all crossing structures using HEC-RAS. The full range of storm frequencies should be evaluated in the analysis, from the 50 percent to the 1 percent annual exceedance probability storm event.
- c. Not including FEMA regulated stream crossings, all cross-drain structures (culverts and bridges) shall be identified and evaluated for the preferred

- alternative only. The following considerations shall be included in the proposed hydraulics analysis and design:
1. Proposed roadway profile and encroachment
 2. Degree of upstream and downstream development
 3. Proposed alignment/roadway features that could create increases in water surface elevations outside of the State right of way
 4. Proposed alignment/roadway features that could create increases in water velocities and erosion impacts. Evaluation of soil types and erosion potential is included here.
 5. Impacts and mitigation alternatives.
- d. For the preferred alternative, the ENGINEER shall analyze ditches and channels adequately enough to establish proposed project ROW and necessary easements.
- e. The ENGINEER shall provide a preliminary cost estimate for all drainage structures for the preferred alternative only.

Deliverables

- Input and output files in electronic format of all hydrologic and hydraulic modeling software used in the project.
- Hydraulic Analysis for inclusion in design
- Preliminary cost estimate for all drainage structures for the preferred alternative.

Task 3: Hydrology and Hydraulics – FEMA Regulated Crossings

All FEMA regulated streams will be modeled for the preferred alternative only.

Existing basin conditions are the normal design criteria used by TxDOT. The use of ultimate basin conditions on this project shall be considered on a case by case basis, and after an assessment performed by TxDOT and the Mobility Authority. Therefore, coordination with the Mobility Authority and the DHE shall be required if the ENGINEER deems necessary to use ultimate basin conditions.

- a. In the process of selecting the preferred alternative, the ENGINEER shall gather FEMA regulated floodplain information to be used in comparing impacts on up to three (3) alternatives. No hydrologic or hydraulic modeling will be performed prior to choosing the preferred alternative.
- b. The ENGINEER shall coordinate with the floodplain administrator (FPA) of Travis County and other appropriate jurisdictions to obtain hydrologic and hydraulic information on the FEMA regulated streams that cross this project. The ENGINEER and its staff shall not represent themselves to the FPA as having decision-making authority on behalf of The Mobility Authority. This task includes acquisition of the hydrologic and hydraulic models for the pertinent streams.

- c. For Zone AE stream crossings, the ENGINEER shall review the effective hydrological model for recent changes in development and update to a current effective model if necessary.
- d. For Zone A stream crossings, the ENGINEER shall create a current effective hydrological model (by using a unit hydrograph methodology such as the NRCS Curve Number Method.)
- e. For Zone A and Zone AE stream crossings, the ENGINEER shall create a proposed hydrological model by updating the effective or current hydrologic model to account for the proposed project changes. Proposed project changes could include additional impervious cover, potential sub-basin area changes, potential changes to timing parameters, etc.
In those basins along the project where the hydrologic analysis for the proposed conditions determines that the runoff drains into the stream before the main flood peak on the stream arrives, no additional hydrologic analysis of the stream shall be required and the current or effective hydrological model shall be used.

In the basins where the proposed hydrologic analysis indicates a potential timing conflict between the main flood peak and the basin specific peak, additional hydraulic analysis shall be performed to determine increases in proposed water surface elevation along the stream. Runoff hydrographs representing the existing and increased impervious area roadway conditions, as well as other relevant project changes shall be used to determine impacts based on timing.

- f. For Zone AE stream crossings, the ENGINEER shall review the effective hydraulic model for recent changes in development and update to a current effective model if necessary.
- g. For Zone A stream crossings, the ENGINEER shall create a current effective hydraulic model using existing project parameters.
- h. For Zone A and Zone AE stream crossings, the ENGINEER shall create a proposed hydraulic model by updating the effective or current effective hydraulic model to account for the proposed project changes.
- i. If water surface elevations are increased outside of the State right-of-way, the ENGINEER shall determine the extent of the impact, and discuss mitigation alternatives.
- j. The ENGINEER shall prepare a draft Hydraulics report to be reviewed by the Mobility Authority. The report shall adequately address environmental concerns related to floodplain impacts, as well as discuss assumptions, parameters, procedures, results, and recommendations. This report shall also present and discuss impacts and mitigation.

- k. Where impacts exist, at least one mitigation alternative shall be evaluated and discussed in the hydraulics report.

Deliverables

- Hydrologic models for the preferred alternative
- Hydraulic models for the preferred alternative
- Draft hydraulics report
- Final hydraulics report.

Task 4: Water Quality

A significant portion of the project shall likely be located over the Edwards Aquifer Recharge and Contributing Zones and so the TCEQ Edwards Aquifer rules need to be addressed. Much of the technical effort for this work is addressed elsewhere in this scope. The estimate of the runoff volume for the water quality load would simply be a function of that previous effort combined with the actual load computations.

- a. , The ENGINEER shall develop load calculations for the constituents of concern for the preferred alternative, as well as existing conditions to facilitate comparison of the two. The type and locations for Best Management Practices (BMP) will be provided for the preferred alternative. The BMPs evaluated should include Low Impact Development Practices as well as conventional end-of-pipe controls. At a minimum any recommended BMPs must comply with the requirements of the Edwards rules.
- b. The ENGINEER shall identify and document BMP's in the draft and final hydraulics reports and provide cost estimates.

In coordination with the Mobility Authority, the ENGINEER shall determine any necessary drainage easements for safely conveying drainage, providing detention and/or water quality BMPs for the preferred alternative.

IV. MOPAC SOUTH OVERPASSES PROJECT

A. DESIGN STUDIES

Task 1: Alternatives Analysis

- a. The ENGINEER shall prepare up to two preliminary design options for each crossing location (Slaughter Lane and La Crosse).
- b. The ENGINEER shall integrate environmental stewardship and sustainability strategies into the reasonable alternatives. Environmental stewardship and sustainability strategies are developed to address such issues as improved quality of access to goods and services, improved air quality, noise reduction, improved water quality, protection of habitat and open space, historic preservation, increased social equity, economic development, and a satisfying quality of life, in addition to local goals consistent with the overall project purpose and need.

Deliverables

- Preliminary Design options for overpasses at the intersections of MoPac and Slaughter Lane and MoPac and La Crosse Avenue.

Task 2: Design Criteria

The ENGINEER shall use design criteria as set forth in Roadway Design Manual, Bridge Design Manual, Hydraulic Design Manual, and other deemed necessary State approved manuals. In addition, the ENGINEER shall prepare the Design Summary Report, (DSR). The ENGINEER shall prepare all work in accordance with the latest version of applicable State procedures, specifications, manuals, guidelines, standard drawings, standard specifications or previously approved special provisions and special specifications to include: the Roadway Design Manual, Hydraulic Design Manual, the TMUTCD, Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges, 2004, and other State approved manuals. When design criteria are not identified in State manuals, the ENGINEER shall notify the Mobility Authority and refer to the AASHTO, A Policy on Geometric Design of Highways and Street, (latest Edition). In addition, the ENGINEER shall follow the guidelines shown in the PS&E Preparation Manual which the ENGINEER may download from the TxDOT website. The ENGINEER shall obtain written concurrence from the Mobility Authority prior to proceeding with a design if any questions arise during the design process regarding the applicability of the design criteria.

Deliverables

- Design Summary Report

Task 3: Preliminary Cost Estimates

The ENGINEER shall develop a preliminary construction cost estimate for all proposed design options using the most current relevant industry unit prices.

Deliverables

- Preliminary cost estimates

Task 4: Design Schematics

For each overpass, the ENGINEER shall:

- a. The ENGINEER will develop the geometric design that will include the refinement of the proposed typical sections and a fully calculated geometric design that includes all necessary horizontal and vertical alignments.
- b. The ENGINEER will develop preliminary design cross sections. The cross sections will be used to identify the preliminary ROW requirements and assist in locating proposed retaining walls, bridge locations, etc. Earthwork quantities derived from the cross sections will be used in the development of the preliminary construction cost estimate.
- c. The ENGINEER will prepare a geometric schematic plan and profile drawing in accordance with the Chapter 1, Section 3, of TxDOT's *Roadway Design Manual*. The ENGINEER shall deliver 3 copies of the schematic design to the Mobility Authority for approval.
- d. The ENGINEER will perform basic preliminary engineering to determine general bent placements and structure depths for all new bridges including direct connections.
- e. The ENGINEER will recommend a final design option to the Mobility Authority and TxDOT for inclusion and further analysis in the CE document.

Deliverables

- Geometric schematic for overpasses utilizing the TxDOT Austin District Schematic Checklist (in both DGN and PDF formats).
- Preliminary design cross sections in both electronic and roll format
- Preliminary quantities and construction cost estimates for each proposed design option.
- Recommended design option for each intersection.

Task 5: Traffic Engineering Studies

The Mobility Authority's traffic consultant will conduct the traffic engineering studies. The ENGINEER will be required to coordinate with the traffic consultant and provide supporting information related to geometry and access points.

The ENGINEER shall:

- a. Provide traffic pattern diagrams related to the overpass configurations, and express lane access to aid in traffic analysis to support the air quality analysis, MSAT analysis, and level of service and operations analysis.
- b. Provide electronic files of the proposed design options.

Deliverables

- Traffic pattern diagrams for overpass configurations
- Electronic files for use by traffic consultant

B. SOCIAL, ECONOMIC AND ENVIRONMENTAL STUDIES AND PUBLIC INVOLVEMENT

The ENGINEER shall provide environmental and public involvement services necessary to produce a CE for the Project

Task 1: Preliminary Environmental Constraints

Subtask A: Constraints Identification

The ENGINEER shall perform a desktop review of environmental constraints within the study area. Constraints to be identified include:

- a. Cemeteries
- b. Parks, Preserves, Trails & Greenbelts
- c. Soils
- d. Karst zones
- e. Known karst features
- f. Edwards Aquifer Recharge & Transition Zones
- g. Historic Properties
- h. Archeological sites
- i. City of Austin water quality protection lands
- j. Hazardous material sites
- k. Data from the Texas Parks and Wildlife Department's Natural Diversity Database
- l. United States Fish and Wildlife Service's Critical Habitat Mapper
- m. National Wetland Inventory Data
- n. Floodplains
- o. National Hydrography Dataset
- p. Land uses identified through aerial photo interpretation
- q. Existing and planned development

The above information shall be mapped in GIS.

Subtask B: Project Scope for Environmental Review Documents (CE)

The ENGINEER shall complete a Project Scope for Environmental Review Documents for the CE. The completed draft will be submitted to Mobility Authority and TxDOT (Austin District and ENV) for review and approval. A workshop with Mobility Authority and TxDOT (Austin District and ENV) may be required to complete the process. Upon approval, the ENGINEER shall draft an Environmental Classification Letter to be submitted to TxDOT for review and approval (Austin District and ENV) and upon approval, submitted to FHWA.

Deliverables

- Constraints Map
- Project Scope for Environmental Review Documents
- Environmental Classification Letter
- Meeting Minutes, if meetings related to this task are held.

Task 2: Data Collection/Existing Conditions/Environmental Analysis**Subtask A: Existing Conditions**

The ENGINEER shall assess the existing conditions in the study area and provide an overall analysis of the existing conditions and features for the proposed project. This task shall incorporate all previous studies in the study area and other available project data to identify the existing conditions and features that have a potential influence on the project. The ENGINEER shall submit a technical memorandum of the Existing Condition Analysis prior to submittal of the CE.

Deliverables

- Existing Conditions Technical memorandum

Subtask B: Categorical Exclusion

- a. Project History/Status: The ENGINEER shall prepare a Project description and Project development history for the Project.
- b. Data Collection: Available information to be reviewed and types of surveys include but are not limited to:
 1. Locations of public buildings, schools, churches, parks, etc.
 2. Aerial/Infrared photography, if available
 3. National Wetland Inventory (NWI) maps
 4. Site review for presence of non-inventoried wetlands
 5. County Soil Survey maps
 6. Texas Commission of Environmental Quality (TCEQ) and U.S. Environmental Protection Agency (EPA) Hazardous Materials Database information

7. Federal Emergency Management Agency (FEMA) 100-year floodplains
 8. Vegetation information
 9. Threatened and Endangered Species information
 10. Air Quality
 11. Demographic data
 12. Cultural Resources data to include historic structures and archeological resources
- c. Description of Affected Environment: Through data collection and field investigation, the ENGINEER will describe the affected environment. The description will include, as appropriate, land use, soils (including prime farmland soils), noise, air quality, socio-economic characteristics, surface water, groundwater, wetlands, vegetation, wildlife habitat, threatened and endangered species, hazardous materials sites, cultural resources and Section 4(f) properties.
- d. Environmental Consequences: The ENGINEER will address impacts of the proposed action on the affected environment.
- e. Document Preparation/Comment Response: The ENGINEER will prepare the draft CE for review by the Mobility Authority, TxDOT Austin District, TxDOT ENV, relevant regulatory agencies, and FHWA. The ENGINEER shall revise the Final CE document to respond to Mobility Authority, TxDOT, FHWA, and Agency comments. Following final revisions, the ENGINEER shall print and deliver to the Mobility Authority hard copies and CD ROMs of the Final CE.

Deliverables

- Hard copy of the draft CE document plus one electronic copy, per submittal
- Hard copy of the final CE document; and an electronic copy.

Task 3: Environmental Support Services

Task 4: Public Involvement

The ENGINEER shall perform public involvement activities in accordance with 43 TAC 2.40 – 2.50 as well as with the current version of TxDOT's environmental procedures manual.

Subtask A: Stakeholder Engagement

- a. The ENGINEER shall compile, maintain and update a mailing list of people, agencies and organizations interested in the proposed project. The Mobility Authority shall provide the ENGINEER with relevant data available to the

Mobility Authority. This effort shall be in conjunction with the EA project.

- b. The ENGINEER shall write, develop, publish and email up to two (2) full-color, project newsletters (2 11 x 17 pages maximum, double-sided, bi-fold), with the approval of the Mobility Authority, to individuals on the project mailing list. The newsletter shall incorporate factual project-related articles, text and graphics as instructed and/or approved by the Mobility Authority, TxDOT and project team. The project newsletters shall be used to provide project information updates and announce upcoming meetings and events. Project newsletters shall be distributed per newsletter version via email. The ENGINEER shall make up to four rounds of revisions per newsletter.
- c. Project Fact Sheets:
 1. Prepare up Fact Sheets to provide more in depth information on special project topics than can be provided in the project newsletter (e.g. explanation of alternatives, noise analysis and mitigation options, etc.). The fact sheets will be no longer than two (2) two-sided pages with appropriate graphics.
 2. Mail fact sheets to community members upon request.
 3. Make the fact sheets available in PDF format on the project website and at public involvement activities including neighborhood and public meetings, project presentations, and noise workshops.

Subtask B: Public Involvement

The ENGINEER shall make all arrangements for up to two (2) Public Meetings/Open Houses. Each Public Meeting/Open House shall be coordinated and held in accordance with the following:

- a. The ENGINEER shall secure the meeting location, date and time (includes securing a/v equipment, chairs/tables, podium, etc.) In the interest of the community outreach and cost, the ENGINEER should ideally pursue non-commercial, community sites for the Public Meetings/Hearings when possible.
- b. The ENGINEER shall prepare and publish legal notices and Display Advertisements for each meeting/hearing. The ENGINEER shall prepare and distribute meeting notices for distribution to the contacts on project databases. The ENGINEER shall provide the Mobility Authority draft copies of legal notices and display ads at least three (3) weeks prior to first publication date.
- c. The ENGINEER shall prepare meeting/hearing handouts, agendas, name tags, sign-in sheets, speaker cards, comment cards and Power Point

presentations with accompanying speech (a version for each meeting/hearing). Up to four (4) different line diagrams and up to fourteen (14) exhibit boards shall be prepared by the ENGINEER per meeting/hearing.

- d. The ENGINEER shall provide a translator (if needed), audio/video equipment (projector, screen, microphones, etc. podium, etc.) (if needed).
- e. The ENGINEER shall provide a court reporter for each Public Meeting/Open House.
- f. The ENGINEER shall compile and prepare responses to comments at each Public Meeting/Open House.
- g. The ENGINEER shall make up to four (4) rounds of revisions on all meeting materials. The ENGINEER shall obtain the Mobility Authority's approval on all materials prior to production or publication.
- h. The ENGINEER shall arrange up to two (2) pre-meetings (a pre-meeting prior to each series of Public Meeting or Open House) with the Mobility Authority and TxDOT to review all exhibits and other materials to be used.
- i. The ENGINEER shall provide personnel for each Meeting/Open House including three (3) public involvement and coordination staff to perform registration, make presentations, and answer questions.
- j. The ENGINEER shall develop and submit to the Mobility Authority up to two (2) Public Meeting/Hearing Summary Reports that document the activities for each series of meetings/hearings conducted. These reports shall contain the outreach, notifications, and contacts conducted prior to the meetings; meeting details such as presentations, attendance, and pertinent details regarding the meeting; and a comment and response section that documents comments received before, during and after the meeting, and a response to each. The Public Meeting Summary Report shall be sufficiently detailed to provide a full record of officially submitted comments from the meetings/hearings.

Deliverables

- Updated project database/ mailing list
- Website content as described above
- Two (2) full-color, project e-newsletters
- Fact Sheets
- List of potentially interested community groups
- Neighborhood meeting summaries
- Two Public Meeting/Open House Summary and Analysis Reports

V. FIELD SURVEYING AND PHOTOGRAMMETRY

Task 1: Field Survey

Surveying services shall include, but are not limited to, design and environmental surveys (digital terrain models), use of geodetic methods to establish horizontal and vertical control network of the proposed project. Limits of the survey area, as stated in the introduction, will be right-of-way to right-of-way of MoPac from Davis Lane to SH 45 extending 500 feet from the centerline of MoPac down cross-streets. (Approximately 3 miles)

The ENGINEER shall perform survey in accordance with the TxDOT's latest practices, specifications, procedures and standards. Each survey shall meet or exceed the standards set in the Professional Land Surveying Practices Act, General Rules of Procedures and Practices promulgated by the Texas Board of Professional Land Surveying (TBPLS), the latest edition of the Texas Society of Professional Surveyors (TSPS) Manual of Practice for Land Surveying in the State of Texas, current Federal Geodetic Control Subcommittee's (FGCS) Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques, FGCS Standards and Specifications for Geodetic Control Networks, the State GPS Manual of Practice, and, the State Survey Guide, latest edition. Each survey shall be conducted in an organized and workman-like manner and shall be subject to the approval of the Mobility Authority.

The ENGINEER shall use The North American Datum of 1983 (NAD83), Texas State Plane Coordinate System (SPCS) Central Zone, NAD83 CORS Adjustment, based upon state monuments. All coordinates and distances shown shall be project surface values expressed in units of survey feet. The project grid-to-surface combined adjustment factor shall be determined by the ENGINEER. The ENGINEER shall submit the proposed scale factor, in writing, to the Mobility Authority and TxDOT for approval. The ENGINEER shall base elevations on North American Vertical Datum 88 (NAVD88), unless otherwise directed by the Mobility Authority.

The ENGINEER shall certify work performed under this contract as true and correct according to FGCS Standards, the State Survey Guide, latest edition, the State GPS Manual of Practice, latest edition or the TSPS Manual of Practice for Land Surveying in the State of Texas, as may be applicable.

Survey standards for services that relate to surveying for engineering projects that are non-boundary related may be determined by the Mobility Authority, construction specifications, or design specifications.

The ENGINEER shall provide a design survey for the proposed project. This work may include right-of-entry, establishing control, leveling control, performing an aerial flight, aerial mapping and locating obscured areas. If the previously developed alternative route is used, this work shall consist of supplemental surveying.

The ENGINEER shall notify the Mobility Authority prior to performing the work if:

- a. Sufficient right-of-way monumentation cannot be found to re-establish the existing alignment and associated right-of-way lines.
- b. The work is delayed due to weather or other circumstances beyond the ENGINEER's direct control.

The ENGINEER shall perform design in compliance with the following technical requirements:

- a. Design survey shall be performed under the direct supervision of a Registered Professional Land Surveyor currently registered with the Texas Board of Professional Land Surveying. All survey work shall conform to the TxDOT Survey Manual latest addition and the TxDOT GPS Manual latest addition.
- b. Horizontal and Vertical ground control established by conventional methods conducted by the ENGINEER shall meet standards of accuracy as set forth in the TxDOT Survey Manual and the TSPS Manual of Practice for Land Surveying in the State of Texas to the category and condition delineated. The ENGINEER shall run vertical control using digital levels only unless otherwise approved by the Mobility Authority.
- c. Horizontal and/or vertical ground control used for design surveys based on GPS surveys shall meet standards of accuracy as set forth in the Federal Geodetic Control Committee publication entitled Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques, reprinted with corrections August 1, 1989, or the TxDOT GPS Manual of Practice, latest edition, as specified.
- d. Side shots or short traverse procedures used to determine horizontal and vertical locations shall meet the following criteria:
 1. Side shots or short traverses shall begin and end on horizontal and vertical ground control as described in the TSPS Manual of Practice for Land Surveying in the State of Texas to the category and condition delineated.
 2. The ENGINEER shall use standards, procedures and equipment such that horizontal locations relative to the control may be reported within the following limits:
 - i. Bridges and other roadway structures less than 0.1 of one foot.
 - ii. Utilities and improvements less than 0.2 of one foot.
 - iii. Cross-sections and profiles less than 1 foot.
 - iv. Bore holes less than 3 feet.

3. The ENGINEER shall use standards, procedures and equipment such that vertical locations relative to the control may be reported within the following limits:
 - i. Bridges and other roadway structures less than 0.02 of one foot.
 - ii. Utilities and improvements less than 0.03 of one foot.
 - iii. Cross-sections and profiles less than 0.1 of one foot.
 - iv. Bore holes less than 0.5 of one foot.

Deliverables

- Design survey for proposed project

Task 2: Aerial Mapping

The purpose of aerial mapping is to provide planimetric digital mapping (DGN) and digital terrain modeling (DTM) in support of roadway design.

Subtask A: Aerial Photography

Provide aerial photography for low altitude aerial mapping appropriate for detailed design. Assuming the mapping corridor will have a total width 1000 feet, 500 feet left and right of the flight line. The aerial mapping work flow will consist of the following:

- Establish flight and ground control configuration
- Coordinate exact panel placement, utilizing public ROW where possible
- Notify the flight team that panels are down and the project is ready to fly
- Acquire the 1"=250' scale color photography and perform photo lab processing of the film high-precision, photogrammetric digital scanning to convert each film exposure into a digital image
- Import the X,Y,Z values for all ground control panels
- Perform fully analytical aero-triangulation to densify the ground control and bridge the digital images in order to provide stereo orientations for 3D data collection
- Use 3D stereo-compilation methods to digitize all visible planimetric features
- Use 3D stereo-compilation methods to digitize the digital terrain model (DTM), to create an accurate 3D model of the ground which will be of suitable accuracy for 1-foot contour generation
- Import field data in void areas
- Generate 1-foot topographic contours from the digital terrain model, with labels and spot heights, that will be suitable for 1"=50' scale mapping according to TxDOT standards

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- Import field data in void areas
- Generate 1-foot topographic contours from the digital terrain model, with labels and spot heights, that will be suitable for 1"=50' scale mapping according to TxDot standards
- Translate all vector data to GEOPACK, ESRI, and MICROSTATION and project the data to GRID and SURFACE coordinates as required.
- Generate ortho-rectified images from the raw scans, with a pixel to ground resolution of 3-inches per pixel and 6-inches per pixel. Orthos will be seamless, butt-matching tiles in tif format and ECW format, and projected to GRID and SURFACE coordinates. Eight (8) total sets of ortho imagery with proper world files for correct geographic placement each image in both coordinate systems

Ground Control Accuracy Standards

- a. Horizontal ground control provided shall meet standards of accuracy required by the Mobility Authority and as described in the FGCS Standards and Specifications for Geodetic Control Networks, latest edition, the Texas Department of Transportation Survey Manual, latest edition, the Texas Department of Transportation GPS Manual of Practice, latest edition, or the TSPS Manual of Practice for Land Surveying in the State of Texas, as may be applicable.
- b. Vertical ground control provided shall meet standards of accuracy required by the State and as described in the FGCS Standards and Specifications for Geodetic Control Networks, latest edition, the TxDOT Survey Manual, latest edition, the TxDOT GPS Manual of Practice, latest edition, or the TSPS Manual of Practice for Land Surveying in the State of Texas, as may be applicable.

Deliverables

- Uncut film, labeled as to county, highway, date of flight, photograph panel number, and photograph scale, delivered in a protective canister.
- Contact prints (2 complete sets).
- Orthoimagery files.

- Certification that the photographs were taken on the date indicated, signed by the airplane pilot or aerial photographer.
- Photo index and scanned digital imagery of each frame of photography on CD or DVD.

Subtask B: DGN and DTM Files

- a. Prepare DGN files covering the specific work location, meeting standards and specifications as required.
- b. Prepare DTM files covering the specific work location, meeting standards and specifications as required.

Deliverables

- DGN and DTM files on a medium and in a format acceptable to the Mobility Authority, delivered on CD or DVD.
- Orthophotography (created using the DTM) delivered on CD or DVD in tiff format (3 banded) with world files.
- The Mobility Authority's Photogrammetry Mapping Legend supplemented by the Surveyor.

Task 3: Aerial Photography Control Surveys

The purpose of an aerial photography control survey is to provide ground control in support of aerial photogrammetry for the determined limits of the project.

- a. Establish panel points in accordance with the approved panel layout as directed by the Mobility Authority. Maintain until the photographs from the flight are approved.

With the use of airborne GPS there may be fewer ground control panels needed. Panel location plan will be submitted to the Mobility authority for approval.

- b. Determine the coordinates of the panel and offsite control points.
- c. Determine the elevations of the panels.
- d. Place panel material at the established points and maintain until the photographs from the flight are approved.
- e. Prepare, to scale, a Survey Control Index Sheet, for the four (4) secondary control points and the 2 primary control points.
- f. Prepare a Horizontal and Vertical Control Sheet and an individual control data sheet for each of the four (2) primary control points.

Deliverables

- Final panel layout showing the location of panel points and labeled with their respective alpha-numeric designations.
- 11 inch by 17 inch index map showing an overall view of the project and the relationship of primary monumentation and control used in the preparation of the project, signed and sealed by a Registered Professional Land Surveyor, and as directed by the Mobility Authority.
- 11 inch by 17 inch horizontal and vertical control sheet showing the primary survey control monumentation used in the preparation of the project, signed and sealed by a Registered Professional Land Surveyor, and as directed by the Mobility Authority.
- 8 ½ inch by 11 inch data sheet for each panel point which shall include, but need not be limited to, a location sketch, a physical description of the point, surface coordinates, the elevation, and datums used, signed and sealed by a Registered Professional Land Surveyor.
- CD containing the graphics files and scanned images of the control data sheets.
- Typed statement describing the datum used along with copies of all relevant NGS, USCGS and State data sheets.
- Typed tabulation of all panel points with their respective alpha-numeric designations, surface coordinates (for center panel points only), and elevations.

Task 4: Establish Primary Control Points

The ENGINEER shall establish a minimum of four primary project control points (5/8" iron rods with State Control Caps set in concrete) using the StateCORS system (Level 2) as the basis for the project's Horizontal and Vertical coordinate system. These control points shall be located within the existing ROW. Two (2) control points shall be required.

An 8 ½ inch by 11 inch survey control data sheet for each of the two (2) primary control points which shall include, but need not be limited to, a location sketch, a physical description including a minimum of two reference ties, surface coordinates, a surface adjustment factor, elevation, and the horizontal and vertical datum used.

The Survey Control Data sheets shall be signed and sealed by the supervising Registered Professional Land Surveyor.

Deliverables

- Four (4) Control drawings of the primary control and aerial mapping (secondary) control (to include datum and scale factor information) on a .pdf scan file of the control sheets. (Two copies delivered to the District Surveyor and two copies delivered to the Mobility Authority.)
- Two (2) Individual Control Data Sheets shall be delivered for each of the two (2) primary control points for the project and a .pdf scan file.

- Four (4) CD-ROMs containing the files described above.

Task 5: Level Control

The ENGINEER shall verify and adjust the control vertically with digital differential leveling. The ENGINEER shall perform leveling throughout the entire limits or length of the proposed design option. Primary and secondary control points shall be tied together to establish adjusted vertical control for the project. The ENGINEER shall base the adjusted vertical datum on the values derived for the adjusted primary control.

Task 6: Locate Existing Right-of-Way

- a. The ENGINEER shall reconstruct the existing approximate right-of-way lines of intersecting public roadways, for the project area. The ENGINEER shall use the following to construct and reconstruct the associated right-of-way lines:
 1. Record information
 2. Right-of-way information from State strip maps
 3. Collected monumentation
 4. Visible evidence, existing fences or apparent monumentation along each respective intersecting roadway.
 5. Additional courthouse research of deeds/plats for the county roads or adjoining acreage tracts will be not performed at this time.
- b. The ENGINEER shall tie all collected survey data to the established project survey control.
- c. The ENGINEER shall reconstruct any drainage easements, in accordance with the State strip map.
- d. The ENGINEER shall collect and map available utility record information for existing major utility systems within the study area. Record information will consist of "as-built" or "record drawings" of these major existing utility systems. The major utility systems consist of overhead electric transmission lines, petroleum lines, and water/wastewater pipelines 24 inches in diameter and above within the existing right-of-way. Only these major utility systems apply to this service. Collection of this information will include, 1) using the Texas One-Call System to determine the major existing utility companies within the project limits, 2) contact each major utility company identified and any other major utility companies known to request record information of their existing systems, 3) review Texas Railroad Commission GIS maps for evidence of any petroleum pipeline systems within the project limits, and 4) provide a field reconnaissance of adjacent parallel roadways and roadways within the project limits to identify and collect utility marker posts showing major existing utility systems that may encroach on the project limits.

- e. The ENGINEER shall analyze the collected record information for duplications/missing information and shall prepare a map showing this information.
- f. The ENGINEER shall identify all utility easements that have an impact on the project limits.

Deliverables

- Identification of right-of-way boundary
- List and map of utility record information for existing major utility systems within the project limits.

Task 7: Right of Entry to Survey

The ENGINEER shall develop a list of current property owners adjoining the proposed project area and attempt to obtain written Right of Entry (ROE) Agreements for the affected properties for the purpose of gaining access for the survey tasks scoped herein.

Task 8: Supplemental Survey at Cross Roads

The ENGINEER shall provide cross section survey (at approximate 100' intervals) within the limits of the ROW for intersecting crossroads up to 500' right and left of the proposed project area. In addition, the ENGINEER shall survey and locate any drainage structures within these intersecting areas as required.

Deliverables

- Cross section survey for intersecting roads.

Task 9: Water Crossing Sections

The ENGINEER shall survey cross sections of waterbody crossings (at approximate 500' intervals) up to 2000' right and left from the proposed ROW within the project limits.

Deliverables

- Cross section survey for water crossings including Slaughter Creek and tributaries.

VI. DRAINAGE**Task 1: General**

- a. Unless otherwise specified, the current online State Hydraulics Design Manual shall serve as the basis for all drainage policy, procedures, guidelines, report, and plan sheet documentation required for this project. The manual can be downloaded from the TxDOT's website. Likewise, the Austin

- District Hydraulics Engineer (DHE) should be consulted for guidance on policy, regulations, standards, and District preferences. Local drainage criteria shall not be used for the project without the prior approval of the Mobility Authority.
- b. Computation of floodplain impacts generally requires flood routing and the use of a unit hydrograph methodology that takes into consideration the effects of infiltration, storage, timing parameters, etc. The NRCS curve number method is preferred, but other unit hydrograph techniques could also be used. Coordination with the Mobility Authority and the DHE is required on the hydrologic method to be used if different than the NRCS curve number method for areas 200 acres or larger and the Rational Method for areas less than 200 acres.
 - c. Detail ditch and/or storm sewer analysis is generally not expected at this level, which concentrates on addressing environmental and schematic drainage concerns. However, the effects on streams from addition of impervious cover, encroachments, changes in roadway horizontal and vertical alignments, and changes in topography, as a result of the roadway project, must be determined.

Task 2: Hydrology and Hydraulics – Non-FEMA Regulated Crossings

- a. Not including FEMA regulated crossings, the ENGINEER shall model the hydrology of all crossing structures along the preferred alternative.
- b. The ENGINEER shall model the hydraulics of all crossing structures using HEC-RAS. The full range of storm frequencies should be evaluated in the analysis, from the 50 percent to the 1 percent annual exceedance probability storm event.
- c. Not including FEMA regulated stream crossings, all cross-drain structures (culverts and bridges) shall be identified and evaluated for the preferred alternative only. The following considerations shall be included in the proposed hydraulics analysis and design:
 - 1. Proposed roadway profile and encroachment
 - 2. Degree of upstream and downstream development
 - 3. Proposed alignment/roadway features that could create increases in water surface elevations outside of the State right of way
 - 4. Proposed alignment/roadway features that could create increases in water velocities and erosion impacts. Evaluation of soil types and erosion potential is included here.
 - 5. Impacts and mitigation alternatives.
- d. For the preferred alternative, the ENGINEER shall analyze ditches and channels adequately enough to establish proposed project ROW and necessary easements.

- e. The ENGINEER shall provide a preliminary cost estimate for all drainage structures for the preferred alternative only.

Deliverables

- Input and output files in electronic format of all hydrologic and hydraulic modeling software used in the project.
- Hydraulic Analysis for inclusion in design
- Preliminary cost estimate for all drainage structures for the preferred alternative.

Task 3: Hydrology and Hydraulics – FEMA Regulated Crossings

All FEMA regulated streams will be modeled for the preferred alternative only.

Existing basin conditions are the normal design criteria used by TxDOT. The use of ultimate basin conditions on this project shall be considered on a case by case basis, and after an assessment performed by TxDOT and the Mobility Authority. Therefore, coordination with the Mobility Authority and the DHE shall be required if the ENGINEER deems necessary to use ultimate basin conditions.

- a. In the process of selecting the preferred alternative, the ENGINEER shall gather FEMA regulated floodplain information to be used in comparing impacts on up to three (3) alternatives. No hydrologic or hydraulic modeling will be performed prior to choosing the preferred alternative.
- b. The ENGINEER shall coordinate with the floodplain administrator (FPA) of Travis County and other appropriate jurisdictions to obtain hydrologic and hydraulic information on the FEMA regulated streams that cross this project. The ENGINEER and its staff shall not represent themselves to the FPA as having decision-making authority on behalf of The Mobility Authority. This task includes acquisition of the hydrologic and hydraulic models for the pertinent streams.
- c. For Zone AE stream crossings, the ENGINEER shall review the effective hydrological model for recent changes in development and update to a current effective model if necessary.
- d. For Zone A stream crossings, the ENGINEER shall create a current effective hydrological model (by using a unit hydrograph methodology such as the NRCS Curve Number Method.)
- e. For Zone A and Zone AE stream crossings, the ENGINEER shall create a proposed hydrological model by updating the effective or current hydrologic model to account for the proposed project changes. Proposed project changes could include additional impervious cover, potential sub-basin area changes, potential changes to timing parameters, etc.

1. In those basins along the project where the hydrologic analysis for the proposed conditions determines that the runoff drains into the stream before the main flood peak on the stream arrives, no additional hydrologic analysis of the stream shall be required and the current or effective hydrological model shall be used.
 2. In the basins where the proposed hydrologic analysis indicates a potential timing conflict between the main flood peak and the basin specific peak, additional hydraulic analysis shall be performed to determine increases in proposed water surface elevation along the stream. Runoff hydrographs representing the existing and increased impervious area roadway conditions, as well as other relevant project changes shall be used to determine impacts based on timing.
- f. For Zone AE stream crossings, the ENGINEER shall review the effective hydraulic model for recent changes in development and update to a current effective model if necessary.
 - g. For Zone A stream crossings, the ENGINEER shall create a current effective hydraulic model using existing project parameters.
 - h. For Zone A and Zone AE stream crossings, the ENGINEER shall create a proposed hydraulic model by updating the effective or current effective hydraulic model to account for the proposed project changes.
 - i. If water surface elevations are increased outside of the State right-of-way, the ENGINEER shall determine the extent of the impact, and discuss mitigation alternatives.
 - j. The ENGINEER shall prepare a draft Hydraulics report to be reviewed by the Mobility Authority. The report shall adequately address environmental concerns related to floodplain impacts, as well as discuss assumptions, parameters, procedures, results, and recommendations. This report shall also present and discuss impacts and mitigation.
 - k. Where impacts exist, at least one mitigation alternative shall be evaluated and discussed in the hydraulics report.

Deliverables

- Hydraulic models for the preferred alternative
- Draft hydraulics report
- Final hydraulics report.

Task 4: Water Quality

A significant portion of the project shall likely be located over the Edwards Aquifer Recharge and Contributing Zones and so the TCEQ Edwards Aquifer rules need to be addressed. Much of the technical effort for this work is addressed elsewhere in

this scope. The estimate of the runoff volume for the water quality load would simply be a function of that previous effort combined with the actual load computations.

- a. The ENGINEER shall develop load calculations for the constituents of concern for the preferred alternative, as well as existing conditions to facilitate comparison of the two. The type and locations for Best Management Practices (BMP) will be provided for the preferred alternative. The BMPs evaluated should include Low Impact Development Practices as well as conventional end-of-pipe controls. At a minimum any recommended BMPs must comply with the Edwards rules.
- b. The ENGINEER shall identify and document BMP's in the draft and final hydraulics reports and provide cost estimates.

In coordination with the Mobility Authority, the ENGINEER shall determine any necessary drainage easements for safely conveying drainage, providing detention and/or water quality BMPs for the preferred alternative. The reports should be signed and sealed by a Registered Professional Engineer in the State of Texas.

EXHIBIT C

WORK SCHEDULE

The Engineer shall complete the work described in ATTACHMENT B, SERVICES TO BE PROVIDED BY THE ENGINEER, within 912 calendar days of receiving the Notice to Proceed from the Authority, unless permitted otherwise by the Authority.

Firm Name	Description of Work Performed	Labor Cost	ODE	Firm Total	Percent of Total Contract	DBE Total	Percent DBE
Jacobs	Overall Project Management, Planning, Schematic Development, Field Survey and Environmental Documentation	\$ 3,591,757	\$ 327,618	\$ 3,919,375	65%	\$ -	0%
Michael Barrett, PhD.	Edwards Aquifer Recharge Zone Analysis and Coordination	\$ 136,620	\$ -	\$ 136,620	2%	\$ -	0%
Don Martin Public Affairs	Public Involvement and Community Engagement	\$ 58,090	\$ 1,396	\$ 59,486	1%	\$ -	0%
Group Solutions RJW	Public Involvement and Community Engagement	\$ 308,486	\$ 92,245	\$ 400,731	7%	\$ 400,731	7%
Hicks & Company	Environmental Investigations and Environmental Documentation	\$ 329,983	\$ 3,477	\$ 333,460	6%	\$ 333,460	6%
K Friese & Associates	Drainage and Water Quality	\$ 354,109	\$ -	\$ 354,109	6%	\$ 354,109	6%
SAM Inc.	Aerial Mapping and SUE	\$ 159,172	\$ 56,060	\$ 215,232	4%	\$ -	0%
LBJ Wildflower Center	CSS/Sustainability	\$ 207,270	\$ 721	\$ 207,991	3%	\$ -	0%
Zara Environmental	Karst Investigations and Environmental Documentation	\$ 358,231	\$ 13,970	\$ 372,201	6%	\$ 372,201	6%
Total		\$ 5,503,718	\$ 495,487	\$ 5,999,205	100%	\$ 1,460,501	24%

EXHIBIT D
MoPac South Projects

1	A																	V	W	X	Y				
	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R					S	T	U	
2	Jacobs	Jacobs	Barrett	Barrett	Martin	Martin	Group Solutions	Group Solutions	Hicks	Hicks	Kfriese	Kfriese	SAM	SAM	Wildflower	Wildflower	Zara	Zara	Total	Total	Total Labor by	EA Project	CE Project		
3	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Task				
8	MO PAC SOUTH PROJECTS																								
9																									
98		204 \$	24,917.37																	204 \$	24,917				
99		24 \$	2,861.18																	24 \$	2,861				
100		40 \$	5,063.86																	40 \$	5,064				
101																									
102	B. Social, Economic and Environmental Studies and Public Involvement																								
103	Task 1: Preliminary Environmental Constraints																								
104	Subtask A: Constraints Identification																								
105		9 \$	1,419.45																	9 \$	1,419				
106		9 \$	1,419.45																	9 \$	1,419				
107		9 \$	1,419.45												30 \$	4,158				39 \$	5,377				
108		9 \$	1,419.45															2 \$	223	11 \$	1,642				
109		9 \$	1,419.45															8 \$	892	17 \$	2,311				
110		9 \$	1,419.45	4 \$	720															13 \$	2,139				
111		11 \$	1,831.32																	11 \$	1,831				
112		11 \$	1,831.32																	11 \$	1,831				
113		9 \$	1,419.45																	9 \$	1,419				
114		9 \$	1,419.45																	9 \$	1,419				
115		9 \$	1,419.45																	9 \$	1,419				
116		11 \$	1,831.32																	11 \$	1,831				
117		9 \$	1,419.45																	9 \$	1,419				
118		9 \$	1,419.45								6 \$	596.10								15 \$	2,016				
119		9 \$	1,419.45																	9 \$	1,419				
120		39 \$	5,454.15																	39 \$	5,454				
121		10 \$	1,633.05							280 \$	27,508									290 \$	29,141				
122		49 \$	6,883.09							40 \$	4,242									89 \$	11,125				
123	Subtask B: Project Scope for Environmental Review Document (EA)																								
124		32 \$	6,681.98	2 \$	360					6 \$	988								8 \$	973	48 \$	9,003			
125		28 \$	5,827.56	4 \$	720					8 \$	1,350									40 \$	7,897				
126		48 \$	9,946.29																	48 \$	9,946				
127		28 \$	5,858.23																	28 \$	5,858				
128																									
129	Task 2: Environmental Process Initiation																								
130	Subtask A: Notification Letter																								
131		26 \$	5,369.68																	26 \$	5,370				
132	Subtask B: Resource and Regulatory Agency Coordination																								
133		26 \$	2,345.45																	26 \$	2,345				
134		38 \$	3,824.50																	38 \$	3,824				
135		84 \$	15,581.93							32 \$	5,206									116 \$	20,788				
136	Subtask C: Technical Reports																								
137		108 \$	15,789.44	16 \$	2,880					128 \$	12,256	84 \$	9,588.76				24 \$	3,528	496 \$	52,340	856 \$	96,882			
138		40 \$	5,456.70	4 \$	720					34 \$	3,278	14 \$	2,020.14				18 \$	2,625		110 \$	14,100				
139		20 \$	2,728.35	2 \$	360					18 \$	1,820	14 \$	2,020.14				14 \$	2,079		68 \$	9,007				
140	Subtask D: Purpose and Need Statement																								
141		76 \$	10,279.78																	76 \$	10,280				
142		8 \$	1,381.83																	8 \$	1,382				
143	Subtask E: Coordination Plan																								
144		60 \$	8,585.34																	60 \$	8,585				
145		26 \$	3,221.15																	26 \$	3,221				
146	Subtask F: Initial Agency (Resource/FHWA/Sponsor) Briefing and Kick-off Meeting																								
147		64 \$	10,772.13	8 \$	1,440					12 \$	1,621									84 \$	13,833				
148		9 \$	1,125.17																	9 \$	1,125				
149		24 \$	4,243.51	4 \$	720															28 \$	4,964				
150		18 \$	2,225.96																	18 \$	2,226				
151																									
152	Task 3: Data Collection/Existing Conditions/Environmental Analysis																								
153	Subtask A: Existing Conditions																								
154		128 \$	18,769.21	60 \$	10,800					30 \$	3,007									218 \$	32,576				
155	The following subtasks for socioeconomic and environmental studies shall be conducted for the reasonable alternatives for inclusion in the environmental document.																								
156	Subtask B: Analysis of Social and Economic Conditions (including relocations and disproportionate impacts):																								
157		63 \$	6,299.18																	63 \$	6,299				
158		18 \$	2,084.54																	18 \$	2,085				
159		18 \$	1,690.70																	18 \$	1,691				
160		27 \$	2,740.64																	27 \$	2,741				
161		124 \$	16,208.65																	124 \$	16,209				
162		30 \$	3,169.20																	30 \$	3,169				
163		9 \$	845.35																	9 \$	845				
164		20 \$	1,795.46																	20 \$	1,795				
165		26 \$	2,963.79																	26 \$	2,964				
166		8 \$	639.41																	8 \$	639				
167		13 \$	1,165.06																	13 \$	1,165				
168		0 \$	-																	0 \$	-				
169	Subtask C: Geology and Soils Impacts																								
170		14 \$	1,969.25												20 \$	2,835	5 \$	569	39.1 \$	5,373					
171		3 \$	445.99												40 \$	5,880				43 \$	6,326				
172	Subtask D: Environmental Justice																								
173		22 \$	2,360.89																	22 \$	2,361				
174	Subtask E: Consideration of Pedestrians and Bicycles																								
175		24 \$	3,322.16																	24 \$	3,322				
176	Subtask F: Air Quality Analysis																								

EXHIBIT D
MoPac South Projects

1	A														W	X	Y			
	Jacobs Hours	Jacobs Dollars	Barrett Hours	Barrett Dollars	Martin Hours	Martin Dollars	Group Solutions Hours	Group Solutions Dollars	Hicks Hours	Hicks Dollars	Khrese Hours	Khrese Dollars	SAM Hours	SAM Dollars				Willflower Hours	Willflower Dollars	Zara Hours
2	MOPAC SOUTH PROJECTS																			
3	Perform data collection including: acquisition of current air quality guidelines and associated "recommended text"; obtain current and projected traffic volumes; and if required, based on design year Average Daily Traffic, ENGINEER will also obtain traffic models for the Build and No-Build scenarios, estimated time of completion and design year for the MSD quantitative analysis.																			
177		100 \$	16,056.39																100 \$	16,056
178		44 \$	7,204.10																44 \$	7,204
179	Subtask G: Traffic Noise Analysis																			
180		4 \$	823.75																4 \$	824
181		132 \$	19,257.61																132 \$	19,258
182		40 \$	6,732.18																40 \$	6,732
183	Conduct an initial internal workshop to review the location, length, height, utilities, ROW, constructability, vegetation impacts, etc. associated with each barrier.																			
184		134 \$	5,861.83					130 \$	17,157										36 \$	5,862
185		4 \$	633.67					46 \$	5,733										50 \$	37,226
186		2 \$	221.80					8 \$	992										10 \$	1,214
187		2 \$	221.80					5 \$	477										7 \$	699
188		10 \$	1,694.55					24 \$	3,284										34 \$	4,979
189		12 \$	2,121.76					3 \$	411										15 \$	2,533
190	Subtask H: Water Quality Studies																			
191		36 \$	5,200.64	20 \$	3,600														84 \$	9,591.76
192	Subtask I: U.S. Army Corps of Engineers Permits/Waters of the U.S.																			
193		3 \$	625.48																3 \$	625
194		1 \$	213.60											18 \$	2,033.66				19 \$	2,247
195		35 \$	4,174.23																35 \$	4,174
196		5 \$	1,037.35																5 \$	1,037
197		30 \$	4,678.61																30 \$	4,679
198		13 \$	2,179.90																13 \$	2,180
199		73 \$	9,000.16																73 \$	9,000
200		17 \$	2,495.81																17 \$	2,496
201	Subtask J: U.S. Coast Guard (USCG) Section 9 Permit (33 USC 404)																			
202		2 \$	221.80																2 \$	222
203		21 \$	3,067.09																21 \$	3,067
204	Subtask K: Water Body Modifications and Wildlife Habitat																			
205		31 \$	4,366.15					40 \$	3,989										71 \$	8,355
206	Subtask L: Invasive Species Studies																			
207		13 \$	1,924.54												277 \$	37,475			290 \$	39,399
208	Subtask M: Beneficial Landscaping																			
209		13 \$	1,924.54												74 \$	10,259			87 \$	12,183
210	Subtask N: Floodplain Impacts																			
211		6 \$	855.47							26 \$	2,376.86								32 \$	3,232
212		7 \$	1,069.07							26 \$	2,376.86								33 \$	3,446
213	Subtask O: Wild and Scenic Rivers																			
214		0 \$	-																0 \$	-
215	Subtask P: Threatened or Endangered Species																			
216		6 \$	870.80	20 \$	3,600			96 \$	10,376								2020 \$	203,835	2142 \$	218,682
217		26 \$	3,521.22					84 \$	8,496								44 \$	5,359	154 \$	17,376
218		6 \$	870.80					52 \$	5,598										58 \$	6,469
219	Subtask Q: Archeological Studies																			
220		61 \$	9,857.87																61 \$	9,858
221		233 \$	33,881.66																233 \$	33,882
222	Subtask R: Historic Resource Studies																			
223		47 \$	5,578.04																47 \$	5,578
224		27 \$	3,133.48																27 \$	3,133
225		53 \$	6,309.62																53 \$	6,310
226	Subtask S: Initial Assessment of Hazardous Materials																			
227		20 \$	2,350.35																20 \$	2,350
228		41 \$	4,854.95																41 \$	4,855
229	Subtask T: Visual Impacts																			
230		176 \$	21,956.79																176 \$	21,957
231	Subtask U: Indirect Impacts																			
232		44 \$	7,982.09	4 \$	720			954 \$	92,859						28 \$	4,158	12 \$	1,338	1042 \$	107,057
233		44 \$	7,982.09					44 \$	4,182										88 \$	12,164
234	Subtask V: Cumulative Impacts																			
235		44 \$	7,982.09					372 \$	36,290						28 \$	4,158	8 \$	892	452 \$	49,322
236		44 \$	7,982.09					48 \$	4,905										92 \$	12,887
237	Subtask W: Construction Impacts																			
238		54 \$	7,053.74	8 \$	1,440														62 \$	8,494
239	Subtask X: Section 4(f) and 6(f) Evaluations																			
240		68 \$	10,099.10																68 \$	10,099
241		68 \$	9,338.80																68 \$	9,339
242		44 \$	5,916.93																44 \$	5,917
243	Task 4: Environmental Document Preparation																			
244	Subtask A: Draft Environmental Assessment (EA)																			
245		430 \$	64,101.08	16 \$	2,880			160 \$	16,788										606 \$	83,769
246		186 \$	5,458.45	4 \$	720			0 \$	-	4 \$	767.72								44 \$	6,946
247		380 \$	26,682.96	4 \$	720			32 \$	3,332										216 \$	30,735
248		116 \$	17,467.75	4 \$	720			6 \$	585										126 \$	18,772
249		80 \$	11,861.18	4 \$	720			6 \$	585										90 \$	13,166
250		54 \$	7,765.34	3 \$	540			6 \$	585										63 \$	8,890
251		30 \$	4,292.22	3 \$	540			6 \$	585										39 \$	5,417
252		26 \$	3,524.57	3 \$	540			6 \$	585										35 \$	4,649
253		26 \$	3,524.57	3 \$	540			6 \$	585										35 \$	4,649
254	Subtask B: Final EA																			

EXHIBIT D
MoPac South Projects

1	A																	V	W	X	Y		
	Hours	Jacobs Dollars	Barrett Hours	Barrett Dollars	Martin Hours	Martin Dollars	Group Solutions Hours	Group Solutions Dollars	Hicks Hours	Hicks Dollars	Krhese Hours	Krhese Dollars	SAM Hours	SAM Dollars	Willflower Hours	Willflower Dollars	Zara Hours					Zara Dollars	Total Hours
319	Provide photo index and scanned digital imagery of each frame of photography on CD or DVD.	0	\$ -										6	\$ 795					6	\$ 795			
320	Subtask B: DGN and DTM Files																						
321	Prepare DGN files covering the specific work location, meeting standards and specifications as required.	56	\$ 5,777										377	\$ 85,852					433	\$ 41,629			
322	Prepare DTM files covering the specific work location, meeting standards and specifications as required.	56	\$ 5,777										543	\$ 51,124					599	\$ 56,301			
323	Provide DGN and DTM files on a medium and in a format acceptable to the Mobility Authority, delivered on CD or DVD.	3	\$ 386										27	\$ 2,568					30	\$ 2,954			
324	Provide Orthophotography (created using the DTM) delivered on CD or DVD in tiff format (3 banded) with world files.	0	\$ -										47	\$ 4,915					47	\$ 4,915			
325	Provide the "XDOT" Photogrammetry Mapping Legend supplemented by the Surveyor.	0	\$ -										9	\$ 1,080					9	\$ 1,080			
326	Task 3: Aerial Photography Control Surveys																						
327	Establish panel points (assuming 20and secondary control (assuming 20) in accordance with the approved panel layout as directed by the Mobility Authority and maintain until the photographs from the flight are approved.	48	\$ 7,268																48	\$ 7,268			
328	Determine the coordinates of the panels and control points.	62	\$ 9,090																61.5	\$ 9,090			
329	Determine the elevations of the panels.	0	\$ -																0	\$ -			
330	Place panel material at the established points and maintain until the photographs from the flight are approved.	36	\$ 5,845																36	\$ 5,845			
331	Prepare, to scale, a Survey Control Index Sheet, for the twenty (20) secondary control points and the eleven (11) primary control points.	9	\$ 874																8.5	\$ 874			
332	Prepare a Horizontal and Vertical Control Sheet and an individual control data sheet for each of the eleven (11) primary control points.	18	\$ 1,791																18	\$ 1,791			
333	Provide a final panel layout showing the location of the panel points and labeled with their respective alpha-numeric designations.	12	\$ 1,281																12	\$ 1,281			
334	Provide an 11 inch by 17 inch index map showing an overall view of the project and the relationship of primary monumentation and control used in the preparation of the project, signed and sealed by a Registered Professional Land Surveyor, and as directed by the Mobility Authority.	7	\$ 704																6.5	\$ 704			
335	Provide an 11 inch by 17 inch horizontal and vertical control sheet showing the primary survey control monumentation used in the preparation of the project, signed and sealed by a Registered Professional Land Surveyor, and as directed by the Mobility Authority.	3	\$ 297																2.5	\$ 297			
336	Provide an 8 1/2 inch by 11 inch data sheet for each panel point which shall include, but need not be limited to, a location sketch, a physical description of the point, surface coordinates, the elevation, and datums used, signed and sealed by a Registered Professional Land Surveyor.	41	\$ 4,200																40.5	\$ 4,200			
337	Provide a CD containing the graphics files and scanned images of the control data sheets.	2	\$ 120																1.5	\$ 120			
338	Provide a typed statement describing the datum used along with copies of all relevant NGS, USCGS and State data sheets.	5	\$ 584																5	\$ 584			
339	Provide a typed tabulation of all panel points with their respective alpha-numeric designations, surface coordinates and elevations.	8	\$ 804																7.5	\$ 804			
340	Ground survey of any obscured areas where aerial mapping is not able to be obtained	84	\$ 10,363																84	\$ 10,363			
341	QC check of aerial mapping by ground survey cross-sections of hard surfaces every 1000 feet (50 total)	117	\$ 16,306																116.5	\$ 16,306			
342	Traffic Control for work within Right-of-Way	52	\$ 7,690																52	\$ 7,690			
343																							
344	Task 4: Establish Primary Control Points																						
345	Establish a minimum of eleven (11) primary project control points within the existing ROW	45	\$ 6,892																44.5	\$ 6,892			
346	Prepare a survey control data sheet for each of the eleven (11) primary control points	23	\$ 2,307																22.5	\$ 2,307			
347	Deliver four (4) CDs containing survey control data	1	\$ 50																0.5	\$ 50			
348																							
349	Task 5: Level Control																						
350	Verify and adjust the control vertically with digital differential leveling	127	\$ 17,319																127	\$ 17,319			
351	Tie primary and secondary control points together to establish adjusted vertical control for the project	99	\$ 12,773																99	\$ 12,773			
352																							
353	Task 6: Locate Existing Right-of-Way																						
354	Produce electronic files of reconstructed existing approximate right-of-way lines of intersecting public roadways	240	\$ 31,591																240	\$ 31,591			
355	Data collection for location of existing right-of-way	143	\$ 19,135																143	\$ 19,135			
356	Tie all collected survey data to the established project survey control	28	\$ 2,942																28	\$ 2,942			
357	Reconstruct any drainage easements, in accordance with the State strip map	14	\$ 1,259																14	\$ 1,259			
358	Collect and map available utility record information for existing major utility systems within the study area	0	\$ -										94	\$ 10,352					94	\$ 10,352			
359	Analyze the collected record information for duplications/missing information and prepare a map showing this information.	0	\$ -										56	\$ 5,807					55.5	\$ 5,807			
360	Identify all utility easements that have an impact on the project limits	0	\$ -										16	\$ 2,207					15.5	\$ 2,207			
361	Task 7: Right of Entry to Survey																						
362	Develop a list of current property owners adjoining the preferred alternative alignment and attempt to obtain written Right of Entry (ROE) Agreements for the affected properties (assume 30)	24	\$ 2,217																23.5	\$ 2,217			
363																							
364	Task 8: Supplemental Survey at Cross Roads and Railroad																						
365	Provide cross section survey (at approximate 100' intervals) within the limits of the ROW for intersecting crossroads up to 500' right and left of the preferred alternative alignment	112	\$ 14,609																112	\$ 14,609			
366	Survey and locate any drainage structures within these intersecting areas	78	\$ 10,332																77.5	\$ 10,332			
367	Survey the top of rail (at approximate 500' intervals) for the UPRR line up to 2000' north and south of the preferred alternative alignment	23	\$ 3,240																22.5	\$ 3,240			
368																							
369	Task 9: Water Crossing Sections																						
370	Survey cross sections of waterbody crossings (at approximate 500' intervals) up to 2000' right and left from the proposed ROW of the preferred alternative alignment (assuming 10 waterbodies)	215	\$ 30,370																215	\$ 30,370			
371	D. Drainage																						
372	Task 1: General																						
373	Compute floodplain impacts	16	\$ 2,724																16	\$ 2,724			
374	Determine effects on streams from addition of impervious cover, encroachments, changes in roadway horizontal and vertical alignments, and changes in topography. Detail ditch and/or storm sewer analysis is not included.	24	\$ 4,432																24	\$ 4,432			
375																							
376	Task 2: Hydrology and Hydraulics – Non-FEMA Regulated Crossings																						
377	Model the hydrology of all crossing structures along the preferred alternative	8	\$ 1,362										172	\$ 18,801.16					180	\$ 20,163			
378	Model the hydraulics of all crossing structures using HEC-RAS for the full range of storm frequencies	8	\$ 1,362										144	\$ 16,103.64					152	\$ 17,465			
379	Identify and evaluate all cross-drain structures (culverts and bridges) for preferred alternative only	16	\$ 2,724										144	\$ 16,103.64					160	\$ 18,827			
380	Analyze ditches and channels adequately enough to establish proposed project ROW and necessary easements for the preferred alternative only	4	\$ 681										28	\$ 3,338.76					32	\$ 4,020			
381	Provide a preliminary cost estimate for all drainage structures for the preferred alternative only	4	\$ 681										152	\$ 15,721.28					156	\$ 16,402			
382	Provide input and output files in electronic format of all hydrologic and hydraulic modeling software used in the project	2	\$ 340										8	\$ 85.36					10	\$ 726			
383																							
384	Task 3: Hydrology and Hydraulics – FEMA Regulated Crossings																						
385	Gather FEMA regulated floodplain information to be used in comparing impacts on up to three (3) alternatives	4	\$ 681										24	\$ 2,333.20					28	\$ 3,014			
386	Coordinate with the floodplain administrator (FPA) of Travis County and other appropriate jurisdictions to obtain hydrologic and hydraulic information on the FEMA regulated streams that cross this project	24	\$ 3,756										28	\$ 4,380.48					52	\$ 8,137			
387	For Zone AE stream crossings, review the effective hydrological model for recent changes in development and update to a current effective model	16	\$ 2,504										24	\$ 2,953.40					40	\$ 5,458			
388	For Zone A stream crossings, create a current effective hydrological model (by using a unit hydrograph methodology such as the NRCS Curve Number Method.)	16	\$ 2,504										44	\$ 5,139.08					60	\$ 7,643			

EXHIBIT D
MoPac South Projects

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y		
	Jacobs Hours	Jacobs Dollars	Barrett Hours	Barrett Dollars	Martin Hours	Martin Dollars	Group Solutions Hours	Group Solutions Dollars	Hicks Hours	Hicks Dollars	Khrese Hours	Khrese Dollars	SAM Hours	SAM Dollars	Wildflower Hours	Wildflower Dollars	Zara Hours	Zara Dollars	Total Hours	Total Dollars		Total Labor by Task	EA Project	CE Project		
1																										
2	MO PAC SOUTH PROJECTS																									
3																										
474	Task 4: Public Involvement																									
475	Subtask A: Stakeholder Engagement																									
476		7 \$	1,457					30 \$	3,089.00											37 \$	4,546					
477		56 \$	9,902	2 \$	360	4 \$	740.00	16 \$	2,052.00											78 \$	13,054					
478		30 \$	4,317	2 \$	360	4 \$	740.00	15 \$	1,379.00									2 \$	250	53 \$	7,046					
479	Subtask B: Public Involvement																									
480		10 \$	1,191			4 \$	740.00	66 \$	7,785.00											80 \$	9,716					
481		4 \$	649					24 \$	3,152.00											28 \$	3,801					
482		96 \$	16,015					32 \$	3,832.00											128 \$	19,847					
483		128 \$	19,201					16 \$	2,192.00											144 \$	21,393					
484		48 \$	8,408	8 \$	1,440	4 \$	740.00	26 \$	3,590.00	6 \$	940	8 \$	999.52					8 \$	1,107	108 \$	17,225					
485		80 \$	13,496	8 \$	1,440	8 \$	1,480.00	39 \$	4,614.00	16 \$	2,700	24 \$	3,534.48			12 \$	1,638	16 \$	1,999	203 \$	30,901					
486		72 \$	12,478					40 \$	5,810.00							16 \$	2,772	16 \$	1,999	144 \$	23,059					
487		4 \$	444					1 \$	137.00											5 \$	581					
488		4 \$	444					1 \$	137.00											5 \$	581					
489	Subtask C: Elected Official/Agency Involvement and Coordination (Not in scope)																									
490	Subtask D: Media Outreach and Coordination (Not in scope)																									
491	C. Field Surveying and Photogrammetry																									
492	Task 1: Field Survey																									
493		53 \$	5,312																	53 \$	5,312					
494	Task 2: Aerial Mapping																									
495	Subtask A: Airborne Data Collection																									
497														15 \$	1,625					15 \$	1,625					
498														7 \$	715					7 \$	715					
499														1 \$	145					1 \$	145					
500														2 \$	265					2 \$	265					
501	Subtask B: DGN and DTM Files																									
502		19 \$	1,978											95 \$	9,092					114 \$	11,070					
503		19 \$	1,978											137 \$	12,956					156 \$	14,934					
504		1 \$	129											9 \$	856					10 \$	985					
505														13 \$	1,385					13 \$	1,385					
506														9 \$	1,080					9 \$	1,080					
507	Task 3: Aerial Photogrammetry Control Surveys																									
508		18 \$	2,747																	18 \$	2,747					
509		23 \$	3,313																	22.5 \$	3,313					
510		0 \$																		0 \$						
511		14 \$	2,273																	14 \$	2,273					
512		4 \$	377																	3.5 \$	377					
513		6 \$	597																	6 \$	597					
514		4 \$	427																	4 \$	427					
515		3 \$	287																	2.5 \$	287					
516		2 \$	197																	1.5 \$	197					
517		14 \$	1,400																	13.5 \$	1,400					
518		1 \$	40																	0.5 \$	40					
519		2 \$	247																	2 \$	247					
520		4 \$	387																	3.5 \$	387					
521		28 \$	3,454																	28 \$	3,454					
522		44 \$	6,138																	43.5 \$	6,138					
523		18 \$	2,630																	18 \$	2,630					
524	Task 4: Establish Primary Control Points																									
526		18 \$	2,689																	17.5 \$	2,689					
527		9 \$	855																	8.5 \$	855					
528		1 \$	50																	0.5 \$	50					
529	Task 5: Level Control																									
531		47 \$	6,514																	47 \$	6,514					
532		35 \$	4,566																	35 \$	4,566					
533	Task 6: Locate Existing Right-of-Way																									
535		90 \$	11,819																	90 \$	11,819					
536		53 \$	7,186																	53 \$	7,186					
537		10 \$	1,034																	10 \$	1,034					
538		6 \$	540																	6 \$	540					
539														24 \$	2,660					24 \$	2,660					
540														15 \$	1,549					14.5 \$	1,549					
541														5 \$	649					4.5 \$	649					

EXHIBIT D
MoPac South Projects

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1		Jacobs	Jacobs	Barrett	Barrett	Martin	Martin	Group Solutions	Group Solutions	Hicks	Hicks	Kfirse	Kfirse	SAM	SAM	Wildflower	Wildflower	Zara	Zara	Total	Total				
2		Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Total Labor by Task	EA Project	CE Project	
3	MOPAC SOUTH PROJECTS																								
542	Task 7: Right of Entry to Survey																								
543	Develop a list of current property owners adjoining the preferred alternative alignment and attempt to obtain written Right of Entry (ROE) Agreements for the affected properties (assume 30)	9	\$ 786																		8.5	\$ 786			
544																									
545	Task 8: Supplemental Survey at Cross Roads and Railroad																								
546	Provide cross section survey (at approximate 100' intervals) within the limits of the ROW for intersecting crossroads up to 500' right and left of the preferred alternative alignment.	40	\$ 5,303																		40	\$ 5,303			
547	Survey and locate any drainage structures within these intersecting areas	28	\$ 3,713																		27.5	\$ 3,713			
548	Survey the top of rail (at approximate 500' intervals) for the UPRR line up to 2000' north and south of the preferred alternative alignment	9	\$ 1,199																		8.5	\$ 1,199			
549																									
550	Task 9: Water Crossing Sections																								
551	Survey cross sections of waterbody crossings (at approximate 500' intervals) up to 2000' right and left from the proposed ROW of the preferred alternative alignment (assuming 10 waterbodies)	79	\$ 11,297																		79	\$ 11,297			
552	Task 1: General																						\$ 118,329		
553	Task 1: General																								
554	Compute of floodplain impacts	16	\$ 2,724																		16	\$ 2,724			
555	Determine the effects on streams from addition of impervious cover, encroachments, changes in roadway horizontal and vertical alignments, and changes in topography	24	\$ 4,432																		24	\$ 4,432			
556																									
557	Task 2: Hydrology and Hydraulics – Non-FEMA Regulated Crossings																								
558	Model the hydrology of all crossing structures along the preferred alternative.	8	\$ 1,362								48	\$ 5,524.44									56	\$ 6,886			
559	Model the hydraulics of all crossing structures using HEC-RAS for the full range of storm frequencies should be evaluated in the analysis	8	\$ 1,362								48	\$ 5,524.44									56	\$ 6,886			
560	Not including FEMA regulated stream crossings, evaluate all cross-drain structures (culverts and bridges) for the preferred alternative only	16	\$ 2,724								44	\$ 5,139.08									60	\$ 7,863			
561	Analyze ditches and channels adequately enough to establish proposed project ROW and necessary easements for the preferred alternative only	4	\$ 681								14	\$ 1,648.30									18	\$ 2,329			
562	Provide a preliminary cost estimate for all drainage structures for the preferred alternative only	4	\$ 681								28	\$ 3,296.60									32	\$ 3,977			
563	Deliver input and output files in electronic format of all hydrologic and hydraulic modeling software used in the project.	2	\$ 340								2	\$ 96.34									4	\$ 437			
564		0	\$ -																						
565	Task 3: Hydrology and Hydraulics – FEMA Regulated Crossings (all FEMA regulated streams will be modeled for the preferred alternative only)	0	\$ -																						
566	Coordinate with the Mobility Authority and TxDOT regarding ultimate basin conditions	4	\$ 681								8	\$ 1,345.76									12	\$ 2,027			
567	Data collection for FEMA regulated floodplain information to be used in comparing impacts on up to three (3) alternatives. No hydrologic or hydraulic modeling will be performed prior to choosing the preferred alternative.	24	\$ 3,756																		24	\$ 3,756			
568	Coordinate with the floodplain administrator (FPA) of Travis County and other appropriate jurisdictions to obtain hydrologic and hydraulic information on the FEMA regulated streams that cross this project.	16	\$ 2,504																		16	\$ 2,504			
569	For Zone AE stream crossings, review the effective hydrological model for recent changes in development and update to a current effective model if necessary.	16	\$ 2,504								36	\$ 3,983.00									52	\$ 6,487			
570	For Zone A stream crossings, create a current effective hydrological model (by using a unit hydrograph methodology such as the NRCS Curve Number Method.)	16	\$ 2,504																		16	\$ 2,504			
571	For Zone A and Zone AE stream crossings, create a proposed hydrological model by updating the effective or current hydrologic model to account for the proposed project changes.	16	\$ 2,504								40	\$ 4,368.36									56	\$ 6,873			
572	For Zone AE stream crossings, review the effective hydraulic model for recent changes in development and update to a current effective model if necessary.	16	\$ 2,504								14	\$ 1,648.30									30	\$ 4,153			
573	For Zone A stream crossings, create a current effective hydraulic model using existing project parameters.	16	\$ 2,504																		16	\$ 2,504			
574	For Zone A and Zone AE stream crossings, create a proposed hydraulic model by updating the effective or current effective hydraulic model to account for the proposed project changes.	16	\$ 2,504								14	\$ 1,648.30									30	\$ 4,153			
575	Prepare a draft Hydraulics report	28	\$ 4,611								64	\$ 6,319.20									92	\$ 10,930			
576	Prepare final Hydraulics report	24	\$ 3,756								30	\$ 2,870.58									54	\$ 6,627			
577																									
578	Task 4: Water Quality																								
579	Develop Total Suspended Solids (TSS) load calculations and the type and locations for Best Management Practices (BMP) required under the Edwards rules.	12	\$ 2,043	8	\$ 1,440						40	\$ 4,561.04									60	\$ 8,044			
580	Coordinate with the Mobility Authority for WQ issues	12	\$ 2,216	8	\$ 1,440						8	\$ 1,535.44									28	\$ 5,192			
581	Identify and document BMP's in the draft and final hydraulics reports and provide cost estimates.	16	\$ 2,897	8	\$ 1,440						10	\$ 1,305.10				30	\$ 4,158				64	\$ 9,800			
582	Determine drainage easement requirements	8	\$ 1,362								10	\$ 1,070.26									18	\$ 2,432			
583	Provide summaries and reports related to WQ.	12	\$ 2,216	8	\$ 1,440						12	\$ 1,538.08									32	\$ 4,809			
584																									
585	Labor Total	25,311	\$ 3,591,757	759	\$ 136,620	314	\$ 58,090	2398	\$ 308,486	3154	\$ 329,983	3043	\$ 354,109	1606	\$ 159,172	1447	\$ 207,270	3,400	\$ 358,231	41,432	\$ 5,503,718	\$ 5,503,718	\$ 4,429,016	\$ 1,074,702	
586																									
587	EA Project Other Direct Expenses Total		\$ 278,476		\$ -		\$ 1,396		\$ 74,008		\$ 2,955		\$ -		\$ 47,651		\$ 613		\$ 11,874		\$ 416,973	\$ 416,973	\$ 416,973		
588	CE Project Other Direct Expenses Total		\$ 49,143		\$ -				\$ 18,237		\$ 522				\$ 8,409		\$ 108		\$ 2,095		\$ 78,514	\$ 78,514	\$ 78,514	\$ 78,514	
589																									
590	TOTAL		\$ 3,919,375		\$ 136,620		\$ 59,486		\$ 400,731		\$ 333,460		\$ 354,109		\$ 215,232		\$ 207,991		\$ 372,201		\$ 5,999,205	\$ 5,999,205	\$ 4,845,989	\$ 1,153,216	

EXHIBIT H-1

**Central Texas Regional Mobility Authority
Subprovider Monitoring System
Commitment Worksheet**

Contract #: _____ Assigned Goal: 11.7% Federally Funded X State Funded _____

Prime Provider: Jacobs Engineering Group Inc. _____ Total Contract Amount: \$5,999,205.00

Prime Provider Info: DBE ___ HUB ___ Both ___

Vendor ID #: 19540816360 DBE/HUB Expiration Date: _____

(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 *
Group Solutions RJW	Public Involvement	17429025806	D	1/19/2014	6.7%
Hicks & Company Environmental and	Environmental	17425321209	D	2/17/14	5.6%
K Friese & Associates, Inc.	Environmental	14813046878	D	5/22/2015	5.9%
Zara Environmental LLC	Environmental	10206974007	D	03/21/2014	6.2%
Subprovider(s) Contract or % of Work* Totals					24.3%

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

Total DBE or HUB Commitment Dollars \$1,460,501

Total DBE or HUB Commitment Percentages of Contract 24.3%
(Commitment Dollars and Percentages are for Subproviders only)

EXHIBIT H-2

**Central Texas Regional Mobility Authority
Subprovider Monitoring System Commitment Agreement**

This commitment agreement is subject to the award and receipt of a signed contract from the Central Texas Regional Mobility Authority. **NOTE: Exhibit H-2 is required to be attached to each contract that does not include work authorizations. Exhibit H-2 is required to be attached with each work authorization. Exhibit H-2 is also required to be attached to each supplemental work authorization. If DBE/HUB Subproviders are used, the form must be completed and signed. If no DBE/HUB Subproviders are used, indicate with "N/A" on this line: _____ and attach with the work authorization or supplemental work authorization.**

Contract #: _____ Assigned Goal: _____ % Prime Provider: _____

Work Authorization (WA)#: _____ WA Amount: _____ Date: _____

Supplemental Work Authorization (SWA) #: _____ to WA #: _____ SWA Amount: _____

Revised WA Amount: _____

Description of Work <i>(List by category of work or task description. Attach additional pages, if necessary.)</i>	Dollar Amount <i>(For each category of work or task description shown.)</i>
Total Commitment Amount (Including all additional pages.)	\$ _____

IMPORTANT: The signatures of the prime and the DBE/HUB and Second Tier Subprovider, if any (both DBE and Non-DBE) and the total commitment amount must always be on the same page.

Provider Name: Address: Phone # & Fax #: Email:	Name: _____ <i>(Please Print)</i> Title: _____ <div style="display: flex; justify-content: space-between;"> _____ _____ </div> <div style="display: flex; justify-content: space-between;"> Signature Date </div>
DBE/HUB Sub Provider Subprovider Name: VID Number: Address: Phone # & Fax #: Email:	Name: _____ <i>(Please Print)</i> Title: _____ <div style="display: flex; justify-content: space-between;"> _____ _____ </div> <div style="display: flex; justify-content: space-between;"> Signature Date </div>
Second Tier Sub Provider Subprovider Name: VID Number: Address: Phone # & Fax #: Email:	Name: _____ <i>(Please Print)</i> Title: _____ <div style="display: flex; justify-content: space-between;"> _____ _____ </div> <div style="display: flex; justify-content: space-between;"> Signature Date </div>
VID Number is the Vendor Identification Number issued by the Comptroller. If a firm does not have a VID Number, please enter the owner's Social Security or their Federal Employee Identification Number (if incorporated).	