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

RESOLUTION NO. 10-40

HNTB Work Authorization No. 5 for General Project Development

WHEREAS, the Central Texas Regional Mobility Authority ("CTRMA") was created pursuant to the request of Travis and Williamson Counties and in accordance with provisions of the Transportation Code and the petition and approval process established in 43 Tex. Admin. Code § 26.1, *et seq*. (the "RMA Rules"); and

WHEREAS, the Board of Directors of the CTRMA has been constituted in accordance with the Transportation Code and the RMA Rules; and

WHEREAS, the CTRMA utilizes HNTB as a General Engineering Consultant ("GEC") pursuant to an Agreement for General Consulting Engineering Services dated December 23, 2010 (the "GEC Agreement"); and

WHEREAS, the GEC provides various services to the CTRMA, including activities required to assist the CTRMA in the study and initial development of future projects and any additional activities as requested of the GEC (the "GEC Project Development Services"); and

WHEREAS, Work Authorization No. 5 to the GEC Agreement, including a Scope of Services ("Work Authorization No. 5") describing the GEC Project Development Services to be provided to the CTRMA has been developed and is in substantially the form attached hereto as Attachment "A", and such Work Authorization No. 5 establishes an amount to be paid as compensation for the GEC Project Development Services;

WHEREAS, it is necessary that the Board of Directors approve Work Authorization No. 5 and its execution by the Executive Director; and

WHEREAS, the GEC has represented to the Board of Directors that the work reflected in Work Authorization No. 5 and the cost thereof is necessary and appropriate.

NOW THEREFORE, BE IT RESOLVED, that the Board of Directors of the CTRMA hereby approves Work Authorization No. 5 and the related Scope of Services as set forth in Attachment "A"; and

BE IT FURTHER RESOLVED, that Work Authorization No. 5 may be finalized and executed by the Executive Director on behalf of the CTRMA in the form or substantially the same form as Attachment "A".

Adopted by the Board of Directors of the Central Texas Regional Mobility Authority on the 28th day of April 2010.

Submitted and reviewed by:

Andrew Martin
General Counsel for the Central
Texas Regional Mobility Authority

Approved:

Ray A. Wilkerson
Chairman, Board of Directors
Resolution Number 10-40
Date Passed 04/28/10

ATTACHMENT "A"
TO
RESOLUTION NO. 10-40
HNTB Work Authorization No. 5

APPENDIX D

WORK AUTHORIZATION

WORK AUTHORIZATION NO. 5.0

This Work Authorization is made as of this _____ day of _____, _____, under the terms and conditions established in the AGREEMENT FOR GENERAL CONSULTING ENGINEERING SERVICES, dated as of December 23rd, 2009 (the "Agreement"), between the Central Texas Regional Mobility Authority ("Authority") and **HNTB Corporation** ("GEC"). This Work Authorization is made for the following purpose, consistent with the services defined in the Agreement:

Mopac Improvement Project Development

Section A. - Scope of Services

A.1. GEC shall perform the following Services:

Please reference Attachment A – Scope of Work

A.2. The following Services are not included in this Work Authorization, but shall be provided as Additional Services if authorized or confirmed in writing by the Authority.

Please reference Attachment A – Scope of Work

A.3. In conjunction with the performance of the foregoing Services, GEC shall provide the following submittals/deliverables (Documents) to the Authority:

Please reference Attachment A – Scope of Work

Section B. - Schedule

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

Services defined herein are expected to be substantially complete within forty-eight (48) months from the date this Work Authorization 5.0 becomes effective. This Work Authorization 5.0 will not expire until all tasks associated with the Scope of Services are complete.

Section C. - Compensation

C.1. In return for the performance of the foregoing obligations, the Authority shall pay to the GEC the amount not to exceed **$3,839,597.00**, based on a Cost Plus fee listed in Attachment B – Fee Estimate. Compensation shall be in accordance with the Agreement.

The Authority and the GEC agree that the budget amounts contained in Attachment B-Fee Estimate for the various companies and firms composing the GEC are estimates and that these individual figures may be redistributed and/or adjusted as necessary over the duration

of this Work Authorization. The GEC may alter the compensation distribution between tasks or work assignments to be consistent with the Services actually rendered within the total Work Authorization amount. The GEC shall not exceed the maximum amount payable without prior written permission by the Authority.

C.2. Compensation for Additional Services (if any) shall be paid by the Authority to the GEC according to the terms of a future Work Authorization.

Section D. - Authority's Responsibilities

The Authority shall perform and/or provide the following in a timely manner so as not to delay the Services of the GEC. Unless otherwise provided in this Work Authorization, the Authority shall bear all costs incident to compliance with the following:

N/A

Section E. - Other Provisions

The parties agree to the following provisions with respect to this specific Work Authorization:

N/A

Except to the extent expressly modified herein, all terms and conditions of the Agreement shall continue in full force and effect.

Authority:	**GEC:**
CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY	**HNTB Corporation**
By: _____	By: _____
Name: _____	Name: _____
Title: _____	Title: _____
Date: _____	Date: _____

CENTRAL TEXAS RMA

ATTACHMENT A – SCOPE OF SERVICES

WORK AUTHORIZATION NO. 5

SERVICES TO BE PROVIDED BY the GENERAL ENGINEERING CONSULTANT (GEC)

General

The services to be performed by the GEC will include, but not be limited to, professional services and deliverables for various tasks related to the study and development of the Mopac Improvement Project. The limits of the services are from FM 734 (Parmer Lane) through the Cesar Chavez Street interchange, with some incidental work south of the Cesar Chavez Street interchange. Because GEC has no control over the cost of labor, materials, or equipment furnished by others, or over the resources provided by others to meet project schedules, GEC's opinion of probable costs shall be made on the basis of experience and qualifications as a practitioner of its profession. GEC does not guarantee that proposals, bids, or actual project costs will not vary from GEC's cost estimates will not vary from GEC's projected schedules.

PROJECT MANAGEMENT & ADMINSTRATION

The GEC will perform project management, administrative and coordination duties, including contract administration, project management, reporting, meeting minutes of required meetings and telephone conversations, and other related administrative tasks (e.g., direct costs) associated with the Project, including:

1.1. Coordinate, Procure, and Administer Work Authorizations

Prepare contracts as required between the GEC and the Authority and GEC and subconsultants. The GEC will also assist in the preparation of and/or review of contracts between the Authority and subconsultants. Monitor and supervise GEC subconsultant activities, review all work products prepared by subconsultant, review and approve subconsultant progress reports and invoices.

1.2. Progress Reports and Invoices

Prepare monthly invoices and progress reports for the work tasks, together with evidence of services accomplished during the time period since the previous report. Prepare a detailed schedule (provide in the Authority approved format) of anticipated monthly invoice billing linking to the project work authorization tasks. A monthly progress report will be submitted and will include: activities completed, initiated or ongoing, during the reporting period; challenges encountered and actions to remedy them; overall status, including a tabulation of percentage complete by task; updated project schedule; and DBE utilization status.

1.3. Record Keeping and File Management

Maintain records and files related to the Project throughout the duration of the Services. Uploading of project files to a shared website will be coordinated with the Authority. Maintain and update via approved software the deliverables tracking log provided by the Authority.

1.4. Correspondence

Prepare written materials, letters, survey forms, etc. used to solicit information or collect data for the project and submit them to the Authority for review and approval prior to its use or distribution. Copies of relevant outgoing correspondence and incoming correspondence will be provided to the Authority on a continuing basis.

1.5. Work Authorization Schedule

Prepare a detailed, graphic schedule linking work authorization tasks, subtasks, critical dates, milestones, deliverables, and the Authority/Texas Department of Transportation (TxDOT)/ Federal Highway Administration (FHWA) scheduled review requirements. The project schedule will be in a format that depicts the order and inter-dependence of the various tasks, subtasks, milestones and deliverables for each of the tasks identified therein. Progress will be reviewed periodically, and should these reviews indicate a substantial change in progress, a schedule recovery strategy will be developed and implemented and the schedule will be revised accordingly.

1.6. Dashboard Update

Prepare and submit updated project information, including schedule and budget, for the Authority's dashboard on a monthly basis; provide QC review of revised information on website.

2.0 PROJECT DEVELOPMENT

This scope of services includes professional services and deliverables in support of the Authority's development of the Mopac Improvement Project from south of Cesar Chavez to north of FM 734 – Parmer Lane.

2.1. Project Development Support

The GEC will provide support to the Authority as required during the Project Development process. Specific efforts will include

2.1.1. Loan and/or Grant Applications: Assist the Authority in the development of loan and/or grant applications for the project as required. This will include preparation of various elements of the loan and/or grant form & associated documentation for the Authority's review and approval; it will also include participation in the coordination efforts with State and/or Federal agencies as requested by the Authority.

2.1.2. Engineering and Technical Support: Provide various engineering and technical tasks as requested by the Authority including but not limited to: general

engineering assistance, general technology assistance, general environmental coordination, reports, research, presentations, preparation of 3D video animation and meetings.

2.1.3. Traffic Modeling: Conduct a peer review of the CORSIM and/or VISSIM Traffic Models and provide summary of suggested revisions. Assist with coordination between consultants.

2.1.4. Managed Lane Projects Workshop: As requested by the Authority, coordinate the presentation of industry Managed Lane projects to gain insight to their funding, design, operational issues and lessons learned. It is anticipated that industry expertise will participate in the workshop. The GEC will coordinate, as requested, the attendance of additional agencies, such as CAMPO, TTI, and TxDOT.

2.1.5. TxDOT Coordination: Provide appropriate staff as part of coordination efforts between the Authority and TxDOT. GEC will provide coordination efforts on the Authority's behalf at the direction of the Authority.

2.1.6. Union Pacific Railroad (UPRR) Coordination: Provide appropriate staff as part of coordination efforts between the Authority and UPRR. GEC will provide coordination efforts on the Authority's behalf at the direction of the Authority.

2.1.7. Traffic and Revenue (T&R) Consultant Coordination: Provide coordination and support to the Authority's T&R Consultant, as directed by the Authority.

2.1.8. Market Valuation: Assist in the development of the market valuation by providing industry knowledge and research for market valuation options.

2.1.9. Project Development Agreement (PDA): Assist in the development of the PDA, generation of PDA exhibits, review of PDA drafts, and TxDOT coordination support, as directed by the Authority.

2.1.10. CAMPO Coordination: Provide appropriate staff as part of coordination efforts between the Authority and CAMPO. GEC will provide coordination efforts on the Authority's behalf at the direction of the Authority.

2.1.11. Provide DBE Outreach and Public Involvement support as requested by the Authority.

2.2. Financial Planning Support

2.2.1. Operation, Maintenance, and Renewal & Replacement Estimate Updates

2.2.1.1. Develop and/or update GEC's opinion of probable operations cost estimates using either a Sketch Level approach (i.e., an assumed per transaction cost based on average operations costs of similar toll systems) or a Level 1 approach (i.e., estimate actual quantities for the various elements of the toll operations, enforcement and incident management and applying anticipated unit prices to same to develop an opening year cost estimate which can be escalated over time).

2.2.1.2. Develop and/or update GEC's opinion of probable annual/routine maintenance cost estimates using either a Sketch Level approach (i.e., an estimated per centerline mile cost based on the facility type which

considers the number of lanes, pavement material, and location) or a Level 1 approach (i.e., estimate actual quantities for the various elements of the maintenance efforts and applying anticipated unit prices to same to develop an opening year cost that can be escalated over time).

2.2.1.3. Develop and/or update GEC's opinion of probable renewal & replacement budget cost estimates (non-routine maintenance estimates) using either a Sketch Level approach (i.e., an estimated per mile cost based on renewal & replacement budgets utilized on similar facilities) or a Level 1 approach (i.e., includes the identification of a long-term, periodic maintenance/replacement schedule, estimation of quantities for the associated elements, and inflated prices of same to assess the overall cost requirements of the system in the target years).

2.2.2. Project Cost Estimate Updates

As directed by the Authority, GEC will provide opinion of probable project cost estimate updates for the project. GEC will prepare an estimate of probable construction costs which will include quantity/cost estimates for major components of work such as; roadway paving, roadway earthwork, roadway drainage, bridge structures, retaining walls, other structures, signing and marking, lighting, and signalization. The estimate of probable construction costs will be used to estimate total project costs that will also include program management and oversight, preliminary engineering, final engineering, right-of-way (ROW) acquisition, environmental compliance/mitigation, construction, toll collection systems utility relocation and construction engineering and inspection (CEI), and financing costs.

Provide updates to preliminary costs estimate, schedule, financial feasibility analysis necessitated by the on-going project scoping/sizing process. GEC will develop and certify the Engineers Report for the Official Statement (OS) and, as requested, review and comment on the OS.

2.2.3. Toll Feasibility Analysis Updates

GEC will assist the Authority in updating toll feasibility analyses which includes the incorporation of traffic and revenue forecast updates (by others); operations, maintenance, and renewal & replacement estimates; and total project cost estimates to determine the financial feasibility of the project.

2.2.4. Financial Advisor Support/Financial Plan Development

GEC will provide financial advisor support necessary for the Authority to conduct financial programming of their system. This will include the development of cash flow analyses which contemplate implementation costs and schedules. GEC will also assist in the identification of priorities to support the determination of alternate project delivery scenarios. The tasks will include:

- Develop GEC's opinion of probable project costs based upon alternative project delivery approaches. Assess third party related costs for utility adjustments/relocations
- Assess funding sources such as state funds, federal formula funds, federal discretionary funds, and toll revenues.

- Assist with the assessment of financing techniques such as State Infrastructure Banks, the Transportation Infrastructure Finance and Innovation Act (TIFIA), Advanced Construction, Toll Revenue Bonds, TxDOT Toll Equity Grants, and other state bonds.
- Develop and provide summary of revenue shortfall mitigation strategies to minimize impacts on scheduled project delivery and prepare a summary of cost increases or reductions that could affect the cost of the project.
- Develop a Funding Contingency Plan should funding for the project as a whole not be provided and determine the impact of various design approaches on estimated project costs and project design life. GEC will:
    - Develop a list of "reasonable" design options for consideration such as project length reductions, ramp reductions, and pavement structure modifications
    - Meet with the Authority to get concurrence regarding design options prior to additional analysis.
    - Analyze and document the financial implications of the various design options considered and include such things as project cost, schedule impact, local economic impact, length of useful life, and impact on financing options.

2.3. Design Services - UPRR Double Track Investigations

The project intends to utilize offset and staggered refuge bays for the Managed Lanes operations along the northbound and southbound lanes of the project. The Union Pacific Railroad (UPRR) currently owns a 60' right of way within a portion of the project limits. Before considering any shared use of their property, the UPRR has requested the Authority provide a due diligence engineering exercise to show that a conceptual double track alignment would not be precluded within this proposed and restricted right of way (ROW).

This task involves assisting the Authority with professional consulting services that include schematic project development and coordination with the UPRR and the Authority for preliminary engineering design services and construction phase sequencing.

2.3.1. Design Standards

This project shall be designed in accordance with the following:

- TxDOT *Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges.*
- UPRR Engineering Standards

2.3.2. Meetings

- Attend up to three (3) one hour meetings with the Authority/UPRR, as necessary

2.3.3. Research and Data Collection

- The GEC will obtain from the Authority and TxDOT any pertinent record drawings, plats, easements information and other information available

for the project area. The GEC will review the information to determine if potential issues exist. Also, the GEC will collect necessary UPRR right-of-way map(s)/ valuation maps and existing aerial photography exhibits from the Authority. The Authority represents that GEC may reasonably rely on any information or materials provided by the Authority or other project participants to the GEC in the performance of the services herein.

- The GEC will identify in the field the locations, sizes and types of existing railroad bridges, as well as span lengths and descriptions. Photographs from the data collection will be labeled and placed in a photo log for identification purposes.

2.3.4. Preliminary Design

- Identify and evaluate four anticipated critical "pinch-point locations", such as refuge bays, signal equipment locations, overhead bridge piers, et al, along the project limits where the proposed double track alignment might encounter horizontal restrictions within the ROW. The Authority's aerial photography exhibits will be utilized. Additional ground survey is not included as part of this task.

- Develop preliminary horizontal and vertical track geometry that complies with UPRR standard design criteria for the authorized train operating speeds. The GEC will note any items that do not comply with standard UPRR design criteria and provide potential resolution. Identify locations along the project limits that may require retaining walls due to double track alignment and profile. Provide 1"=100' scale roll plot.

- The GEC will evaluate each existing railroad bridge throughout the project limits to determine the existing type of superstructure, substructure to ground line, deck and handrails and determine a proposed method to modify the existing bridges to support the proposed double track alignment geometry and modifications to existing abutments and substructures.

- Identify and evaluate existing drainage ditches and any visible underground grade drainage structures (i.e. drop inlets) using provided aerial exhibits. Identify any potential issues to the existing drainage system based on the proposed double-track alignment.

- Using the proposed double-track geometry and typical section, determine a proposed ditch section needed to support the runoff within the UPRR right of way. This ditch section will follow UPRR requirements, including the 100- year water surface elevation (WSEL) at or below the top of the track sub-grade.

- Using the Rational Method, determine stormwater runoff coefficients, times of concentration and intensity values, and drainage areas throughout the project limits.

- Determine spacing for any inlets, along the double-track section within the right of way. Identify the necessary proposed overall drainage system needed to accommodate the proposed double track section throughout the project.

2.3.5. Railroad Coordination

- Prepare and submit to the Authority a recommended Letter of Agreement (LOA) between the Authority and UPRR for plan set review and comment.
- Prepare and submit to the Authority a listing of any requests to deviate from UPRR design standards for submittal to UPRR.
- Prepare and submit to the Authority proposed construction staging for refuge bays and double-track railroad section.

2.3.6. Assumptions

- The existing DTM (digital terrain modeling) used for the project was obtained from AECOM and Parsons Brinkerhoff. Based on information GEC had received from AECOM, the original DTM was provided by TxDOT that appears to include survey for the centerline of track (not top of rail) and right of way limits. Additional survey was performed by AECOM of the top of rail, edge of ballast and bottom of ditch in the vicinity of RM 2222. It is assumed that the UPRR profile does not align with DTM in the same locations.
- The existing top of rail profile will be drawn based on the data GEC has received to date with the addition of 8" for the height of rail. The existing top of rail and DTM will be used to provide cross sections to determine top of slope, top of cut and the limits and heights for the proposed retaining walls, if required.

Section 2.3 DELIVERABLES

Deliverables will consist of the following:

- Photo log containing photographs and descriptions of railroad bridges and abutments in the field.
- Roll plot at 1"=100' scale depicting horizontal alignment, profile, typical section, and aerial photography.
- List of potential 'pinch-points' and proposed deviations from UPRR design standards with potential plan for resolution.
- Documentation for means of modifying existing bridges along the double-track section.
- Documentation for sequencing of construction operations along the double-track section.

- White paper with exhibits detailing the assumptions, calculations, and findings for the drainage for the double-track section.
- Draft LOA between the Authority and UPRR for plan set review and comment.
- Provide draft summary report of findings.

2.4. Design Services – Toll Systems / Facilities Design

2.4.1. Toll Schematic Design Plans

The GEC will provide design services to develop schematic design plans for the toll collection system for the Project. It is anticipated the toll system will have eight (8) access point locations along the Corridor and will utilize an Electronic Toll Collection (ETC) System (cashless). The GEC will prepare toll facilities preliminary design utilizing the roadway schematic prepared by others as a basis for the design. Sufficient input from the Authority and TxDOT will be included so that proper input is received regarding the design concept(s). The toll schematic design plans will be submitted to the Authority and TxDOT for approval prior to development of PS&E documents. Toll Systems/Facilities Schematic Design will include:

- Locate toll systems / facilities on Schematic Design plans.
- Include in the Schematic Design (in reference to toll systems):
  - Plan view (Structural, Equipment Enclosures, Large Signs, Striping)
  - Elevations
  - General Sections
- Analysis of:
  - Toll Operations
  - Mechanical and Electrical Operations
  - Provisions for local utilities services
  - Facilities for surveillance, communication and control
  - Conceptual ITS interface and infrastructure
- Layouts for toll gantries
- Outline Specifications
- Opinion of Probable Construction Cost

2.4.2. Toll System/ Facilities PS&E Design 95%

- Based on the approved Schematic Design drawings and documents, the GEC will prepare the PS&E Documents. These documents will set forth in detail the requirements for construction of the toll collection systems portion of the Project. The PS&E Documents shall establish in detail the quality level of materials and systems for the toll collection systems / facilities and will include:
  - Plans
  - Elevations
  - Sections
  - Details

- General Conditions
- Technical Specifications
- Updated Opinion of Probable Construction Cost

- 95% Review Documents and Plans will be submitted to the Authority and TxDOT for review. Any comments will be addressed and the updated 95% plans will be utilized for the CDA procurement. Any revisions that may be required for construction will be part of a future work authorization.

Surveillance, Communication and Control

- Development of Surveillance, Communication and Control (SC&C) plans, details and estimates is not included in this scope of services. However, conduits for SC&C facilities provided by others will be included as directed by the Authority.

Electrical Design

- The GEC will provide electrical design efforts related for the toll collection systems aspects of the Project.
- The GEC will provide required electrical standards.
- The GEC will provide necessary drawings and specifications to adequately describe the Electrical Design for the toll collection systems portion of the Project.

Utility Design

- The GEC will provide a preliminary report on utility requirements at the toll gantry locations.
- The GEC will determine availability of utilities locally and regionally at the gantry's.
- The GEC will develop utility plan for regional and onsite service.
- Utility relocation plans are not included in this scope of services. Any utility relocation plans in the project area are assume to be the responsibility of the CDA Developer.

Miscellaneous

- The GEC will prepare general notes for the construction documents.
- The GEC will prepare list of governing specifications, special specifications and special provisions.
- The GEC will provide Quality Control/Quality Assurance for toll facilities design and plan production activities.

2.5. Design Services – Schematic Design of Direct Connectors

As directed by the Authority, the GEC will provide design services to develop schematic design plans for one northbound and one southbound direct connector connecting the Mopac Improvement Project to the downtown Austin area. The fee allows for up to 4 alternatives for each of the direct connectors. Survey from TxDOT will be utilized for the direct connector design; however, the GEC will supplement the survey as necessary for any areas that survey is not available. The GEC will coordinate with the environmental consultant by providing schematic design for the direct connectors.

2.6. Conceptual Operations Plan The schematic design will be submitted to the Authority and TxDOT for approval.

Prepare a preliminary draft Conceptual Operations Plan for the Mopac Improvement Project which is intended to establish the basic framework for operations of the facility; including a basic definition of systems architecture for ITS and toll collection, incident management, safety and enforcement, and maintenance. The plan will include the roles and responsibilities of the various agencies. The basic approach for the development of the Conceptual Operations Plan will utilize the "*LOOP 1 MANAGED LANES PRELIMINARY CONCEPT OF OPERATIONS*" prepared for TxDOT by the Texas Transportation Institute to the extent possible as a starting point for the Conceptual Operations Plan. This living document will identify program goals and specific project operational requirements, infrastructure, personnel, operations and maintenance support efforts, and resource requirements. In addition, the Conceptual Operations Plan will provide a preliminary program schedule and timeline of various activities to meet the Authority's goals within the desired timeframe.

This task involves assisting the Authority with professional consulting services that include conceptual operations plan development and coordination with TxDOT, the City of Austin, the UPRR, TTI, and the Authority's Toll Systems Integrator. The work associated with the development of the Conceptual Operations Plan will include the following specific tasks.

2.6.1. Industry Research

Update available data on existing managed lane facilities in the United States to identify current approaches to operations and maintenance of managed lanes, including methods of toll operations, enforcement, traffic control, incident management, and maintenance. The intent is to define a set of "Best Practices" for the operation of a Managed Lane facility.

Obtain available information on specific operations plans for managed lane projects currently in operation, particularly focused on interagency agreements for coordination and cooperation in operating the facilities.

2.6.2. Operations Plan Development

Based, in part, on the findings of industry research and the development of "Best Practices" for the operation of Managed Lanes, prepare a draft preliminary Conceptual Operations Plan which presents the concept for operation of the proposed Mopac Improvement Project facility to include:

- Definition of the Operations Concept
- Description of the Managed Lanes facility
- Description of the Systems Architecture, including
  - Toll Collection System components
  - Communications Infrastructure
  - ITS System and Interface
- Incident Management
- Enforcement
- Facility Maintenance

2.6.3. Interagency Coordination

Assist the Authority in conducting a series of agency work sessions in order to develop a basic framework for establishment of the roles and responsibilities for the various respective agencies.

Based on discussions and conclusions identified during the interagency work sessions, prepare a basic organizational structure describing the roles and responsibilities of the agencies to be involved in the operation of the Managed Lane facility.

3.0 ENVIRONMENTAL SERVICES

3.1. Agency Coordination

Support the Authority in coordination activities with TxDOT Austin District, Consultants, Resource Agencies, TxDOT's Environmental Affairs Division, and the FHWA, as required; including meeting preparation, meeting participation, public outreach support and attendance at public meetings, hearings, and noise workshops.

3.2. Environmental Program Management Schedule

- Monitor the schedule and provide updates to the Authority on a monthly basis.

3.3. Document Review

- Review draft and final Environmental Documents and provide written comments and recommendations on such documents.
- Review draft and final schematic and provide written comments and recommendations on schematic.
- Reviews shall be for conformance to the applicable requirements of TxDOT and FHWA. Sources of materials will include data received from TxDOT and other federal, state and local governmental and quasi-governmental agencies and field investigations.

4.0 CDA PROCUREMENT MANAGEMENT SERVICES

Deliverables required to complete the procurement of a development team (the Developer) to enter into a comprehensive development agreement (CDA) with the Authority to develop and construct the Project. The selected development team should consist of participating firms whose abilities, professional skills, and experience qualify them to develop the manage lane facility for the Authority. Only one development team will be selected to enter into the CDA for the Mopac Improvement Project.

Services include those required to assist the Authority in: the preparation of a Request of Detailed Proposals (RFDP); the issuance of the RFDP to a shortlist of development teams (the shortlisted proposers); and the receipt and assessment of submitted Detailed Proposals.

4.1 Requests for Competing Qualifications (RFCQ) Phase

4.1.1 Working jointly with the Authority's General Counsel and Financial Advisors, the GEC will develop a RFCQ for the Mopac Improvement Project, post the RFCQ

as required by the Authority rules, and provide responses to questions/modifications as may be required during the process. RFCQ provisions shall include at a minimum:

- General Understanding of the Project
- Scope of Services to be requested
- Developer Team and Personnel requirements
- Financial statements and requirements
- Bonding and Insurance information
- General Disclosures

4.1.2 Divide responses to the RFCQ for the Mopac Improvement Project into the several qualifying/measurable components as posed in the RFCQ. Evaluate the measurable qualifications of each component utilizing the evaluation procedures and formulae provided by the GEC or the Authority approved modifications thereto as might be suggested by the GEC. Provide summaries of strengths and weaknesses of all respondents for each component. Participate in meetings with the Authority staff to discuss evaluations of RFCQ and to explain the positions and reasonings of the GEC applicable to each component.

4.1.3 Prepare and distribute agenda for oral presentations/briefings/discussions (the "orals") by and with the respondents if requested by the Authority. Prepare questions to be asked by the Authority at the orals. Assist and advise the Authority in planning and managing the orals. Assist the Authority in answering questions at the orals. Prepare written answers to respondent questions posed at the orals for consideration by the Authority.

4.1.4 Participate with the Authority in discussions and reviews of the respondents' comments and answers to the Authority questions after orals. Prepare final written synopses of those responses in a style and format suitable for review and evaluation by the Authority Staff Selection Committee (the "Committee") (the Committee may be composed of the Authority staff members and non-voting representatives of the GEC and other the Authority advisors and consultants). Document for the record the review and short list selection procedure followed.

4.1.5 Assist the Authority staff in preparing for and presenting the recommendations of the Committee to the Authority Board of Directors (the "Board"). Prepare and organize all documents, exhibits, and visual aids helpful to the comprehension and supportive of the presentation to the Board.

4.1.6 Prepare, submit for review by the Authority, and implement for the Authority a document classification and identification system, a document distribution policy with recorded verification of receipt, and a permanent document filing system, both hard copy and computerized. Review and tailor those documents to fit the document handling/filing systems of the Authority.

4.1.7 Prepare correspondence for consideration of execution by the Authority.

4.2 Pre-Request for Design Proposals (RFDP) Phase

4.2.1 Develop a management plan for the procurement of a Developer for the Mopac Improvement Project. This will entail working closely with the Authority in the

preparation of a procurement process / protocol and reasonable time schedule to define progress achievement milestones between the issuance of the RFDP and the issuance of Notice(s) to Proceed to the selected proposer for the Project. This schedule will allow sufficient time for all elements of the procurement process, including: development of the RFDP by the Authority and GEC; preparation of Detailed Proposals by the shortlisted proposers; assessment of the Detailed Proposals by the Authority / GEC; selection of the "Best Value" proposal; and negotiation of the terms and execution of the CDA.

4.2.2 Develop draft versions of the main sections of the RFDP for the Mopac Improvement Project. These main sections will include:

- Draft Instructions to Proposers – This document will contain relevant information to the shortlisted proposers regarding the project and their associated submittals, including: an introduction and summary of the project; a procurement schedule defining the major milestone dates to be adhered to during the CDA procurement process; detailed description of the procurement process which the Authority will utilize during the review and evaluation of the responses to the RFDP; detailed information pertaining to the Proposal delivery, content and format; Proposal evaluation criteria and weighting; CDA award and approval process; and stipend information and amounts (if applicable).
- Draft Comprehensive Development Agreement – This document will contain the actual Agreement to be executed between the Authority and successful proposer. It is anticipated that this section of the RFDP will be prepared by the Authority's legal counsel and that the GEC will serve in a coordination / review role in the development of document.
- Draft Scope of Work – This document will contain detailed information, specifications, and associated guidance intended to apply specifically to the development and implementation of the Mopac Improvement Project.
- Draft Technical Provisions – This document will contain detailed information, specifications, and associated guidance intended to apply to the development and implementation of the Mopac Improvement Project by the Authority.

4.2.3 Conduct a series of Risk Allocation Workshops with the Authority staff, legal counsel, financial advisors, and others to develop a policy and methodology to divide and assign the risks associated with the design, construction, operation, maintenance and financing elements of the Mopac Improvement Project. A Risk Allocation matrix will be developed which will divide and assign potential risks associated with the development and implementation of the project, including:

- Design Process: design defect (damages, third party injury); design defect (Nonconforming Work); system integrator (SI) delays; other cost increases and delays; accuracy of schematics and reference documents; alignment change creating need for additional right-of-way.
- Utility Relocation: delay due to Utility Adjustments, including unidentified utilities; cost estimate of unidentified utilities; failure of Utility Owners to comply with Adjustment Agreements.

- Governmental Approvals: governmental approvals; new environmental approvals and changes to the Authority-Provided Approvals due to changes in Final Design; governmental approvals required due to Force Majeure or the Authority-Directed Change After NTP.

- Force Majeure Events: actions of the elements; acts of war; strikes and labor disputes; archaeological, paleontological or cultural resource; threatened or endangered species; changes in law; injunctions against the Project; temporary no-work restrictions resulting from the discovery within the Site of any karst features; hazardous materials (third party spills after proposal date); hazardous materials (existing).

- Construction, Supply and Installation: GEC's opinion of probable cost increase due to the Authority-Directed Change or the Authority-Caused Delay; differing site conditions; delay in completion (other than the Authority-Caused Delay, Force Majeure and certain uncooperative utility delays); delay in completion due to the Authority-Caused Delay, Force Majeure and certain uncooperative utility delays; construction defect (damages, third party injury); construction defect (Nonconforming Work); delays in opening Project for revenue service due to System Integrator work.

4.2.4 Prepare a Revised Draft RFDP by incorporating the Risk Allocation assignments agreed to by the Authority under Task 4.1.3 into the Draft RFDP prepared under Task 4.1.4. An extensive internal review of this Revised Draft RFDP will be completed by senior level GEC staff having experience in CDA processes. Comments developed / identified during this internal review process will be discussed with the Authority staff, legal counsel, and financial advisers to obtain their approval prior to modifying the Draft RFDP.

4.2.5 Organize Reference Documents for inclusion into the Draft RFDP as attachments. These documents will include:
4.2.5.1 Design Schematic
4.2.5.2 Utility Memorandums of Agreement
4.2.5.3 Cooperative Agreements
4.2.5.4 Environmental Permits / Agreements
4.2.5.5 Right-of-way Acquisition Documentation

Status assessments will be prepared for inclusion in the RFDP for those documents which have not been fully completed at the time of RFDP issuance to the shortlisted proposers.

4.2.6 Develop an Industry Review RFDP utilizing documents / information prepared under Tasks 4.1.4 and 4.1.5 for transmittal to the shortlisted proposers for their review and comment; written review comments / responses will be formally requested from the shortlisted proposers. Additionally, a series of individual meetings with each shortlisted proposer will be conducted to discuss the RFDP and solicit feedback; documentation of these meetings will be prepared by the GEC. All comments / responses will be reviewed by the GEC; a memo summarizing the comments / responses will be prepared for submittal to the Authority. Comments identified during this Industry Review process will be

discussed with the Authority staff, legal counsel, and financial advisers to obtain their approval prior to modifying the RFDP.

4.2.7 Assist the Authority in obtaining Texas Department of Transportation (TxDOT) and Federal Highway Administration (FHWA) approval of the Draft RFDP (updated per the Industry Review process described in Task 4.1.6). The GEC will attend meetings with the Authority to present the Draft RFDP to TxDOT and FHWA; written comments will be formally requested from both agencies. Comments received from TxDOT and FHWA will be discussed with the Authority staff, legal counsel, and financial advisers to obtain their approval prior to modifying the RFDP.

4.3 Request for Design Proposals (RFDP) Phase

4.3.1 Based upon the completion of Tasks 4.1.6. thru 4.1.7 and working jointly and cooperatively with the Authority, compile the Final RFDP. The GEC will prepare correspondence for execution by the Authority distributing the Final RFDP to shortlisted proposers.

4.3.2 Develop a secure system for receiving, handling, distributing, tracking, storing, and dating all documents, correspondence, facsimile transmissions, and other telecommunications after the date of acceptance of the Final RFDP. Search and locate a secure site acceptable to the Authority to store all documents and correspondence received and created on and after the date of receipt of the Final RFDP. With the assistance of the Authority Executive Director, create and maintain a list of parties who have been authorized access to the secured data by the Authority Executive Director. Create a controlled system in which the evaluators must check out, check in, and be recorded as holding the secured data.

4.3.3 Plan, organize, and administer a series of workshops to be attended by the Authority staff, legal counsel, financial advisers, GEC staff, and shortlisted respondents. These workshops will be held to allow shortlisted proposers the opportunity to ask questions / request clarifications on the Final RFDP; it will also provide the shortlisted proposers the opportunity to solicit preliminary feedback regarding potential Alternative Technical Concepts they intend to include in their Technical Proposals. The GEC will solicit information from the shortlisted proposers such that agendas and related documents / exhibits can be prepared and distributed prior to the workshops; minutes of all workshops will also be prepared by the GEC. The GEC will evaluate questions (oral and written) posed at the workshops (and submitted later in writing) and draft answers for consideration by the Authority. Upon receipt of the Authority approval, the GEC will assemble and distribute the Authority answers to questions.

4.3.4 Re-assess the status of Reference Documents. These documents include:

- Design Schematic
- Utility Memorandums of Agreement
- Cooperative Agreements
- Environmental Permits / Agreements
- Right-of-way Acquisition Documentation

Documentation describing the status of the Reference Documents will be prepared for submission to the shortlisted proposers by way of addenda to the Final RFDP such that the shortlisted proposers can include additional efforts in their Proposals for the completion of these items, if required.

4.3.5 Prepare and issue all addenda to the Final RFDP, if required, suggested by meetings, discussions, workshops, questions posed by potential respondents, and clarifications suggested and / or approved by the Authority; addenda will also include status updates on Reference Documents originally included in the RFDP, if required.

4.3.6 Working with the Authority staff and counselors, develop a detailed and thorough two (2) part procedure and methodology for evaluating the Proposals to be submitted by the shortlisted proposers, as follows:

- Initial Proposals, which include conceptual information pertaining to Alternate Technical Concepts (ATCs), will be evaluated. The evaluation procedure and methodology for the Initial Proposals will include a detailed review by a Technical Subcommittee approved by the Authority; this review will be completed such that recommendations of "Accepted", "Conditionally Approved" or "Rejected" will be made for each component of the Initial Proposal.

- Technical Proposals, which include detailed information pertaining to the development of the Mopac Improvement Project as defined in the Final RFDP, innovative financing plans, opening schedule, and overall approach to the project will be evaluated. The evaluation procedure and methodology for the Technical Proposals will utilize the "Best Value Concept" process and will include detailed reviews by a series of specialized Technical Subcommittees approved by the Authority. The findings of each Technical Subcommittees' review will be documented for presentation to the Detailed Proposal Evaluation Committee (appointed by the Authority) such that a five-level adjectival evaluation process (Excellent, Very Good, Good, Fair, or Poor) can be completed by each Committee member for each proposal. Upon completion of the individual Committee member evaluation / scoring, an average of all scores will be prepared for each Proposal.

Upon receipt of the Authority approval on the evaluation procedures and methodologies, a workshop will be held to convey this information to the Detailed Proposal Evaluation Committee appointed by the Authority.

4.3.7 Receive and commence review of the Initial Proposals submitted by the shortlisted proposers, which include information pertaining to Alternate Technical Concepts (ATCs). The GEC will establish a series of specialized Technical Subcommittees approved by the Authority to evaluate the thoroughness and quality of the Initial Proposal responses to each inquiry item contained in the Final RFDP utilizing the evaluation procedures and formulae adopted by the Authority. The GEC will prepare documentation of the findings resulting from the

Technical Subcommittee evaluations; meetings with the Authority staff, legal counsel, and financial advisors will also be held to discuss same.

4.3.8 Perform detailed reviews of Alternative Technical Concepts (ATCs) submitted by the shortlisted proposers. These ATCs will include proposed changes to the project requirements set forth in the Final RFDP, including alternatives for operating and maintaining the Managed Lane. The GEC will establish an ATC Review Core Team composed of senior level staff to lead the review of these Concepts. Upon completion of the GEC review, recommendations will be made to the Authority regarding which ATCs should be accepted, conditionally approved, or rejected. Upon acceptance of the GEC's recommendations by the Authority, the GEC will assist the Authority in obtaining necessary agency approvals, including Texas Department of Transportation (TxDOT) and Federal Highway Administration (FHWA), if required. The GEC will attend meetings with the Authority to present and discuss the selected ATCs with TxDOT and FHWA; written comments will be formally requested from both agencies.

4.3.9 Prepare correspondence for execution by the Authority transmitting the findings of the Authority's evaluation of the Initial Proposals (as defined in Tasks 4.2.7 and 4.2.8). This correspondence will be utilized by the shortlisted proposers during their preparation of their Technical Proposals.

4.3.10 Receive and commence detailed reviews of the Technical Proposals submitted by the shortlisted proposers, which include detailed information pertaining to the Mopac Improvement Project as defined in the Final RFDP, innovative financing plans, opening schedule, and overall approach to the project; review of the associated price proposals submitted by the shortlisted proposers defining their maximum price for the Mopac Improvement Project will also be reviewed. The GEC will establish a series of specialized Technical Subcommittees approved by the Authority to evaluate the thoroughness and quality of the Technical Proposal responses to each inquiry item contained in the Final RFDP utilizing the evaluation procedures and formulae adopted by the Authority. There may be other unsolicited technical, contractual or financial proposals in addition to the base guidelines provided by the Authority in the Final RFDP; such alternate responses also shall be evaluated and reported by the GEC. The GEC will prepare documentation of the findings resulting from the Technical Subcommittee evaluations; meetings with the Authority staff, legal counsel, and financial advisors will also be held to discuss same.

4.3.11 Prepare and distribute agenda for meetings called at the option of the Authority for final deliberations pertaining to the Proposals. These meetings will allow the Authority the opportunity to discuss any remaining questions / issues related to the Proposals prior to the identification of the "Best Value" Proposal. Documentation of these meetings will be prepared by the GEC.

4.3.12 Assist the Authority in the identification and selection of the "Best Value" Proposal. An evaluation outline will be prepared which documents the procedure followed during the evaluation of the Proposals, indicating what measurable Developer performance categories were identified and individually analyzed. Using the outline, a detailed summary report of the review and analysis process followed by the GEC will be prepared, describing how the evaluators used the

analytical work performed by the GEC to rank the responses in a best value order.

4.3.13 Serve as a resource participant with the evaluators and the Authority staff in delivering final reports and recommendations for Best Value Developer selections and designations to the Committee and to the Board. GEC will also prepare final reports summarizing the deliberations, actions, and recommendations of the Committee and the Board relative to the review and consideration of the Proposals and their final selection and designation of the Developer for the Mopac Improvement Project based on the "Best Value" evaluations.

4.4 Post-Request for Design Proposals Phase

4.4.1 With the full participation of the Authority staff, formulate a future needs forecast encompassing staffing for the GEC and the Authority during the further implementation of the Mopac Improvement Project through construction, operation & maintenance, including floor space, office equipment, and computer hardware and software needs. Review the management requirements and challenges facing the Authority and prepare a recommendation to the Authority detailing the staffing needs by number and qualifications and a recommended staffing plan. Develop a budget for implementation of this GEC recommendation which will illustrate the number of employees for each identified service. If requested by the Authority, prepare a job/duties description for each identified position with qualifications.

4.4.2 In conjunction with the Developer and the Authority, jointly and cooperatively develop QC/QA programs for materials and construction quality assurance. GEC will not be responsible for construction means, methods, or safety in connection with the project; failure of any contractor, subcontractor, vendor, or other project participant, not under contract to GEC.

4.4.3 Conduct debriefings on behalf of the Authority, under the guidance of General Counsel of the Authority, for respondents to the RFDP that were not selected to enter CDA with the Authority.

4.4.4 Prepare a benchmarking evaluation report to capture lessons learned throughout the process and identify alternative or refined strategies that the Authority should consider for future procurements. The report shall be based upon a series of interviews to be held with the Authority, proposers, the Authority counselors, and other appropriate parties. Issues to be addressed include; risk shifting, potential for contract change orders, quality, time savings, GEC's opinion of probable life cycle costs, design and construction management changes, GEC's opinion of probable total project cost, etc.

[END OF SECTION]

Mopac Improvement Project

ATTACHMENT B
FEE ESTIMATE

CONTRACT NO. 46837
WORK AUTHORIZATION #5

	CLASSIFICATION																				
TASK DESCRIPTION	Group Director / Program Manager	Department Manager	Sr. Advisor / Project Director	Sr. Project Manager	Project Manager II	Project/Sr. Engineer	Engineer III	Sr. Techician	Sr. CPM Claims Analyst	Sr. Inspector	Field Tech Spec III	Field Tech Spec II	Sr. UDLA	Sr. Public Involvement Rep.	Sr. ITS Design Engineer	GIS Team Leader	Sr. Graphic Designer	Scientist II	Office Business Manager	Project Analyst	Admin. Assistant	TOTAL HOURS
1.0 PROJECT MANAGEMENT AND ADMINISTRATION																						
1.1 Coordinate, Procure, F29and Administer Work Authorizations	100	20			80									70						100	40	410
1.2 Progress Reports and Invoices	120				120														36	160	120	556
1.3 Record Keeping and File Management	40				24															300	300	664
1.4 Correspondence	40				40															20	80	180
1.5 Work Authorization Schedule	32	16			60		40															148
1.6 Dashboard Update	40				60		60															160
SUBTOTAL	372	36	0	0	384	0	100	0	0	0	0	0	0	70	0	0	0	0	36	580	540	2,118
2.0 PROJECT DEVELOPMENT																						
2.1 Project Development Support	240	80	40	240		240	240	240	40					240	120	120	1,800				200	3840
2.2 Financial Planning Support	120	16	40	200		120			40												200	736
2.3 Design Services - UPRR Double Track Investigations	16	4	4	24		64															4	116
2.4 Design Services – Toll Systems / Facilities Design	40	160	40		40	480	480	480													24	1744
2.5 Design Services - Schematic Design of Direct Connectors (Includes Survey, if necessary	40	24	40		200	360	360	360			160	160									24	1728
2.6 Conceptual Operations Plan	40	40		160		40															200	480
SUBTOTAL	496	324	164	624	240	1304	1080	1080	80	0	160	160	0	240	120	120	1800	0	0	0	652	8644
3.0 ENVIRONMENTAL SERVICES																						
3.1 Agency Coordination	40	200		40	40													160				480
3.2 Environmental Program Management Schedule	40	160																80				280
3.3 Document Review	40	460		80		240												280				1100
SUBTOTAL	120	820	0	120	40	240	0	0	0	0	0	0	0	0	0	0	0	520	0	0	0	1,860
4.0 CDA PROCUREMENT MANAGEMENT SERVICES																						
4.1 Request for Competing Qualifications Phase	120	240	80	120	120									120	4					40	40	884
4.2 Pre-Request for Design Proposals Phase	240	240	80	360	360	100	300		200	200			100	200	80					80	400	2940
4.3 Request for Design Proposals Phase	480	480	80	720	720	200	600		480	480			160	360	80					120	600	5560
4.4 Post-Request for Design Proposals Phase	240	240	80	360	360	100	300		200	200			100	200	40					80	400	2900
SUBTOTAL	1080	1200	320	1560	1560	400	1200	0	880	880	0	0	360	880	204	0	0	0	0	320	1440	12284
TOTAL HOURS	2,068	2,380	484	2,304	2,224	1,944	2,380	1,080	960	880	160	160	360	1,190	324	120	1,800	520	36	900	2,632	24,906
BASE RATE	$ 89.64	$ 76.98	$ 94.24	$ 72.33	$ 62.57	$ 48.53	$ 40.39	$ 42.37	$ 45.69	$ 35.83	$ 40.19	$ 33.75	$ 56.59	$ 34.69	$ 57.90	$ 50.68	$ 38.32	$ 34.01	$ 45.33	$ 33.23	$ 22.29	
TOTAL LABOR	$ 185,376	$ 183,201	$ 45,612	$ 166,655	$ 139,153	$ 94,350	$ 96,133	$ 45,760	$ 43,866	$ 31,530	$ 6,430	$ 5,400	$ 20,373	$ 41,275	$ 18,758	$ 6,081	$ 68,976	$ 17,685	$ 1,632	$ 29,907	$ 58,667	$ 1,306,820
Overhead Rate 155.50%	$ 288,259	$ 284,877	$ 70,927	$ 259,149	$ 216,384	$ 146,714	$ 149,487	$ 71,156	$ 68,212	$ 49,028	$ 9,998	$ 8,397	$ 31,680	$ 64,183	$ 29,169	$ 9,457	$ 107,268	$ 27,500	$ 2,538	$ 46,505	$ 91,228	$ 2,032,105
Profit 12.00%	$ 56,836	$ 56,169	$ 13,985	$ 51,096	$ 42,664	$ 28,928	$ 29,474	$ 14,030	$ 13,449	$ 9,667	$ 1,971	$ 1,656	$ 6,246	$ 12,655	$ 5,751	$ 1,865	$ 21,148	$ 5,422	$ 500	$ 9,169	$ 17,987	$ 400,671
TOTAL	$ 530,471	$ 524,247	$ 130,524	$ 476,901	$ 398,202	$ 269,992	$ 275,094	$ 130,946	$ 125,528	$ 90,225	$ 18,399	$ 15,453	$ 58,300	$ 118,113	$ 53,678	$ 17,403	$ 197,382	$ 50,608	$ 4,670	$ 85,582	$ 167,882	$ 3,739,597

EXPENSES	ITEM
MISCELLANEOUS EXPENSES	$ 100,000
MISCELLANEOUS SUBCONSULTANTS	TBD - Fee Included in tasks above
	$ 100,000

Estimated Subconsultant Fee = $450,000

SUBTOTALS BY TASK	TOTAL HOURS	HNTB RAW LABOR	TOTAL LOADED FEE
1.0 PROJECT MANAGEMENT AND ADMINISTRATION	2,118	$ 99,553	$ 284,880
2.0 PROJECT DEVELOPMENT	8,644	$ 418,028	$ 1,196,229
3.0 ENVIRONMENTAL SERVICES	1,860	$ 114,392	$ 327,345
4.0 CDA PROCUREMENT MANAGEMENT SERVICES	12,284	$ 674,847	$ 1,931,142
EXPENSES			$ 100,000
JOB TOTALS	**24,906**	**$ 1,306,820**	**$ 3,839,597**