

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

**RESOLUTION NO. 10-38**

**Supplement No. 2 to Work Authorization No. 8  
with URS Corporation to Authorize Investment Grade T&R Work**

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 § 26.01, *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, in a minute order approved on August 25, 2005, the Texas Transportation Commission authorized the CTRMA to pursue the development of the 290 East Toll Project (the “Project”); and

WHEREAS, in Resolution No. 05-73, dated September 28, 2005, the CTRMA Board of Directors approved entry into a Traffic and Revenue Engineering Services Agreement with URS Corporation (the “T&R Agreement”) for the provision of traffic and revenue engineering services for CTRMA projects and potential projects; and

WHEREAS, in Resolution No. 08-44, dated July 30, 2008, the CTRMA Board of Directors authorized the Executive Director to execute Work Authorization No. 8 with URS Corporation for the performance of traffic and revenue engineering studies related to the Project; and

WHEREAS, in Resolution No. 09-70, dated October 28, 2009, the CTRMA Board of Directors authorized the Executive Director to execute a Supplement to Work Authorization No. 8 with URS Corporation for the performance of traffic and revenue engineering studies related to the Project; and

WHEREAS, the CTRMA and URS Corporation have determined that a Supplement No. 2 to Work Authorization No. 8 is necessary in order to authorize URS Corporation to prepare an Investment Grade Traffic and Revenue Study for the Project.

NOW THEREFORE, BE IT RESOLVED, that the Board of Directors of the CTRMA authorizes the Executive Director to finalize and execute the Supplement No. 2 to Work Authorization No. 8, in the form or substantially the same form set forth in Attachment “A” and consistent with this Resolution, provided that any work commenced under the Supplement No. 2 to Work Authorization No. 8 shall be subject to all terms and conditions of the T&R Agreement.

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

Submitted and reviewed by:

Approved:



Andrew Martin  
General Counsel for the Central  
Texas Regional Mobility Authority



Ray A. Wilkerson  
Chairman, Board of Directors  
Resolution Number 10-38  
Date Passed: 04/28/10

**ATTACHMENT "A"**  
**TO**  
**RESOLUTION 10-38**  
**Supplement No. 2 to URS Work Authorization No. 8**

URS CORPORATION  
SCOPE OF SERVICES  
FOR  
CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY (CTRMA)  
April 16, 2010

**WORK AUTHORIZATION # 8C  
SUPPLEMENTAL FOR UPDATE  
US 290E TOLL DEVELOPMENT PROJECT  
INVESTMENT GRADE TRAFFIC AND TOLL REVENUE ENGINEERING SERVICES**

The Traffic and Revenue Engineering Services described herein are to be provided by URS Corporation (URS) to the Central Texas Regional Mobility Authority (CTRMA) to update the US 290E Investment Grade Traffic and Toll Revenue Study. The revised regional demographic data, new project configuration, and revised assumptions will be used to update the toll traffic and toll revenue forecasts and to conduct Sensitivity and Risk Analyses of forecasted toll revenue for the proposed US 290E Toll Road. Additionally, URS staff will provide technical support to CTRMA in dealings with TIFIA, private sector financial organizations, and bond rating agencies to acquire financing for the proposed project.

**SCOPE OF SERVICES**

This Scope of Services is organized into six principal tasks that encompass the investment grade study update, sensitivity and risk analyses, and provide project financing support for the proposed US 290E Toll Road. This analysis is for an update to the existing analysis completed in March 2010 for the Segments 1/1A and extends with in-depth analyses which are suitable for bond issuing. Included in this comprehensive work program are the following tasks:

- Task 1: Project Management/Quality Assurance (QA)
- Task 2: Investment Grade Traffic and Toll Revenue Study Update
- Task 3: Sensitivity Analysis Update
- Task 4: Risk Analysis Update
- Task 5: Documentation
- Task 6: Meetings Support

The services presented in this scope will be completed on a time and materials (T&M) basis including reimbursement for other direct costs incurred (travel, lodging, meals, etc.). The project schedule and budget that supports this scope of services are also attached.

**Task 1 Project Management/QA**

The URS project manager will coordinate and oversee all activities associated with this scope of work. Specific activities include participation at project coordination meetings

with CTRMA, PBS&J, and other project team members. URS will hold project progress meetings to be scheduled monthly, coordination of individual work tasks, development of progress reports and invoices, and coordination and implementation of URS quality assurance procedures to include internal independent technical reviews. Additionally, the URS project manager will coordinate with subconsultants as needed throughout the project.

## **Task 2 Investment Grade Traffic and Toll Revenue Study Update**

Task 2 will include six subtasks as described below.

### **Task 2.1 Demographic Data Update**

The existing US 290 T&R Study included a comprehensive data collection for model development and calibration. This update will focus on the regional and corridor socioeconomic development review.

For this task, URS has retained the services of Alliance Transportation Group (ATG) to assess the reasonableness of the forecast. ATG recently served as a consultant in this capacity for CTRMA on the 183A Phase II T&R Study. The demographic forecasts data prepared for the 183A Phase II project has been used in the latest US 290E study for consistency between these two studies. The socioeconomic review that occurred in the existing Investment grade studies will be updated to reflect the current understanding of the demographics in the area surrounding the proposed corridor. ATG's scope and fee for this update are also attached. ATG will issue a technical memorandum describing the work performed in Task 2.1 and documenting the results.

URS will review the socioeconomic data in the study area and the region to verify the reasonableness of the results provided by ATG. This verification process will include a comparison to the latest forecast and other data sets developed by CAMPO, the US Census, and the Texas State Data Center. The verification process will include the development of data comparison tables and thematic maps created using GIS software that will also allow for the identification of geographic areas where significant changes in growth have occurred for the last two years.

The result of the demographic data update will be a population and employment forecast at the Traffic Analysis Zone (TAZ) level for entry into the regional travel demand model for the base years (2008) and several future years. The future years included in the forecast will be dependent upon the timing of transportation improvements in the region that may impact the proposed facility, but at a minimum will include 2010, 2013, 2015, 2020, 2025, and 2030. Forecasts for intervening years will be interpolated from the model forecast periods.

### **Task 2.2 Corridor Scenario Preparation**

URS has developed a traffic/toll revenue-forecasting model for the US 290E project based on the latest configuration of Segments 1/1A. However, recent project

discussions proposed several new project scenarios with different cross-section designs and configurations. URS will prepare the modeling sets for up to 6 project scenarios for a comparative analysis (4 of these were provided by PBS&J on April 1, 2010). URS will update the roadway network to reflect the proposed project configurations and confirm the design details and anticipated completion date of all relevant projects for the specific horizon years in the forecast period. The background network information and opening dates will also be updated. The final list of relevant projects and "most probable" completion dates will be obtained from the TxDOT Austin District, CTRMA and TTA.

### **Task 2.3 Toll Rate Schedule and Revenue Estimation Assumption Update**

The US 290E toll rate schedule has been established from previous analyses. Based on the proposed scenarios, toll gantry's influence distances will be measured. Minimum toll charge of direct connectors and ramp gantries will be determined. The toll rate schedule will be developed on the current CTRMA toll policy in terms of rate per mile and escalation. Additionally, the corresponding toll at each plaza will be presented by year to provide CTRMA and its stakeholders, a precise description of anticipated toll rates over the life of the project. The analysis will assume two (2) electronic toll collection (ETC) options would be available to motorists using the tolled facilities:

- ETC transponder; and
- Video tolling.

For all the relevant projects that are anticipated to operate as toll facilities, URS will obtain the anticipated toll plans and rates for each of these facilities.

Previous T&R studies by URS and other CTRMA consultants have implemented many different revenue estimation assumptions. For this update study, one important effort is to coordinate with CTRMA staff and other T&R consultants to maintain consistent assumptions with the recent completed 183A Phase II T&R study by Stantec, as appropriate. These assumptions includes but not limited to:

- ETC penetration/evasion rates,
- Video tolling surcharges,
- Ramp-up factors,
- Annulization factors,
- Long term traffic growth trends, and
- Truck axles and percentages.

A technical memo of the updated toll revenue estimation assumptions will be delivered.

### **Task 2.4 US 290E Traffic and Toll Revenue Estimation Update**

URS will use the calibrated toll diversion model to estimate volumes for the US 290E project for various scenarios for specific model years, incorporating the revised socioeconomic data and the updated roadway network reflecting information gained in

Tasks 2.1, 2.2 and 2.3. Traffic estimates will be developed by toll gantry location. Toll revenue estimates will be developed from the traffic estimates based on appropriate divisions of vehicle class (passenger car/truck) and by payment type (ETC/Video). Traffic and Toll Revenue Estimates will be provided in tabular form for the proposed project scenarios defined during Task 2.2.

A technical memorandum providing the T&R estimates and a brief description of the modeling methodology and assumptions will be delivered. It is anticipated that the project staff will evaluate these project scenarios and determine one final configuration as the base case. The final configuration will be included in the final report.

### **Task 3 Sensitivity Analysis Update.**

Task 3 will include two subtasks as described below.

#### **Task 3.1 Update and Run Travel Demand Model.**

URS will test the following variables to conduct the sensitivity analysis:

- Travel Demand Variables
  - Social-economic variables
    - Employment
    - Population
    - Household income
  - Economic variables
    - Value of time (base and escalation rate)
    - Truck demand
- Transportation Supply Side Variables
  - Network alternatives (build or no-build of new facilities, specific configurations)
- Operational Factors
  - Toll rate/escalation
  - Violation/Evasion factors
  - TxTag Transponder Penetration

URS will utilize the Level 3 travel demand model, which will be updated in Task 2. The model will be updated to reflect the variables defined above. The model will be run for a base year and horizon years. Results between model years will be developed using interpolation. Results beyond the horizon year will be developed using extrapolation.

#### **Task 3.2 Develop Toll Sensitivity Curves**

Based on the traffic and toll revenue results generated in Task 2, URS will develop and graphically depict the toll sensitivity curves for each variable tested. These curves will synthesize the performance response of each variable and facilitate selection of parameter values for future analyses.

#### **Task 4 Risk Analysis Update**

The toll sensitivity analyses conducted in Task 3 provide an indication of the sensitivity of toll revenue to select variables assuming an undefined level of risk. The purpose of the risk analysis is to identify the probability that the forecasted toll revenues will be realized. This analysis will be achieved using Monte Carlo simulation analysis, which allows for the simultaneous simulation of risk and uncertainty from a variety of sources and correlation across inputs. The output of the Monte Carlo simulation analysis will be a probability histogram for each variable analyzed in Task 3. The histograms will identify the upper and lower bound probability points for each variable.

#### **Task 5 Documentation**

URS will prepare a draft technical memorandum that includes a brief summary of the updated T&R study results, sensitivity and risk analyses methodologies, an analysis of findings, and supporting documentation. URS shall submit the draft technical memorandum to the CTRMA for review and comment.

A final investment grade traffic and toll revenue report will be developed based on comments received from the CTRMA.

#### **Task 6 Project Financing Support.**

Task 6 will include two subtasks as described below.

##### **Task 6.1 Additional Sensitivity Analyses**

The sensitivity and risk analyses conducted in Tasks 3 and 4 address inherent uncertainties in the travel demand model input variables. The output of these two tasks is a broad range of toll revenue outcomes for the proposed project with assigned probability or confidence intervals that provides a general overview of the risk of the project. The rating agencies, TIFIA and other entities involved with the financing of the proposed US 290E toll road may request CTRMA to conduct additional sensitivity analyses to provide toll revenue estimates that are embedded in the range of results reflected in the risk analysis output. Examples of these analyses include lower economic growth, alternate toll escalation rates, and changes in the transportation network due to alternative improvement plans. URS will conduct up to five additional runs of the travel demand model to respond to requests for additional sensitivity analyses.

##### **Task 6.2 Joint Report for Official Statement with Stantec**

URS will coordinate with CTRMA and Stantec for a joint report of the traffic and toll revenue forecasts to be included in the official statement (OS) of the bond sale. This joint report will be based on the latest T&R reports of US 290E and 183A Phase II. URS



and Stantec have worked together before for similar joint reports on other projects. Close coordination efforts will be employed.

### **Task 6.3 Support for Meetings with Financial Community**

URS will provide support during CTRMA's acquisition of project financing by providing technical support at meetings with rating agencies, bond insurance companies, TIFIA, and other financing entities. This support will include presentations of the Investment Grade Study, preparation of presentation materials (presentation boards, power point slides, handouts, etc.)


Activities to be completed as part of subtask 6.3 include:

- Attendance at a total of five meetings. Should additional meetings/presentations be required URS will scope and budget these meetings in a supplemental work authorization;
- Certification of information in the disclosure documents related to the URS Traffic and Toll Revenue Investment Grade Study report, including the underlying assumptions;
- Review of financing documents; and
- Review of disclosure documents.

### **Task 6.4 Project Close Out**

In the project close-out stage, URS will address any unsolved project-related issues and archive project documentation and data in proper places. This task will also include finalizing the project invoice and completing project feedback surveys. It is anticipated that the project will be closed out on December 31, 2010.

### Project Schedule

US 290E Investment Grade T&R Study Update										
Task #	Description	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10
1	PM/QA	[Gantt bar spanning Apr-10 to Dec-10]								
2	Traffic and Toll Revenue Study Update	[Gantt bar spanning Apr-10 to Jun-10]								
	2.1 Demographic Data Update	[Gantt bar spanning Apr-10 to May-10]								
	2.2 Corridor Scenarios Preparation	[Gantt bar spanning Apr-10 to May-10]								
	2.3 Toll Rate Schedule and Revenue Assumption Update	[Gantt bar spanning Apr-10 to May-10]								
	2.4 Traffic and Toll Revenue Estimation Update	[Gantt bar spanning May-10 to Jun-10]								
3	Sensitivity Analysis Update	[Gantt bar spanning May-10 to Jun-10]								
	3.1 Update and Run Travel Demand Model	[Gantt bar spanning May-10 to Jun-10]								
	3.2 Develop Sensitivity Curves	[Gantt bar spanning Jun-10 to Jul-10]								
4	Risk Analysis Update	[Gantt bar spanning Jun-10 to Jul-10]								
5	Documentation	[Gantt bar spanning Jul-10 to Aug-10]								
6	Project Financing Support	[Gantt bar spanning Aug-10 to Nov-10]								
	6.1 Sensitivity Analysis	[Gantt bar spanning Aug-10 to Oct-10]								
	6.2 Joint Report for Official Statement with Stantec	[Gantt bar spanning Sep-10 to Nov-10]								
	6.3 Meeting Support	[Gantt bar spanning Oct-10 to Dec-10]								
	6.4 Project Close Out	[Gantt bar spanning Dec-10 to Dec-10]								
 Draft submittal										

**CTRMA Traffic and Revenue Consultancy**

**Work Authorization No #8C: US 290E Investment Grade Study Update, Demographic Review, Toll Sensitivity and Risk Analysis Update, and Financing Support**

**Budget**

Task	Principal	Project Manager	Technical Advisor	Task Mgr T&R Forecasting	Senior Modeler	Senior Planner	Modeler II	Modeler I	CADD Tech	Admin	Total Hours	Total Costs	
Task 1	Project Management/QA	8	8	8	16	4				16	60	\$ 9,115	
Task 2	Traffic and Toll Revenue Study Update		4		16	4	16	16	40		96	\$ 8,822	
	2.1 Demographic Data Update		4		8	4	32	40			88	\$ 8,703	
	2.2 Corridor Scenarios Preparation				8	4	24	24			60	\$ 5,807	
	2.3 Toll Rate Schedule and Revenue Assumption Update		4		32	24	80	80			220	\$ 22,083	
Task 3	Sensitivity Analysis Update												
	3.1 Update and Run Travel Demand Model		4		16	4	24	24			72	\$ 7,756	
	3.2 Develop Sensitivity Curves		4	8	16	4	8	8			48	\$ 6,618	
Task 4	Risk Analysis Update				24		16	16			56	\$ 6,223	
Task 5	Documentation	16	16	8	36	24	16	16	16		164	\$ 22,664	
Task 6	Project Financing Support		4	8	16	8	16	16			68	\$ 8,465	
	6.1 Sensitivity Analysis		4	8	16	8	16	16			68	\$ 8,465	
	6.2 Joint Report for Official Statement with Stantec	16	8	16	16	16	8		8		88	\$ 14,721	
	6.3 Meeting Support	16	4	16	32	8	0				76	\$ 13,466	
	6.4 Project Close-Out		4		8					4	16	\$ 2,201	
<b>Hours Subtotal</b>		<b>56</b>	<b>64</b>	<b>64</b>	<b>244</b>	<b>84</b>	<b>36</b>	<b>240</b>	<b>240</b>	<b>64</b>	<b>20</b>	<b>1096</b>	
Average DTL		\$ 96.16	\$ 81.12	\$ 83.84	\$ 56.12	\$ 42.92	\$ 57.50	\$ 37.24	\$ 32.92	\$ 24.60	\$ 25.00		
Multiplier		2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52		
Average Billing Rate		\$ 242.32	\$ 204.42	\$ 211.28	\$ 141.42	\$ 108.16	\$ 144.90	\$ 93.84	\$ 82.96	\$ 61.99	\$ 63.00		
Loaded Cost		\$ 13,570.10	\$ 13,083.03	\$ 13,521.72	\$ 34,507.07	\$ 9,085.31	\$ 5,216.40	\$ 22,521.60	\$ 19,910.02	\$ 3,967.49	\$ 1,260.00	\$ 136,642.72	\$ 136,642.72
Labor Subtotal (rounded)												\$ 137,000	
<b>Other Direct Costs (ODC)</b>													
Reproduction												\$ 600	
Other (fedex, conference call)												\$ 150	
Expense subtotal												\$ 750	
Total URS Costs												\$ 137,750	
Sub-Contractor													
Alliance Transportation Group Inc.												\$ 96,600	
Total WA No. # 8C Costs												\$ 234,350	