

January 28, 2008

Lucio Vasquez P.E.
Texas Turnpike Authority
Texas Department of Transportation
125 East 11th Street, Fifth Floor
Austin, TX 78701

DRAFT

Re: Proposal for Traffic and Revenue Study. Grand Parkway Toll Road, Segment A – I2

Dear Mr. Vasquez:

As requested, Wilbur Smith Associates (WSA) is most pleased to submit this proposal for a traffic and revenue study for the proposed Grand Parkway Toll Road, Segments A through I2. As requested we are providing a scope of work and budget for a schedule which would provide base case revenue estimates within 3.5 months of notice to proceed.

WSA has previously reviewed the preliminary feasibility of the Grand Parkway (Level 1) for some key segments individually and also in its entirety. These prior studies were undertaken for the Harris County Toll Road Authority (HCTRA). This new study will further develop the project's toll feasibility. Within the given timescale it is not possible to undertake a program of origin-destination and stated preference surveys for a project of this geographical size. Wilbur Smith will however be able to use appropriate local values of time that have been collected on recent studies in the Houston region. Should this project proceed to a Level 3 (Investment Grade) study, then further survey work will need to be undertaken at a later stage to enhance the study to Investment Grade status.

The Grand Parkway (GP), an outer beltway that is being planned to include some tolled and un-tolled segments as a traditional 4 lane toll road facility with no managed lane features. Given expected travel demand levels, tolling strategies will likely be fairly straight forward but will be provided for approval prior to final use.

It is understood that the study would be undertaken jointly for the Texas Turnpike Authority (TTA) and the Harris County Toll road Authority. The agencies will jointly determine the various project scenarios to be evaluated in the study, and the study findings, and final report will be provided to each of the agencies. It is also understood that a peer review will be undertaken by an independent consultant. WSA agrees to work with this consultant during the course of this study, and we have included a task below to cover efforts related to this interface and possible sensitivity testing.



It is also recognized that the product of the study is to be used, among other factors, in determining a mutually agreed upon valuation of the proposed Grand Parkway. WSA will remain available to provide any clarifications regarding work performed, or possibly perform additional scenario testing, which we understand will be shared by each of the two agencies, during the valuation process

SCOPE OF WORK

A comprehensive work program has been developed to meet each of the specific objectives of the study, and designed specifically to yield a more detailed analytical result. As defined in more detail below, the study will be comprised of a total of 8 tasks, including:

- Task 1: Mobilization;
- Task 2: Data Collection;
- Task 3: Economic Growth Analysis;
- Task 4: Regional Model Update;
- Task 5: Traffic and Revenue Analysis;
- Task 6: Documentation and Meetings;
- Task 7: Interface with Independent Traffic Advisor, and
- Task 8: Risk Analysis and Equity Adjustments

Following completion of the basic study, as noted above, the WSA team would remain available to provide additional services as needed during the actual valuation process. This might include additional scenario testing, providing clarifications on basic study findings or other activities. It is assumed that such additional information would be provided to both of the agencies for which the study is being performed. Since it is not possible to know the precise level of effort, if any, which would be required following completion of the basic study, compensation for these supplemental services would be based on a “time and materials” basis.

TASK 1: MOBILIZATION

The study will commence immediately upon receipt of notice-to-proceed. It will begin with a refinement of the study approach and an early kick-off meeting in Houston to officially begin the work.

At that kick-off meeting, it will be important to discuss with the Stakeholders details and physical limitations of the project as currently envisioned as well as exploring the various possible dimensions of the project’s configurations and operations plans which will need to be considered and the possible institutional and regulatory issues associated with them.

In addition, it would be important to discuss the potential project segments, and combinations of the segments, to be analyzed in the study. It is clear that at least one of the scenarios to be tested would include the entire 200-mile Grand Parkway facility. However, it is not unlikely that additional, partial project, scenarios would be requested. The budget proposed for this study assumes that up to six scenarios will be analyzed within the study time frame. It is hoped that these six project scenarios can be identified at the outset of the study, namely at the kick-off meeting. If necessary, WSA could



proceed with the first four basic scenarios, with two additional scenarios to be potentially added after initial study findings are developed.

Finally, it will also be important to discuss toll collection concepts at the kick-off meeting. It is understood that TxDOT is moving toward full Open Road Tolling concepts; HCTRA typically utilizes a combination of electronic and cash collection. It will be useful to establish mutually agreeable guidelines regarding toll collection assumptions at the outset of the study.

In addition, staffing, lines of communication and other items regarding project administration will be discussed and agreed.

TASK 2: DATA COLLECTION

An extensive data collection program will be undertaken in this task. All available prior studies on the Grand Parkway corridor will be obtained and reviewed. This includes any available reports or other documentation regarding the planned construction of the Grand Parkway.

This task will also include assembly of complete updated information on the regional transportation improvement program. This will include, of course, details about the planned expansion of U.S. 290 and any other improvements. WSA will review in detail other future projects that could significantly impact the Grand Parkway, e.g. Katy Tollway, Beltway 8 Northeast, I-69, etc. In addition, any competing planned capacity improvements to the highway system will be obtained. Information on any planned transit initiatives will be inventoried, reviewed and incorporated into the network of facilities and services.

Given the nature of this project, an extensive program of speed-delay runs will be made on existing elements of the Grand Parkway and other competing roadways. This will include multiple vehicle runs in each travel direction during peak and off-peak conditions. In addition to recording total travel times at major intersections, data will be recorded on a small distance increment basis to enable development of speed/distance diagrams to pinpoint areas of recurring congestion under current operating conditions.

All available traffic count information in the corridor, as obtained by TxDOT, HCTRA, H-GAC, or others will be assembled and reviewed. This will be supplemented by a comprehensive program of machine traffic counts conducted by WSA and its sub consultants. For budget purposes, WSA assumes 48-hour counts will be obtained at up to 60 locations in the region.

TASK 3: ECONOMIC GROWTH ANALYSIS

Socioeconomic growth forecasts are important in developing traffic and revenue forecasts for any facility. They are particularly critical on a new “green field” project such as the proposed Grand Parkway. WSA would obtain the latest official socioeconomic forecast for the greater H-GAC region. These would be thoroughly reviewed and analyzed by major project segment.

WSA would prepare tabulations and graphics depicting growth estimates incorporated in the latest H-GAC model process. WSA would also obtain information regarding income and other demographics characteristics in each project segment of the overall Grand Parkway corridor.



Optional Independent Consultant – Given the location of the proposed Grand Parkway, along an outward corridor which includes many undeveloped sectors, the study would benefit from the use of an independent economic consultant. In past preliminary studies performed by WSA of Grand Parkway, for example, socioeconomic forecasts in prior versions of the H-GAC model tended to understate growth potential, particularly in the southern portions of the Grand Parkway corridor.

On investment-grade traffic and revenue studies in the Houston area, WSA typically uses Dr. Barton Smith as an important independent economic advisor. However, recognizing the need to provide base case traffic and revenue forecasts within 3.5 months of study commencement, it would not be possible to have Dr. Smith make a complete independent review of the entire 200-mile corridor, as input into the base case forecasts.

Rather, WSA offers an optional alternative in which Dr. Smith would complete the economic review, including any suggested modifications of the underlying socioeconomic forecasts. These would then be used to develop an alternative set of estimates, near the completion of the study, reflecting the suggested adjustments in socioeconomic data. It would simply not be possible, within the study schedule, to wait for the independent economic review to be fully completed before beginning the modeling process.

Alternatively, if the agencies wish to have the results of the independent economic review incorporated into the base case traffic and revenue forecasts, an extension of the study deadline would be required. To incorporate the benefit of the independent economic forecasts into the base case revenue estimates for each of up to six project scenarios, the study time frame would need to be extended from 3.5 months to 5 months to base case findings.

TASK 4: REGIONAL MODEL UPDATE

As part of this task, WSA will obtain the latest H-GAC regional model. We are already in possession of a fairly recent version but understand that H-GAC have been working on updates to plans and models; discussions will be held with H-GAC to determine if any later information is available, including any later socioeconomic forecasts, trip tables, or network.

As part of this task, adjustments will also be made to trip tables to reflect any socioeconomic changes which arise from the independent economic review. If possible, WSA will solicit the assistance of H-GAC in the trip table adjustment process, or develop changes to the trip tables to a fratat process.

The model will be calibrated in the Grand Parkway corridor, by comparing “no build” traffic assignment results with traffic counts obtained from TxDOT count locations and new counts obtained by the WSA team. After achieving a reasonable level of calibration, the various project segments would be coded into the model. Segments would be coded in a manner to allow inclusion or exclusion depending on particular project scenario.

An evaluation of alternative toll collection concepts would be undertaken, using guidance provided by the agencies during the kick-off meeting. Toll collection locations would be identified, and coded into the model. In addition, potential pricing differentials between electronic toll collection and, either cash or video alternatives, would be programmed into the assignment process.



TASK 5: TRAFFIC AND REVENUE ANALYSIS

With the toll collection concept developed in Task 4, and the refined regional travel demand model developed in Task 4, Task 5 will include the overall traffic and revenue analysis for Grand Parkway. Traffic assignments will be made at the proposed opening year and at least two additional future years, probably 2020 and 2030.

For budget purposes, WSA assumes up to six project scenarios will be evaluated. This will include the full 200-mile project, as well as five partial projects, or phased project alternatives. To the maximum extent possible, these alternative scenarios will be identified at the kick-off meeting. However, it will be possible to defer to retain two alternatives for identification after preliminary study findings have been developed on four other options.

The toll sensitivity assignments discussed below will be conducted for the full project alternative, and possibly one or two other scenarios. Three or four of the subproject options will be analyzed at “optimum” toll rates only.

For each analysis year, traffic assignments will be run under a “no-build,” toll free and alternative toll rate level conditions. It is anticipated that a range of three to five alternative toll rates will be tested to determine optimum levels. This series of assignments will be performed in each analysis year, allowing development of toll sensitivity curves at opening and future-year levels.

Traffic assignments will be made at A.M. peak, P.M. peak and off-peak conditions separately. Results of the traffic assignments will be carefully reviewed for reasonableness, using corridor share, select link and capture rate analyses. Post-model adjustments will be made to reflect any changes due to calibration errors, and a review will be made of capacity constraints on the facility, and adjacent roads, if necessary.

Based on the traffic and revenue estimates in the assignment years, annual traffic and revenue forecasts will be developed by interpolating intermediate years. Revenue estimates will be adjusted in the early years to reflect an assumed “ramp-up.” Revenues will be based on average toll assumptions, which will recognize the anticipated proportion of traffic between passenger cars and commercial vehicles as well as the specific characteristics of the selected toll collection system.

This task will conclude with the development of “base case” traffic and revenue estimates for each alternative configuration of Grand Parkway.

TASK 6: DOCUMENTATION AND MEETINGS

This task will extend from the beginning of the work throughout the course of the study and will include most of the efforts related to development of documentation and various meetings during the course of the study. This will include a series of technical memoranda to be submitted by WSA at the conclusions of Tasks 3, and 5.



Documentation will also, of course, include a detailed traffic and revenue report, which could be refined later for actual financing. The traffic and revenue report will initially be submitted in draft form. After receipt of comments, 25 final copies of the report will be provided, together with originals in hard copy and electronic form.

This task will also include various project meetings and coordination efforts throughout the course of the work. In addition to the kick-off meeting under Task 1, there will be monthly meetings, which will also be used for coordination and communication with TxDOT and HCTRA and their consultants during the course of the work.

A major presentation of the results will be held at the end of Task 5, and a final presentation of study findings and the draft report can be conducted at the conclusion of the work. In total, our budget assumes up to six meetings including the kick-off meeting, final presentation of findings and all the various intermediate meetings as part of the study.

TASK 7: INTERFACE WITH INDEPENDENT TRAFFIC ADVISOR

It is understood that WSA should anticipate that a separate Independent Traffic Advisor will be established, representing TxDOT and HCTRA to undertake a peer review of the T&R Forecasts of WSA.

WSA will be available to answer all questions and provide necessary clarifications regarding our study findings and study approach. This excludes providing specific copies of our proprietary software, which is only a small sub-element of the overall modeling process. The basic modeling platform, trip tables, networks, underlying socioeconomic data and all other information collected in the study, will be made available to the Independent Peer Review Advisor.

It is also anticipated that WSA will be requested to perform further sensitivity tests to aide in the development of a Alternative case developed by the Independent Traffic Advisor. Again, WSA has been through this process on numerous occasions and is well aware of this activity.

The budget assumes up to three meetings with the Independent Traffic Advisor. These are assumed to occur in Houston concurrent with study meetings previously referred to.

TASK 8: RISK ANALYSIS AND EQUITY ADJUSTMENTS

WSA will perform a limited number of “Risk Analysis Tests” to show the potential range of revenue impacts which could result from changes in basic assumptions, such as total global demand for the corridor. It is assumed that the risk analysis will be performed for up to 2 of the project configuration alternatives. The risk analysis will incorporate Monte Carlo procedures to test the likelihood of key variables affecting the demand and behavioral characteristics of travelers in the corridor. As such, it is envisioned that a socio-economic and value of time risk analysis will be performed to determine the likely range of toll revenue forecast that the managed lane facilities could potential capture under differing scenarios. It is envisioned that a risk analysis will be performed in two intermediate years, the opening year and a future year. This analysis will provide revenue range estimates that will be included as part of the deliverable. The key variables to be tested will include:



- **Demographic Growth:** This will look at the population and employment growth scenarios within the region to evaluate the historical trends and existing trends to determine the likelihood of achieving the official demographic forecasts. This probabilistic distribution will be used to determine the joint likelihood of the forecasted occurrences.
- **Willingness to Pay Trends:** This will look at the changes in income characteristics within the region for historical and existing trends as a proxy to the travelers' willingness to pay characteristics.
- **Equity Bidder Trends:** This will look at the existing equity markets currently bidding on projects nationwide to determine the profile distribution of the various bidder markets. The characteristics of the projects will be evaluated to determine the risk appetite and range that will be likely for each respective project.

WSA is prepared to initiate the study immediately upon receipt of notice-to-proceed. A study schedule is proposed which would complete all efforts up to and including development of the base case forecasts, for up to six project alternatives, within approximately 3.5 months of notice-to-proceed. The additional risk analysis (Task 8) would generally be completed within two additional weeks, or four months from NTP. The draft final report would be submitted within 4.5 months of NTP. Final versions of the report would be submitted within two weeks following receipt of TxDOT/HCTRA comments.

The lump-sum, fixed-fee for conduct of the study in accordance with the above work program will range between \$650,000 and \$775,000 dependent on the final scope of services with the optional independent economic analysis. This includes significant efforts by WSA sub consultants, to be determined. It also includes other significant data collection efforts given the unique nature of this project.

The lump-sum fixed-fee will be payable monthly based on the estimated percentage of work on each task completed during each month. This will be documented in a written progress report to be submitted within two weeks following the completion of each month.

The study fee also assumes it can obtain prior reports, any available traffic count information, updated modeling inputs from H-GAC, and permission to operate the stated preference surveys without cost to WSA.