

AN ORDINANCE 2006 - 01 - 19 - 0081

**ACCEPTING A PROPOSAL FROM PAPE-DAWSON ENGINEERS, INC. FOR TRAFFIC ENGINEERING SERVICES IN THE AMOUNT OF \$111,000.00 IN CONNECTION WITH THE CENTRAL BUSINESS DISTRICT (CBD) TRAFFIC SIGNAL MODIFICATION PROJECT, UNDER A PREVIOUSLY AUTHORIZED INDEFINITE DELIVERY PROFESSIONAL SERVICES AGREEMENT FOR CITY-WIDE TRAFFIC ENGINEERING SERVICES, LOCATED IN COUNCIL DISTRICT 1, APPROPRIATING FUNDS, ESTABLISHING A PROJECT BUDGET, AND AUTHORIZING PAYMENT FROM ADVANCED TRANSPORTATION DISTRICT (ATD) FUNDS.**

\* \* \* \* \*

**WHEREAS**, City Council authorized an indefinite delivery professional services agreement for city-wide traffic engineering services with Pape-Dawson Engineers, Inc. through Ordinance No. 100234, on January 6, 2005 and

**WHEREAS**, on July 14, 2005 through Ordinance No 101123 City Council accepted a proposal from and authorized payment to Pape-Dawson Engineers, Inc. for engineering services in connection with a traffic signal study for the Central Business District under the Indefinite Delivery Professional Services Agreement for \$140,000.00; and

**WHEREAS**, on July 14, 2005 through Ordinance No 101124 City Council authorized \$496,500.00 for the improvement and updating traffic signals and related traffic control devices within the Central Business District; and

**WHEREAS**, the project scope has now been determined by TxDOT and requires additional engineering services for this study; and

**WHEREAS**, approval of this Ordinance is consistent with Council policy to address citizen's traffic concerns; **NOW THEREFORE:**

**BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF SAN ANTONIO:**

**SECTION 1.** The proposal submitted by Pape-Dawson Engineers, Inc. for traffic engineering services relating to a Traffic Signal System Study involving the re-timing and synchronization of the TxDOT diamond traffic signals is hereby accepted. The proposal is appended and incorporated by reference as **Attachment I**.

**SECTION 2.** Payment to Pape-Dawson Engineers, Inc. to complete the Traffic Signal System Study is hereby authorized in an amount not to exceed \$111,000.00.

**SECTION 3.** The following financial adjustments are hereby authorized to effect this Ordinance:

- a. The amount of \$111,000.00 is appropriated in fund 29084000, Advanced Transportation District, GL account 6102100 – Interfund Transfer out. The amount of \$111,000.00 is authorized to be transferred to fund 40099000.
- b. The budget in fund 40099000, Project Definition 23-00489, Traffic Signal System and Related Improvements, shall be revised by increasing GL account 6101100 – Interfund Transfer In, by the amount of \$111,000.00.
- c. The amount of \$111,000.00 is appropriated in Fund 4009000, Project Definition 23-00489, Traffic Signal System and Related Improvements, WBS element 23-00489-01-02 is authorized to be encumbered and made payable to Pape-Dawson Engineers, Inc.
- d. The financial allocations in this Ordinance are subject to approval by the Director of Finance, City of San Antonio. The Director of Finance may, subject to concurrence by the City Manager, or the City Manager’s designee, correct allocation to specific SAP Fund Numbers, SAP Project Definitions, SAP WBS Elements, SAP Internal Orders, SAP Fund Centers, SAP Cost Centers, SAP Functional Areas, SAP Funds Reservation Document Numbers, and SAP GL Accounts as necessary to carry out the purpose of this Ordinance.

**SECTION 4.** This Ordinance shall become effective on January 29, 2006.

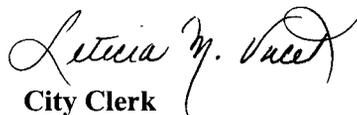
**PASSED AND APPROVED** this 19<sup>th</sup> day of January, 2006.



M A Y O R

PHIL HARDBERGER

**ATTEST:**



City Clerk

**APPROVED AS TO FORM:**



City Attorney



November 17, 2005

Ms. Elidia Banda, P.E., PTOE  
Traffic Signal Design Engineer  
City of San Antonio  
TransGuide Building  
3500 N.W. Loop 410, Suite 321  
San Antonio, Texas 78229

Re: CBD Re-Timing Expansion

Dear Ms. Banda:

Please accept this proposal for engineering services concerning the above referenced project. Our proposed project scope includes the following tasks: Develop interconnection options for the existing TxDOT diamonds.

The following signalized intersections are currently operated by the Texas Department of Transportation; however, interconnected and coordinated traffic signal operation between these intersections and the adjacent City of San Antonio operated traffic signals is expected to improve traffic flow in and around the Central Business District. Based on field observations we believe that we can achieve significant improvements in traffic signal operations around these intersections by re-timing and synchronizing the operation with the CBD intersections. As such it is desirable that these intersections be incorporated into the new CBD signal timing patterns.

TxDOT Intersections to be Incorporated into CBD System(s):

1. Martin & Pecos
2. Martin & San Saba
3. Quincy & Camaron/Santa Rosa
4. Quincy & N. Flores
5. Quincy & San Pedro
6. Quincy & Main
7. Quincy & Lexington
8. Quincy & McCullough
9. Quincy & Brooklyn
10. Elmira & N. Flores
11. Elmira & San Pedro
12. Elmira & Main
13. Elmira & Lexington

**PAPE-DAWSON ENGINEERS, INC.**

555 East Ramsey | San Antonio, Texas 78216 | Phone: 210.375.9000 | Fax: 210.375.0010 | info@pape-dawson.com

**Attachment I**

To Ordinance No. \_\_\_\_\_  
Approved on January 19, 2006

14. Elmira & McCullough
15. Elmira & Brooklyn
16. IH 35 & McCullough (N. B exit ramp)
17. IH 35 & Brooklyn

City Intersections to be included in CBD Re-Timing Expansion

1. Guadalupe & Frio
2. Guadalupe & I-37 SB FR
3. Frio & I-37 SB FR
4. Frio & Martin
5. Martin & N. Leona
6. N. Flores & E. Euclid
7. San Pedro & E. Euclid
8. Main & E. Euclid
9. Camden & Lexington
10. Camden & McCullough
11. Camden & Brooklyn
12. Augusta & Lexington
13. N. St. Mary's & Lexington
14. N. St. Mary's & McCullough
15. N. St. Mary's & Brooklyn
16. N. St. Mary's & Elmira
17. N. St. Mary's & Quincy
18. N. St. Mary's & Jones
19. Broadway & 4<sup>th</sup> Street
20. Broadway & McCullough
21. Broadway & 6<sup>th</sup> Street
22. Broadway & Brooklyn
23. Broadway & 8<sup>th</sup> Street
24. Broadway & 9<sup>th</sup> Street
25. Broadway & Jones
26. N. Alamo & McCullough
27. Avenue E & 4<sup>th</sup> Street
28. N. Alamo & Brooklyn

For the seventeen TxDOT intersections we will coordinate with TxDOT to review operations and document each location with available information. Documentation will include photographs of the equipment and determination of the phase diagrams. We will coordinate with the Texas Department of Transportation to obtain existing controller programming data and copies of the traffic signal design plans, including traffic signal modifications that have occurred since the installation of the traffic signals. Hardcopies of information will be gathered and furnished to the City; this effort does not include the development of electronic CAD files.

We recommend that several intersections that are in close proximity to the TxDOT diamonds, and located one block outside of the CBD be included in the timing plan development. Due to their proximity to the CBD intersections and their distance from other signalized intersections, localized operations will likely be improved by incorporating those intersections into the CBD operation.

We will develop two strategies for operating these intersections, a short-term strategy that can be implemented immediately by TxDOT to facilitate coordination between the City of San Antonio and TxDOT signals and a longer term strategy for the City to take over the TxDOT intersections and install a City controller assembly as funds become available.

#### Short-Term Strategy

Coordinate the existing TxDOT traffic signals with adjacent City intersections by use of Time Based Coordination (TBC) via a synchronized time reference. This will require the provision of common time reference devices, either WWV radio units or other time reference devices for the downtown Masters and the various intersections listed above. The TxDOT intersections are interconnected to a closed-loop master(s), so coordination of the TxDOT time reference and the City's time reference must occur to provide time-based coordination across the jurisdictional boundaries. We will assist the City and TxDOT to incorporate the correct time reference into the two Closed-Loop system servers to facilitate time-based coordination between the systems. We will furnish two timing devices to provide the time-based interconnection. These devices will be installed by trained vendor personnel who furnish the equipment. The final product will be a turnkey installation.

#### Long-Term Strategy

As part of a long-term strategy, we will prepare controller programming data for the replacement of the existing TxDOT NEMA controller cabinet assemblies with City of San Antonio Model 170 controller programming for the BI Tran Systems firmware, version 2.33, and set up the intersections to operate with the City of San Antonio's standard phasing arrangement. This will include re-phasing of the intersections to match the City Standard Phasing arrangements.

This will be developed such that the City of San Antonio may take over and replace the existing control equipment as funding for controller cabinet replacements become available.

We will develop traffic signal timing for the remaining intersections (inclusive of the TxDOT diamonds) on the north section of downtown (north of Martin Street to the freeway(s)). We also want to add the intersections of Guadalupe at I-35 and Guadalupe at Frio Street to the southwest section of the CBD signal timing plans. A total of 45 intersections will be re-timed, inclusive of the TxDOT intersections.

## **I. SCOPE OF SERVICES**

### **Traffic Signal Re-timing/Coordination**

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#### **Task 1: Review Existing Conditions/Traffic Data Collection**

We will review field conditions and existing operations. We will gather traffic counts at the seventeen TxDOT intersections noted above and gather automatic traffic counts for two locations along Quincy and two locations along Elmira to assist in reviewing traffic flows. Since there are no traffic volume records for any of these locations we will collect a complete set of turning movement data for the following hours of a normal weekday:

- AM Peak (6:30 – 9:00 AM)
- Noon (11:30 AM – 1:30 PM)
- Offpeak (2:00 – 3:00 PM)
- PM Peak (4:00 – 6:00 PM)

#### **Task 2: Coordinate Upgrade of TransGuide SQL Server**

We will subcontract with BI Tran Systems to send a technician to San Antonio for up to two (2) days to set-up the City's new BI Tran Systems Quicknet SQL server at TransGuide. City will have hardware set-up and operational. We will bring in the BI Tran Systems technician and have them set-up and rebuild the City's Quicknet database. In consultation with BI Tran Systems staff, Mr. Mike Travers, we have budgeted two (2) days for this task.

#### **Task 3: Synchronize Time Clocks between City and TxDOT Systems**

We will coordinate with TxDOT and the City of San Antonio for installing synchronized time clocks for the City and TxDOT systems. The time clock synchronization will include the installation of time coordination devices at two locations to be determined with City and TxDOT. The time keeping devices will either be based on WWV, web-based, or GPS technologies. If building modifications, such as running cables or mounting equipment to the building exterior, or rooftop, are required, we will coordinate that work with the appropriate City or TxDOT staff.

#### **Task 4: Timing Evaluation/Development**

For the TxDOT and additional City intersections we will use our resources that may include TS/PP Draft and Synchro to develop a starting plan for the proposed traffic signal timing plans. We will prepare Synchro Models for the four data collection time periods, AM, Noon, Offpeak, and PM. The data file will include link distances, number of lanes, measured vehicle speeds, and traffic volumes. We will use engineering judgment, field observations, and model results to evaluate/adjust traffic signal settings. We plan to

maximize our use of experienced traffic signal engineers in the field during the timing plan development process. Synchro and time-space diagrams prepared using TS-PP Draft will be submitted to the City for review of our proposed timing plans. We will code the timing plans using the City's BI Tran Systems timing plan coding sheets. We may use computer models to develop our starting points for signal timing plan development; however, we plan to modify those results manually for improved results.

For the seventeen TxDOT intersections we will prepare clearance interval timings, based on ITE's recommended practice, and pedestrian timings based on City of San Antonio policies and national standards. These values will be coded into the programming developed for the City of San Antonio, BI Tran Systems, coding forms for the Model 170 controllers.

For immediate implementation, we will code the recommended timings, including cycle lengths, offsets, splits (force offs), and clearance intervals into the TxDOT standard timing form for implementation by the State. We will coordinate development of these timing values with TxDOT staff to facilitate implementation of Time-Based Coordination between the jurisdictional boundaries of the City of San Antonio and Texas Department of Transportation.

We will code the City intersection timing plans into the BI Tran Systems coding sheets.

#### **Task 5: Implementation and Adjustment**

After submittal of the coding sheets, we will coordinate the installation of the timings with TxDOT and the City. We will review the implemented plans and adjust for field conditions to account for the reduced data collection and other traffic-related dynamics. City shall provide either a system operator or field technician who is specifically assigned to this project during the field implementation process. We will coordinate with TxDOT to have a TxDOT technician or engineer on hand to assist with any adjustments needed at the TxDOT controlled locations. We will provide recommendations for modifications associated with left-turn phasing or system boundaries, during the project, based on field observations and engineering judgment.

#### **Task 6: Final Review and Report**

We will perform a final review of the timings with City personnel. We will document the results of project in a brief summary report. Summary results will be based on Measures of Effectiveness including Delay, Stops, and Fuel Consumption estimates derived from Synchro/SimTraffic. Our manual adjustments to the signal timing plans will be incorporated into the final TS/PP Draft time-space diagrams and Synchro files furnished to the City.

## II. SCHEDULE

We will develop new traffic signal timings for the intersections in logical groups. Assuming a notice-to-proceed by January 15, 2005, we will provide all of the new timings for these north intersections by May 31, 2006. Timings will be implemented as they are developed and we anticipate having all plans installed and adjusted by June 30, 2006.

## III. ASSUMPTIONS

*This proposal is based on the following assumptions:*

- ◆ *No field instrument surveying is included as part of this proposal.*
- ◆ *Traffic data may be collected, as required, at the discretion of the engineer.*
- ◆ *We will coordinate progression with the 80 second cycle length plans developed for the CBD.*
- ◆ *City of San Antonio will have their SQL traffic signal system server hardware installed and operational by November 1<sup>st</sup> to allow for scheduling of BI Tran Systems Technicians to install software and load database. We will not schedule technician until the SQL server is up and running at TransGuide. We have budgeted two (2) days of technician time, based on input from BI Tran Systems staff.*
- ◆ *We will not evaluate existing City of San Antonio intersection pedestrian timings and will base our analysis on the reasonable assumption that the existing pedestrian timings are adequate based on the City's prior use of those timings.*
- ◆ *We will evaluate the existing TxDOT intersection pedestrian timings and clearance intervals and will provide recommendations for new settings for the 17 TxDOT intersections.*
- ◆ *Installation of cables in existing buildings or the mounting of any antennae on building structures will be coordinated with the appropriate staff with TxDOT or City of San Antonio.*
- ◆ *We will furnish any electronic data that we develop for this project to the City of San Antonio upon completion of this project; however, we are preparing new traffic signal timings. We will provide final Synchro data files for the intersections. We will provide final TS-PP/Draft time space diagrams that are updated.*

#### IV. COMPENSATION

##### Basis of Compensation

The following includes a breakdown of costs by project subtask.

Review Existing Conditions/Traffic Data Collection	\$11,000
Coordinate Upgrade of TransGuide SQL Server	\$5,000
Synchronize Time Clocks between City and TxDOT Systems	\$6,000
Timing Evaluation/Development	\$45,000
Implementation and Adjustment	\$40,000
Final Review and Report	<u>\$4,000</u>
TOTAL	\$111,000

Pape-Dawson's compensation for the above services will be a charge for personnel services plus an hourly charge for specialized equipment and computers. A budget of **\$111,000** is the estimated cost of Pape-Dawson's current understanding of the services identified above. This budget figure does not include any Direct Expenses (defined below) nor applicable sales tax on services. This budget figure will not be exceeded without written modification of this Agreement.

Direct Expenses shall include reproduction, travel, long distance telephone calls, express mail, special deliveries and subcontractor expenses directly related to these services. Direct Expenses shall include a 10% markup on cost.

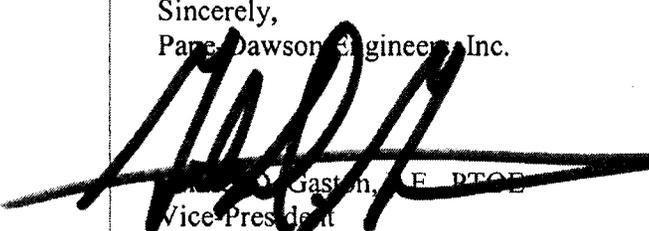
##### Agreement

Upon Client's signing of this Proposal, this Proposal and the attached Terms and Conditions become the Agreement between the Client and Pape-Dawson.

We appreciate the opportunity to work with you on this project. Please find attached duplicate originals of our Professional Services Agreement. If this proposal and agreement meets with your approval, please acknowledge such by signing this proposal letter and the attached duplicate originals of the Professional Services Agreement and returning one original of each to our office for our records. Receipt of the executed documents will serve as your authorization for us to proceed with the work.

Sincerely,  
Pape-Dawson Engineers, Inc.

City of San Antonio

  
Elidia Banda, P.E., PTOE  
Vice-President

Signature: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date: \_\_\_\_\_