STATE OF TENNESSEE

DEPARTMENT OF TRANSPORTATION

PROPOSAL CONTRACT

FOR THE CONSTRUCTION OF

Contract No. CNC211

SHELBY COUNTY
Project No. IM-098-4(5),79960-3132-44;BHI-098-4(6),79960-3139-94

IM-098-4(5), 79960-3132-44
Memphis Regional Transportation Management System (TMS) The complete construction and testing of approximately 17 miles of Intelligent Transportation Systems (ITS) equipment in Memphis.
Project Length - 17.000 miles
ONLY BIDDERS WHO HAVE MET SPECIAL PRE-QUALIFICATION REQUIREMENTS FOR THIS PROJECT MAY BID ON THIS CONTRACT.

BHI-098-4(6), 79960-3139-94
The rewiring and upgrade of navigation, aerial, and roadway lighting on the bridge on I-40 over the Mississippi River.
Project Length - 0.000 mile

Total Project Length - 17.000 miles
Completion Time - On or before 6/11/2005 (See Special Provision 108B)

AT AN ESTIMATED COST OF $_____

By _____

City, St. _____

Surety _____

Special Condition 5

Add a new Article 108.09; Construction Schedule:

Within 21 days after the submission of the Contractor's tentative schedule at the Preconstruction Conference, as a condition precedent to the submission of the first pay application, the Contractor shall submit a complete proposed Construction Schedule. During the development of this schedule the Contractor shall attend a scheduling conference with the Engineer to discuss the specific details and format of the schedule. The construction schedule shall be a Critical Path Method Schedule and shall meet the following specifications:

A. General

1. Careful evaluation and pricing of the schedule provisions of this Contract are important to assure compliance with the language and intent of the schedule specification. The schedule provisions are designed to provide the Contractor and the Engineer with a tool for planning and controlling the progress payments and equitable compensation for changes and delays. The Contractor must perform work in accordance with the approved Critical Path Method (CPM) Schedule to achieve timely completion of all Contract milestones and to avoid acceleration, termination for default, and end of Contract claims for liquidated damages. The Contractor must give the schedule provisions particular consideration and resolve any areas of uncertainty by asking appropriate questions prior to bid opening. All costs associated with producing and maintaining the schedule and all related meetings shall be considered as incidental and included in the cost of other items.

   The schedule submission times shall be as specified in this Special Provision.

2. The Contractor shall provide CPM schedules as defined in the following criteria:

   a. The purpose of the Project Schedule shall be to:

      (1) Assure adequate planning, scheduling and reporting during execution of the work by the Contractor;

      (2) When more than one Prime Contractor is working at a site, assure coordination of work of the Contractor and the various subcontractors and suppliers at all tiers;

(3) Assist the Contractor and Engineer in monitoring the progress of the work and evaluating proposed changes to the Contract and the Project Schedule;

b. The schedule shall be developed and submitted using standard CPM scheduling software.

c. After the Preconstruction Conference, the Contractor shall meet with the Engineer to conduct a joint review of the Project Schedule requirements of the Contract to assure the Engineer of the Contractor's understanding of the requirements of the Section.

d. There will be a formal presentation by the Contractor of its intended prosecution of the project. The Contractor shall conduct the formal presentation utilizing schedule graphics and charts of the approach the Contactor will take to complete the project within the contractual milestones.

B. Detailed Schedule

1. The Contractor shall submit, within 21 days of the Preconstruction Conference, a Detailed Schedule showing all work to be accomplished on the project. The Detailed Schedule shall include, but not be limited to the following:

a. Procurement activities:

The proposed activities shall include mobilization, shop drawings and sample submittals, fabrication and delivery of key and long-lead procurement elements. The schedule shall indicate intended submittal dates and realistic delivery dates for fabrication and delivery activity.

(1) The Engineer's review of: show drawings, product data, samples and requested substitutions shall be identified as schedule activities.

b. Construction activities:

(1) The construction activities shall cover all physical work activities performed by the Contractor and subcontractor.

(2) The construction activities shall also cover all work to be performed by Utilities, the Tennessee DOT, or its contractors related to the Contract.

c. Milestone events.

d. Commissioning activities, as separate activities, shall show:

(1) All training activities required by the Contract prior to project or phase substantial completion; and

(2) All testing activities required by the Contract prior to project or phase substantial completion.

2. The time duration assigned to each activity shall be the Contractor's best estimate of working days required to complete the activity considering the scope and resources planned for the activity.

3. Anticipated lost time due to weather shall be included in the Schedule to ensure completion of all work within the Contract time. These days will be eliminated from the Schedule's work calendar and spread over each month. Individual activity durations are not to be increased to include expected lost weather days. Any time extension requests due to unusually severe weather are to be reviewed by TDOT, and subject to the requirements in the TDOT Standard Specifications.

4. Restrictions and phasing of all temperature-sensitive construction activities shall be included in the Schedule. The Contractor's incorporation of these restrictions into the schedule must be acceptable to the Engineer.

5. In developing the Schedule, the Contractor shall be responsible for assuring that all parties, subcontractors and suppliers, work at all tiers.

6. The following shall be depicted on the Network (and in the subsequently generated computer schedule reports) for each activity:

a. The Contractor shall initialize a unique activity number for each schedule activity;

b. Concise description of the work represented by the activity (maximum forty-eight (48) characters);

c. Activity duration in whole working days

d. A code that differentiates between submittal/procurement activities and construction activities;

e. Each submission of Detailed Schedule shall include:

(1) Two (2) color-coded plots of its proposed Detailed Network (Time Scale Logic Diagram) which shall be neatly organized and plotted time scaled from left to right on 11" x 17" sheets with suitable notation relating the interface

points among sheets (approved baseline schedule shall be submitted in 24" x 36" or 30" x 42" standard size sheets).

(2) A written Narrative that shall present the construction approaches and explains the schedule logic. It shall discuss the project's critical path. It shall state how the Contractor plans to work the project (days/shifts/hours). It shall give the expected number of lost working days to weather for each month and discuss how the Schedule calendar accounts for these lost days. It shall present any temperature restrictions included in the schedule.

g. If the Engineer questions the Contractor's proposed activities, logic, or durations, the Contractor shall provided a satisfactory revision, or adequate justification, to the satisfaction of the Engineer.

h. Failure by the Contractor to include any element of work required for performance of the Contract shall not excuse the Contractor from completing all work within the Contract time.

i. The approved Detailed Schedule #1 shall become the baseline project schedule for logic and durations.

C. Engineering Reviews, Joint Reviews, Revisions and Acceptance:

1. The Engineer will review the initial submissions of the Detailed Schedule and will respond with comments. The Engineer and the Contractor shall meet within one week from the date that the Engineer submitted the comments for joint review. Any areas which, in the opinion of the Engineer, conflict with timely completion of the Contract shall be subject to revision of by the Contractor.

2. In the event the Contractor fails to define any element of work, activity, or logic and the Engineer's review does not detect this omission or error, such omission or error, when discovered by the Contractor or the Engineer, shall be corrected by the Contractor at the next monthly Schedule Update (as discussed hereinafter) and shall not affect the Contract time.

3. The Contractor shall revise the Schedule in accordance with agreements reached during the joint review meetings and submit ten (10) color-coded 11"x17" prints of the revised, approved network at the next schedule update meeting. Two (2) approved baseline schedules shall be printed on 24" x 36" or 30" x 42" standard size sheets.

4. Upon establishment of an agreed-upon Project Schedule, the Contractor shall sign and date on the face of the Project Schedule documents which

shall then indicate the Contractor's acceptance and approval of the Project Schedule.

5. Acceptance by the Engineer of the Contractor's approved Project Schedule will be a condition precedent to the making of any progress payments beyond the first progress payment under the Contract.

D. Project Schedule Updating:

1. The Project Schedule shall be updated on a monthly basis throughout the entire Contract time and until the Contract's Substantial Completion. The Contractor shall meet with the Engineer each month at the Schedule Update meeting to review actual progress made through the data date of the Schedule Update, including dates activities started and / or completed, and to discuss the scheduling of future work. Revisions to the Network logic to more accurately reflect the anticipated workflow can be discussed and mutually agreed-to, as well as changes to activity durations, manning and equipment. The data date of each Schedule Update, shall be on or before the seventh (7th) day preceding the schedule meeting. Contractor-prepared estimates of the percent completion of each schedule activity shall be presented at the update meeting.

2. In addition to ten (10) 11"x17" color coded plots of each schedule update, the Contractor shall also submit the following information:

   a. A written Narrative summarizing schedule status and providing the following detailed information:

      (1) A listing of activities added and deleted.

      (2) A listing of logic changes (overlapping, etc.)

      (3) A discussion of possible recovery actions to counter any schedule slippage. In the event that schedule slippage exceeds twenty-one (21) calendar days, this portion of the Narrative will be comprehensive. If it is not, then the Engineer may reject the schedule update and delay processing of the monthly Pay Request.

      (4) If negative float is shown in the schedule a description and justification for the negative float shall be provided.

3. In case of disagreements at the schedule update meeting, concerning actual progress to date, the Engineer's determination shall govern.

4. Upon completion of the schedule update meeting, the Contractor shall revise the Project Schedule to reflect not only the next month's progress

but incorporate any required revisions from the previous meeting, and submit the updated schedule with narrative to the Engineer seven (7) calendar days before the next schedule update meeting date. This submittal will be considered the updated schedule for the monthly schedule meeting.

E. Project Schedule Revisions:

1. Updates to the Project Schedule to reflect actual progress made up to the date of a Schedule Update shall not be considered a revision of the Project Schedule.

2. If, as a result of the monthly Schedule Update, it appears that the Project Schedule as shown no longer allows attainment of the Project completion date, the Engineer will request, and the Contractor shall submit, a revision to the Project Schedule that recovers the current slippage. The Contractor may improve the remaining schedule by performing sequential activities concurrently or by performing activities more quickly than planned with additional manpower or equipment. The Engineer shall make his request in writing within five (5) calendar days of receiving the monthly update. The Contractor shall submit this recovery schedule at least five (5) calendar days before the next schedule update meeting so that the Engineer may review and accept it for use in the next schedule update.

3. The Contractor may also request revisions to the Project Schedule in the event the Contractor's planning of the work is revised. If the Contractor desires to make changes in the Project Schedule to reflect revision in its method of performing the work, the Contractor shall notify the Engineer in writing at least seven (7) calendar days prior to the next Schedule Update meeting stating the reason for, and describing, the proposed revisions. Accepted revisions will be incorporated into the Project Schedule at the next monthly Schedule Update.

4. If the Engineer believes that the Project Schedule needs a specific revision, either in logic, activity duration or manpower, it will be requested from the Contractor in writing. The Contractor shall respond in writing within seven (7) calendar days, either agreeing with the Engineer's proposed revision, and henceforth including it in the next Project Schedule Update or setting forth justification why it should not be accomplished. If the Contractor's justification for not accomplishing the revision is accepted, such revision will not be incorporated into the next update of the Project Schedule. The Contractor's failure to respond in writing within seven (7) calendar days will be deemed to be an acceptance of the Engineer-requested revision, and such revision shall be incorporated into the next Project-Schedule update.

F. Time Impact Analysis for Proposed Change Orders and Delays:

1. When the Contractor desires to obtain an extension of the project duration because of a change order or other occurrence on the project, the Contractor shall submit to the Engineer a written Time Impact Analysis illustrating the influence of the change order or occurrence on the Contract Schedule. Each Time Impact Analysis shall include a Fragmentary Network (FragNet) demonstrating how the Contractor proposes to incorporate the change order or occurrence into the Project Schedule. The Time Impact Analysis shall demonstrate the time impact based on the date the change order was given to the Contractor or the date of the occurrence; the status of construction at that point in time; and the event time computation of all affected activities.

2. Activity delays shall not automatically mean that an extension of the Contract time is warranted or due to the Contractor. It is possible that a change order or occurrence will not affect existing critical activities or cause non-critical activities to become critical. A change order or occurrence may result in only absorbing a part of the available total float that may exist within an activity chain of the Network, thereby not causing any effect on the Contract time.

3. Float is not for the exclusive use or benefit of either the Owner or the Contractor. Extension of the Contract time will be granted only to the extent the equitable time adjustments to the activity or activities affected by the change order or occurrence exceeds the total float of a critical activity (or path) and extents the Contract time.

4. Two (2) copies of each Time Impact Analysis shall be submitted in accordance with the following along with a written proposal for any requested time extension;

    a. Within seven (7) calendar days after receipt of a written change order;

    b. Within ten (10) calendar days from the beginning of a delay from unforeseeable causes.

    c. With the filing of a written notice of claim.

5. In cases where the Contractor does not submit a Time Impact Analysis within the time requirements stated above, it shall be considered a waiver of any request for an extension of the Contract Performance Time. Any subsequent Time Impact Analysis submitted by the Contractor shall be dismissed by the Owner as untimely.

6. Review of the Time Impact Analysis will be performed by the Engineer on a case by case basis.

7. The Time Impact Analysis related to a change order shall be incorporated into and attached to the applicable change order for review.

G. Responsibility for Completion:

1. The Contractor shall furnish sufficient forces, offices, facilities and equipment, and shall work such hours including night shift and overtime operations, as necessary to ensure the prosecution of the work in accordance with the current Project Schedule Update. If the Contractor falls behind in meeting the Project Schedule as denoted by negative float in the current monthly Project Schedule Update, at the direction of the Engineer, the Contractor shall take such steps as may be necessary to improve its progress.

2. Failure of the Contractor to comply with the requirements of paragraph G.1 above shall be a basis for determination by the Engineer that the Contractor is not prosecuting the work with such diligence as will ensure completion within the Contract time. Upon such determination, the Engineer may terminate the Contractor's right to proceed with the work or any separable part thereof.

H. Products (Scheduling Software):

The scheduling software used by the Contractor shall be standard off-the-shelf Critical Path Method (CPM) scheduling software. Upon request from the Engineer, the Contractor shall be ready to submit an electronic copy of the baseline schedule and/or schedule updates. Storage media format can be either standard 3.5" double-sided, high density floppy disks, or CD.

I. Progress Meetings:

1. The Contractor shall attend weekly progress meetings with the Engineer. The meetings shall be attended by the Contractor's key project personnel. The overall status of the Contract shall be reviewed with particular attention to planned activities with special emphasis toward planned interruptions to existing utilities or services.

2. The Contractor shall prepare for each meeting a bar chart construction schedule depicting the work accomplished the previous week and planned activities for the upcoming two week period. This schedule shall be derived from the most recent statused progress schedule. Any deviations from this planned schedule shall be documented in writing and immediately brought to the attention of the Engineer. All deviations form this planned schedule shall be subject to the Engineer's review and approval.