

THE FOLLOWING ITEMS ARE SPECIAL PROVISIONS TO
THE CITY OF SAN ANTONIO
STANDARD SPECIFICATIONS FOR CONSTRUCTION
DATED JUNE 2008

1. Item 700 Project Schedules.....7 Pages

General

1. None

Standard Specifications

1. Delete Item 700 - Cost Loaded Schedules (*dated June 2008*) in its entirety and replace with Item 700 – Project Schedules (*dated February 2010*) shown on the attached document.

ITEM 700
✦
PROJECT SCHEDULES

This item shall govern the creation, maintenance, and delivery of Critical Path Method (CPM) project schedules.

CRITICAL PATH METHOD PROJECT SCHEDULE

The Contractor shall create and maintain a Critical Path Method (CPM) Project Schedule showing the manner of execution of work that the contractor intends to follow in order to complete the contract within the allotted time. The project schedule shall employ computerized CPM for the planning, scheduling and reporting of the work as described in this specification. The CPM project schedule shall be prepared using the Precedence Diagram Method (PDM). The Contractor shall create and maintain the schedule using Primavera Project Manager 5.x or above or Primavera Contractor 4.1 or above. For construction contracts under \$300K and project durations 90 days or less, the project schedule can be created and maintained in Microsoft Project software. The observance of the requirements herein is an essential part of the work to be done under the contract. No direct compensation will be allowed for fulfilling these requirements, as such work is considered subsidiary to the various bid items of the contract.

PERSONNEL

The Contractor shall provide an individual, referred to hereafter as the Scheduler, to create and maintain the Project Schedule. The Scheduler shall be proficient in Critical Path Method (CPM) analysis as demonstrated through certification from Project Management Institute (PMI), Association for the Advancement of Cost Engineering (AACE) or possess sufficient experience to be

able to perform required tasks on the specified software and be able to prepare and interpret reports from the software. The Scheduler shall be made available for discussion or meetings when requested by the City.

PROJECT SCHEDULE

1. GENERAL:

At least twenty (20) calendar days prior to the pre-construction conference, the Contractor shall submit a Project Schedule, which shall show the sequence and interdependence of activities required for complete performance of the work. All schedule submittals shall be in the electronic form to include PDF plots of the schedule, a PDF plot defining the Critical Path and two week look-ahead, and include the native Primavera file format. The Contractor shall submit the schedule to the Web-portal and Project Manager via electronic mail, CD-Rom, floppy disc, or any other electronic media acceptable to the City. The City will review the Project Schedule within twenty (20) calendar days for compliance with the specifications and notify the Contractor at the pre-construction conference of its acceptability. No work shall begin until the City has accepted the Project Schedule.

2. SEQUENCE:

The Project Schedule shall show the sequence and interdependence of activities required for complete performance of the work. The Contractor shall be responsible for assuring all work sequences are logical and show a coordinated plan of the work. The purpose of

the City requiring the Project Schedule shall be to:

- a. Ensure adequate planning during the execution and progress of the work in accordance with the allowable number of calendar days and all milestones.
- b. Assure coordination of the efforts of the Contractor, City, Utilities and others that may be involved in the project and that activities are included in the schedule highlighting coordination points with others,
- c. Assist the Contractor and City in monitoring the progress of the work and evaluating proposed changes to the contract, and
- d. Assist the City in administering the contract time requirements.

3. ACTIVITIES:

Each activity on the Project Schedule shall include:

- a. An activity number utilizing an alphanumeric designation system that is agreeable to the City;
- b. Concise description of the work represented by the activity; and
- c. Activity durations in whole work days with a maximum of twenty (20) work days. Durations greater than twenty (20) work days may be used for non-construction activities (mobilization, submittal preparation, curing, etc.), and other activities mutually agreeable between the City and Contractor.

The Contractor shall provide to the City a legend for all abbreviations. The activities shall be coded so that organized plots of the

Project Schedule may be produced. Typical activity coding includes traffic control phase, location and work type. Show an estimated production rate per working day for each work activity. Activity durations shall be based on production rates shown.

4. WORK DURATION AND RESOURCES:

The schedule layout shall be grouped by Project and then by Work Breakdown Structure (WBS) for organizational purposes. The original and remaining duration shall be displayed. The grouping band will, by default, report work days planned. One additional level of effort activity shall be added to the schedule as a "time calculator" with a seven-day calendar without holidays. The calculation of their days will show up in the duration columns in Primavera.

If specified by general note, the Contractor shall plan and incorporate major resources into the Project Schedule. Major resources are defined as crews and equipment that constrain the Contractor from pursuing available work. The resources shall accurately represent the Contractor's planned equipment and manpower to achieve the productivity rates specified above.

Work shall be scheduled based upon the Contractor's standard work week utilizing the appropriate calendar assignments in Primavera software. If the Contractor's initial baseline plan is to perform the Work on a six or seven-day work week, then the appropriate calendar in Primavera must be used and the Engineer must be notified in writing through the Submittal process. This does not affect the total calendar days allotted by the contract.

Assign working calendars for the days you plan to work. Designate all City holidays (12) as non-working days (holidays). For dates beyond the current calendar year assume that

the City holidays are the same as the current calendar year.

Seasonal weather conditions shall be considered and included in the Project Schedule for all work influenced by temperature and/or precipitation. Seasonal weather conditions shall be determined by an assessment of average historical climatic conditions. Average historical weather data is available through the National Oceanic and Atmospheric Administration (NOAA). These effects will be simulated through the use of work calendars for each major work type (i.e., earthwork, concrete paving, structures, asphalt, drainage, etc.). Project and work calendars should be updated each month to show days actually able to work on the various work activities.

Total float is defined as the amount of time between the early start date and the late start date, or the early finish date and the late finish date, for each and every activity in the schedule. Float time in the Project Schedule is a shared commodity between the City and the Contractor.

Only City responsible delays in activities that affect milestone dates or the contract completion date, as determined by CPM analysis, will be considered for a time extension.

5. OTHER REQUIREMENTS:

Code and organize all work by Work Breakdown Structure (WBS). An example WBS will be provided by the City.

Percent complete type shall be Duration Percent Complete.

Duration type shall be Fixed Units

Submittals shall be included in the schedule with a logical tie to what each drives.

Proposed Change Orders shall be added the schedule identifying it as a Proposed Change Order. This task must be linked to the schedule with logical ties and approved by the City. Upon approval of Change Order, task will be renamed identifying work performed and Change Order number and resources will be added to the task.

Constraints are limited to project start, project finish, material delivery, and use on Submittals. If a schedule requires additional constraints, then an explanation shall accompany the schedule Submittal.

The schedule shall include activity milestones for material delivery.

Default progress is disallowed.

If work is performed out of sequence, then an explanation must be included in the project narrative.

JOINT REVIEW, REVISION AND ACCEPTANCE

Within twenty (20) calendar days of receipt of the Contractor's proposed Project Schedule, the City shall evaluate the schedule for compliance with this specification, and notify the Contractor of its findings. If the City requests a revision or justification, the Contractor shall provide a satisfactory revision or adequate justification to the satisfaction of the City within seven (7) calendar days. If the Contractor submits a Project Schedule for acceptance, which is based on a sequence of work not shown in the plans, then the Contractor shall notify the City in writing, separate from the schedule submittal.

The City's review and acceptance of the Contractor's Project Schedule is for conformance to the requirements of the

contract documents only. Review and acceptance by the City of the Contractor's Project Schedule does not relieve the Contractor of any of its responsibility for the Project Schedule or of the Contractor's ability to meet interim milestone dates (if specified) and the contract completion date, nor does such review and acceptance expressly or by implication warrant, acknowledge or admit the reasonableness of the logic, durations, manpower or equipment loading of the Contractor's Project Schedule. In the event the Contractor fails to define any element of work, activity or logic and the City review does not detect this omission or error, such omission or error, when discovered by the Contractor or City shall be corrected by the Contractor at the next monthly schedule update and shall not affect the project completion date.

Acceptance by the City of a Baseline or project update schedule that exceeds contractual time does not alleviate the Contractor from meeting the contractual completion date.

Payment may be delayed until acceptable baseline or updated schedule is received and accepted by the City.

UPDATES

The Project Schedule shall be updated on a monthly basis. The Project Schedule update shall be submitted one week prior to the pay application submittal. The Contractor shall meet with the City each month at a scheduled update meeting to review actual progress made through the Data Date of the schedule update as determined by the Project Manager. The review of progress will include dates activities actually started and/or completed, the percentage of work completed, the remaining duration of each activity started and/or completed, and the amount of work to complete with an analysis of the relationship

between the remaining duration of the activity and the quantity of material to install over that given period of time with a citation of past productivity. The monthly schedule update shall include a progress narrative explaining progress, identifying progress made out of sequence, defining the Critical Path, identification of any potential delays, etc. The Project Schedule Narrative template will be required for the narrative.

The project schedule update layout shall be grouped by Project, then WBS. The layout shall include the following columns:

- a. Activity ID
- b. Activity Description
- c. Original Durations
- d. Remaining Durations
- e. Start and Finish Dates
- f. Baseline Start and Finish Dates
- g. Total Float
- h. Performance Percent Complete
- i. Display logic and target bars in the Gantt bar chart view

PROJECT SCHEDULE REVISIONS

If the Contractor desires to make major changes in the Project Schedule, the Contractor shall notify the City in writing and submit the proposed schedule revision. The written notification shall include the reason for the proposed revision, what the revision is comprised of, and how the revision was incorporated into the schedule. Major changes are hereby defined as those that may affect compliance with the contract requirements or those that change the critical path. All other changes may be accomplished through the monthly updating process without written notification.

TIME IMPACT ANALYSIS

The Contractor shall notify the City when an impact may justify an extension of contract time or adjustment of milestone dates. This notice shall be made in writing as soon as

possible, but no later than the end of the next estimate period after the commencement of an impact or the notice for a change is given to the Contractor. Not providing notice to the City within twenty (20) calendar days after receipt will indicate the Contractor's approval of the time charges as shown on that time statement. Future consideration of that statement will not be permitted and the Contractor forfeits his right to subsequently request a time extension or time suspension unless the circumstances are such that the Contractor could not reasonably have knowledge of the impact by the end of the next estimate period.

When changes are initiated or impacts are experienced, the Contractor shall submit to the City a written time impact analysis describing the influence of each change or impact. A "time impact analysis" is an evaluation of the effects of changes in the construction sequence, contract, plans, or site conditions on the Contractor's plan for constructing the project, as represented by the schedule. The purpose of the time impact analysis is to determine if the overall project has been delayed, and if necessary, to provide the Contractor and the City a basis for making adjustments to the contract.

A time impact analysis shall consist of one or all of the steps listed below:

1. Establish the status of the project before the impact using the most recent project schedule update prior to the impact occurrence.
2. Predict the effect of the impact on the most recent project schedule update prior to the impact occurrence. This requires estimating the duration of the impact and inserting the impact into the schedule update. Any other changes made to the schedule including modifications to the

calendars or constraints shall be noted.

3. Track the effects of the impact on the schedule during its occurrence. Note any changes in sequencing, and mitigation efforts.
4. Compare the status of the work prior to the impact (Step 1) to the prediction of the effect of the impact (Step 2), and to the status of the work during and after the effects of the impact are over (Step 3). Note that if an impact causes a lack of access to a portion of the project, the effects of the impact may extend to include a reasonable period for remobilization.

The time impact analysis shall be electronically submitted to the City. If the Project Schedule is revised after the submittal of a time impact analysis but prior to its approval, the Contractor shall promptly indicate in writing to the City the need for any modification to its time impact analysis. One (1) copy of each time impact analysis shall be submitted within fourteen (14) calendar days after the completion of an impact. The City may require Step 1 and Step 2 of the time impact analysis be submitted at the commencement of the impact, if needed to make a decision regarding the suspension of contract time. Approval or rejection of each time impact analysis by the City shall be made within fourteen (14) calendar days after receipt unless subsequent meetings and negotiations are necessary.

MEASUREMENT and PAYMENT

Project Schedule will not be measured or paid for directly, but shall be included in the unit price bid for the items of construction in which the operations occur.

PROJECT SCHEDULE NARRATIVE

PROJECT NAME:	
CONTRACTOR NAME:	
PERIOD ENDING:	
SUBMITTAL DATE:	
PREPARED BY:	

Evaluation Summary	
NTP:	
Data Date:	
Contractual Completion Date:	
Current Scheduled Completion Date:	
Previous Period Scheduled Completion Date:	
Contract Calendar Days:	

Yes	No	
		Contractor has included both a hard copy (pdf) and the native Primavera file format?
		Project calendars have been updated to reflect actual charged working days for the progress period, according to the contract time statement?
		Schedule update reflects approved change orders for the progress period?
		Have any major changes been made to the schedule? <i>(A major change is defined as those that may affect compliance with the contract requirements or those that change the critical path. If yes, written notification is required to include the reason for the proposed revision, what the revision is comprised of, and how the revision was incorporated into the schedule.)</i> If yes, provide details in Section 3 & 5 below.
		Are any delays included in this schedule submittal for which the Contractor intends to submit a Time Impact Analysis (TIA) for a claim delay? If yes, provide details in Section 6 below.

1. Identify general progress for the update period.
2. Identify work performed out of sequence and provide an explanation for the reason.

3. Describe any changes made to the project's logic and the reason for the change(s).
4. Identify any new constraints used and provide an explanation for their use.
5. Define the critical path of the project, including any changes from the previous update.
6. Identify any delays that have occurred for the progress period, the reason for the delay, and current status.
7. Identify any potential delays and possible mitigation efforts.
8. Other comments.