Appendix A

Guidelines for Use of Cost + Time (C+T) Bidding Provisions

General

Use of *C+T Bidding* contract provisions will be determined by each district or region.

Consideration to use *C+T Bidding* should be made in the early design stages of a project. Support costs should be accurately estimated to reflect a contractor's potentially aggressive schedule and be included in work plans as early as possible in the project development phase.

Document *C+T Bidding* decisions in the project history file and in "Attachment A" of the Plans, Specifications, and Estimate (PS&E) submittal.

After bid selection, projects with *C+T Bidding* are administered the same as traditionally bid projects. The main difference is the total number of contract working days is determined by competitive bidding rather than by specification. Use the standard definition of "working days" in the contract specifications for projects with *C+T Bidding*.

Purpose

C+T Bidding is used to motivate the contractor to minimize delivery time for roadways considered high priority and with high traffic volume. Increased contractor schedule risks are balanced through competitive bidding. This method is normally considered when:

1) There are significant impacts anticipated on a community or its economy during construction.
2) It is in the public interest to expedite completion of the project.
3) Traffic restrictions and mobility impact carry a high road-user cost.
4) Traffic control phasing can be structured to minimize the contractor's duration of construction.
5) The project is relatively free of potential delays, third-party conflicts, and risks.

Recommended Use

Use *C+T Bidding* on projects estimated $1 million or more in construction cost and 100 or more working days.

Use *C+T bidding* on projects that are not:

1) Using design-build.
2) Exclusively highway planting.

Use *C+T Bidding* on projects advertised without:

1) Pending right-of-way or utility relocation work after award.
2) Significant third party commitments, demands or conflicts.
3) Anticipated bidder challenges and protests.

4) Significant owner-caused delay risk.
5) Contract provisions that inhibit the bidder's ability to accurately forecast production rates and work schedules.
6) Excessive work window restrictions due to traffic or environmental commitments.

Benefits of Use

The primary benefits of *C+T Bidding* are support cost savings and reduced operational impacts. Other benefits are:

1) Contractors develop more detailed and strategic bids.
2) Contractors that develop innovative ways to reduce construction time are rewarded by lower time costs.
3) Contractors have an incentive to schedule activities that maximize the efficient use of labor, materials, and equipment.
4) Total road-user costs and public inconvenience are minimized.
5) The most efficient construction work zone duration is developed.
6) Traffic congestion-related pollution and environmental impacts are minimized.

Working Days Estimate

Use the same Critical Path Method (CPM) procedure for estimating the number of working days on projects with *C+T Bidding* as for estimating the number of working days on projects without *C+T Bidding*. Construction Policy Directive 01-1 provides policy and guidelines for estimating construction contract time using CPM progress schedules. The number of working days allowed must be sufficient to complete all project work.

Constructability reviews should include a review of the estimated working days and consider potential delays to construction progress associated with the following:

1) Adjacent project conflicts
2) Lead time for material procurement
3) Industry-wide material shortages
4) Engineer-review times of contractor-submittals
5) Curing times
6) Settlement periods
7) Advanced notification for lane closures
8) Multi-corridor traffic detour restrictions
9) Coordination of utility relocation work
10) Utility construction windows
11) Railroad and other agency agreements
12) Nondestructive pile testing (i.e. gamma-gamma testing)
13) Bridge closure pours
14) Local noise ordinances
15) Hazardous waste
16) Permit restrictions
17) Environmental Mitigation

Cost of Time

Liquidated damages (LDs) reflect the state's estimated overhead and engineering expenses and are calculated in accordance with the method in the Chief Engineer's "Liquidated Damages" January 7, 2009, memorandum and the Ready to List and Construction Contract Award Guide (RTL Guide). The method is included in a table of LDs for varying contract bid amounts in the "Liquidated Damages" section of the Standard Specifications.

The district traffic operations functional manager calculates *road user costs (RUCs)* when requested by the project engineer, unless the project development team recommends the calculation is not needed due to a projected low value.

On some projects, costs other than *RUCs* may be added to the *Cost of Time*. These could include costs resulting from delays or foreseeable delays on adjacent projects, social/economic impacts, or business revenue loss. These other costs may only be included as *road impact costs (RICs)* if (1) they are tangible estimated damages to the state and/or public and, (2) project specific approval is given by the district deputy director or region chief of construction.

Use of *RUCs* and *RICs* is at the discretion of the district deputy director or region chief of construction and combined should not exceed the lesser of 0.3 percent of the estimated construction contract cost or $20,000. The *Cost of Time* should also not be greater than twice the amount of the *LDs*. Total of the calculated *RUCs* and *RICs* should be reduced to no greater than the *LDs* when they are greater than the *LDs,* with concurrence from the district deputy director or region chief of construction. The project engineer must consult and obtain concurrence from the district deputy director or region chief of construction to reduce the calculated *RUCs* and *RICs*. It is acceptable to reduce the total of *RUCs* and *RICs* to zero when concurrence is obtained.

When contract time is exhausted and any mainline highway lanes or shoulders are closed to complete remaining work, the full *Cost of Time* is assessed. Contractors are likely to place a high priority on opening mainline traffic route, even if they cannot finish all contract work prior to the last working day.

PS&E Submittal

The Plans, Specifications and Estimate (PS&E) submittal must include information supporting use of *C+T Bidding*. The "Cost + Time" field in the cover memo must be selected to automate the C+T bidding standard special provisions (SSPs) through the database and the final "merge" of the SSPs.

Cost of Time must be listed for all projects that use *C+T Bidding*.

Contract Award

Bids on projects with *C+T Bidding* that exceed the maximum allowed working days will be rejected. The "total basis for comparison of bids (*Cost+Time*)" is used only at bid opening to compare bids and determine the lowest bid.

If desired, the district may establish a minimum allowed working days. Bids on projects with *C+T Bidding* that are less than the established minimum allowed working days will be rejected.

The number of working days bid must be reasonably sufficient to perform all work required by the contract. In order to validate if the bid days are reasonably sufficient, the district must review the bid days, verify all work may be completed within the bid days, and include a recommendation to Division of Engineering Services - Office Engineer (DES-OE) in the recommendation to award.

If bids are less than 70 percent of the engineer's estimate of contract time, the district must conduct an independent time analysis to validate the bid as "responsive". The district and DES-OE may investigate even if bids are above the 70 percent threshold by requiring the bidder to provide information showing the work can potentially be completed within the bid days. A bid may be rejected if the bidder is incapable of completing the contract work within the bid days.

If bids are less than 60 percent of the engineer's estimate of contract time, the district office engineer must hold an informal investigatory hearing. The hearing should verify accuracy of the independent time analysis to validate the bid as "responsive" and should include invitations to the following staff: Project engineer, district CPM specialist, district office engineer chief, and a district construction representative.

Contract Administration

Due to similar project selection criteria, the 55-day "Beginning of Work, Time of Completion, and Liquidated Damages" (55-day Beginning of Work provision) is often included on projects with *C+T Bidding*. Use of the 55-day Beginning of Work provision with *C+T Bidding* is optional. With concurrence from the deputy district director or region chief of construction, the 55-day Beginning of Work provision may be excluded when using *C+T Bidding* and when use criteria of the 55-day Beginning of Work provision are met.

Contractual engineer-review times of submittals are not compromised to assist the contractor in meeting their aggressive schedule. When an engineer-review time is performed faster than contractually allowed and the activity is critical, the difference is to be banked as Department-owned float for level 3 CPM schedules. Department-owned float may be used later to offset excusable delays in accordance with Section 8-1.02D, "Level 3 Critical Path Method Schedule," of the *Standard Specifications*.

Administration of contract time is an integral part of every construction contract. Schedules on contracts with *C+T Bidding* tend to be aggressive, with little or no total float, and more sensitive to delays. Because schedules on contracts with *C+T Bidding* are more sensitive, there is a greater need to expedite administration of contract issues such as staffing projects, making decisions, and processing submittals. The contractor will have more opportunities to minimize and mitigate delays if Caltrans' responsibilities are expedited.

Acceleration

In addition to reducing traffic delay, there may be other reasons to shorten specific work durations. Multiple project coordination, permit or right-of-way limitations, and local agency funding concerns are examples.

C+T Bidding is a method to improve contractor efficiency and is not considered a form of acceleration. If acceleration of the whole project or specific parts is justified, then acceleration techniques such as internal milestones, incentive/disincentive (I/D) provisions, or redefining working days as calendar days may be applied to the project.

If working days are redefined as calendar days with the standard allowance for weather nonworking days, the project engineer's construction CPM progress schedule must reflect the typical affects of weather in estimating total project duration. Contact the DES-OE *Office of Construction Contract Standards* for standard special provisions for these cases. Refer to the *Conceptual Guidelines for Use of I/D Provisions* issued by the Chief Engineer to District Directors on June 12, 2000 for guidance on using I/D provisions.