State of California Business Transportation and Housing Agency

Memorandum

To: ALL DISTRICT DIRECTORS Date: June 12, 2000

From: **DEPARTMENT OF TRANSPORTATION**
DIRECTOR'S OFFICE

Subject: Delegation of Authority for Use of A+B Bidding and Incentive/Disincentive (I/D) Provisions

Effective immediately, District Directors responsible for project delivery are authorized to approve the use of A+B Bidding and/or Incentive/Disincentive (I/D) provisions by following the criteria set forth in the attached conceptual guidelines. This authority may not be further delegated. This memorandum supersedes the interim A+B with I/D guidelines issued April 4, 1996, for non-emergency construction contracts.

Over the past decade the Department has primarily used A+B Bidding for emergency-type projects, often accompanied with I/D provisions to meet the objective of accelerated project delivery and minimized traffic delays. In 1995 the Federal Highway Administration (FHWA), as a result of our five-year study, deemed A+B Bidding no longer experimental. On April 3, 2000, FHWA sent a letter concurring with the attached selection criteria. Used appropriately, A+B Bidding with I/D provisions has been shown to reduce the overall time required for completion of construction projects.

Statewide procedural manuals are being revised by Design and Local Programs, Traffic Operations, and ESC Office of Office Engineer, to implement the attached conceptual guidelines and guide the selective use of A+B Bidding and Incentive/Disincentive provisions. Please review the attached selection criteria with your District Division Chiefs to assure all involved with project delivery fully understand these concepts.

Please contact Robert Pieplow, Acting Construction Program Manager, at (916) 654-2157, if you need further clarification as to the intent of the attached conceptual guidelines.

ORIGINAL SIGNED

BRENT FELKER
Deputy Director
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Attachment

cc: Robert Pieplow
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District Division Chiefs

Conceptual Guidelines for
Use of Cost/Time (A+B) Bidding Provision

The A+B bidding provision, also referred to as cost plus time bidding, combines the sum of the "A" bid amount for contract items of work and the "B" time consideration as the basis for comparing bids. The bidding contractor bids items of contract work ("A" amount) and separately estimates a "B" number of contract days to complete the project by multiplying the number of working days bid by a specified dollar amount per day for bid comparison purposes. The contract award amount is the "A" portion of the bid. The "B" portion of the bid becomes the allowable contract duration.

This approach utilizes the contractor's ingenuity by encouraging innovative construction techniques through the competitive bid process, acknowledging their unique ability to balance cost and time relationships towards more efficient use of resources through optimization of contract time. Although the intent of using the competitive bid process to shorten project duration remains desirable, it should be recognized that some bidding contractors may fail to sufficiently account for the many variables that influence the most optimal balance between cost and time to complete the work.

For this reason the following project selection criteria is to be used for developing procedures in determining suitability of A+B bidding for a project:

- Use of A+B Bidding should typically be limited to lower risk, non-emergency projects. This will increase the likelihood that bidders can then more accurately optimize a competitively low cost and time estimate, effectively managing risks while maintaining potential for a reasonable profit.

- The "B" portion of the bid should be based on a daily user cost, typically including both road user costs and construction engineering costs. The "B" dollar amount per day should not be more than the Liquidated Damages (LD), otherwise it might prove more economical to pay LDs rather than plan to finish within the bid project duration. A higher LD amount ("heavy damages") may be specified if justified appropriate because of other project considerations. Although LDs typically account for only engineering costs, it is acceptable to also consider road user delay costs to similarly motivate contractors to make optimal use of contract time, avoiding deduction for late project completion. Caution is advised to assure LD and I/D deductions do not overlap, if both specified, since both calculations may equally consider engineering and road user delay costs.

- In most instances a calculated minimum road user cost of $5,000 per day should be justified for use of A+B Bidding. Typically, use of A+B bidding should only be considered if road user delay during the construction phase can be significantly reduced.

- Although exceptions may be allowed, the "B" amount will typically range from 50 to 100 percent of the calculated daily-user cost. Intent is to have an accurate representation of actual cost impacts, without creating excessive cost increase to perform the work ("A" amount) because of an unrealistically short schedule. This percentage is determined by the Project Engineer by seeking the advice from Traffic Operations regarding road user delay significance. Consult the Project Manager as to their judgement regarding relevant risks in bidding and potential influence of economic impacts.

- Use of the A+B Bidding specification must be approved by the District/Region Director. After the supporting cost/benefit calculations are completed, the District Division Chiefs of Design and Construction shall cosign their recommendation for obtaining this approval. The date of such approval shall be indicated on Attachment A included with the PS&E submittal to the Office Engineer. The supporting documents justifying use of A+B Bidding shall be retained in the Project History File.

- The bid "B" amount of days becomes the allowable duration to complete the entire contract. Use of A+B Bidding for internal time limits should be avoided as there are more effective methods towards achieving interim milestones, e.g., incentive/ disincentive and staging of critical work via "Order of Work" provisions.

- Accurate estimation of contract time during design is of utmost importance. As usual, the progress schedule assumptions should consider efficient performance of a properly resource contractor to optimize potential for early completion of the contract work. Use of historical production rates should be considered in determining the most efficient balance of cost and time. If too many unknowns exist to make this possible, then use of A+B Bidding should be reconsidered since the increase in risk will likely result in significantly higher bid amounts and/or longer project duration.

- Maximum number of allowable working days for bid purposes must be specified to limit the degree that the "B" amount can influence the competitive bid comparison, intending to motivate contractors to complete all work as quickly as possible. If acceleration of specific production-type work is desired, then specific construction methods, staging, and tight scheduling requirements should be required by the contract. However, assure that the project can still be built within these requirements. If a working day is defined to be a calendar day, then the schedule must also account for typical weather impacts.

- A Constructibility Review in accordance with Design and Local Program policy shall be required for all A+B projects. As for all projects, A+B bid projects must have a relatively accurate and complete set of plans, specifications, and estimates for the bidders to properly assess the risk in constructing the work in the shortest amount of time. The Project Team should also review for potential conflicts with other projects (e.g., permit issues, special events, local development, etc.), considering contingency

plans as appropriate.

- The Project Team should assess the bidding risk by considering the many variables that can significantly impact the contractor's ability to accurately bid and successfully construct the contract work. The following type of concerns should be considered by the Project Team before seeking approval for A+B Bidding: Likelihood of hazardous waste, long lead time for material procurement, owner caused delays associated with extensive shoring or falsework and shop plan reviews, curing times, settlement periods, local permitting restrictions, advanced notification for lane closures and multi-corridor traffic detour restrictions, industry-wide material shortages, coordination of prior or concurrent utility work, local noise ordinances, railroad and other agency agreements, construction windows, etc.

- Combining use of I/D Provisions with A+B Bidding may be an acceptable means of accelerating completion of internal milestones and/or total project completion. Aside from just road user delay, many other reasons may exist to shorten specific work durations, e.g., multiple project coordination, permit/ROW limitations, local funding agency concerns, etc. Bidders appropriately attempt to protect any float in their sequencing of critical work. For this reason, it is important that the Engineer's estimate of "B" project duration, thus maximum allowable bid duration, be as short as reasonable to limit the potential for excessive incentive payments.

  The intent of I/D, when used with A+B, is for the contractor to bid a reasonably shorter "B" duration (albeit with a relatively higher "A" bid amount) to "win" the competitive low bid, affording the necessary work acceleration to earn early completion incentive payments. If the "B" amount is not properly balanced prior to bidding, then the contractor may decide it beneficial to manipulate project scheduling to protect early finish float, maximizing potential for incentive payment.

Conceptual Guidelines for
Use of Incentive and Disincentive (I/D) Provisions

The goal of the Incentive/Disincentive provision is to complete critical project work as quickly as possible, motivating and challenging contractors to complete an internal milestone within a certain duration, and/or completion of the entire project sooner. The I/D provision provides for payment of a specific amount of money per working day for completing the entire and/or intermediate portions of the contract ahead of the specified schedule. Conversely, a disincentive amount will be deducted for every working day the contractor finishes later than the specified I/D completion date.

Although historical use of I/D provision (often in conjunction with A+B Bidding) has primarily been for emergency-type projects, it can also be an effective means of accelerating completion of critical internal milestones and/or contract completion for some regularly bid non-emergency projects. Generally, improving quality should have the greatest impact upon preventing potential construction delays. For purpose of these guidelines, the definition of "critical" may be justified in several ways, all of which should be fully supported by a cost benefit analysis that indicates its use would best serve the public interest.

- The I/D amount should be based on a daily user cost, usually consisting of road user delay and construction engineering cost estimates. To be effective, the I/D amount should be great enough to cause the contractor to accelerate completion of critical portions of the work to maximize earnings of incentive payment that result by completing earlier than the specified duration. To prove cost effective, the potential incentive payment should be greater than the contractor's additional cost to accelerate the project plus reasonable profit.

- A minimum daily user cost of $5,000 should be justified for use of I/D provision. This is often the case for high traveled routes where significant rehabilitation or replacement work will delay traffic. The Project Engineer shall obtain from Traffic Operations the road user delay cost estimate, and if applicable the potential cost of accidents.

- Other impacts may be considered in deciding if the I/D provision should be used e.g., social/economic impacts, percentage of truck traffic, length and type of detours, safety concerns, public relations, etc. As an example, use of I/D provisions for multiple projects with overlapping critical internal milestone dates may be justified if business revenue loss and/or traffic delay can be significantly reduced. However, documentation must be available to show real savings to the public.

- Use of the I/D provision must be approved by the District/Region Director. After the supporting cost/benefit calculations are completed, the District Division Chiefs of Design and Construction shall cosign their recommendation for obtaining this approval. The date of such approval shall be indicated on Attachment A included

with the PS&E submittal to the Office Engineer. The supporting documents justifying use of A+B Bidding shall be retained in the Project History File.

- Funding availability for the maximum possible incentive amount must be assured and included under Supplemental Work dedicated solely for this purpose. The maximum incentive amount can vary based upon the criticality of the project and the daily user savings possible. To limit the risk that inaccurate I/D time estimates can lead to excessive incentive payments, many agencies have used five percent of total contract value as a reasonable starting point. Although usually equal to the incentive amount, the disincentive may be higher if it can be justified.

- A Constructibility Review in accordance with Design and Local Program policy shall be required for all I/D projects. As for all projects, a relatively accurate and complete set of plans, specifications, and estimate is necessary for the bidders to properly assess the risk in constructing the work in the shortest amount of time. As usual, the review should consider varied time saving strategies (e.g., staging, detour, redesign, etc.) to optimize the use of contract time as it relates to the final contract cost. Since the success of a project depends on the contractor's ability to accurately bid and perform the specified work, unknown time constraints and construction risks must be minimized (e.g., adjacent contract work, permits, local development, special events, etc.).

- For federally funded "oversight" (non- C.A., non-exempt) projects, FHWA concurrence is required for calculation of I/D amounts (justifying daily user cost or other cost/benefit analysis), and determination of maximum allowable contract days, prior to PS&E submittal. As is the case for all projects, the same documented justification must also exist when FHWA concurrence is not specifically required.

- Often these types of "critical" projects will define working day as a calendar day. Adjustments must be made for weather. If internal milestones are specified, preferably a number of working days should be required, not a certain date, to either open the facility to traffic or to complete all work on a well-defined critical portion of the contract. If specific methods or staging are required, comprehensive description of the work must be included in the contract to allow the contractor to properly bid such expeditious handling of forces as necessary.

- Estimation of contract time during design shall be based upon Critical Path Scheduling (CPM) methods, assuring a realistic "tight" number of allowable working days. CPM scheduling should be specified in the contract, with an accurate and representative baseline and schedule update requirement. Since the progress schedule becomes the primary document by which time for completion will be determined, the CPM specification must be properly administered.

- Any time extensions that affects the I/D completion date should be carefully considered as significant claims may result. Alternatives to keep the project on schedule must be

considered knowing that any delay in CCO processing, redesign, plan review, or decision making can become very costly. Use of contractual time limits, such as for submittal activities, is highly recommended to establish a baseline for scheduling purposes. The contractor is required to justify any time adjustment by clearly showing the critical path impact based on the current updated CPM schedule.

- Disincentive deductions, if they become necessary due to late completion of critical work, are not the same as liquidated damages. The disincentive amount should be equal to or greater than the liquidated damage amount. LDs are to be deducted in addition to any disincentive relating to late completion of the entire contract.

- Additional construction support must be sufficiently accounted for in the specific project work plans, providing the Project Manager with details of what "critical" work shall be accelerated within what time frame (internal milestones). In addition to potential increase for timely inspection, including overtime, increased support costs for engineering services (e.g., surveying, materials, etc.) must be allocated for expedited projects.

- Success of partnership, based on complexity and amount of critical work, between a knowledgeable RE and a well-managed Contractor, makes the difference as to the progress of the work and stakeholder satisfaction. A successful partnering relationship should be possible since the goals of early project completion and less negative impact upon the road user is of mutual interest.