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UNDERSTANDING A + B BIDDING PATTERNS AND POLICY IMPLICATIONS FOR ODOT PROJECT LETTINGS

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INVESTIGATORS
Georgia Kosmopoulou, Ph.D.
The University of Oklahoma
Xueqi Zhou, Ph.D.
Langston University

ODOT SPONSORS
Anthony Delce
Office Engineer

**Office of Research &
Implementation**

*Oklahoma Department of
Transportation
200 NE 21st Street,
Oklahoma City, OK
73105-3204*

*Implementation of Research
for Transportation Excellence*

MORE INFORMATION
odot-spr@odot.org

OVERVIEW Departments of Transportation (DOTs) are challenged with keeping the cost of construction low and ensuring timely project completion. A+B bidding is an innovative contracting design that allows contractors to propose an "A" bid for cost and a "B" bid for time, which has the potential to reduce construction time while preserving lower costs through the competitive, low-bid process. According to theory, as construction time increases, cost also increases. However, the net impact on cost is unclear. DOTs often use an incentive/disincentive (I/D) provision in A+B bidding to specify the time frame for critical pieces of work (milestones) or full completion, providing bonus (incentive) for each day work is completed before the stipulated target date, or alternatively, assessed a pay deduction (disincentive) for each day that work extends beyond the target date. Currently, the Oklahoma Department of Transportation (ODOT) uses *size of project, duration* and *location* to determine if A+B bidding is appropriate for a given project. This study conducted a state-of-the-practice assessment among DOTs and analyzed data related to the performance of this type of bidding to assist ODOT in evaluating the costs and benefits of the A+B with I/D procurement method and optimizing its application.

RESULTS This project developed guidelines related to the optimal use of time incentives in the A+B procurement process based upon survey and evaluation of DOT policy details (e.g. application, scope) and ODOT experience with the performance of A+B bidding compared to the standard low bid contracting.

The DOT survey revealed rules of implementation for A+B and I/D methods. Twenty-three (23) out of the forty-four (44) states surveyed indicated that A+B mechanisms are in place, although the I/D practices varied. There is inconsistency among states when setting amounts for incentives and/or disincentives, but most states determine rates based upon estimated user costs. There is also inconsistency among states regarding maximum allowable incentive amounts, although many states cap incentives based upon Federal Highway Administration guidance: no more than 5% of total project cost. Some states do not include provision for incentive, only disincentive.

The evaluation of ODOT experience related to the performance of A+B bidding compared to the standard low bid contracting practice revealed that ODOT has been fairly successful in its application of the A+B method. From 2004 to 2011, one-hundred twenty-seven (127) projects (out of 2488 total projects) were

delivered by the A+B procurement method. Table 1 shows the descriptive statistics for project characteristics for comparison of standard ODOT projects (“A” only) with A+B projects.

Table 1 Descriptive Statistics for ODOT Projects: Standard Delivery vs. A+B Method

Project Characteristics	Standard		A+B	
	Mean	Std. Dev.	Mean	Std. Dev.
Engineer’s Cost Estimate in Million	1.504	2.889	9.914	13.607
Bids Received in Million	1.495	2.600	10.307	12.907
Relative Bid (Bid/Estimate)	1.053	0.309	1.021	0.205
Winning Bid in Million	1.395	2.660	8.994	11.707
Relative Winning Bid in Million	0.932	0.191	0.954	0.155
Winning Bid from Finalized Projects in Million	1.156	1.973	5.971	8.728
Actual Amount Paid from Finalized Projects in Million	1.167	2.015	6.239	9.186
Payment Amount Differential in percentage	0.1%	11.6%	6.2%	12.3%
Calendar Day Duration	119.5	89.8	268.2	169.5
Calendar Day Duration of Finalized Projects	112.7	83.6	277.9	145.8
Actual Days Charged of Finalized Projects	259.4	244.7	378.9	256.3
Duration Differential in percentage	147.2%	197.3%	80.2%	108.8%
Number of Plan Holders per project	6.704	3.106	8.283	3.083
Number of Bidders per project	3.869	1.903	3.133	1.427
Project Complexity (number of pay items)	38.4	39.3	129.3	88.9
8941 bids received from 2311 standard projects, 2161 of which are finalized.				
398 bids received from 127 A+ B projects, 92 of which are finalized.				

The analysis revealed the efficacy of the current A+B, I/D methodology used by ODOT, as some projects demonstrate more favorable patterns than others regarding the trade-off between time and cost. The A+B criteria (i.e. project size, duration, and location) has led to satisfactory project performance. Specifically, construction time was found to be moderately reduced while the low bid received by ODOT was not significantly more than bids received on standard projects. Results also support ODOT’s methodology for setting incentive/disincentive rates.

Results show that rates are large enough to motivate contractors and expedite the project while only marginally increasing project costs. Additionally, results show that there are potential benefits for ODOT to expand the application of A+B bidding to more projects. An expansion of the use of this method should significantly increase benefits to the public without increasing the direct cost of procurement.

In addition to project size, duration and location, the analysis of itemized bids reveals that construction item type (or groups of related items) can also influence the appropriateness of A+B application to projects. Costs for some items rise more steeply than other items when time is a constraint. For example, items 202(C)0184 (Unclassified Borrow) and 619(B)2500 (Removal of Bridge Items) exhibit especially favorable reactions to time incentives and hence, projects that prescribe these items in greater quantity are candidates for A+B letting consideration. Because costs increase at an increasing rate over time, acceleration on such items may result in lower overall costs to the agency.

POTENTIAL BENEFITS This study provided insight related to the application of the A+B with incentive/disincentive project procurement methodology by state departments of transportation. It also revealed the successful application of the method by ODOT. It provided an additional A+B selection criterion related to construction item type and recommended examination of item composition of projects when assigning to A+B bidding priority consideration. Applying A+B bidding to more projects should result in less construction-related delay and user costs, which is directly beneficial to the public.