

January 2017 ABC-UTC Graduate Student Seminar: Estimating the Total Cost of ABC

Featured Presentation #1 by Mohamed Ibrahim, Ph.D.: Estimating the Construction Cost Associated with ABC

#	Questions	Responses
1	Is the sampling of studied ABC projects statistically significant in the broader picture?	Yes, they are, as they represent different regions of the country (29 states), different completion dates, and a wide variety of characteristics.
2	How user friendly is the cost-estimating interface you had put together?	It is an Excel spreadsheet and, therefore, is very user friendly.
3	Give specific costs of different type of ABC projects (i.e. superstructure placement using SPMT's, sliding, etc.).	We did not consider the different types of ABC projects at this stage of the research, as the aim was to provide decision makers with a tool at the early planning phase. Hence, no decision would have been made yet regarding the ABC methods. However, for the next phase of the detailed estimation, these factors will be considered.
4	Compare the cost to regular bridge construction.	Please refer to the presentation slides 14-16.
5	What are your sources for price comparisons?	Data for price comparisons were collected from FHWA sharepoint database, and from a number of DOTs directly.
6	Have you assigned a separate cost to the accelerated activities and non-accelerated activities during an ABC project?	No; we were looking at the total cost of the entire project.
7	Is quality of the finished product taken into account when justifying ABC?	No, it was not considered, but this tool can be combined with any other decision-making tools that incorporate the quality of the finished product.
8	Did you consider the schedule reduction and environmental impact in your analysis?	No.

9	Without applying costs to driver inconvenience, how much more expensive is building ABC structures over traditional methods?	Please refer to the presentation slides 14-16.
10	How is the difference in cost calculated between ABC and conventional construction? Reduced construction supt services and user costs?	The comparison was done based on the final construction cost per square foot for the same bridge if it was constructed using ABC or conventional construction.
11	Are there adjustment factors to use when estimating this work for different parts of the country?	The data used in developing the regression model were normalized for both time and location; hence, the outcome of the model is based on the national average. Consequently, to get an accurate estimation for different parts of the country, users need to convert the national average to their respective location using location indices.
12	Was there consideration for remoteness of a project, i.e., distance from available suppliers for concrete, steel, large equipment?	Not specifically, but the broad categories of whether the project is located in an urban or rural area was taken into consideration, and it is one of the main inputs of the model.
13	What have you found to be typical total cost percent increases over traditional bridge construction costs?	Please refer to the presentation slides 14-16.
14	Interested in cost per square foot estimate information.	Please refer to developed model highlighted in the presentation.
15	Is there a per cft cost which can be used for the preliminary estimate? Can the spreadsheet be shared with us?	Please refer to developed model highlighted in the presentation.
16	The previous presenter showed that the construction cost of ABC is lower, and you are showing it is higher. If both of you are using the same data, isn't there a question about the reliability of one of your data analysis?	In this case study, 21% of the ABC projects cost less than conventional construction. On average, ABC project costs were 20% higher than conventional construction. Please refer to slide 14 in the presentation. However, if one adds to the construction cost the cost to mobility and other costs described in the presentation, the total cost of ABC is lower.

17	Is inflation incorporated?	It was accounted for when normalizing past data; however, no future inflation projections were included in the developed model.
18	What was the labor per hour cost considered? What was the equipment per hour cost considered?	This is a parametric tool to estimate the total cost/sq. ft. of ABC bridges at the early stage of the project; hence, total cost data were used rather than the costs of each individual cost item.
Featured Presentation #2 by Jianmin Jia, Ph.D. candidate: Estimating and Implementing Road User Costs in ABC Selection Decisions		
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19	How do the reliability of ABC and non-ABC bridge estimates compare to each other?	Reliability investigated in this research is related to the travel time variation for drivers.
20	Discuss commercially available cost estimating tools if any.	QuickZone, Q-DAT, FREEVAL, DTAlite and VISSIM for traffic mobility analysis. EPA MOVES for emission costs estimation.
21	Compare the cost to regular bridge construction.	In this study the data indicate an average 20% higher construction cost for ABC, while conventional construction typically has higher total cost when user costs are included.
22	What are your sources for price comparisons?	Value of time (VOT) and value of reliability (VOR) are derived from FHWA Work Zone Road User Costs Manual. The Highway Safety Manual (HSM) provides the costs for different types of crashes.
23	What cost percentage is saved using ABC?	In this case study, 21% of the ABC projects cost less than conventional construction. On average, ABC project costs were 20% higher than conventional construction. Please refer to slide 14 in the presentation. However, if one adds to the construction cost the cost to mobility and other costs described in the presentation, the total cost of ABC is lower.
24	How will the total cost be estimated?	Users can give each cost component a specific weight and obtain the total costs.

25	How were change orders relating to delays processed?	Change orders result in lane closure schedule changes during construction, and will cause changes in travel delay and user costs.
26	Why should reliability impacts be considered in total costs?	Mobility only measures the average travel time, while reliability is able to measure travel time variation for drivers.
27	How does the Surrogate Safety Assessment Model (SSAM) work in traffic safety evaluation?	SSAM is one module of VISSIM, and is able to analyze the detailed driving behavior based on a trajectory file from simulation runs.
28	Slide 5 - Can user costs be related to ADTT?	ADTT or AADT? For sketch-planning purpose, users can use only AADT with level-1 analysis tools.
29	Is this tool available for us to use, to determine the potential cost difference for a project to determine if ABC or conventional construction is better to use?	Yes, the users can select the level of tools based on their requirements and available data.