

Contractor/Owner Collaboration on ABC Programs Workshop



Workshop Report

September 30, 2021

Omaha, Nebraska

Sponsored by:



Acknowledgements

The Nebraska Department of Transportation (NDOT) thanks the Federal Highway Administration (FHWA) and the Accelerated Bridge Construction University Transportation Center (ABC-UTC) for co-sponsorship and assistance in coordinating this workshop. NDOT also thanks the Kiewit Corporation for hosting the workshop at Kiewit University in downtown Omaha, and for its assistance in conducting the workshop. The workshop presenters and participants are thanked for sharing their time and expertise.

About the Workshop

Engineers from State Departments of Transportation in the Midwest/Great Plains region, their construction contractor partners, and representatives from the Nebraska Division of the Federal Highway Administration (FHWA) and the Accelerated Bridge Construction University Transportation Center (ABC-UTC) gathered with other national experts for an invitation-only half-day workshop held September 30, 2021, at the Kiewit University in downtown Omaha, Nebraska. See Appendices A, B, and C of this report for workshop agenda, participants, and presentations, respectively. The purpose of the workshop, sponsored by the Nebraska Department of Transportation and co-sponsored by the FHWA and ABC-UTC, was to provide a forum for the owners and contractors to discuss common interests related to ABC and how to better design, specify, build, and pay for ABC projects in the region. This report documents the activities and outcomes of the workshop.

Mary Lou Ralls Newman, Workshop Moderator and author of Workshop Report

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Executive Summary

The Nebraska Department of Transportation (NDOT) sponsored the in-person *Contractor/Owner Collaboration on ABC Programs Workshop* on September 30, 2021 in Omaha, Nebraska. The invitation-only half-day workshop was co-sponsored by the Nebraska Division of the Federal Highway Administration (FHWA) and the Accelerated Bridge Construction University Transportation Center (ABC-UTC), and was hosted by the Kiewit Corporation at its Kiewit University in downtown Omaha. Approximately 40 individuals from seven regional states – Nebraska, Iowa, South Dakota, Missouri, Kansas, Minnesota, Colorado – accepted the invitation to attend, with approximately 15 from the contracting community and approximately 20 from the State DOTs.

The purpose of this workshop was to bring together Midwest/Great Plains Region engineers and their construction contractor partners to explore common interests related to ABC and how to better design, specify, build, and pay for ABC projects in the region. The reason that ABC was the focus of discussions was because of its benefits related to reduced bridge construction time, minimized traffic disruption, improved safety, reduced environmental impact, enhanced constructability, and improved quality and life-cycle costs.

Several presentations were given to bring participants up to date on ABC across the country to set the stage for workshop discussions in the open forum.

The contractors at the workshop were selected to help pioneer this effort and get ABC moving forward. In the open forum, contractor comments included the following:

- The earlier the owner engages the contractor through an integrated process such as Construction Manager/General Contractor (CM/GC) or Progressive Design-Build (PDB), the more scope, schedule and cost certainty the owner receives. Better outcomes for everyone are achieved. Early contractor engagement is extremely important. This point was the major takeaway from the workshop.
- There are ways to get contractors involved early, even without Design-Build, e.g., using Design-Bid-Build with Alternative Technical Concepts (ATCs).
- For ABC and accelerated project delivery, talk with your local Associated General Contractors (AGC) representatives. There are anti-ABC contractors. The DOTs need to continue to work with their AGCs to educate them so they don't kill your program politically.
- When an issue arises, the contractor and owner need to get ahead of it early, in an ethical and legal way, to ensure a successful project.
- State DOTs need to be open to other ideas from contractors after project award.
- When we come to the table at preconstruction meeting, we may propose something that saves time but are told we have enough time built in to the schedule. Don't rule ABC out because you have enough time; consider it anyway.
- Nothing is free. There are no short cuts. It's hard work. ABC needs a champion.
- More collaboration is needed. A time needs to be scheduled to meet and have conversations between the DOTs and consultants.

State DOT comments included the following:

- To have a successful ABC program, DOTs need to help ensure their contractors make money on ABC projects.

- DOTs need to talk to their AGC as a group to get their buy-in.
- To get past extra costs, make sure fabricators make money on first projects so they do not have a bad taste from ABC.
- Determine how ABC can help with environmental clearances because of the shorter construction duration.
- If contractors cannot speak directly to the State, they can attend public meetings for sharing information.
- Grants are available and should be pursued to help fund any additional costs for ABC projects.
- A number of states have successfully implemented ABC. We don't need to re-invent the wheel. Contractors should know that States have ABC processes.

Other comments included the following:

- Learn from railroads, since they must do all their bridges fast.
- Get the word out about advantages of using ABC in projects, e.g., long-term maintenance needs may be reduced by using precast versus cast-in-place concrete construction.
- Look at short-duration versus longer-duration road closures, and compare costs and user impacts to determine what is best for your specific project.
- FHWA has user cost and impact information.
- AASHTO developed a library of ABC details that work well and are durable.

Next steps were discussed and included the following:

- As stated above, early contractor engagement should be a goal in ABC projects.
- State DOTs need to identify a champion to go back and start or continue collaborative ABC discussions.
- Additional regional workshops should be done, getting other stakeholders involved, e.g., administration and politicians.

1. Introduction

The Nebraska Department of Transportation (NDOT) sponsored the in-person Contractor/Owner Collaboration on ABC Programs Workshop on September 30, 2021 in Omaha, Nebraska. The invitation-only half-day workshop was co-sponsored by the Nebraska Division of the Federal Highway Administration (FHWA) and the Accelerated Bridge Construction University Transportation Center (ABC-UTC), and was hosted by the Kiewit Corporation at its Kiewit University in downtown Omaha. Approximately 40 individuals from seven regional states – Nebraska, Iowa, South Dakota, Missouri, Kansas, Minnesota, Colorado – accepted the invitation to attend, with approximately 15 from the contracting community and approximately 20 from the State DOTs.

The purpose of this workshop was to bring together Midwest/Great Plains Region engineers and their construction contractor partners to explore common interests related to ABC and how to better design, specify, build, and pay for ABC projects in the region. The reason that ABC was the focus of discussions was because of its benefits related to reduced bridge construction time, minimized traffic disruption, improved safety, reduced environmental impact, enhanced constructability, and improved quality and life-cycle costs.

See Appendices A, B, and C of this report for workshop agenda, participants, and presentations, respectively.

2. Background

Between August and October of 2019, an interview survey was conducted by Atorod Azizinamini, Director of the Accelerated Bridge Construction University Transportation Center (ABC-UTC), with more than 30 State Bridge Engineers. Each State was interviewed for about an hour, asking them the topics that need to be researched or issues that would help to further advance Accelerated Bridge Construction (ABC). Survey results indicated that the #1 issue for States to promote ABC is the buy-in of contractors.

3. Welcome and Opening Remarks

Mark Traynowicz, NDOT State Bridge Engineer, hosted the workshop and welcomed participants. He then introduced John Selmer, the NDOT Director, who welcomed participants to Nebraska and thanked them for attending the workshop. Joe Werning, FHWA Nebraska Division Administrator, followed with opening remarks on the use and importance of ABC in Nebraska. Carmen Swanwick, Chair of the American Association of State Highway and Transportation Officials (AASHTO) Committee on Bridges and Structures (COBS), provided comments on the importance of ABC to State DOTs. Atorod Azizinamini, Director of the ABC-UTC, welcomed participants and expressed appreciation to NDOT for hosting the workshop.

4. Workshop Objective

Mary Lou Ralls Newman, ABC-UTC Director of Technology Transfer, discussed the workshop objective, which was to understand the reasons and purpose surrounding the paradigm shift in State decision making for implementing ABC as common practice in bridge project delivery and to assist contractors and suppliers in partnering in this effort. The objective focused on

explaining the need for ABC and developing a path forward to support contractor buy-in. The workshop provided a forum for the contractors and owners to discuss common interests related to ABC and how to better design, specify, build, and pay for ABC projects in the region. Mary Lou also provided an overview of ABC technologies, including the definition of ABC and what it does and does not include.

5. Overview of Kiewit Projects in Region

Walter Eggers and Jim Thomsen with Kiewit Corporation presented an overview of the various regional ABC projects constructed by Kiewit.

6. Presentations by National Experts

Several presentations were given to bring participants up to date on ABC across the country to set the stage for workshop discussions.

6.1. A Rural State's Perspective on How to Implement ABC

Kristin Higgins, State Bridge Engineer for the Vermont Agency of Transportation (VTrans), presented Vermont's rural state perspective on how to implement ABC. She discussed the early days of ABC in Vermont, showing project examples, costs, and lessons learned that paved the way for the creation of Vermont's Accelerated Bridge Program. Kristin then described their Program that resulted in 98 ABC projects delivered since 2012, 44 percent of all structures projects. A total of 97 percent of the projects were Design-Bid-Build and 3 percent were delivered with alternative contracting, for a total of \$216 million in construction.

6.2. A State DOT's Decision-Making Process

Tim Fields, State Bridge Engineer for the Connecticut DOT (CTDOT), presented CTDOT's comprehensive ABC Decision Process. He said its development was a 3-year collaborative process with major assistance from Mike Culmo, P.E. with CHA Consulting, Inc. The Process was used on a pilot basis during refinement prior to its official release in November 2017 for use in CTDOT bridge design projects. The ABC Decision Process is now used in preliminary design of all CTDOT bridge projects involving replacement of the bridge deck, superstructure, and entire bridge. Tim said its use is not a mandate, and other factors can be considered. To date the ABC Decision Process has performed well as a reasonable and reliable assessment tool. It is available online at <https://portal.ct.gov/DOT/Bridges/Bridge-Standard-Practices>.

6.3 A Contractor's Perspective on ABC

Bill Duguay, Principal of Duguay Consulting Group LLC, said a recent national poll of bridge owners discovered one common concern: "Negative feedback of ABC from the contracting community is holding back acceptance and wider implementation of ABC." Bill said the concerns being raised are not technical in nature. With the passing of the next highway funding bill, the use of ABC is expected to increase as demand increases. Bill said this increased demand will be better met with collaborative approaches to ABC. He then presented several project examples and gave common themes of successful ABC projects: active partnering, contingency plan, safety built in, accelerated schedule, communication plan, quality assurance plan, reward > risk, and reasonable construction plans and specifications. He stressed that we need to continue the collaborative conversations.

7. Midwest/Great Plains Presentations

Presentations were given by participants from three of the Midwest/Great Plains states – Iowa, Nebraska, and Missouri – to discuss why ABC is important for their states; the driving factors for ABC decisions; the goals of their ABC program; and the types of ABC projects that are planned in their states, including scope, approach, and processes used in their ABC programs.

7.1 Iowa

Ahmad Abu-Hawash, Chief Structural Engineer for the Iowa DOT, discussed Iowa's ABC deployment strategy and policy development, and then gave examples of the multiple ABC technologies used to date in various projects in Iowa. He then discussed the reasons why ABC is used in Iowa, Iowa's concerns or challenges with ABC, and Iowa's ABC policy and decision-making tools. Ahmad concluded with Iowa's goals for its ABC program (improve safety; minimize disruption; community well-being; customer satisfaction; and contractor's buy-in), and said that Iowa has plans for several additional lateral slide projects and a PBES or lateral slide project for the Dubuque case study to be discussed to kick off the open forum later in this workshop.

7.2 Nebraska

Mark Traynowicz, State Bridge Engineer for the Nebraska DOT, presented a brief history of ABC in Nebraska and then described Nebraska's recent all-precast bridge project. He said Nebraska has used a number of prefabricated elements, working closely with the University of Nebraska to ensure durability in addition to speed of onsite construction. Nebraska has used high-early-strength concrete, self-consolidating concrete, and Ultra-High Performance Concrete (UHPC) for deck closure joints to connect precast elements. He said that input and communication between the contractor and DOT before, during, and after construction is key, and that support from the DOT administration is important. Mark said that next steps for ABC in Nebraska include UHPC decked NU prestressed girders.

7.3 Missouri

Dale Burkhead, Project Manager with Simon Contractors; Bryan Hartnagel, State Bridge Engineer for the Missouri DOT (MoDOT); and Jesse Hinton, Assistant Vice President and Jeremy Bexton, Estimator and Project Manager with Emery Sapp & Sons, jointly presented ABC work in Missouri. Bryan said that ABC allows MoDOT to build durable structures faster with less inconvenience for the traveling public, and that they plan to continue to use various ABC elements on a regular basis. Jesse and Jeremy said their goals when evaluating ABC opportunities are to achieve benefit to both the contractor and the owner and to select ABC when it provides benefit for the project. The presenters then described examples of past ABC projects in Missouri.

8. Recommended Approach to Contractor Collaboration for ABC at the Program Level and the Project Level

Mike Culmo, Chief Bridge Engineer with CHA Consulting, Inc., stated that instituting an ABC program is an organizational management issue, not an engineering issue, and that a business management approach is needed to have successful implementation of an ABC program. He said that everything done in an ABC program needs to be based on a clear understanding of why ABC is being used. Mike said his guiding principle statement for why to use ABC is to

change construction to better serve society; he said each organization needs to develop its own guiding principle statement. What to accomplish with an ABC Program then needs to be determined, and finally how to get there needs to be determined, with steps at the program and project level.

9. Open Forum

To kick off open forum discussions, Ahmad Abu-Hawash presented an Iowa case study, Grand Avenue over U.S. 61 in Dubuque, a design-bid-build ABC replacement project to be let in December 2022. After discussing site and other constraints, he asked for participant comments on schedule, feasibility, sequence, other options, contract period, incentives/disincentives. Various comments were offered by participants for Iowa consideration.

Following discussions on the Iowa case study, the floor was opened for comments from contractors and owners on how to better design, specify, build, and pay for ABC projects in the region, and what next steps may be appropriate.

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Following the open forum, Mark Traynowicz and Atorod Azizinamini thanked participants and adjourned the workshop.

Appendices