

**Welcome to Webinar on
Accelerated Bridge Construction
Programmatic Implementation and
Value of ABC – The VTrans Approach**

Sponsored by

*Accelerated Bridge Construction University Transportation Center
(ABC-UTC) at
Florida International University*



Website: abc-utc.fiu.edu

Email: abc@fiu.edu

February 16, 2017 – 1:00 p.m. to 2:00 p.m. Eastern

Today's Webinar

ABC Announcements

(10 minutes)

Featured Presentation

(35 minutes)

Programmatic Implementation and Value of ABC – The VTrans Approach

Wayne B. Symonds, P.E., Structures and Hydraulics Program Manager, Vermont Agency of Transportation (VTrans); **Kristin Higgins, P.E.**, ABP/PIIT Senior Project Manager, VTrans; and **Jennifer Fitch, P.E.**, ABP/PIIT Project Manager, Vtrans

Question and Answer

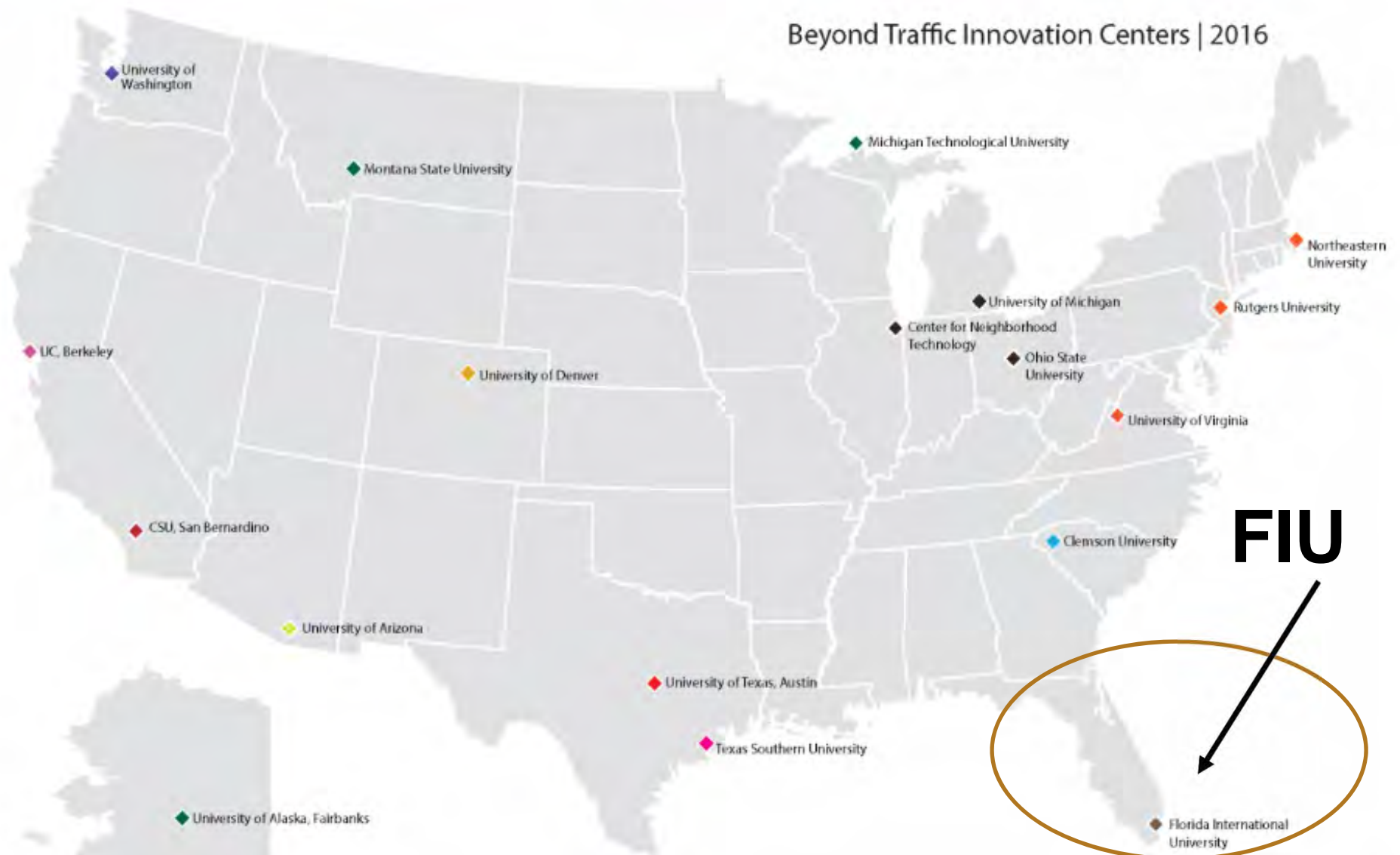
(15 minutes)

Please post your questions in the question box

DOT announces Beyond Traffic Innovation Centers



DOT announces Beyond Traffic Innovation Centers



Mark Your Calendar

2017 National Accelerated Bridge Construction Conference

December 7 and 8, 2017: Conference

December 6: Workshops

Miami, FL



**Extended Deadline to submit Abstracts:
February 24, 2017**

Submit your abstract online

Visit: www.abc-utc.fiu.edu

Congratulations on Retirement June 2017!



29 years with the Iowa DOT:

- Bridge Designer
- Resident Construction Engineer
- ***State Bridge Engineer***
- Engineering Bureau Director
- Research and Technology Bureau Director
- Systems Operations Bureau Director

Sandra Q. Larson, P.E.

Systems Operations Bureau Director
Highway Division
Iowa DOT

Upcoming Events

2017 New York City Bridge Conference – NYC, NY

August 21-22, 2017

Sponsored by the Bridge Engineering Association

<http://www.bridgeengineer.org>

Call for Bridge Engineering Award Nominations:

Deadline for submission: February 17, 2017

Email nomination letter & nominee's resume to:

kmahmoud@bridgeengineer.org

For more information, contact: Khaled Mahmoud

kmahmoud@bridgeengineer.org

Upcoming Events

Every Day Counts Webinar Series:

Ultra-High Performance Concrete for Prefabricated Bridge Elements

Sponsored by Federal Highway Administration (FHWA)

https://www.fhwa.dot.gov/innovation/everydaycounts/edc_4/uhpc.cfm

1st Webinar: Introduction to UHPC

March 7, 2017 – 1:00-2:30 pm EST

Featured speaker: Ben Graybeal, Ph.D., P.E.

To register, go to the following link:

<https://collaboration.fhwa.dot.gov/dot/fhwa/WC/Lists/Seminars/DispForm.aspx?ID=1269>

Upcoming Events

**2018 PCI Convention and National Bridge Conference –
Denver, CO**

February 20-24, 2018

Sponsored by Precast/Prestressed Concrete Institute (PCI)
<http://www.pci.org/>

Abstract Submission Deadline: April 15, 2017

[http://www.pci.org/News_And_Events/PCI_Convention/
Call_for_Papers/](http://www.pci.org/News_And_Events/PCI_Convention/Call_for_Papers/)

For additional information, contact:

William Nickas, P.E., wnickas@pci.org



NSBA Announcements

ABC Projects in the January Issue of MSC

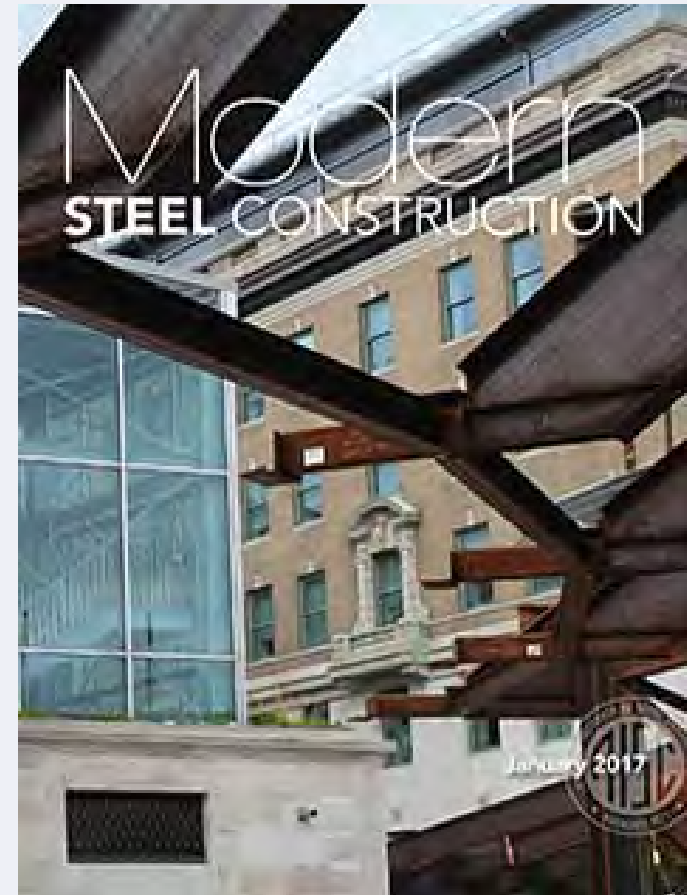
- Fast Finish
- High Volume, Low Impact
- A New Take on Plate Girders

Available at:

www.aisc.org/modernsteel/

For more information, contact:

Matthew Shergalis, P.E.
NSBA Marketing Manager
shergalis@aisc.org



Recent FHWA ABC Publications



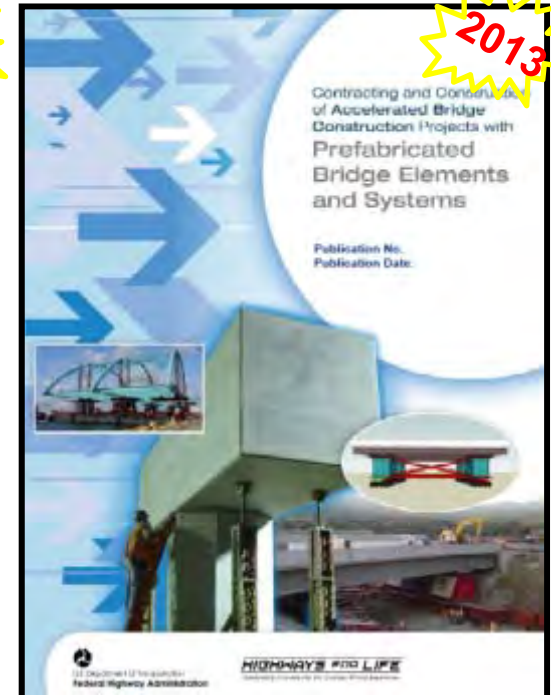
1.

1. <https://www.fhwa.dot.gov/bridge/abc/docs/abcmanual.pdf>



2.

2. <https://www.fhwa.dot.gov/bridge/pubs/hif17019.pdf>



3.

3. <https://www.fhwa.dot.gov/bridge/pubs/hif17020.pdf>



FHWA Tech Notes



TECHNOTE

Design and Construction of Field-Cast UHPC Connections

FHWA Publication No: FHWA-HRT-14-084

FHWA Contact: Ben Graybeal, HRDI-40, 202-493-3122, benjamin.graybeal@dot.gov

Introduction

Advancements in the science of concrete materials have led to the development of a new class of cementitious composites called ultra-high performance concrete (UHPC). UHPC exhibits mechanical and durability properties that make it an ideal candidate for use in developing new solutions to pressing concerns about highway infrastructure deterioration, repair, and replacement.^(1,2) Field-cast UHPC details connecting prefabricated structural elements used for bridge construction have proven to be an application that has captured the attention of owners, specifiers, and contractors across the country. These connections can be simpler to construct and can provide more robust long-term performance than connections constructed through conventional methods.⁽³⁾ This document provides guidance on the design and deployment of field-cast UHPC connections.

UHPC

UHPC is a fiber-reinforced, portland cement-based product with advantageous fresh and hardened properties. Through the appropriate combination of advancements in superplasticizers, dry constituent gradation, fiber reinforcements, and supplemental cementitious materials, UHPC is able to deliver performance that far exceeds conventional concrete. Developed in the late 20th century, this

class of concrete has emerged as a capable replacement for conventional structural materials in a variety of applications.

The Federal Highway Administration (FHWA) defines UHPC as follows:

UHPC is a cementitious composite material composed of an optimized gradation of granular constituents, a water-to-cementitious materials ratio less than 0.25, and a high percentage of discontinuous internal fiber reinforcement. The mechanical properties of UHPC include compressive strength greater than 21.7 ksi (150 MPa) and sustained post-cracking tensile strength greater than 0.72 ksi (5 MPa).¹ UHPC has a discontinuous pore structure that reduces liquid ingress, significantly enhancing durability compared to conventional concrete.⁽²⁾

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Specifying UHPC	17
Construction Engineer Inspection	25
Case Study	27
Deployments.....	32



<http://www.fhwa.dot.gov/publications/research/infrastructure/structures/14084/index.cfm>

FHWA - Tech Notes



TECHNOTE

Dimensional Stability of
Grout-Like Materials Used in
Field-Cast Connections



www.fhwa.dot.gov/publications/research/infrastructure/structures/bridge/16080/index.cfm



TECHNOTE

Bond of Field-Cast Grouts to
Precast Concrete Elements



www.fhwa.dot.gov/publications/research/infrastructure/structures/bridge/16081/index.cfm



www.trbaff103.com



TRANSPORTATION
RESEARCH BOARD

OF THE NATIONAL ACADEMIES



WELCOME

ANNUAL MEETINGS

REGISTRATION

MEMBERS

RESEARCH PROJECTS

VIDEO OF THE YEAR

ABC-UTC

2016 INDUSTRY FEEDBACK POLL

2017 INDUSTRY FEEDBACK POLL

2017 Subcommittee Meeting:

[Agenda](#)

[Meeting Presentation Guide](#)

[2016/2017 Activities Statement](#)

[2017 TRB Structures Group Compiled RNS](#)

TRB NCHRP ABC update

[2015 NCHRP Annual Report](#)

Waseem Dekelbab/NAS

TRB SHRP2 R04 update

[SHRP2 R04 Resources Link](#)

Finn Hubbard/AASHTO

Turner-Fairbanks Highway Research Center update

[Presentation Link](#)

Dr. Benjamin Graybeal/TFHRC

University Transportation Center for ABC update

[ABC-UTC Link](#)

Dr. Atorod Azizinamini

**2017
Meeting & Workshop
materials is posted**

Workshop No. 123:

Latest Accelerated Bridge Construction Innovations from Research

The half-day ABC workshop provides a forum for the research teams that are supported through the U.S. Department of Transportation's Accelerated Bridge Construction University Transportation Center (ABC-UTC) to disseminate their latest findings on innovative research projects to address resources, decision making, design, and engineering for ABC.



TRB Co-sponsors:

- AFF10 - Committee on General Structures
- AFF00(2) - Joint Subcommittee on ABC
- AFH40 - Committee on Construction of Bridges & Structures
- AFF50 - Committee on Seismic Design & Performance of Bridges

Estimating Total Cost of Accelerated Bridge Construction

[Presentation Link](#)

Mohammed Hadi, Florida International University

ABC Project and Research Databases

[Presentation Link](#)

David Garber, Florida International University

Closure Joint Alternatives for ABC Projects

[Presentation Link](#)

Dr. Atorod Azizinamini, P.E., Ph.D., Florida International University



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2017 Industry Poll Ongoing!

Navigation menu: WELCOME, ANNUAL MEETINGS, REGISTRATION, MEMBERS, RESEARCH PROJECTS, VIDEO OF THE YEAR, ABC-UTC

2016 INDUSTRY FEEDBACK POLL | 2017 INDUSTRY FEEDBACK POLL

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Dr. Atorod Azizinamini

POLL WILL CLOSE
FEBRUARY 20, 2017
12:00 PM PST

TOPICS & FEEDBACK	POLL RESULTS												
<p>1. Development of guidance for establishing effective and efficient timelines and incentives for ABC.</p> <p>Proposal link Review & Rate link</p> <p><u>comments:</u></p> <ul style="list-style-type: none">- Developing "rules of thumb" for Owner's on when to use or not use and how high/low to set Incentives and Disincentives on "common" factors such as size of project, dollar amount, complexity, etc... with input from the construction side of the industry would be useful for planning purposes.- For our agency, this is done by our traffic group.- I think this could be an output of topic #8- Lessons learned from tackling the 'areas of slowing down' and how successfully the hurdles were bypassed.- This research will help with efficient implementation of developed ABC Technologies. Utilizing the UTC data base of constructed ABC Projects will give research results a high degree of credibility.	<table border="1"><caption>Poll Results for Topic 1</caption><thead><tr><th>Rating</th><th>Count</th></tr></thead><tbody><tr><td>V. High</td><td>15</td></tr><tr><td>High</td><td>5</td></tr><tr><td>Medium</td><td>3</td></tr><tr><td>Low</td><td>1</td></tr><tr><td>V. Low</td><td>1</td></tr></tbody></table>	Rating	Count	V. High	15	High	5	Medium	3	Low	1	V. Low	1
Rating	Count												
V. High	15												
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Medium	3												
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V. Low	1												



Industry Poll Topics

www.trbaff103.com



- 1.) *Development of guidance for establishing effective and efficient timelines and incentives for ABC*
- 2.) *Planning, design, fabrication, and installation strategies for Modular Decked Beam (MDB) elements*
- 3.) *Performance comparison of in-service full-depth precast concrete deck panels to cast in place decks*
- 4.) *Labor, equipment, and production rates for Accelerated Bridge Construction*
- 5.) *Best Practices used for Strategic Public Communications for ABC projects*
- 6.) *Updating the "Best Practices in Accelerated Bridge Construction Techniques" report*
- 7.) *Rapid Construction of Pre-fabricated Substructure elements for Durable and Sustainable Bridges using Fiber Reinforced Polymers (RFP)*



ABC-UTC Graduate Student Seminar Archives

January 2017: Estimating the Total Cost of Accelerated Bridge Construction

Estimating the Construction Cost Associated with Accelerated Bridge Construction

by

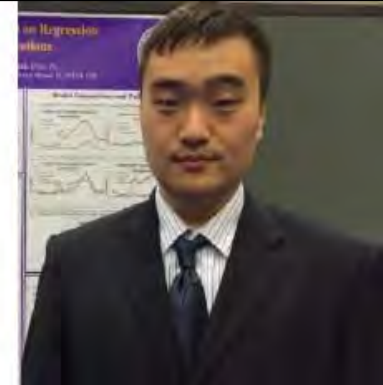
Mohamed Ibrahim, Ph.D.
FIU Graduate and former ABC-UTC Research Assistant
Managing Director, Equicorp Advisors, Cairo, Egypt
(Ph.D., August 2016)



Estimating and Implementing Road User Costs in ABC Selection Decisions

by

Jianmin Jia, Ph. D. Candidate
FIU Graduate Assistant
Lehman Center for Transportation Research (LCTR)
(Ph.D., May 2017)



www.abc-utc.fiu.edu/events/graduate-student-seminars-archives

Next Webinar

Thursday, March 16, 2017 (1:00 – 2:00 p.m. Eastern)

Featured Presentation

Georgia's Rapid Replacement Utilizing Full-Depth Precast Deck Panels with UHPC Closure Joints

by

Bill DuVall, P.E., State Bridge Engineer, Georgia Department of Transportation; and **Dexter Whaley, P.E.**, Bridge Design Group Manager, GDOT

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