ABC-UTC Update

2018 Annual Meeting
AASHTO Technical Committee on Construction T-4
Burlington Vermont
June 27
A. Azizinamini
2017-2022
Florida International University - Lead
Partner Universities:
University of Nevada-Reno
Iowa State University
University of Washington
University of Oklahoma
- Research
- Workforce Development and Education
- Technology Transfer
- Conferences
Survey was sent in May to following groups to identify ABC related research needs

- State DOTs, through planning committee and AASHTO
- FHWA Branch offices, through our liaison
- Consultants
Research Project Selection
Cycle 2 of 2017 ABC-UTC

Questions to State DOT, through AASHTO

- **Question 1** - What topics related to ABC, do you think needs to be researched? Please provide a brief explanation of each topic.

- **Question 2** - Is your agency currently conducting any ABC-related research? Please provide brief description of each project or provide us with links. Alternatively please provide contact information for PI of the project for us to contact

- **Question 3** - Please provide the name and cell phone number for a person in your agency that the ABC-UTC can contact for an additional short discussion
Research Project Selection
Cycle 2 of 2017 ABC-UTC

Questions to FHWA Branch Offices

- Question 1 - In your opinion what ABC topics needs to be researched? Please provide a brief explanation of each topic.

- Question 2 - Please provide your contact information, in case we will need to contact you.
Questions to Consultants

Question 1 - In your opinion, what topics related to ABC, should be researched to further advance use of ABC in practice? Please provide a brief explanation of each topic.

Question 2 - Is there a topic that your firm is interested to work on jointly with ABC-UTC? If so please provide brief explanation

Question 3 - Would you like to identify a person in your firm to be a liaison with us at ABC-UTC? If so, please provide the contact information
Sample Responses

- Performance of existing ABC bridges
- Comprehending behavior during move
- Shop drawing reviews and fabrication related QA/QC.
- Performance of UHPC joints
- Non-proprietary mixes for UHPC
- Contracting Methods- CMGC, A+B, DB, DBB, etc
- UHPC mix designed for specific application
- Actual cost/saving
- Guideline for CMGC
- Rapid repair methods using UHPC
Sample Responses

- Alternative multi-weekend PBES installation techniques to reduce extended and/or night-time work. This would be likened to semi-accelerated bridge construction techniques that would provide a right balance between reasonable accommodation of public traffic and cost.

- Alternative on-site fabrication techniques to alleviate/reduce transportation challenges and cost of PBESs

- Means to connect precast barrier to a Precast Bridge Element
Other Activities to Identify Research Projects

Visiting agencies such as

Agencies with interest in ABC Tollway Authorities
Private Consultants
Major Steps in Finalizing Research Projects

- Collect the suggestions by stakeholders – ABC-UTC
- Develop general categories of research – ABC-UTC
- Work with Research advisory board to assign priority to research categories (RAB and Director)
- Request proposals from partner universities (ABC-UTC)
- RAB make final recommendations- RAB

Note- Membership in RAB is not yet finalized
Research Progress Presentations

Two times a year, PIs will be presenting the latest finding from ongoing research projects. In the past these presentations were limited to advisory panel only. It is now open to everyone. Idea is to get feedback
Ongoing Research Projects

Please visit

www.ABC-UTC.FIU.EDU
UHPC Based Accelerated Repair Solutions
Repaired W NO Stirrup

Repaired W Stirrup
Repair of Bridge Elements Subjected to Predominantly Moment
Repair of Bridge Elements Subjected to Predominantly Moment

Different ways of attaching UHPC shell to existing concrete is being investigated
ABC Made Conventional

Through UHPC Shell
ABC Made Conventional Through UHPC Shell

- Construct the formwork using UHPC shell that becomes part of element

- Transport the shell to site

- Place reinforcement cage inside shell

- Fill the UHPC shells with concrete
Background - Common Connections

Bar Couplers

- Grout Bed
- Bar Coupler
- Threaded sleeve
- Headed bars with mating sleeves
- External clamping screws
- Grouted splice sleeve
Background Common Connections

Pocket Connections

Pics Ref: NCHRP report 681
Proposed Connection Detail

Prefabricate Element

Splice Region

Prefabricate Column

UHPC

Detail 1
Proposed Connection Detail

Cap Beam

Splice Region

Prefabricate Column

UHPC

Detail 2
Monthly Webinars Attracting Larger Audiences

March 2017 – 1073 sites registered
April 2017 – 1274 sites registered
CALL FOR ABSTRACTS!
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<tr>
<td>Abstract Submission Deadline</td>
<td>January 18, 2019</td>
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<tr>
<td>Abstract Decision Notification</td>
<td>March 15, 2019</td>
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<tr>
<td>Extended Abstract or 10 Page Paper</td>
<td>September 2, 2019</td>
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2019
INTERNATIONAL ACCELERATED BRIDGE CONSTRUCTION CONFERENCE:
Including Automation, Service Life and Ultra High Performance Concrete (UHPC)

December 11-13, 2019
Miami, FL
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Keynote Speakers

Automation, Service Life
New Initiative

ABC Training Modules
Questions?