

Federal Highway Administration
Every Day Counts
Innovation Initiative



National Perspective on ABC Implementation

Benjamin Beerman, P.E.
FHWA Resource Center

Washington DOT
April 1, 2015



ABC and PBES

EDC 1

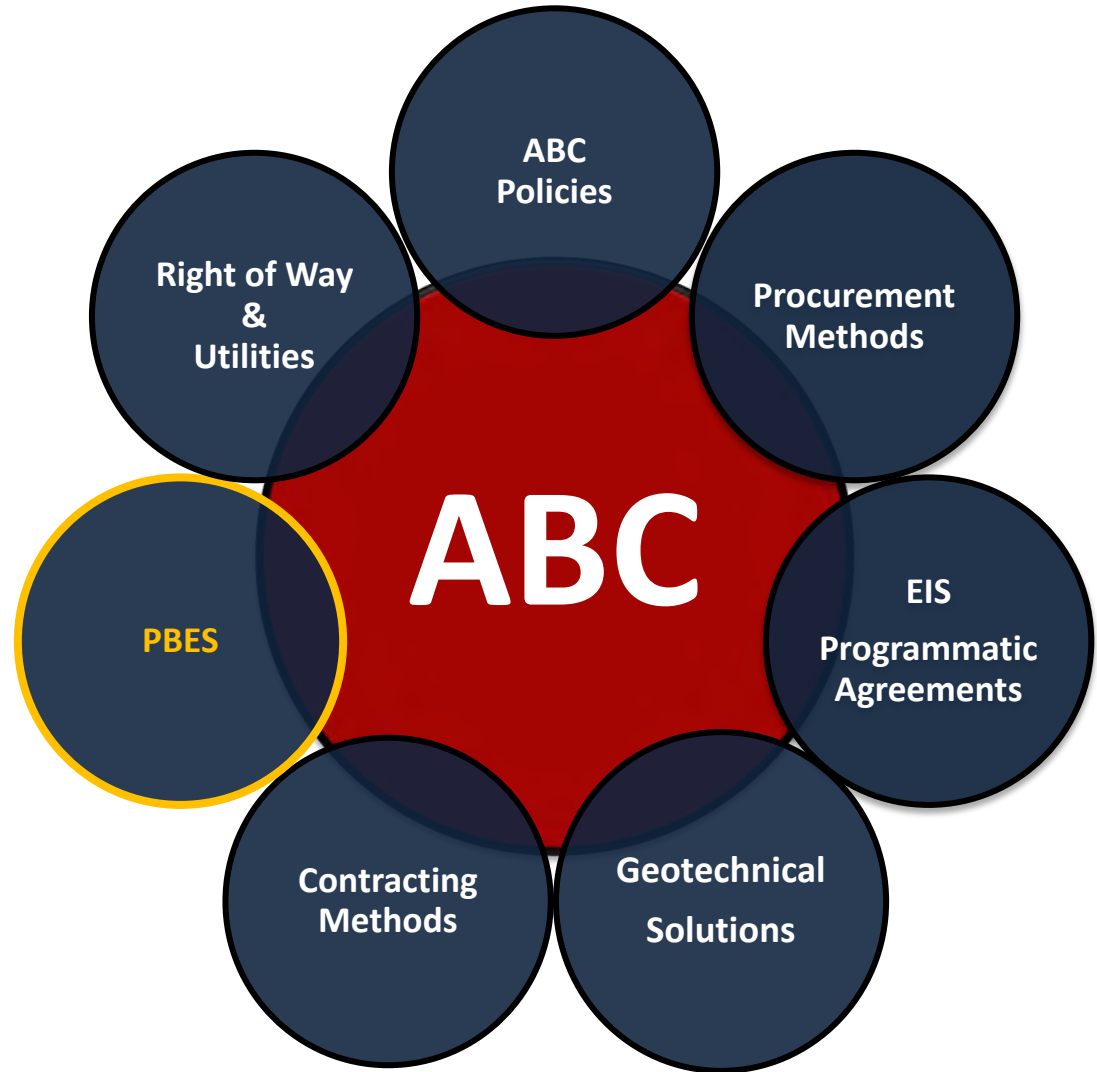
2011-2012

EDC 2

2013-2014

EDC 3

2015-2016





Elements



Systems





Project Examples use PBES/ABC

- Contract Plans
- Specifications
- Bid Tabs
- Schedule
- Pictures

I-93 Bridge over Loudon Road (Route 8)

Folders ▸ PBES_Example_Projects_by_State ▸ UT ▸ UT-2007-4500 South Bridge

UT-2007-4500 South Bridge

Download More Actions

<input type="checkbox"/>	Title
<input type="checkbox"/>	2-Contract Plans
<input type="checkbox"/>	5-Construction Schedule
<input type="checkbox"/>	3-Specifications
<input type="checkbox"/>	1-Photos
<input type="checkbox"/>	4-Bid Tabs
<input type="checkbox"/>	0-110829 ABC New UT 2007 4500 So over I-215.do



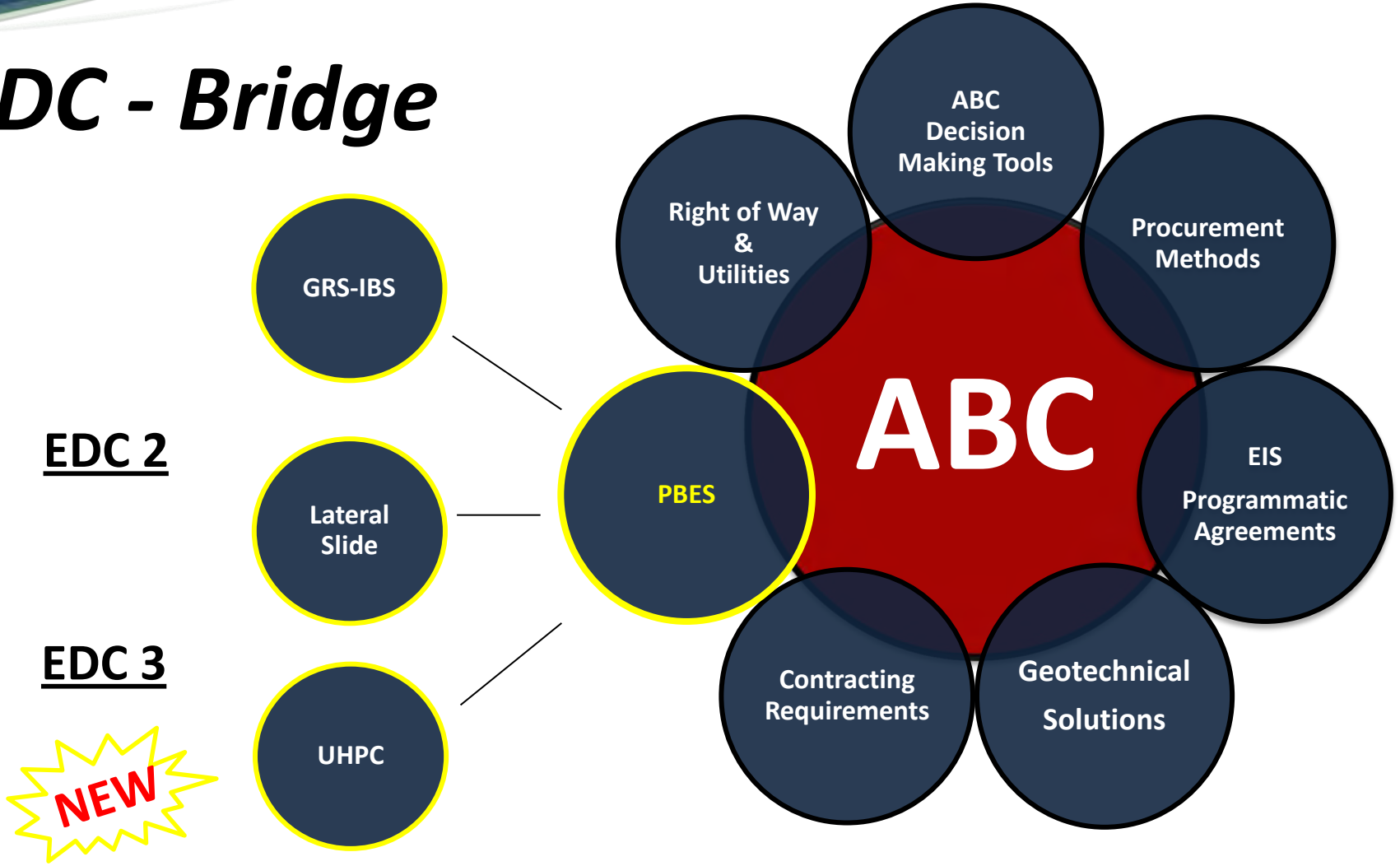
Deployment Activities

- Workshops
- Webinars
- Scanning Tours
- Project Reviews
- Project Showcases
- Regional Peer Exchanges
- Publications





EDC - Bridge





Webinar Training - FIU

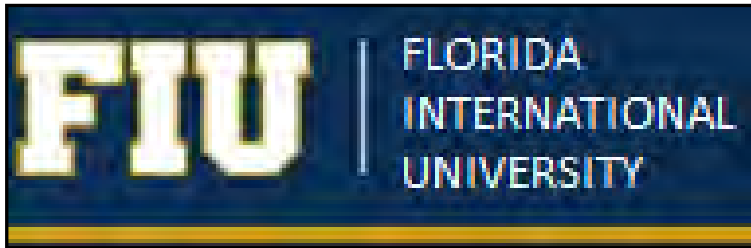
FIU

Accelerated Bridge Construction (ABC) Center
FLORIDA INTERNATIONAL UNIVERSITY

www.abc.fiu.edu



Webinar Training - FIU



www.abc-utc.edu



AASHTO

THE VOICE OF TRANSPORTATION

SUBCOMMITTEE ON BRIDGES AND STRUCTURES

AASHTO

AASHTO SCOBs (T4)

- 1) Extend Bridge Service Life
- 2) Assess Bridge Condition
- 3) Maintain and Enhance a Knowledgeable Workforce
- 4) Maintain and Enhance the AASHTO Specifications
- 5) Accelerate Bridge Delivery and Construction**
- 6) Optimize Structural Systems
- 7) Model and Manage Information Intelligently
- 8) Contribute to National Policy



NCHRP

NATIONAL
COOPERATIVE
HIGHWAY
RESEARCH
PROGRAM

- **12-98:** Guidelines for PBES Tolerances and Dynamic Effects of Bridge Moves
- **12-102:** Development of an ABC Design and Construction Specification
- **12-105:** System Performance of ABC Connection in Moderate-to-High Seismic Regions



**TRANSPORTATION
RESEARCH BOARD**

OF THE NATIONAL ACADEMIES

Formation of ABC Subcommittee

AFF10 General Structures – parent committee
AFF10(3) – Subcommittee for ABC

Chair: Ben Beerman, FHWA

Vice Chair: Mary Lou Ralls

www.trbaff103.com



[www.
TRBAFF103
.com](http://www.TRBAFF103.com)

TRB
Committee on General Structures (AFF10)
Subcommittee on Accelerated Bridge Construction (AFF10-3)

Approximately one-fourth of the Nation's 600,000 bridges require rehabilitation, repair, or total replacement. The construction-related work used to address these needs can create significant impacts to the surrounding area including mobility, safety, and other social-economic related impacts. Throughout the U.S., owner agencies are realizing that the results of using ABC strategies not only helps to address onsite related constraints, but can also improve how a bridge program is delivered when used in a more routine, programmatic manner.

Scope: The TRB Accelerated Bridge Construction (ABC) Subcommittee supports research, technology transfer, and implementation to advance ABC technologies related to policy, planning, procurement, design, materials, construction and contracting. The objective of the subcommittee is to expand the knowledge and expertise to foster the implementation of ABC related technologies.

Road Map:
The Subcommittee will...

1. Stay informed on the current state of practice/art.
2. Identify, prioritize and prepare research needs statements.
3. Collaborate with State DOTs, FHWA, and AASHTO groups.
4. Support research projects in the areas of ABC.
5. Support technology transfer and implementation of research projects through workshops, paper, and poster sessions.

On behalf of TRB, we welcome you to join and participate with the members of this subcommittee.



SHRP2 - R04

U.S. Department of Transportation
Federal Highway Administration

About Programs Resources Briefing Room Contact Search FHWA


Strategic Highway Research Program (SHRP2) Implementation

Home / Goshrp2 / Implementation Assistance Program / Innovative Bridge Designs for Rapid Renewal (R04)

FHWA AASHTO TRB

SHRP2 SOLUTIONS

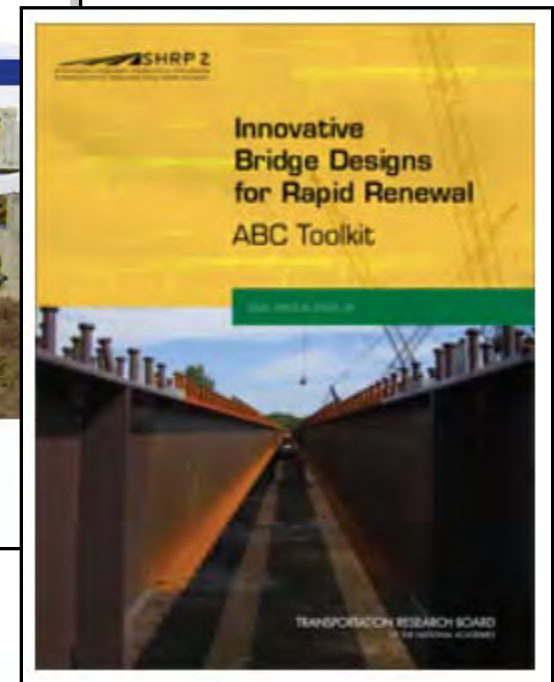
TOOLS FOR THE ROAD AHEAD



Implementation Assistance Program

- [Innovative Bridge Designs for Rapid Renewal \(R04\)](#)
- [Managing Risk in Rapid Renewal Projects \(R09\)](#)
- [Innovative Strategies for Managing Complex Projects \(R10\)](#)
- [Preservation on High-Volume Roadways \(R26\)](#)
- [Implementing Eco-Logical \(O08\)](#)

Plans, designs, and concepts to build and replace bridges faster.



Web Search: SHRP2 R04



Implementation Awards

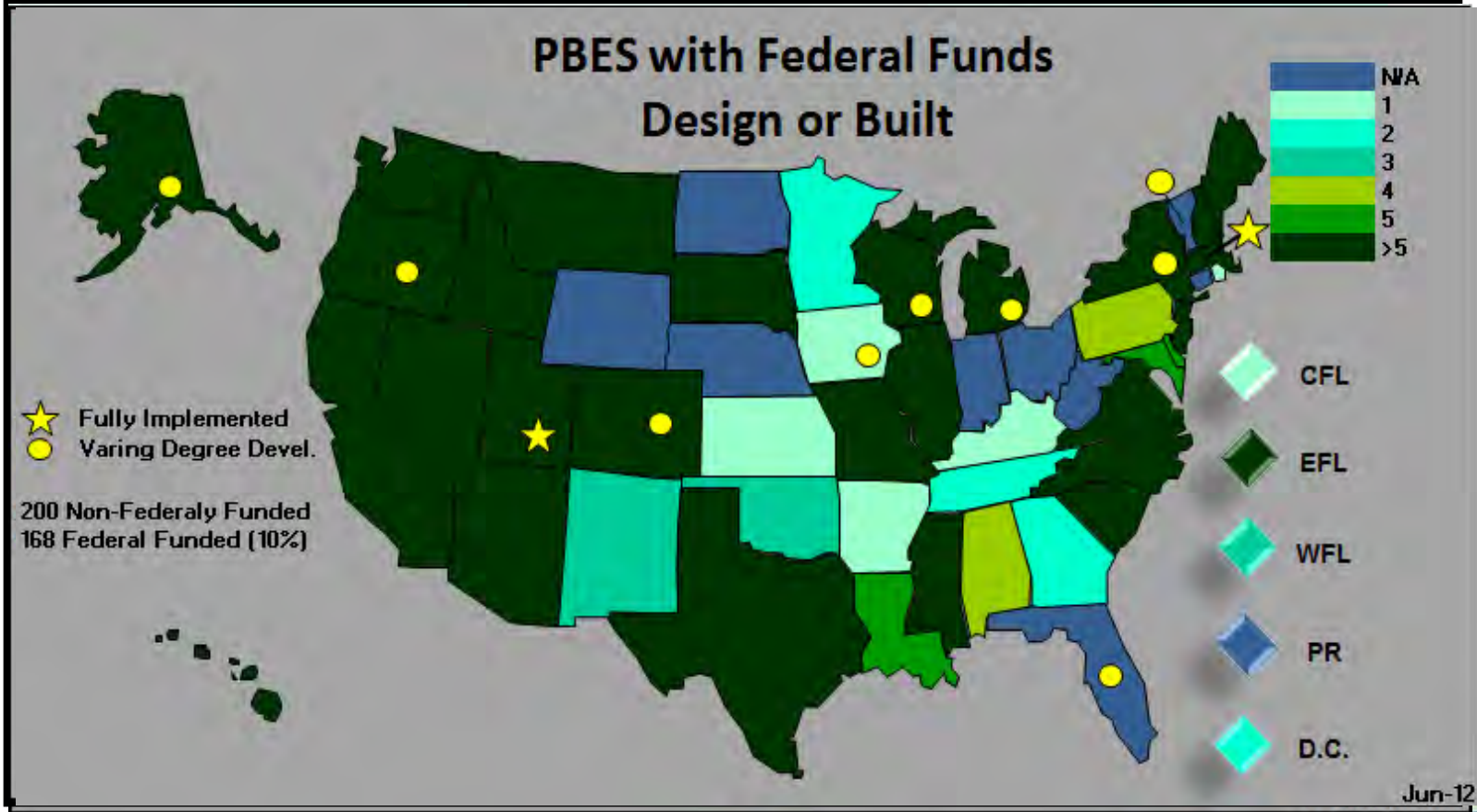
- (8) projects scattered around the county
 - Gila River Indian Reservation (Arizona)
 - California
 - Kentucky
 - Maine
 - Missouri
 - Rhode Island
 - Wisconsin
 - Michigan





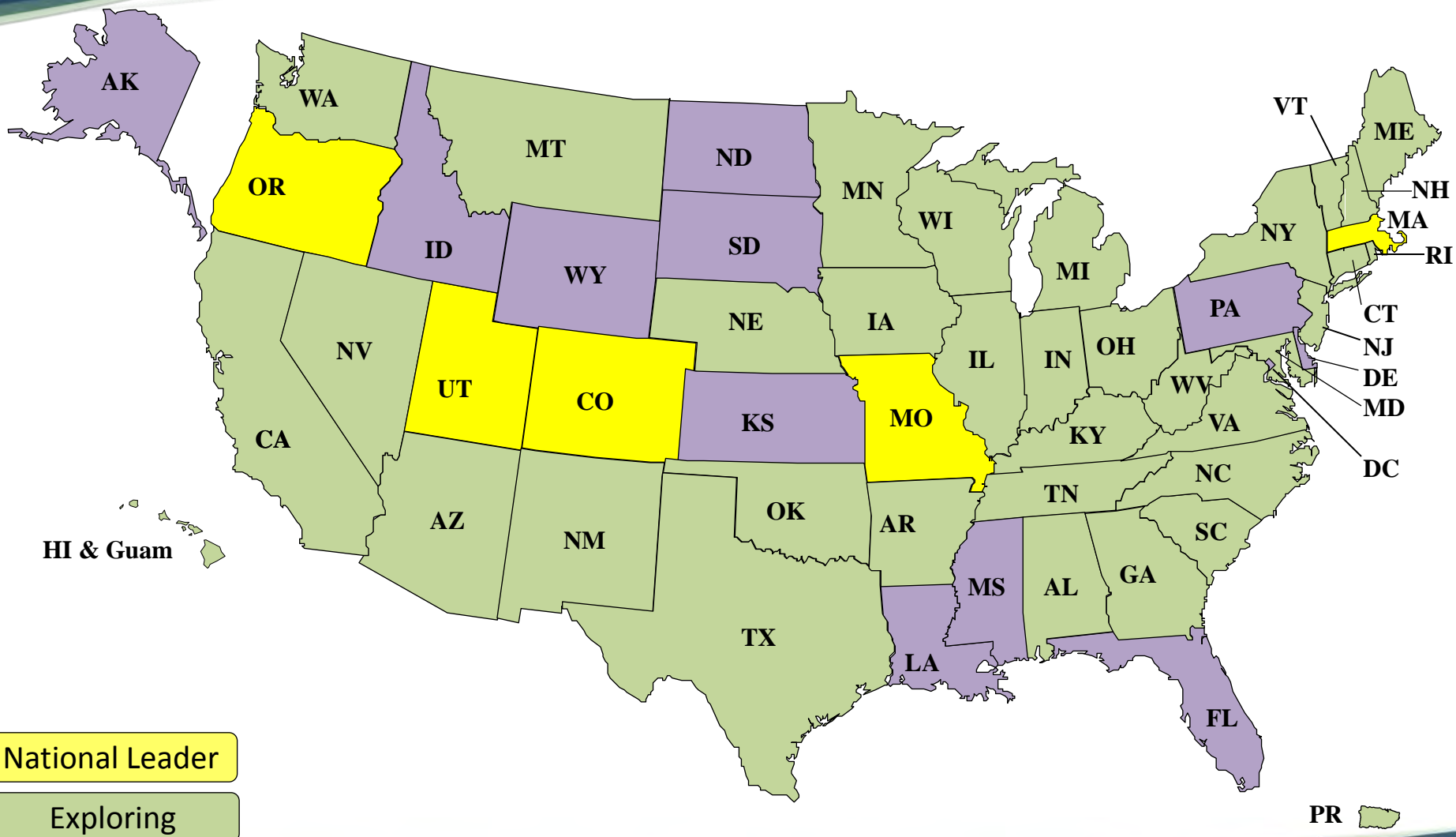
What has been done?

850 bridge projects





Lateral Slide



National Leader

Exploring

Source Data from EDC 2 Baseline Profiles July 19, 2013

PR & USVI



Paradigm Shift old practices



PBES

PBES:
Pile Lagging



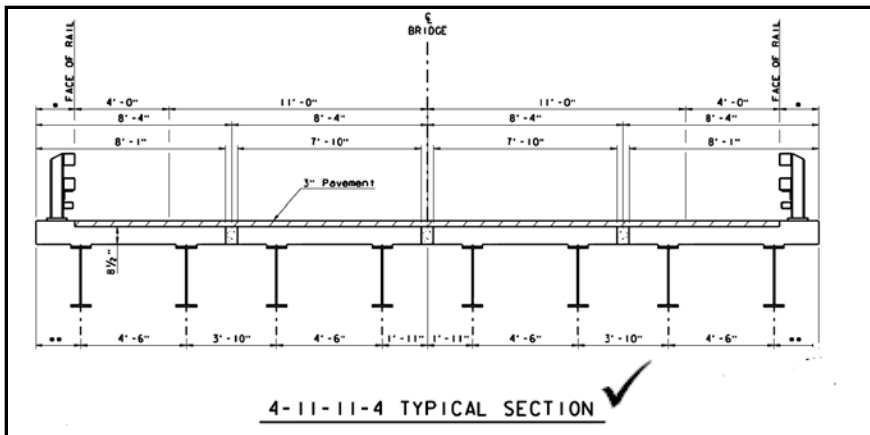
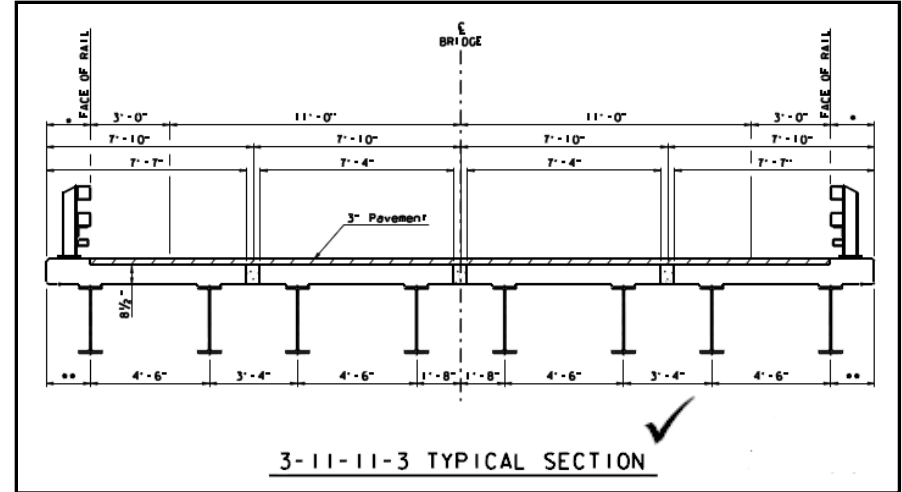
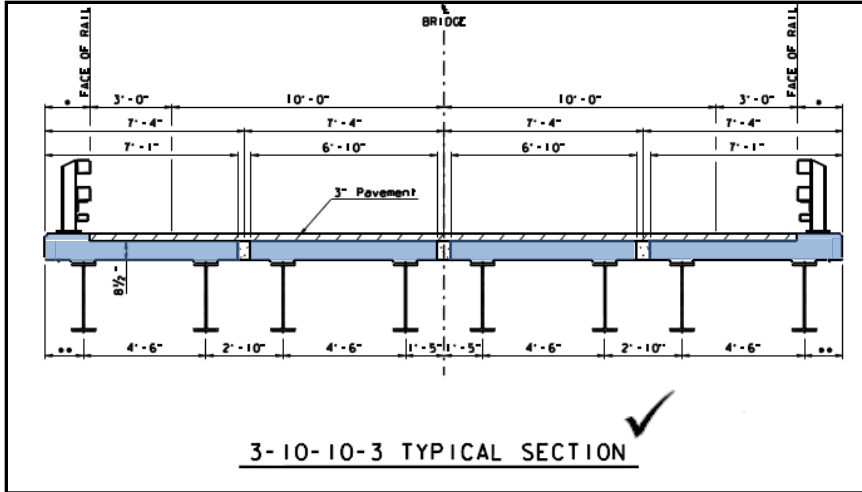
PBES:
Grouted Couplers

PBES:
Pile Pockets





Paradigm Shift – standards





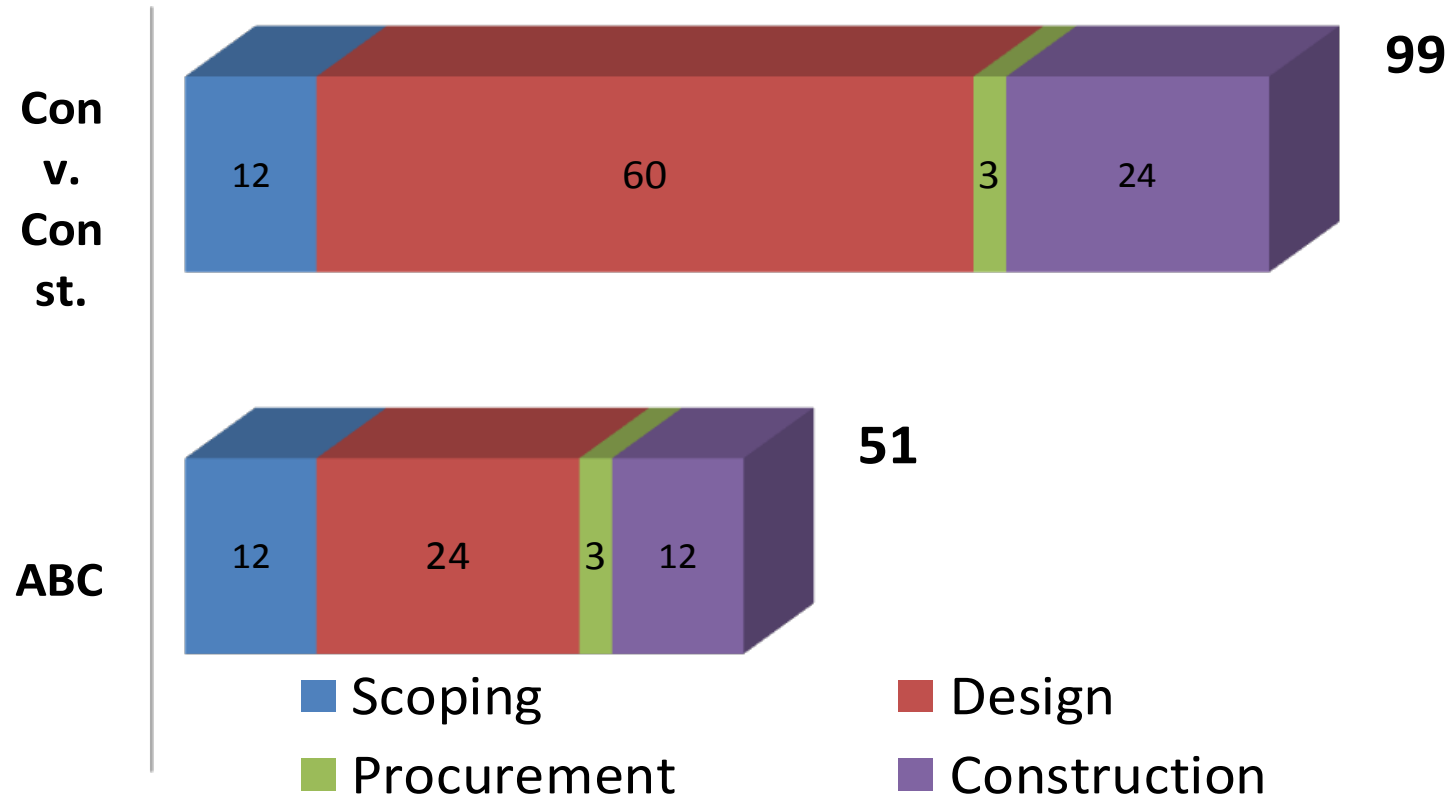
Paradigm Shift strategies





Other Reasons for PBES

Project Delivery Comparison by Phase
Measured in Months





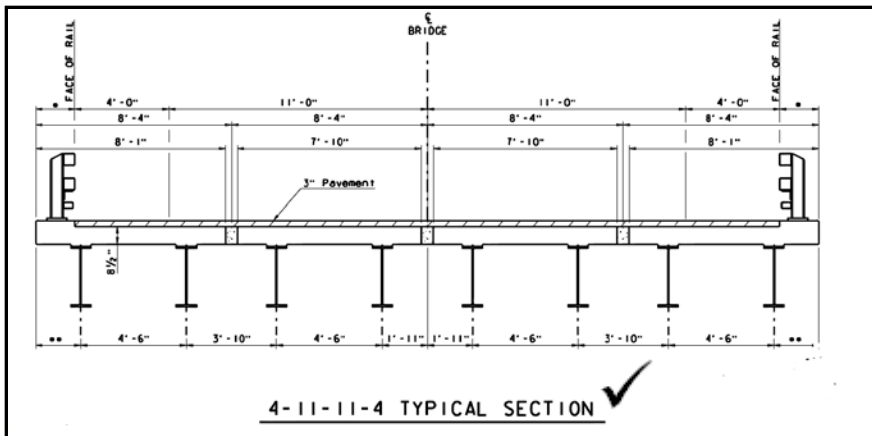
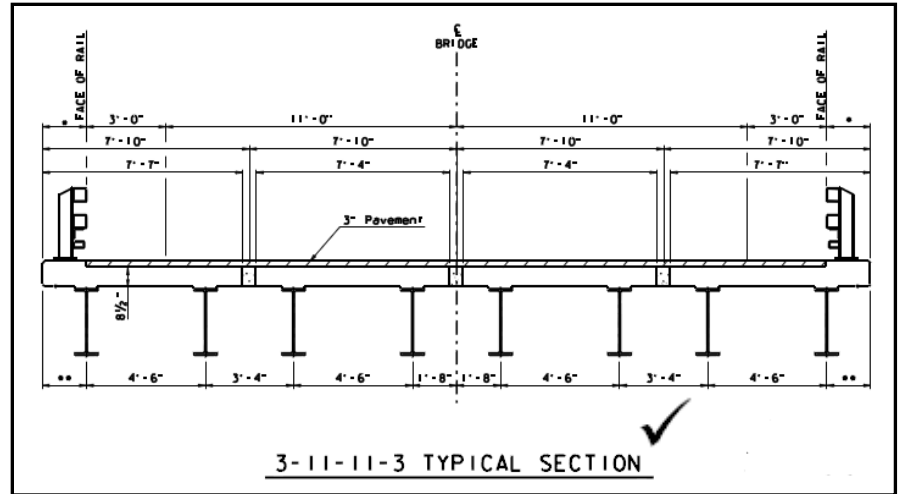
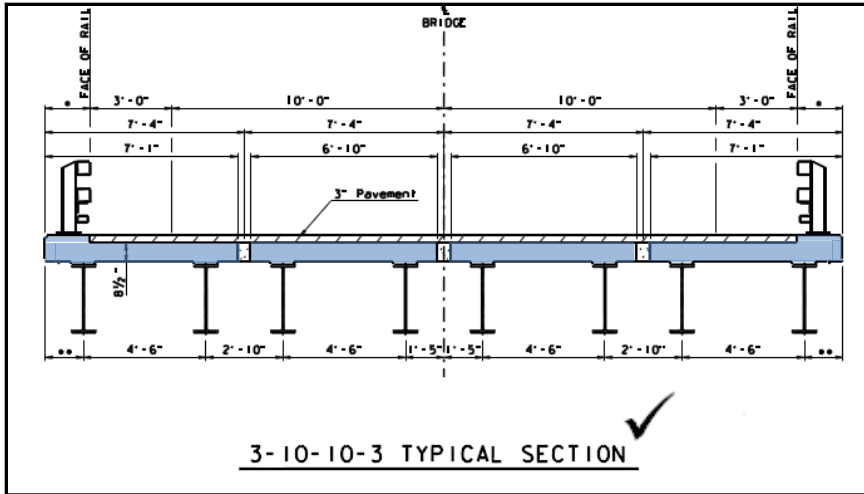
Opportunities for Growth/Improvement

*As long as were building bridges there will
always be ABC.*





Paradigm Shift – standards





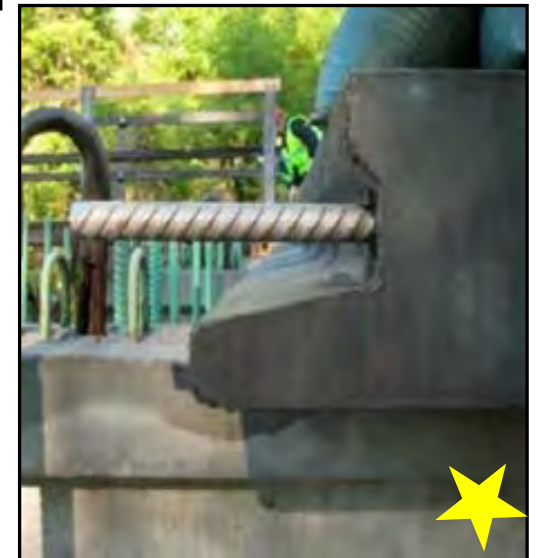
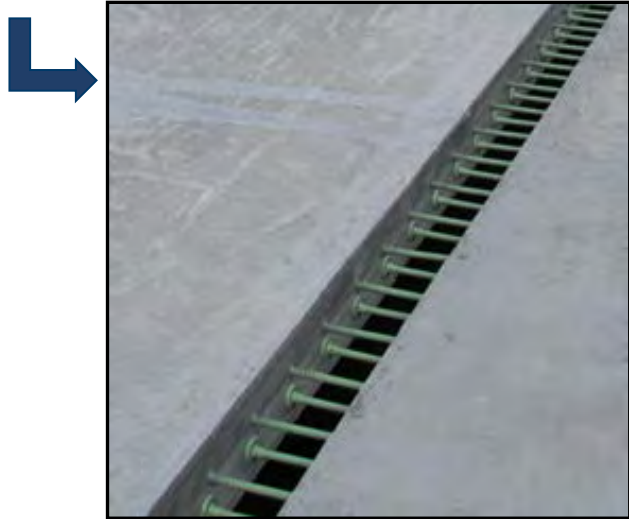
Paradigm Shift – standards



UHPC



Connection Evolution!



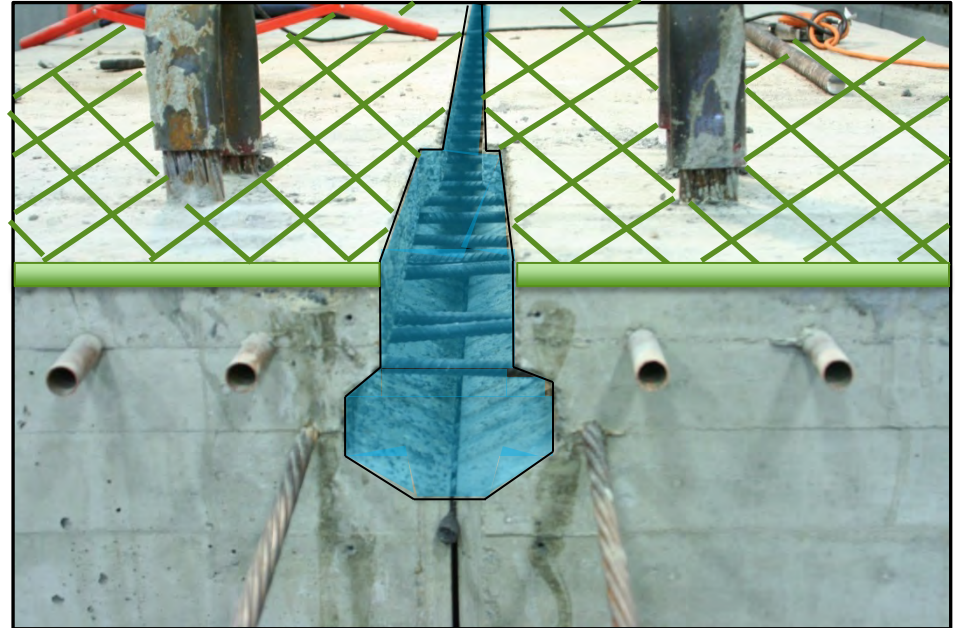
Conventional
Concrete

UHPC

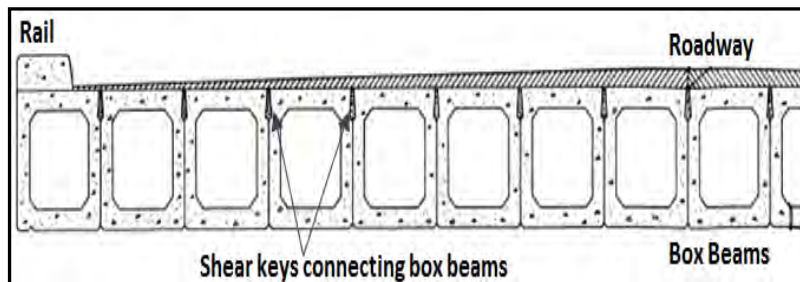


UHPC connections - Adjacent Box Beam

- Full Moment/Shear transfer across the joint
- No membrane with overlay
- No composite deck
- No joint leakage



No. 4 rebar lap splice





PBES/ABC



UTDOT: Wayne Parkway
2 Spans 3rd Corner, 4/2011, 18/2010



8/2014

Every "S" in PBES
MNDOT: Hastings

CTDOT: I-84
2 bridges, 60 hours
7/2014





PBES/ABC



2015

VTrans: I-94 Hartford

ALDOT: Dothan

2015





PBES/ABC



Summer/2011

MassDOT: 93Fast 14

TNDOT: 40Fast 8
2015





PBES/ABC



Tappan Zee
NYDOT: \$4B/ 2014



Weighting Factor

Aggregate Industries

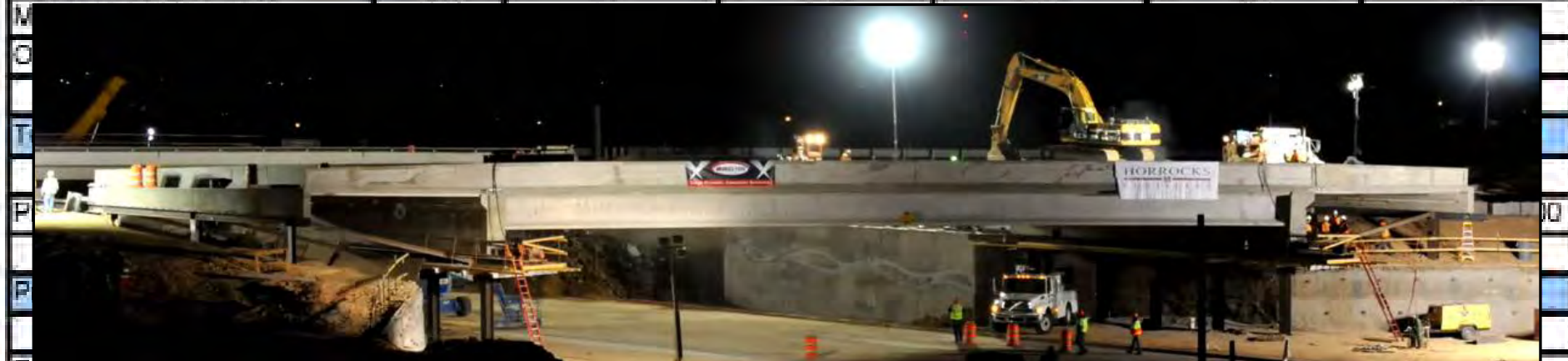
Las Vegas Paving



West Mesquite Interchange Design-Build

City of Mesquite and NDOT - Working together to connect Mesquite

Maintenance of Traffic	20%	58	70	50	51	70
------------------------	-----	----	----	----	----	----



Two-lane Configuration Value		229	0	14	0	0
Two-lane Configuration Score	8%	0.03	8.00	0.53	8.00	8.00
Completion Value		636	464	555	477	365
Completion Score	2%	1.15	1.57	1.32	1.53	2.00
Schedule Score	10%	1.18	8.57	1.86	9.53	10.00
Total Score	100%	61.10	71.60	74.62	82.61	88.27
Ranking		5	4	3	2	1





Thank You!



FHWA

Benjamin Beerman, P.E.