

AASHTO Perspective on ABC

by

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AASHTO Perspective on ABC

Presentation Outline

- AASHTO Initiatives
- Projects
- Issues
- Resources

AASHTO ABC Initiatives

- 2001 Selected Technologies of AASHTO Technology Implementation Group (TIG), for Nationwide Implementation
 - Prefabricated Bridge Elements and Systems
 - In 2004 transferred to AASHTO Technical Committee for Construction, T-4
 - Accelerated Construction Technology Transfer

AASHTO ABC Initiatives, cont'd.

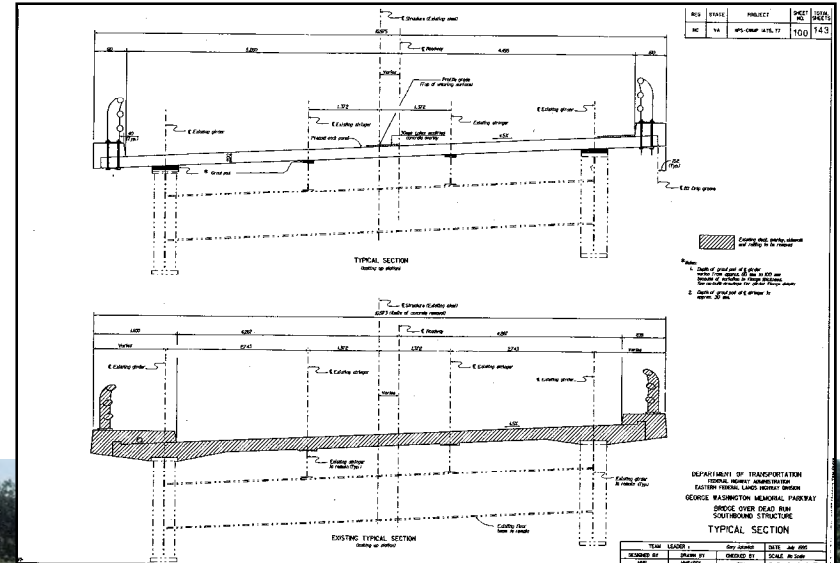
- 2004 AASHTO / FHWA / NCHRP International Scan on Prefabricated Bridge Elements and Systems
- 2009 NCHRP 20-68A Domestic Scan 07-02 on Best Practices in Accelerated Construction Techniques
- 2010 Collaborating with FHWA on Every Day Counts Initiative, including Prefabricated Bridges

ABC Projects

- Decks
- Superstructures
- Substructures
- Total bridges

Decks

George Washington Memorial Parkway, VA – 2002



Replaced deck while
keeping bridge open
to traffic on weekdays



Decks

Live Oak Creek Bridge, TX – 2008

Erection of deck panels over shear studs on beams



Panels designed per NCHRP 12-65, “Full-Depth, Precast-Concrete Deck Panel Systems” – no post-tensioning or overlay

Panels after erection on 700-ft long, 32-ft wide bridge



86 full-depth, full-width
deck panels, totaling
22,400 sq ft

Superstructures

I-95 Bridge over James River, VA – 2002



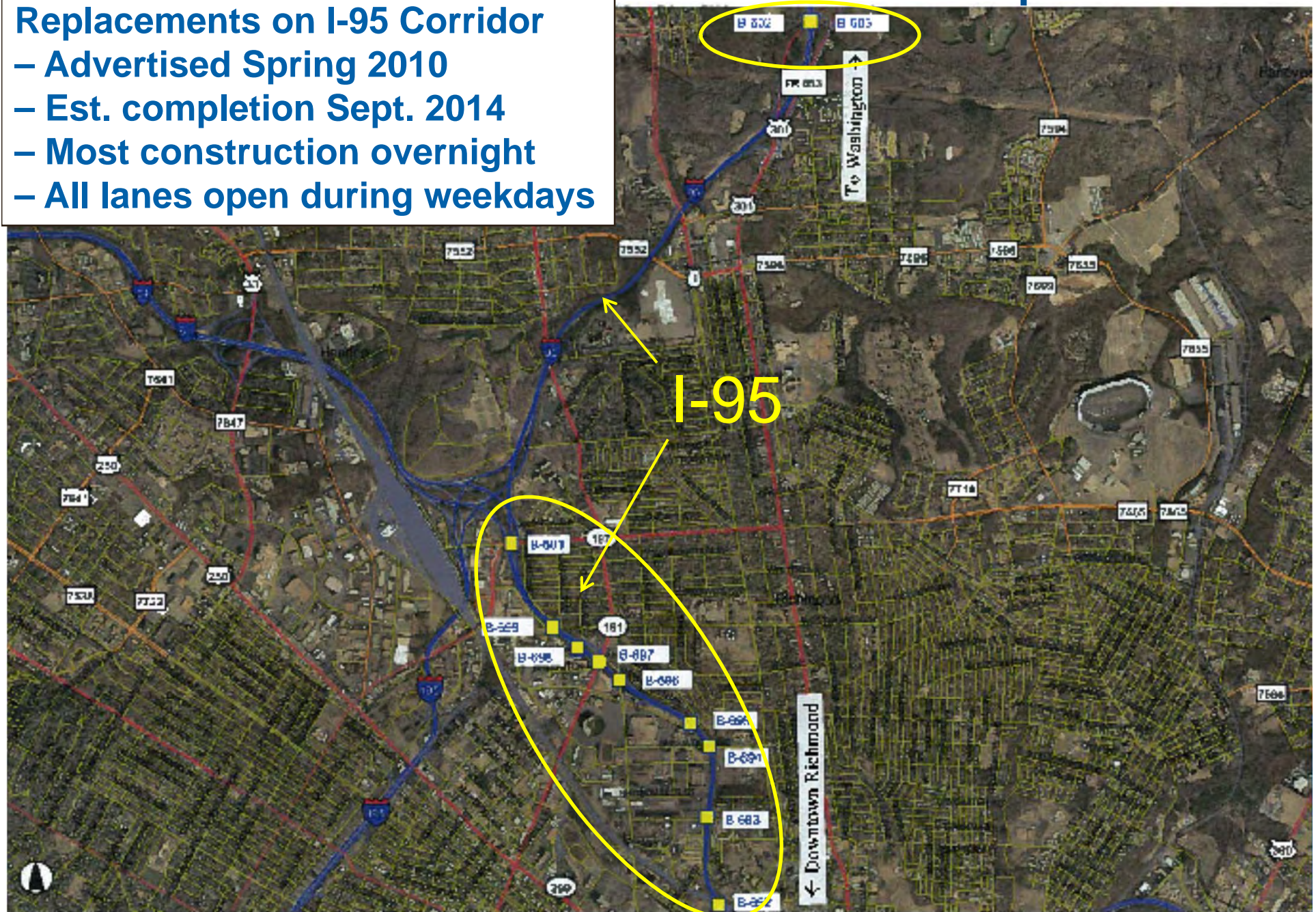
**Spans replaced with
no lane closures
during peak traffic**



VDOT – 11 Bridge Superstructure Replacements on I-95 Corridor

- Advertised Spring 2010
- Est. completion Sept. 2014
- Most construction overnight
- All lanes open during weekdays

Superstructures



Superstructures

4500 South Bridge over I-215E, UT - 2007


Prefabricated Superstructure
driven into position with SPMTs

- I-215 closed over a weekend
- 4500 South closed only 10 days



Superstructures

I-80 State Street to 1300 East Multiple Structures, UT - 2008

- 
- I-80W over Highland Drive
 - I-80W over 900 East St.
 - I-80W over 700 East St.
 - I-80W over 600 East St.
 - I-80W over 500 East Street
 - I-80W over 300 East Street
 - I-80W 600 East Ramp Bridge

Precast Cap Standard currently under development at TxDOT



Lake Ray Hubbard Bridge, 2002

Lake Belton Bridge, 2004



Prefabricated Substructures

Newark International Airport Monorail, 2001



Total Bridge

SH 86 Bridge over Mitchell Gulch, CO – 2002



- Weekend Closure
- Proposed by Contractor



Total Bridge

Belt Pkwy. over Ocean Pkwy. Bridge, NY – 2004



2-span, 149-ft long,
78-ft wide bridge to
3-span, 221-ft long,
134-ft wide bridge



No lane closures during
peak-hour traffic



ABC Issues

- Initial costs can be higher for first use
- Delay-related user costs should/should not be considered?
- Durability of connections is critical
 - Good details are available
 - Research is continuing

National Cooperative Highway Research Program Projects Related to ABC

No.	Title	Status
12-65	Full-Depth, Precast-Concrete Bridge Deck Panel Systems	Report 584
12-69	Design and Construction Guidelines for Long-Span Decked Precast, Prestressed Concrete Girder Bridges	Completed
12-74	Development of a Precast Bent Cap System for Seismic Regions	Report 681
10-71	Evaluation of CIP Reinforced Joints for Full-Depth Precast Concrete Bridge Decks	Completed

National Cooperative Highway Research Program Projects Related to ABC

No.	Title	Status
12-88	System Performance of Accelerated Bridge Construction (ABC) Connections in Moderate-to-High Seismic Regions	Research in progress

Funded as a synthesis project to review related past & ongoing research , define what is missing, & make recommendations for future research as a “Program of Work”

National Cooperative Highway Research Program

Projects that Facilitate the Use of ABC

No.	Title	Status
18-12	Self-Consolidating Concrete for Precast Prestressed Concrete Bridge Elements	Report 628
18-14	Evaluation and Repair Procedures for Precast/Prestressed Concrete Girders with Longitudinal Cracking in the Web	Report 654
18-15	High-Performance/High-Strength Lightweight Concrete for Bridge Girders and Decks	Research in progress
24-31	LRFD Design Specifications for Shallow Foundations	Report 651

ABC Resources

- AASHTO Technical Committee for Construction, T-4
- FHWA – Prefabricated Bridges & Every Day Counts ABC Websites
 - Projects
 - Manuals & Other Resources
- ABC Center at Florida International University
- Oregon DOT-led Pooled Fund Study for ABC Decision Making & Economic Modeling Tool

Transportation Pooled Fund Study TPF-5(221)

- Decision tree & economic modeling tool for ABC versus conventional construction
- Evaluates various alternative construction strategies by considering both quantitative & qualitative criteria
- Uses paired comparisons for relative importance
- Considers tangible & intangible factors
- Includes user's guide & training materials

Why ABC for AASHTO ?

- Minimizes Traffic delays
- The Public expects it!
- The Public demands it!
- Its' Good Engineering!

Thank You

