FHWA Update
AASHTO SCOBS Annual Meeting

June 12, 2017

Reggie Holt
Federal Highway Administration
Concrete Bridges

Reports
- Bridge Data File Protocols for Interoperability and Life Cycle Management (April, 2016)
- Bridge Information Modeling Standardization (April, 2016)
- Bridge Information Modeling (BIM) Using Open Parametric Objects (.pdf) (December, 2015)
- Multiple Corrosion Protection Systems for Reinforced Concrete Bridge Components
- Compilation and Evaluation of Results from High Performance Concrete Projects
- Ultra-High Performance Concrete: A State-Of-The-Art Report for the Bridge Community

Manuals
- Contracting and Construction of ABC projects with Prefabricated Bridge Elements and Systems (.pdf) (June, 2013)
- Engineering Design, Fabrication and Erection of Prefabricated Bridge Elements and Systems (.pdf) (June, 2013)
- Load and Resistance Factor Design (LRFD) for Highway Bridge Superstructures (.pdf) (July, 2016)
  - Design Examples (.pdf, 8 mb) [tl;dr]
- Post-Tensioned Box Girder Design Manual (.pdf) (September, 2015)
- Post Tensioning Tendon Installation and Grouting Manual (.pdf) (May, 2013)
- Engineering for Structural Stability in Bridge Construction (.pdf) (April, 2015)
- Manual of Refined Analysis (.pdf, 1 mb) (anticipated Spring 2017)
Special Bearing Plates and Anchorage Devices

A special bearing plate or anchorage device is any anchorage hardware that transfers tendon force into concrete but does not meet the design requirements of basic bearing plates.

Special anchorage systems can include devices with single or multiple plane bearing surfaces, and devices which combine bearing and wedge plates into once piece.
Post-Tensioned Box Girder Design Manual

Multi-cell Box Girder

Two-cell Box Girder
Strut and Tie Modeling Short Course & Design Examples (under development)

- 1.5 day course
- Available Fall of 2017
- NHI course 130126
- 4 Design Examples
Replaceable PT Tendons

System Components:
- Metal Pipe
- Guide Pipe
- Trumpet
- Shim Plate
- Cast-in Permanent Form
- Heat Shrink Sleeve
- Cast-in Bearing Plate

System Testing:
- Vertical reaction frame
- Concrete deviator
- Jack
- Bearing block
- Angled plate
- ≥3000 mm

Installation

Tendon Layout
Electrically Isolated Tendons (EIT)

System Components

Installation

System Testing
Advanced Precast Element Design

- PCC Girder WBT (8 hrs.)
- Full-Depth Precast Panel WBT (4 hrs)
- PCC Girder Stability Design Tools and WBT (4 hrs)
- Bridge Geometry Design Manual – Layout, Fabrication & Erection Considerations
- Curved / Spliced U-Beam Design Manual
Thank You

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FHWA Technology Deployment
Use of 3-D Animations and Renderings
FHWA OFFICE OF BRIDGE TECHNOLOGY

FHWA Technology Deployment
Use of 3-D Animations and Renderings

Electric Current
Replaceable PT Tendons

DRAFT REPORT
Replaceable External Post-Tensioned Tendons
Prepared for:
FHWA
Prepared by:
WSP | PARSONS BRINCKERHOFF
September 2016

FINAL DRAFT
Assessable Post-Tensioned Tendons
Prepared for:
FHWA
Prepared by:
WSP | PARSONS BRINCKERHOFF TEAM
November 2016
FHWA OFFICE OF BRIDGE TECHNOLOGY

FHWA Technology Deployment

- **Other General Bridge Activities**
  - NHI LRFD Superstructure Course Update (Complete)
  - Refined Analysis Manual
  - System Reliability in Steel and Concrete Bridge Systems
  - Bridge Information Modeling (BrIM)
  - Bridge Strengthening Methods and website framework

- **Periodical Publication Support**
  - Concrete Bridge Views Newsletter
  - FHWA Column for ASPIRE Magazine
Future Activities

- STM 1.5 Day Course (Funded & given NTP)
  - NHI Contract with Baker & UT Austin (Bayrak)
- Promote EIT and Replaceable PT technologies
  - Make guidance 508 compliant
  - Possible showcases (through Accelerated Market Readiness Program)
- LWC Design Primer
- Update LRFD Design Example?
  - Incorporate favorable technologies / procedures