FHWA Research-Based Innovation Efforts Relevant to SCOBS T-10

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ADJACENT BOX CONNECTIONS

- Innovative connections
- Best practices
- Report being published
  (FHWA-HRT-17-093)
DECK LEVEL PBE CONNECTIONS

- 75+ connections tested
- Report being published

Shear Key Geometry:
- Trapezoidal
- Triangular

Reinforcing Bar Type:
- Black
- Epoxy-Coated
- GFRP
- Headed

Precast Panel Surface Preparation:
- Pressure Washing
- Sand Blasting
- Exposed Aggregate

Panel-to-Grout Interface

Precast Concrete

Field-Cast Grout Material
- Non-Shrink Cementitious Grout
- Magnesium Phosphate Grout
- Epoxy Grout
- Ultra-High Performance Concrete
PBE Connections:

Grout Shrinkage

- FHWA-HRT-16-080
- Best practices for field-cast grout selection
- Expected performance

Interface Bond

- FHWA-HRT-16-081
- Important considerations
- Test methods
- Suggestions for increasing bond strength
UHPC MATERIAL CHARACTERIZATION

• 5 different UHPCs
• Mechanical, durability, creep, shrinkage
• Report being published
Physicial testing of connections
• Aim is using mechanical capacity to simplify design and construction
• Testing complete, analysis underway
UHPC OVERLAYS

- Rehab deteriorated bridge decks
- Dozens of deployments in Europe
- 1st US deployment in 2016 (Iowa)
- 2nd US deployment coming in 2017 (Delaware)
- FHWA Report in Fall 2017 (FHWA-HRT-17-096)
AASHTO LRFD Design and Construction Guide Specification UHPC

- FHWA-THFRC is taking on this effort.
- Building on best practices of France, Switzerland, Canada.
- Pooled Fund TPF-5(366) is supporting effort. Led by IA. Just getting started...partners include IA, CT, GA, NY, WA