SHRP2 Call for Implementation of Bridge Products

General Session
AASHTO Subcommittee on Bridges and Structures
June 26th, 2014
Primary Bridge Products

Innovative Bridge Design for Rapid Renewal (R04)

- PI: Bala Sivakumar, HNTB
- TRB Research Report – ABC/PBES practices
- Toolkit: Design standards, sample specs, worked examples, MathCad analysis tool
- 8 field projects funded under Round 1 of the IAP
Primary Bridge Products

NDT for Concrete Bridge Decks (R06A)

- PI: N. Gucunski, Rutgers
- TRB Research Report – 9 NDT geophysical methods
- Concrete delamination, cracking, deterioration and rebar corrosion
- 8 Lead Adopter awards up to $100K in Round 4 IAP
Primary Bridge Products

Service Life Design Guide for Bridges (R19A)

- PI: A. Azizinamini, FIU
- TRB Research Report – SLD practices for B&B bridges
- Fault tree decision tool and specific design and material selection guidance
- 4 Lead Adopter awards up to $150K in Round 4 IAP
Primary Bridge Products

Service Limit State
Design Guide (R19B)

- PI: W. Wassef, Modjeski & Masters
- TRB Research Report – Designing to SLS; SLSD calibration process
- Proposed several key changes to AASHTO LRFD Design Specifications
- 2015 IAP planning this fall
SHRP2 Bridge Products

Related Bridge Products

- GeoTechTools (R02)
- Fatigue Risk Guide for Construction (R03)
- NDT for Concrete Tunnel Linings (R06G)
- Performance Specifications for Rapid Renewal (R07)
- Guide for the Process of Managing Risk (R09)
For More Information

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Innovative Bridge Design for Rapid Renewal (R04)

IAP Field Projects

PBES applications
SIBC example
DBB, A+B, CM/GC
SLD example
Form-liner applications
Carbon fiber prestressing
GRS-IBS abutments
FLH/Tribal Projects
EDC2 Coordination
Innovative Bridge Design for Rapid Renewal (R04)

IAP Field Projects

- PBES applications
- SIBC example
- DBB, A+B, CM/GC
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Innovative Bridge Design for Rapid Renewal (R04)

Lessons Learned

- Time Savings
- Cost Savings
- Precast Quality
- Material Options
- Scheduling Strategy
- On-site Precasting
- Remote Projects
- Public/Contractor Safety
**SHRP2 Implementation Assistance Program**

- **Rounds 1-3:** 14 products funding over 200 projects in 48 states
- **Round 4:** 12 products – **Open May 30th to June 27th**
For IAP Application Information

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Fort Goff Creek Bridge

Challenges:
• Project in severe climate area
• Freeze-thaw cycles and heavy salting
• Batch plant located 90 minutes away from site
Fort Goff Creek Bridge

- Streambed restoration project to provide fish passage
- Replace 60-year-old culvert with 60’ long single span bridge
- Temporary detour under one-way traffic control
Precast Substructure

- Single row of piles
- Repeatable elements
- Pick weight under 95K
- Pre-assemble substructure elements prior to shipping
- Fabrication tolerances in specifications
Precast Superstructure

- Repeatable elements (PC/PS Voided Slabs)
- Prefabricated bridge rail (California ST-70)
- Rail curb precast on exterior slab elements
- Construction sequence on plans
Innovative Bridge Design Applications in California

- **Emergency projects** in which restoring traffic is a top priority. Time is everything.

- Projects with **constraints that preclude conventional construction methods**

  - I-580 Connector Span Replacement
  - SFOBB Yerba Buena Island Viaduct superstructure roll-in
SHRP2 Value to California

• **Goal:** Mainstream ABC in California
• **Time savings:** Reduce the on site construction days
• **Cost savings:** Use standard designs for many bridges
• **Minimize use of detours:** Deliver projects more rapidly and less intrusively to our travelling public.
• **Advance state of practice:** Add to existing knowledge and experience using accelerated bridge construction
• Opportunity to **share our experiences** with other states
Questions