Introduction

IBC Workshop: W-8 Service Life Design

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Federal Highway Administration – Washington, DC

June 14, 2018
Presenters

Mike Bartholomew, P.E.
Senior Principal Bridge Engineer
Jacobs

Neil Cumming, FEC, FACI, P.Eng.
COWI North America Ltd.
## Agenda

**IBC Workshop W-8**  
Service Life Design – Worked Design Example  
June 14, 2018 – National Harbor, MD

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Speakers</th>
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| 8:00 – 8:10 am| Welcome and SHRP2 Introduction  
• 1 – FHWA Introduction (10 min)                                        | Raj Ailaney, FHWA                                  |
| 8:10-9:15     | Service Life Design Background  
• 2 – Introduction to Service Life Design (35 min)  
• 3 – Introduction to *fib* Bulletin 34, Model Code for Service Life Design (30 min) | Mike Bartholomew, Jacobs  
Neil Cumming, COWI|
| 9:15-9:45 am  | Introduction to Example Bridge  
• 4 – Design Criteria and Exposure Zones (30 min)                       | Mike Bartholomew, Jacobs                           |
| 9:45-10:00 am | Break                                                                  |                                                    |
| 10:00-11:00 am| Design  
• 5 – Service Life Design of Concrete Elements (30 min)  
• 6 – Service Life Design of Steel Elements (30 min)                   | Neil Cumming, COWI  
Mike Bartholomew, Jacobs                                                 |
| 11:00-11:45 am| Construction  
• 7 – Implementation of Testing During Construction (20 min)  
• 8 – Documenting Service Life Design & Construction Parameters (20 min) | Neil Cumming, COWI  
Mike Bartholomew, CH2M                                                   |
| 11:45-12:00 pm| Questions & Wrap-Up                                                   |                                                    |
SHRP2 Overview
SHRP2 Focus Areas

**Safety**: fostering safer driving through analysis of driver, roadway, and vehicle factors in crashes, near crashes, and ordinary driving

**Reliability**: reducing congestion and creating more predictable travel times through better operations

**Capacity**: planning and designing a highway system that offers minimum disruption and meets the environmental and economic needs of the community

**Renewal**: rapid maintenance and repair of the deteriorating infrastructure using already-available resources, innovations, and technologies
SHRP2 Implementation:
INNOVATE – IMPLEMENT - IMPROVE

$155 million
FUNDING ASSISTANCE

63
SHRP2 SOLUTIONS

430+
PROJECTS IMPLEMENTED

DOT
52 Recipients

MPO/LOCAL
30 Recipients

UNIVERSITY
12 Recipients

FEDERAL/TRIBAL
7 Recipients

230+
RENEWAL

100+
CAPACITY

90+
RELIABILITY

11
SAFETY
SHRP2 Implementation:
INNOVATE – IMPLEMENT - IMPROVE

- PARTICIPANTS ENGAGED: 304,406
- OUTREACH ACTIVITIES: 12,378
- HOURS TECHNICAL ASSISTANCE: 16,629

RESULTS
Save lives, money, and time
- Bridges being built more quickly
- Smoother traffic flows and less congestion
- Reduced construction costs
- Safer roadways
- Smarter environmental reviews
What is the Product?

- Design approach to resist deterioration caused by environmental actions
- Design guide with procedures for systematically designing for service life and durability for both new and existing bridges.
- 12-step framework applicable to all bridges and adaptable to specifics.
- Body of knowledge relating to bridge durability under different exposure conditions and constraints to establish an array of options.

What is the Current Status of R19A?

- Round 4 provided lead adopter funding in 5 states (HI, IA, OR, VA, PA) and 2 states in Round 7 (IA, ME)
- Completed Initial Introduction to Service Life Design for Bridges training
- Planning a NW peer exchange to be held in Oregon in July 25, 2018
- Planning four additional peer exchanges (SE, MW, NE, and SW)
Team Leads and Resources

**Implementation Leads:**
- Patricia Bush, AASHTO Program Manager for Engineering, pbush@aashto.org
- Raj Ailaney, FHWA Senior Bridge Engineer, Raj.Ailaney@dot.gov

**Subject Matter Expert Team:**
- Mike Bartholomew, Jacobs, mike.bartholomew@jacobs.com
- Anne-Marie Langlois, COWI North America, amln@cowi.com

**Resource: AASHTO’s R19A Product Page**
- http://shrp2.transportation.org/Pages/ServiceLifeDesignForBridges.aspx