



# Introduction

## IBC Workshop: W-8 Service Life Design

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Office of Bridges and Structures  
Federal Highway Administration – Washington, DC

June 14, 2018



U.S. Department of Transportation  
Federal Highway Administration



# 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

Time	Topic	Speakers
8:00 – 8:10 am	<b>Welcome and SHRP2 Introduction</b> <ul style="list-style-type: none"><li>1 – FHWA Introduction (10 min)</li></ul>	Raj Ailaney, FHWA
8:10-9:15	<b>Service Life Design Background</b> <ul style="list-style-type: none"><li>2 – Introduction to Service Life Design (35 min)</li><li>3 – Introduction to <i>fib</i> Bulletin 34, Model Code for Service Life Design (30 min)</li></ul>	Mike Bartholomew, Jacobs Neil Cumming, COWI
9:15-9:45 am	<b>Introduction to Example Bridge</b> <ul style="list-style-type: none"><li>4 – Design Criteria and Exposure Zones (30 min)</li></ul>	Mike Bartholomew, Jacobs
9:45-10:00 am	<b>Break</b>	
10:00-11:00 am	<b>Design</b> <ul style="list-style-type: none"><li>5 – Service Life Design of Concrete Elements (30 min)</li><li>6 – Service Life Design of Steel Elements (30 min)</li></ul>	Neil Cumming, COWI Mike Bartholomew, Jacobs
11:00-11:45 am	<b>Construction</b> <ul style="list-style-type: none"><li>7 – Implementation of Testing During Construction (20 min)</li><li>8 – Documenting Service Life Design &amp; Construction Parameters (20 min)</li></ul>	Neil Cumming, COWI Mike Bartholomew, CH2M
11:45-12:00 pm	<b>Questions &amp; Wrap-Up</b>	

# 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

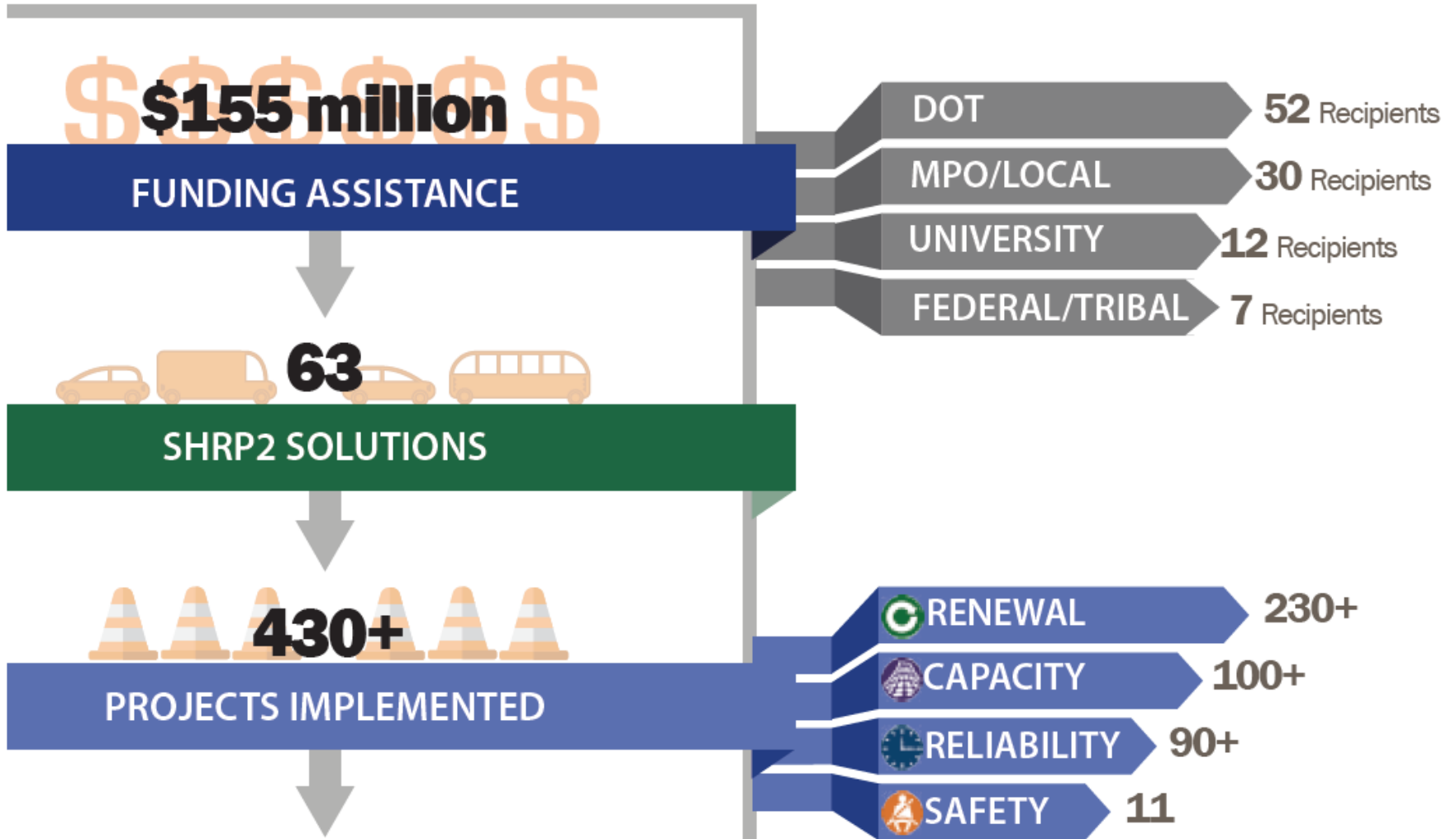


**Capacity:** planning and designing a highway system that offers minimum disruption and meets the environmental and economic needs of the community



**Renewal:** rapid maintenance and repair of the deteriorating infrastructure using already-available resources, innovations, and technologies

# SHRP2 Implementation: INNOVATE – IMPLEMENT - IMPROVE



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- ### 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

# Service Life Design for Bridges (R19A)

## 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.





# Service Life Design for Bridges (R19A)

## 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@aaashto.org](mailto:pbush@aaashto.org)
- Raj Ailaney, *FHWA Senior Bridge Engineer*, [Raj.Ailaney@dot.gov](mailto:Raj.Ailaney@dot.gov)

## Subject Matter Expert Team:

- Mike Bartholomew, *Jacobs*, [mike.bartholomew@jacobs.com](mailto:mike.bartholomew@jacobs.com)
- Anne-Marie Langlois, *COWI North America*, [amln@cowi.com](mailto:amln@cowi.com)

## Resource: AASHTO's R19A Product Page

- <http://shrp2.transportation.org/Pages/ServiceLifeDesignforBridges.aspx>