Performance Specifications for Rapid Renewal (R07)

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March 14-15, 2017
# Agenda

**SHRP2 Performance Measures Showcase (R07)**  
March 14-15, 2017

**Utah Department of Transportation**  
Holiday Inn Express Salt Lake City 206 South West Temple, SLC, UT 84101

Join us for a dynamic conversation considering the benefits and uses of Performance specifications in a variety of areas such as pavement, materials, construction, traffic management, and asset warranties. We will present the Performance Specification tools developed by the SHRP2 research and provide current state experiences.

## Tuesday, March 14, 2017

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Speakers</th>
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<tbody>
<tr>
<td>8:00-8:20 am</td>
<td>Welcome</td>
<td>Jennifer Balis, FHWA</td>
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<td></td>
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<td>Pamela Hutton, AASHTO</td>
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<td>Ivan Marrero, FHWA Division Administrator</td>
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<td>8:20-8:30 am</td>
<td>• Introduction to Utah and Introduction of Attendees</td>
<td>Scott Andrus, Utah State Engineer for Materials</td>
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<td>8:30-9:00 am</td>
<td>Introduction of Showcase</td>
<td>Keith Platte, AASHTO</td>
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<td>• Purpose of the Showcase</td>
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<td>• Detail of Significant Points</td>
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SHRP2 at a Glance

- **SHRP2 Solutions** – 63 products
- **Solution Development** – processes, software, testing procedures, and specifications
- **Field Testing** – refined in the field
- **Implementation** – More than 430 transportation projects; adopt as standard practice
- **SHRP2 Education Connection** – connecting next-generation professionals with next-generation innovations

430 SHRP2 projects nationwide
Focus Areas

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

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

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

**Reliability**: reducing congestion and creating more predictable travel times through better operations.
SHRP2 Implementation:
INNOVATE.IMPLEMENT.IMPROVE.

$130 million
FUNDING ASSISTANCE

63
SHRP2 SOLUTIONS

430+
PROJECTS IMPLEMENTED

DOT
52 Recipients

MPO/LOCAL
30 Recipients

UNIVERSITY
10 Recipients

FEDERAL/TRIBAL
7 Recipients

RENEWAL
230+

CAPACITY
100+

RELIABILITY
90+

SAFETY
11
SHRP2 Implementation: INNOVATE. IMPLEMENT. IMPROVE.

- **Participants Engaged**: 224,761
- **Outreach Activities**: 8,939
- **Hours Technical Assistance**: 14,961
- **Outreach Breakdown**:
  - Training: 8,286
  - Workshops: 463
  - Peer Exchanges: 81
  - Demos: 62
  - Showcases: 47
Challenge

• Conventional approaches to highway construction use prescriptive requirements that place the burden on owners to design, specify, and control the work.

• These requirements often hinder the innovation needed to deliver projects faster or find methods that minimize disruption.

Solution

• Performance specifications that emphasize desired results and encourage innovation.
Implementation Assistance Rounds 2 and 5, and Targeted Recipients

**Alabama**: Use of Intelligent Compaction as a basis for performance specification

**Maine**:  
- Performance specifications for asphalt pavement and concrete bridge deck  
- Performance-based Asphalt Mix Designs

**Missouri**: Performance-related specifications for “Shadow” asphalt pavement.

**Vermont**: Performance specifications for full depth reclaimed (FDR) pavement and cement-stabilized base

**Pennsylvania**: Performance specifications for all elements of highway construction and maintenance as part of its P3 program
• In general, these specification types represent a progression toward increased use of higher-level acceptance parameters that are more indicative of how the finished product will perform over time.

• To varying degrees, they all attempt to shift performance risk to the contractor in exchange for limiting prescriptive requirements related to the selection of materials, techniques, and procedures.

• By relaxing such requirements, performance specifications have the potential to foster contractor innovation and improve the quality or economy, or both, of the end product.
Specifications Have Different Risk Profiles

<table>
<thead>
<tr>
<th>Type of Specification</th>
<th>Risk</th>
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<tr>
<td>Contractor</td>
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<tr>
<td>Performance</td>
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<td>Warranty</td>
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<td>End-Result</td>
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<td>Method</td>
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Owner

Risk Profiles for Owner and Contractor across different types of specifications.
Pyramid of Performance

- **USER**
  - Comfort, accessibility, safety, travel time

- **FUNCTIONAL**
  - Ride, friction, noise, rutting, cracking

- **AS-CONSTRUCTED**
  - Density, air, thickness, strength, modulus, geometry

- **CONSTRUCTION**
  - Transport, placing, curing, sawing

- **MIXING REQUIREMENTS**
  - Charging, mixing, handling

- **COMBINED MATERIALS**
  - Mix methods, components

- **BASIC MATERIALS**
  - Aggregate, binder

**Combined Materials**

**Mixing Requirements**

**Construction**

**As-Constructed**

**Functional**

**User**

**Method - Performance**

Performance specifications can also serve as a worthy adjunct to other management philosophies, such as lean construction, although this aspect is not specifically addressed in these guidelines.

Consistent with lean principles, performance specifications aim to:

- Eliminate unnecessary and non-value-added requirements;
- Result in continuous improvement;
- Align parties around the needs of the end user; and
- Place risk on the party best able to manage it.
Resources

FHWA: Jennifer Balis, Jennifer.Balis@dot.gov
        Richard Duvall, Richard.Duval@dot.gov
AASHTO: Keith Platte, kplatte@aashto.org

Relevant Websites:
GoSHRP2 R07 Product Page:
https://www.fhwa.dot.gov/goshrp2/Solutions/Renewal/R07/Performance_Specifications_for_Rapid_Renewal

AASHTO SHRP2 R07 Product Page:
http://shrp2.transportation.org/Pages/R07_PerformanceSpecificationsforRapidRenewal.aspx
How and why do we need to use Performance Specifications?

Discussion