



Performance Specifications for Rapid Renewal (R07)

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Agenda

- Welcome
- Lead Adopters
- SHRP2 overview
- What are Performance Specifications?
- R07 Implementation Product Documents
- Implementation Strategies



Round 2 and 5 Recipients



Use of Intelligent Compaction as a basis for performance specification

- 1) Performance specifications for asphalt pavement and concrete bridge deck.
- 2) Performance Based Asphalt Mix Designs



Performance specifications for asphalt pavement, grading and geotechnical activities, and potentially for pile driving



Performance specifications for reclaimed pavement and cement-stabilized base



Performance specifications for all elements of highway construction and maintenance as part of its P3 program



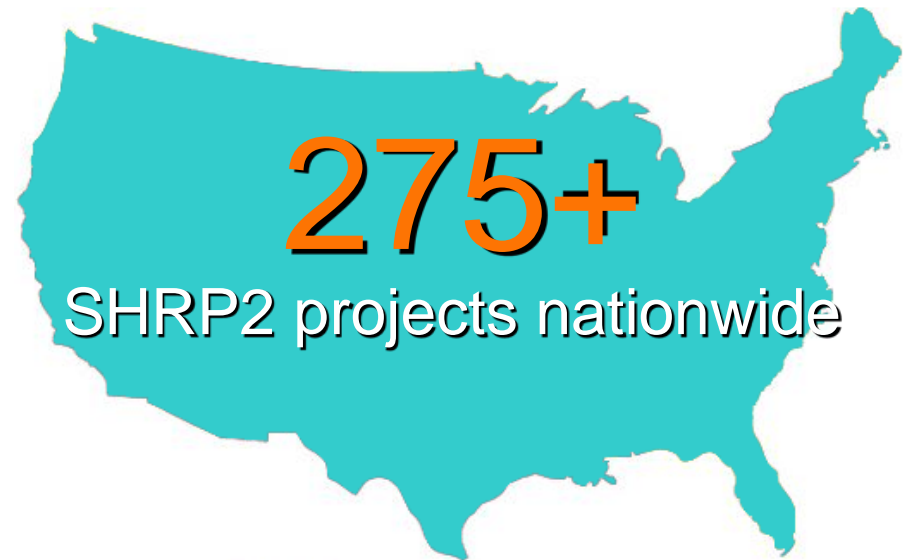
What is SHRP2?

(Second Strategic Highway Research Program)

Save lives. Save money. Save time.



- Products developed from objective, credible research
- Solutions that respond to transportation community challenges – safety, aging infrastructure, congestion
- Tested products, refined in the field



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.

Performance Specifications for Rapid Renewal (R07)

Challenge

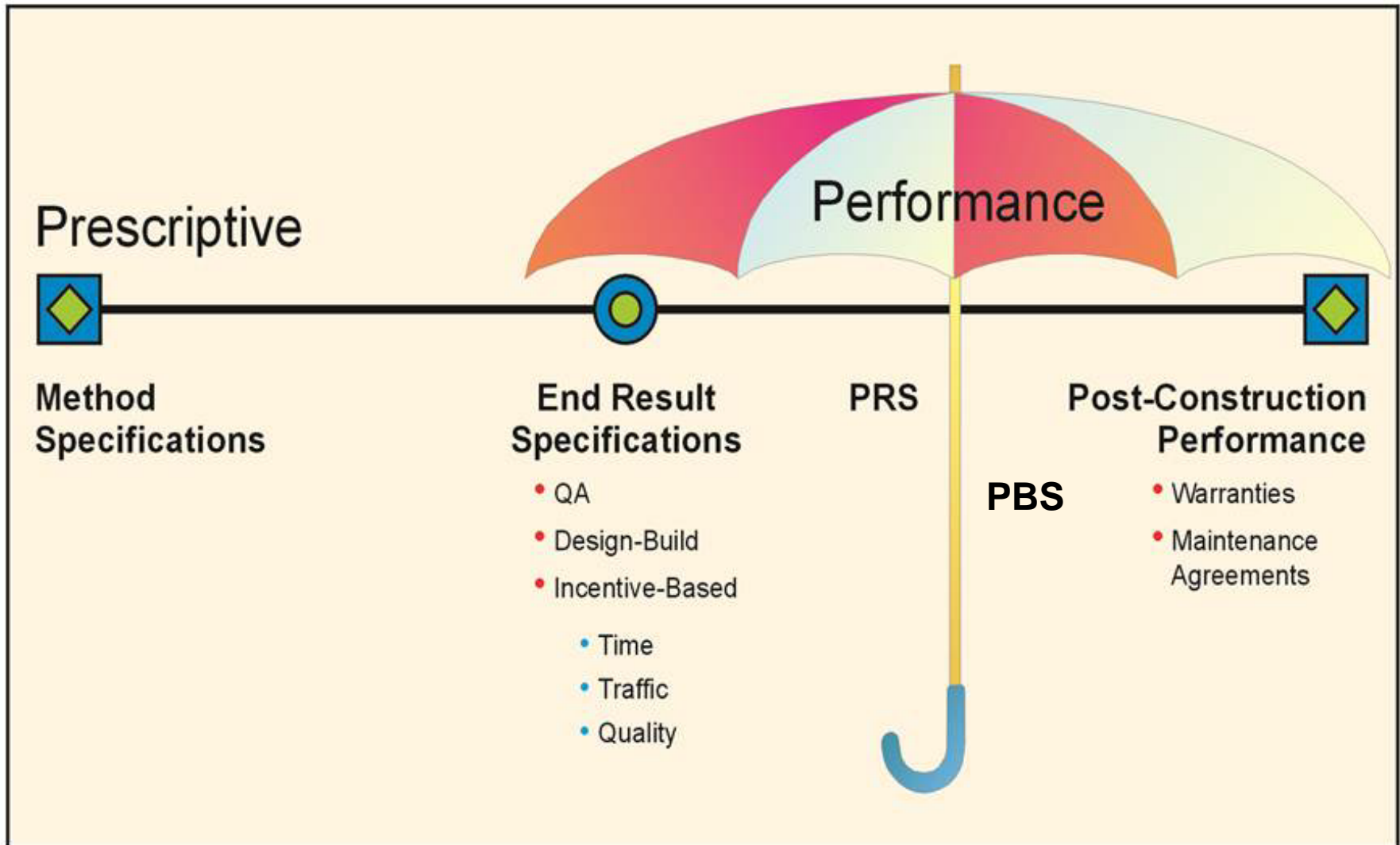
- Conventional approaches to highway construction use prescriptive requirements that place the burden on owners to design, specify, and control the work.
- These requirements often hinder the innovation needed to deliver projects faster or find methods that minimize disruption.

Solution

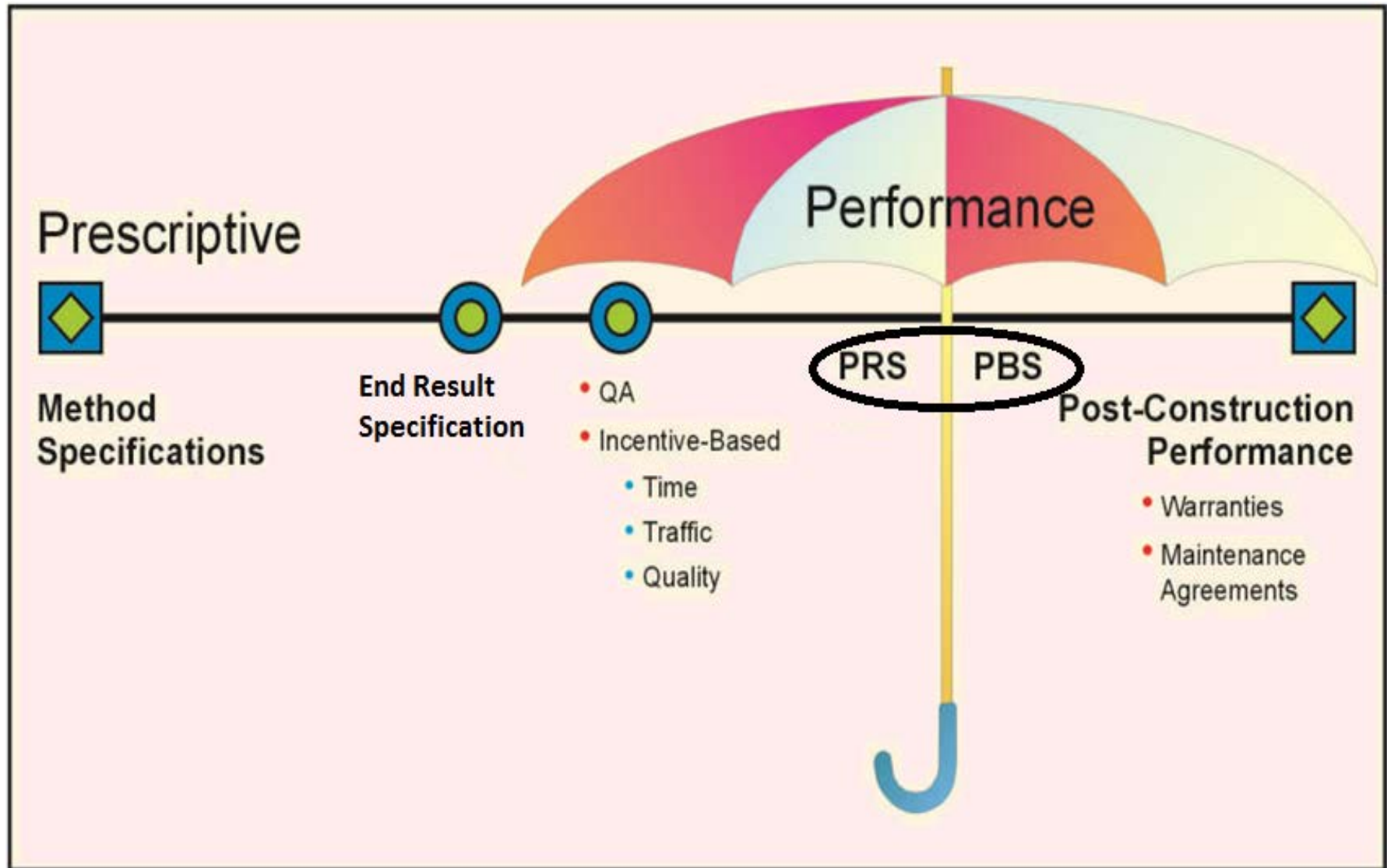
- Performance specifications that emphasize desired results and encourage innovation.



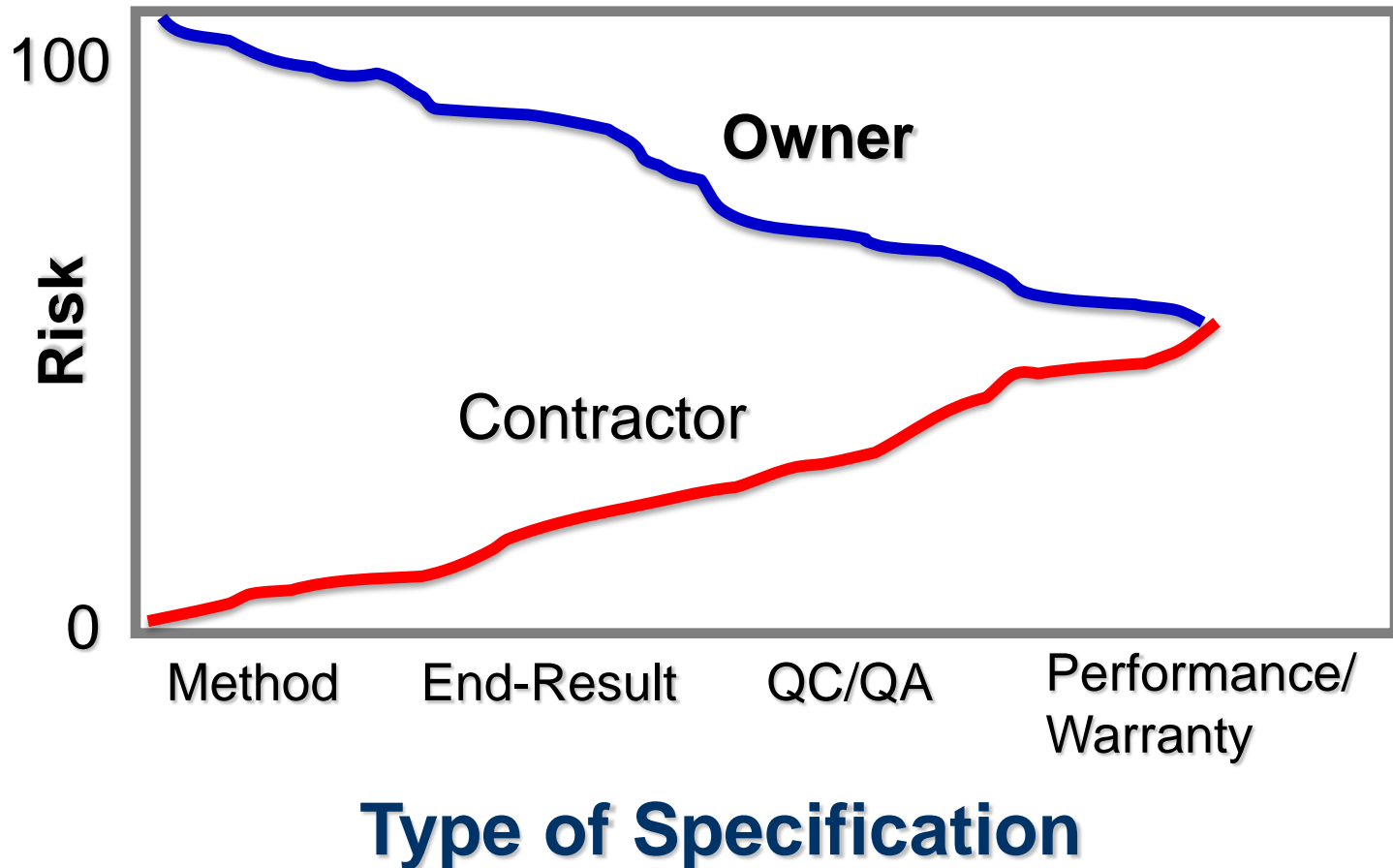
Performance Specification Continuum



Performance Specification Continuum



Specifications have Different Risk Profiles

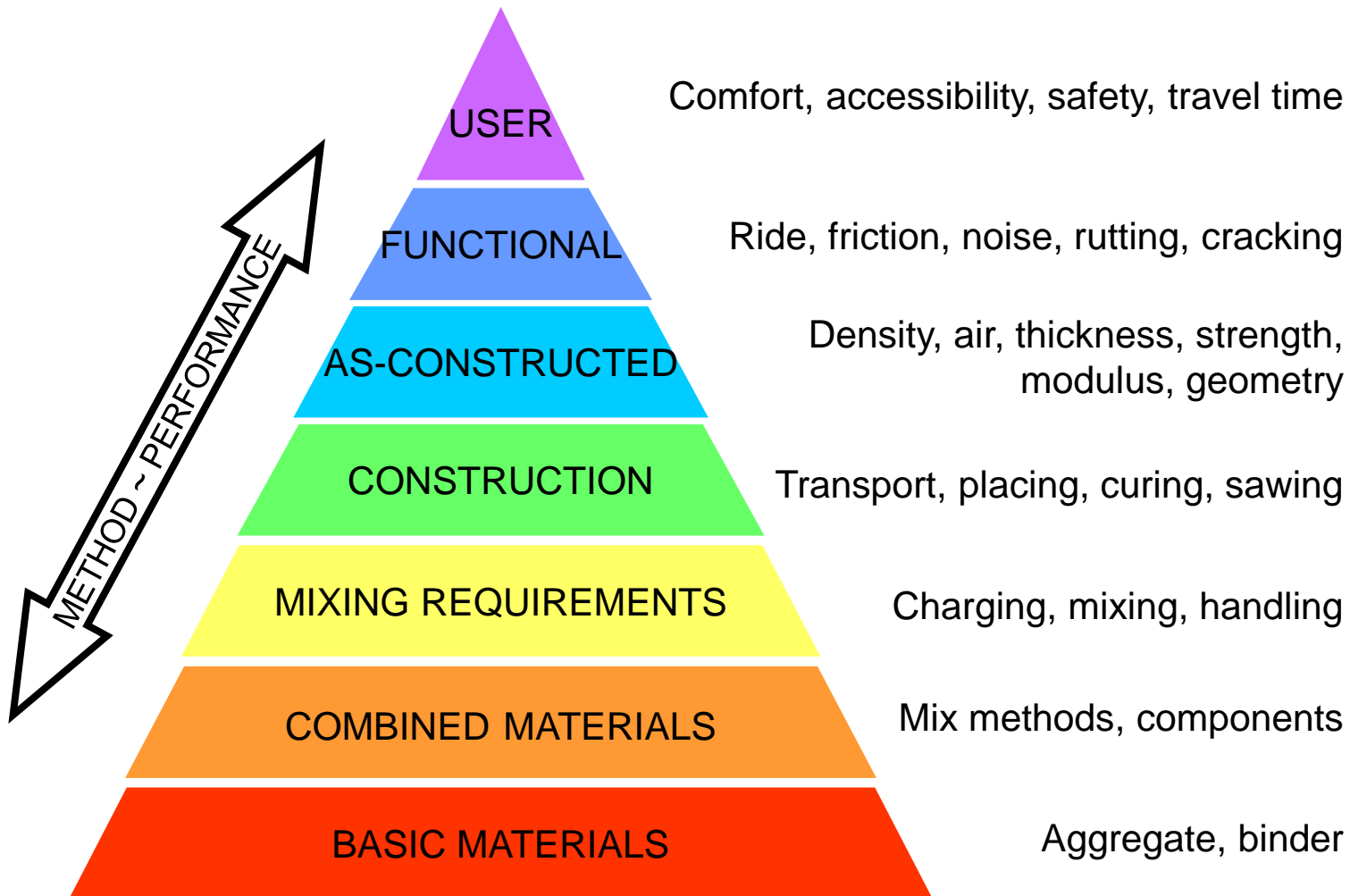


Performance Specification Continuum



- 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.

Pyramid of Performance



Performance Specs Report Results

- 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.

Performance Specs Products

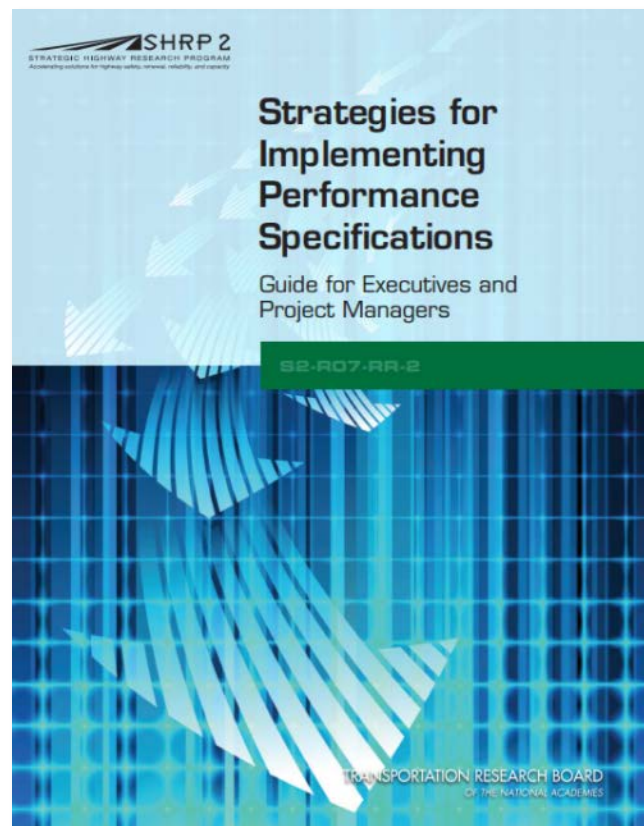
1. Final research report
2. *Strategies for Implementing Performance Specifications: A Guide for Executives and Project Managers*
3. *Developing and Drafting Effective Performance Specifications: A Guide for Specification Writers*
4. Guide performance specifications



Implementation Guidelines

Strategies for Executives & Project Managers

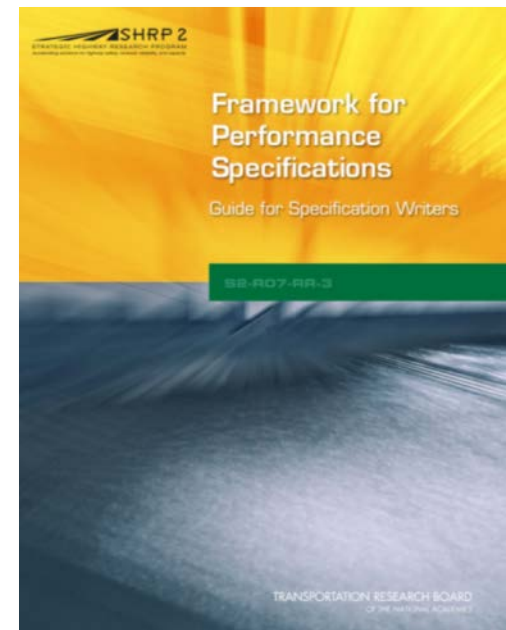
1. Rationale for using performance specifications
2. Organizational considerations
3. Industry considerations
4. Legal perspectives
5. Process for deciding to use performance specifications
6. Project delivery and procurement considerations



Implementation Guidelines

Specification Writer's Guide

1. Introduction to performance specifications
 - How performance and method specifications differ
 - Deciding between method and performance specifications
2. Conceptual framework for developing performance specifications
 - Pyramid of Performance
 - 8-step process
3. Using the guide performance specifications





Guide Performance Specifications

1. Asphalt pavement (DBB)
2. Asphalt pavement (DB)
3. Asphalt pavement (Warranty)
4. Concrete pavement (DBB)
5. Concrete pavement (DB)
6. Concrete pavement (Warranty)
7. Precast concrete pavement
8. Pavement (Design-Build-Operate-Maintain)
9. Concrete bridge deck
10. Vertical support elements
11. Subsurface improvements for existing pavements
12. Work zone traffic control
13. Quality management

(Also, the Final Report appendices contain two additional “research” specs related to the use of intelligent compaction techniques for roadway ground improvement and proofmapping for acceptance purposes.)



Implementation Strategies



- Promote the ***Decision Support Guide*** for performance specifications.
- Provide **peer-to-peer** technical support for adaptation of ready-to-implement specifications to individual state needs.
- Maintain a **library** of applied specifications.
- Seek **standardization of testing parameters, procedures and reporting practices** for equipment.



FHWA Work to Date - Pavements



- **SHRP2 R07 – Performance Specifications for Rapid Highway Renewal (Hill Intl)**
 - **Performance Specifications Framework**

- **FHWA DTFH61-08-C-00029 – Implementation of Jointed Plain Concrete Pavement Performance Related Specification by State Highway Agencies (ARA)**
 - **PaveSpec 4.0 Software (ME Models, additional AQC's)**

- **DTFH61-08-H-00005 – Hot Mix Asphalt (HMA) Performance-Related Specifications Based on Viscoelastoplastic Continuum Damage (VEPCD) Models (NCSU)**
 - **Mechanistic Models, Testing Protocols, LVECD Software**



FHWA - Where Do We go From Here?



Develop and Deploy Performance-Related Specifications (PRS) for Pavement Construction

FHWA DTFH61-13-C-00025



U.S. Department of Transportation
Federal Highway Administration



ARA

NC STATE UNIVERSITY

PURDUE
UNIVERSITY

OSU
Oregon State
UNIVERSITY



ADVANCED ASPHALT TECHNOLOGIES, LLC

THANK YOU FOR ATTENDING!!



For More Information

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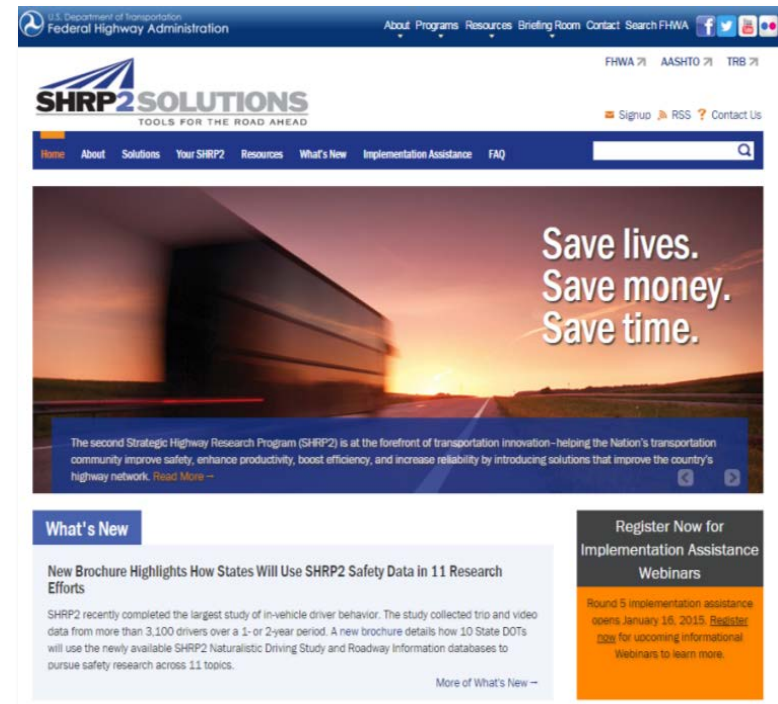
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<http://www.fhwa.dot.gov/goshrp2>

Or

<http://SHRP2.transportation.org>