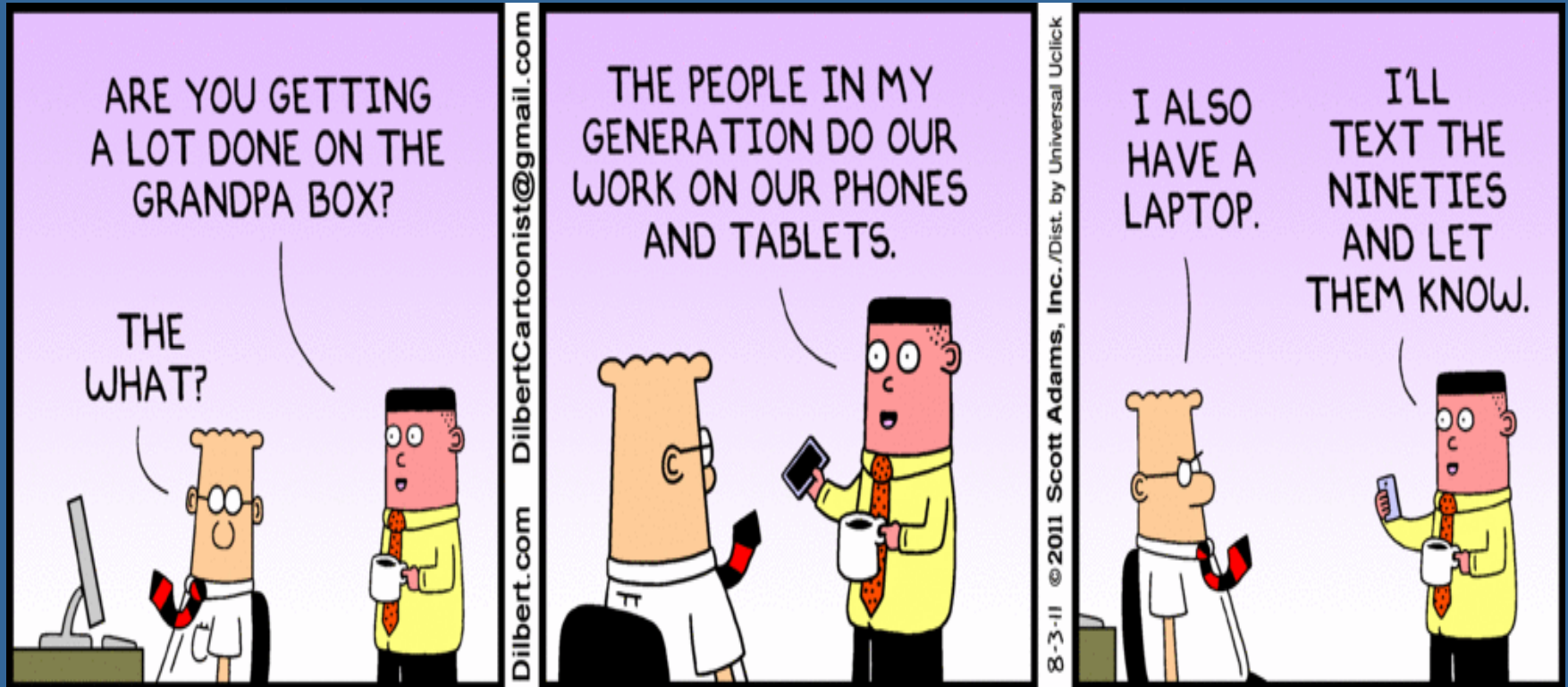



Millennials!





FHWA Construction Research Infrastructure Analysis and Construction Team

AASHTO

Subcommittee on Construction

August 12, 2015

Little Rock, Arkansas

Richard Duval, PE

Construction Research Engineer



FHWA Construction Research – Completed Reports



- Performance-Based Contractor Prequalification as an Alternative to Performance Bonds
- <http://www.fhwa.dot.gov/publications/research/infrastructure/14034/14034.pdf>



- Intelligent Compaction Quality Assurance for In-Place Density Acceptance
- http://www.fhwa.dot.gov/pavement/pub_details.cfm?id=938



- Construction Quality Assurance Procedures on Federally Funded Local Public Agency Projects
- PowerPoint and TechBrief Available



Enhancement to the Intelligent Construction Data Management System (VETA) and Implementation

- Data Management for Analysis
- Pooled Fund Solicitation **1381** – Minnesota DOT
- 3 States involved California, Pennsylvania, Minnesota
- \$25,000/ year for three years(Flexible)
- September 2015



FHWA Construction Research – Pending Reports/Tech Brief in Fall 2015 and Webinars



- **Automation in Highway Construction (aka ICST)**
- Webinar August 19, 2015, 1-2:30 pm EDT
- <https://collaboration.fhwa.dot.gov/dot/fhwa/WC/Lists/Seminars/DispForm.aspx?ID=681>



- **Feasibility of Mapping and Marking Underground Utilities by State Highway Agencies**
- Webinar September 9, 2015, 1-3 pm EDT
- <https://connectdot.connectsolutions.com/ird/>



- **Index-Based Cost Estimation with Accuracy and Precision Analysis**
- Webinar End of September 2015
- [AASHTO SOD and TCCE](#)



FHWA Construction Research – Future

1

- Quantification of Cost, Benefits and Risk Associated with Alternative Contracting Methods and Accelerated Performance Specifications
– Dr. Keith Molenaar-CU, EOC April 2016

2

- Addressing the Challenges and the Return on Investment (ROI) for Paperless Project Delivery (e-Construction)
- Parson Brinkerhoff, EOC March 2016

3

- Utilizing 3D Digital Design Data in Highway Construction – A Case Study
– Parsons Brinkerhoff, EOC September, 2016

4

- Robotic Subsurface Utility Relocation System – Morgan Kessler, FHWA, Morgan.Kessler@dot.gov



FHWA Construction Research – Future, Continued

5

- **Integrating 3D Models into Asset Management**– Morgan Kessler, FHWA

6

- **Develop and Deploy Performance Related Specifications for Asphalt and Concrete Pavements**, Richard Duval, FHWA

7

- **Effective Use of Geospatial Tools in Highway Construction** – Morgan Kessler, FHWA

8

- **QA Programs – F&t optimum sampling, NDT Guidance on Non-structural Precast Concrete Elements, AMG effects on Smoothness** – Richard Duval, FHWA Summer 2016

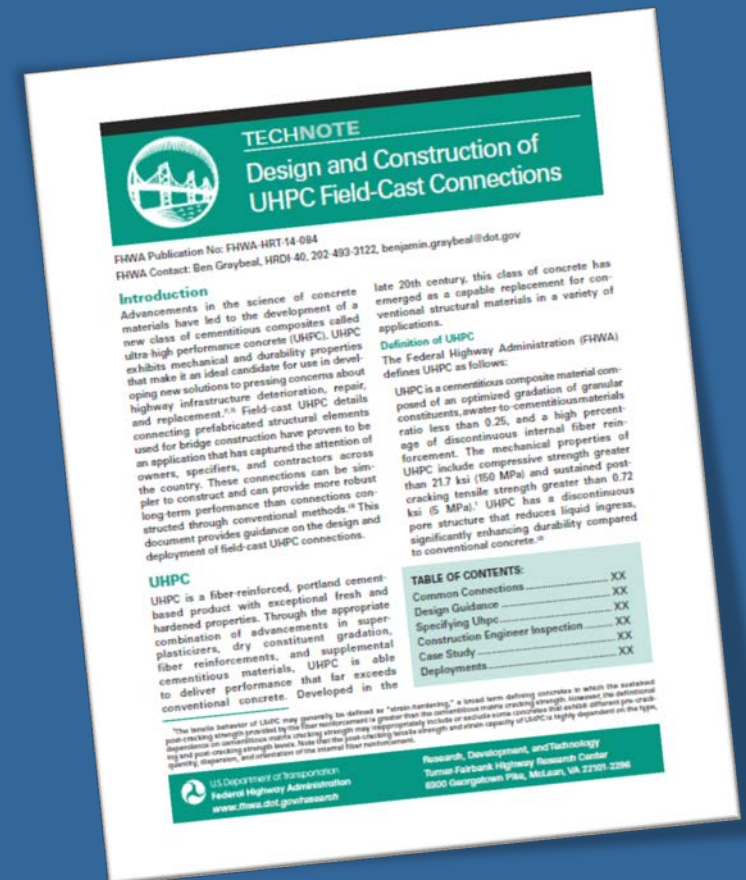
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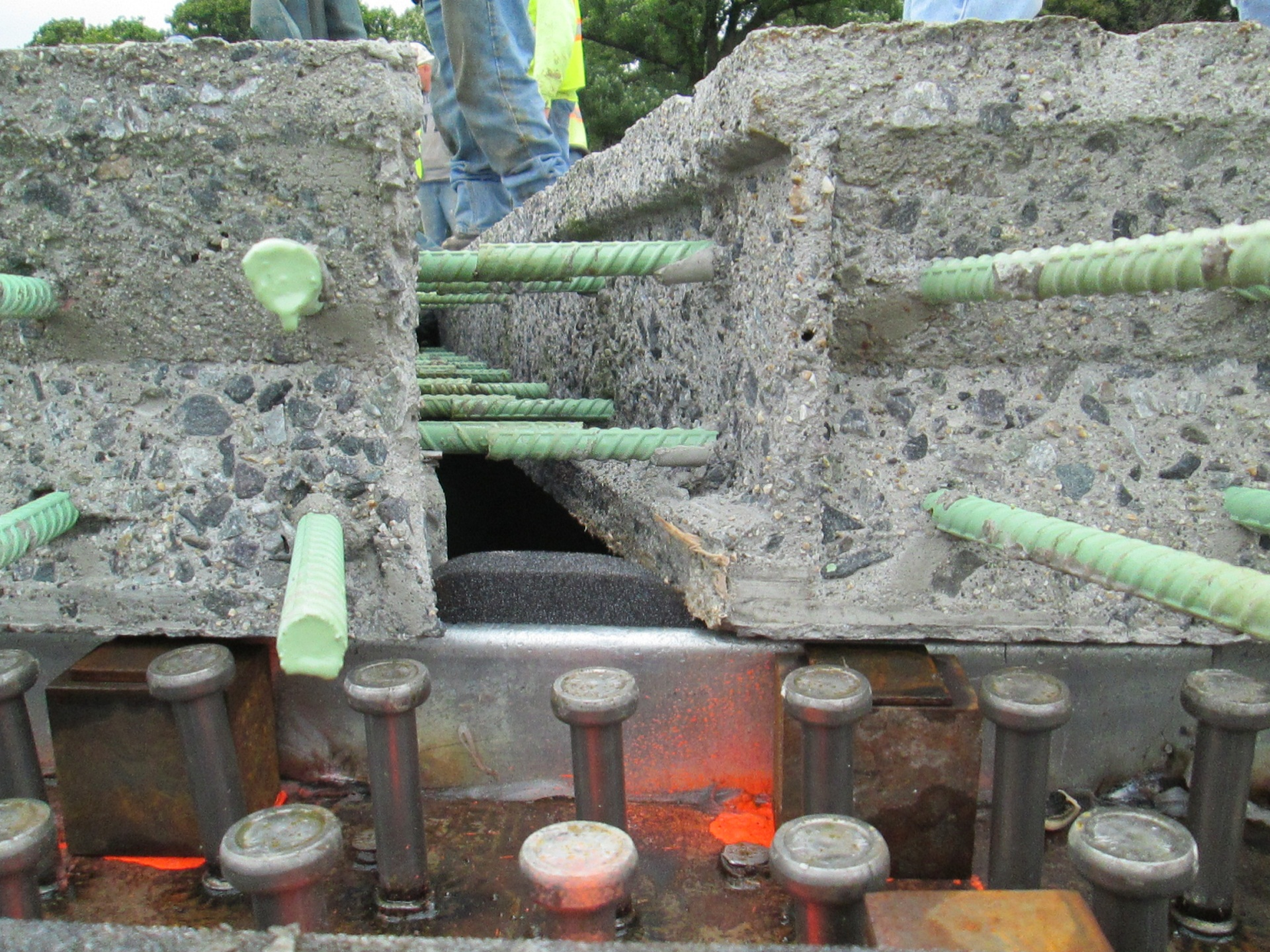
- **3D Construction Inspection and Acceptance** – In development



UHPC CONNECTIONS FOR PBE: INNOVATION IN BRIDGE CONSTRUCTION

- Ultra-high performance concrete
- EDC3: UHPC w/ ABC
- Decade of research is bearing fruit with deployments
- Further research underway:
 - Additional UHPCs
 - Additional connections
 - Best practices for construction







SHRP2 Solutions for the AASHTO Subcommittee on Construction

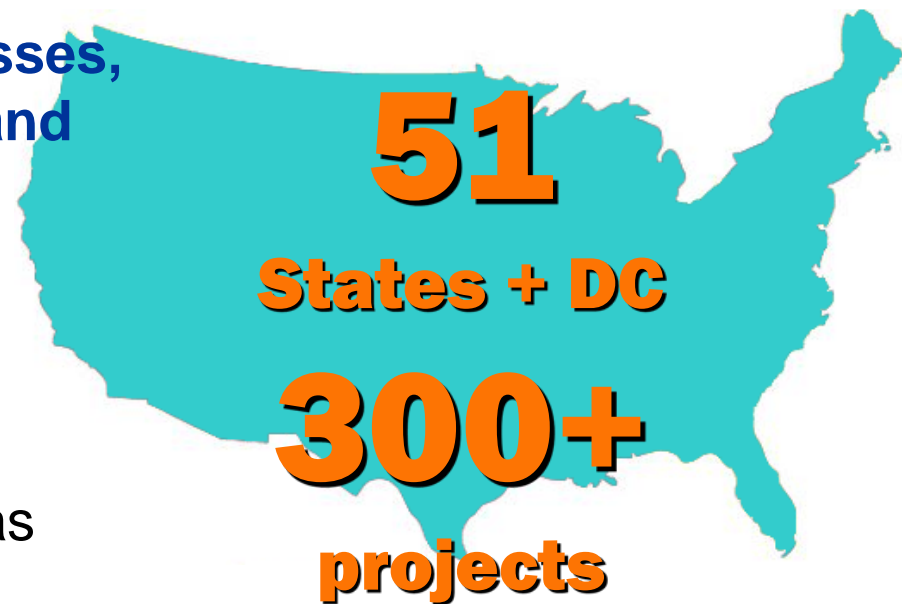


U.S. Department of Transportation
Federal Highway Administration

AMERICAN ASSOCIATION
OF STATE HIGHWAY AND
TRANSPORTATION OFFICIALS
AASHTO

SHRP2 Implementation

- SHRP2 Solutions – 63 products
bundled into 40 implementation
efforts
- Solution Development – processes,
software, testing procedures, and
specifications
- Field Testing – refined in the
field
- Implementation – 300+
transportation projects; adopt as
standard practice
- SHRP2 Education Connection –
connecting next-generation
professionals with next-generation
innovations





Some SHRP2 Successes to Date

- 9 out of 13 new **bridges built** using *Innovative Bridge Designs for Rapid Renewal* (R04)
- Performance Specifications renewal at varying levels (R07)
VT moving incrementally to PS for RSB(FDR) w/Cement
- New **websites** for major capacity and reliability products:
 - *PlanWorks* (C01) at <https://fhwaapps.fhwa.dot.gov/planworks>
 - *EconWorks/TravelWorks* (C03/11, C16) at www.planningtools.transportation.org
 - National Operations Center of Excellence (L17) at www.transportationops.org
- **120,000+ incident responders trained** through *National Traffic Incident Management Responder Program* (L12)



SHRP2 Solutions to Answer Your Construction Challenges

- **Performance Specifications** for Rapid Renewal (R07)
- Advanced Methods to **Identify Pavement Delamination** (R06D)
- Technologies to **Enhance Quality Control** on Asphalt Pavements (R06C)
- Techniques to **Fingerprint Construction Materials** (R06B)
- Tools to **Improve PCC Pavement Smoothness** During Construction (R06E)
- **Utilities** (R01), **Identification of Utility Conflicts and Solutions** (R15B)
- **Precast** Concrete Pavement (R05) and New **Composite** Pavement Systems (R21)
- **Work Zone Impacts** and Strategies Estimator Software – WISE (R11)



Upcoming Round 7

- **Last anticipated round!**
- Important Dates:
 - **Product Webinars – February – March, 2016**
 - **Application Period – Friday, April 1st - Friday, April 29th**
- Anticipated products in Round 7 include:
 - 7 renewal products
 - Utility bundle
 - 2 Reliability products
 - Reliability data and analysis tools bundle

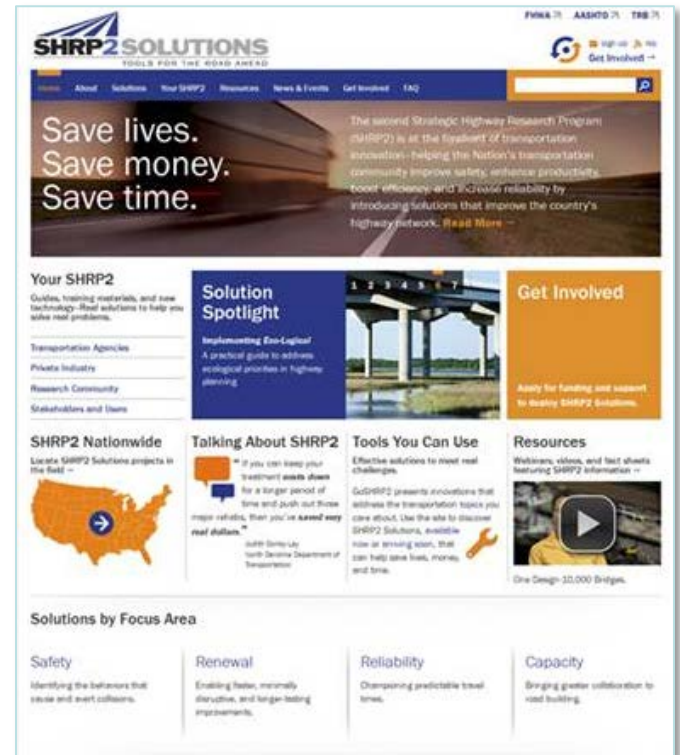


Upcoming Construction-Related Opportunities in Round 7

- **Utility Bundle (*R01A/R01B/R15B*)**
- **Techniques to Fingerprint Construction Materials (*R06B*)**
- **Advanced Methods to Identifying Pavement Delamination (*R06D*)**
- **Guidelines for the Preservation of High-Traffic-Volume Roadways (*R26*)**
- **Nondestructive Testing for Tunnel Linings (*R06G*)**
- **Nondestructive Testing for Concrete Bridge Decks (*R06A*)**
- **Service Life Design for Bridges (*R19A*)**
- **Service Limit State Design for Bridges (*R19B*)**
- **Reliability Data and Analysis Tools (*L02/ L05/L07/ L08/ C11*)**
- **Reliability in Simulation and Planning Models (*L04*)**
- **Regional Operations Forum (*L36*)**

Questions?

- **GoSHRP2 website**
www.fhwa.dot.gov/goSHRP2
 - Product details
 - Information about SHRP2 implementation phases
- **SHRP2 @AASHTO**
<http://SHRP2.transportation.org>
 - Implementation Information for AASHTO members



THANK YOU

QUESTIONS?

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202-493-3365

