



U.S. Department of Transportation
Federal Highway Administration

PAVEMENTS AND INNOVATION

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DIRECTOR

OFFICE OF ASSET MANAGEMENT

PAVEMENTS AND CONSTRUCTION

2013 ARIZONA PAVEMENTS / MATERIALS CONFERENCE

Overview



- ❑ Organizational Changes
- ❑ MAP-21 Rules
- ❑ Pavement and Materials Program
- ❑ SHRP2
- ❑ EDC2

FHWA Organizational Structure

- Office of Pavement Technology

- ▣ Asphalt Team
- ▣ Concrete Team
- ▣ Pavement Design and Analysis



- Office of Asset Management, Pavements, and Construction (Proposed)

- ▣ Pavement Design and Analysis
- ▣ Materials and Quality Assurance
- ▣ Construction Management
- ▣ Asset Management



MAP-21 Rule-making Initiatives



- ❑ Two rules that have direct impact to you
- ❑ NPRM detailing the asset management plan process
- ❑ NPRM assessing condition of the Interstate and NHS Pavement AND establishing a minimum threshold for the condition of the Interstate pavement

MAP-21 Asset Management



- Basic outline contained in MAP-21, follows AASHTO Guide
- Includes new provisions for Pavement Management Systems
- At minimum includes inventory and condition assessment of all Interstate and NHS pavements

MAP-21 Pavement Performance Measures

- One of three System Performance Measures
- Collaborative approach to assessing pavements on a nationwide basis
- Establishing minimum threshold for Interstate Pavements
- States will establish targets

MAP-21 NPRMs



- Both under going legal review
- Expect to see AM NPRM late December or early January
- Expect to see Safety Performance Measure rule out this fall, Pavement (Infrastructure) Measure rule out early next year (spring)

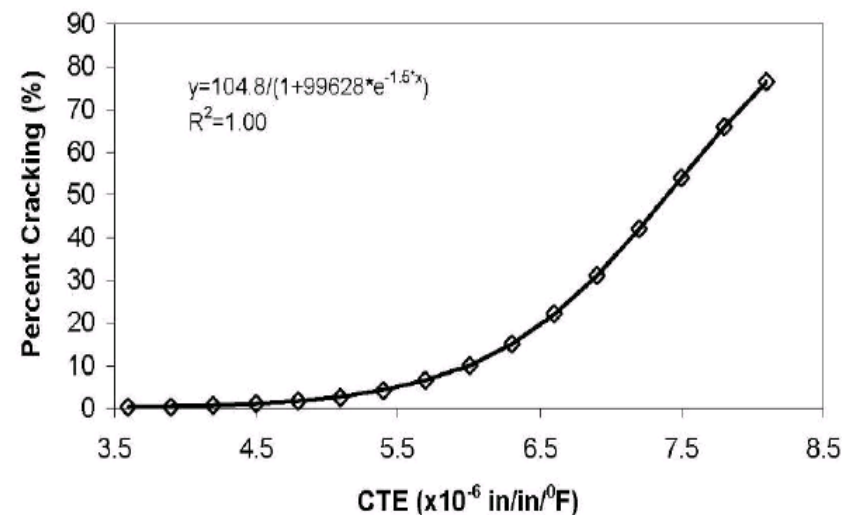
Goals of MAP-21 Pavement Implementation & Deployment

- ❑ cost-effective design, materials, recycled materials, and practice to extend pavement life
- ❑ reduce initial cost and life-cycle cost of pavements accelerated construction
- ❑ design criteria and specs for practices, product materials
- ❑ technology transfer



FHWA (Concrete) Pavement Program

- Pavement Design and Analysis
 - ▣ DARWIN-ME Deployment Team and State support
 - ▣ Development of Regional User Groups for implementation and calibration
 - ▣ Support development of network level assessment tools
 - ▣ POC: Tom Yu



FHWA (Concrete) Pavement Program

- Pavement and Materials Quality Assurance
 - ▣ Concrete Technical Guidance Program
 - Mobile Concrete Lab field projects
 - ▣ Expert Task Groups
 - ▣ QA State reviews, training, tools
 - ▣ Equipment Loan Program
 - ▣ POC:
Gary Crawford

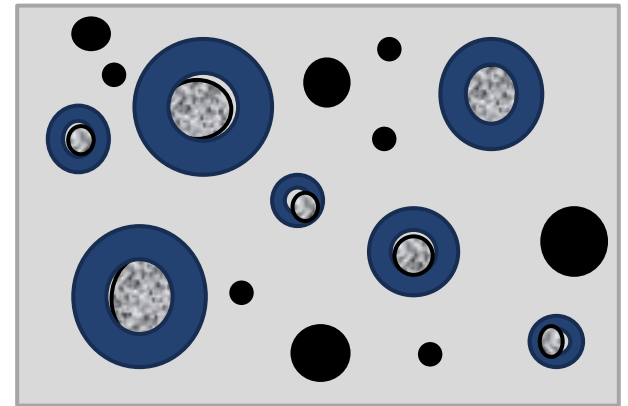


FHWA (Concrete) Pavement Program

□ Advancing New Materials and Technologies

▣ Internal Curing for Concrete Pavements

- Improved concrete properties
- Minimize curling and cracking
- Longer life pavement



- ### ▣ Implementation activities are being discussed with industry and State DOT's

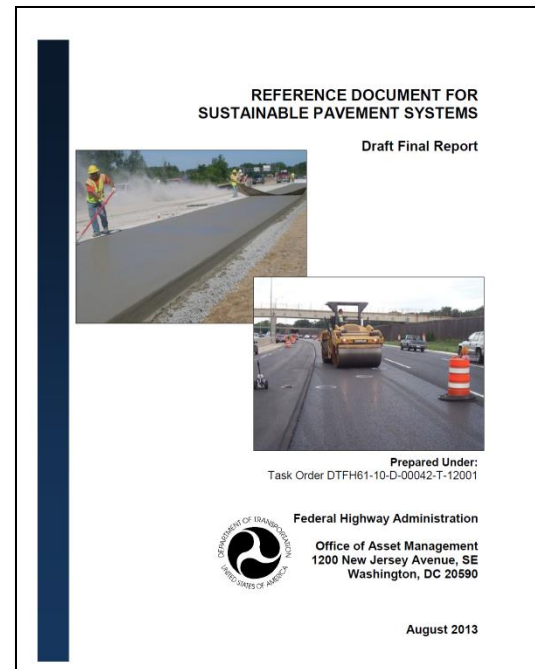
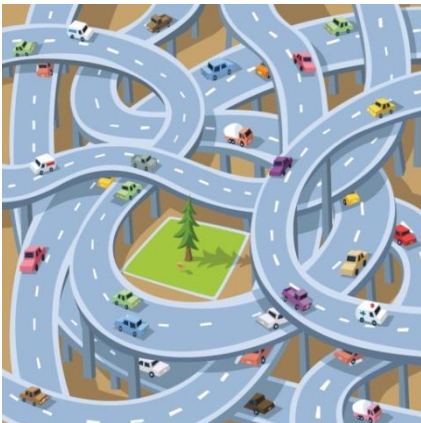
FHWA (Concrete) Pavement Program

- Construction Technology
 - ▣ Concrete Overlay Guidance and Demonstrations



FHWA (Concrete) Pavement Program

- Environmental Stewardship
 - ▣ Sustainable Pavements Program TWG and deployment support
 - ▣ Innovative materials and environmental issues
 - ▣ Life cycle development for pavements
 - ▣ POC: Gina Ahlstrom



FHWA (Concrete) Pavement Program

- Increase Technical Capacity

- ▣ Industry / DOT Workshops
- ▣ 6 weeks Materials Course
- ▣ POC: Mike Rafalowski



- Field Support / Technical Assistance

- ▣ State pooled fund support
- ▣ Program area ETG with stakeholders

Cooperative Agreement FHWA-CP Tech

- ❑ Established to assist in accomplishing goals under MAP-21
- ❑ Possible 5 year award
 - ▣ Base Period (24 months)
 - ▣ 3 Option Years (12 months each)
- ❑ Awarded in 2012
- ❑ 5 Objective Areas Identified



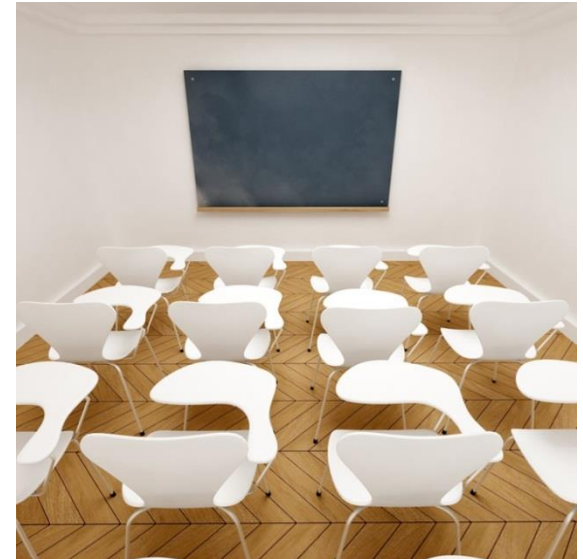
Cooperative Agreement FHWA-CP Tech

1. Advance Sustainable Aspects of Concrete Pavements and Materials: Recycled Materials, Industrial Byproducts, Blended Cements
2. Advance Preservation and Maintenance Techniques for Concrete Pavements
3. Advance Long-Life Concrete Pavements
4. Advance Innovative Concrete Materials and Mixture Design
5. Advance New Technologies and Advancements in Concrete Pavement Placements
6. POC: Gina Ahlstrom



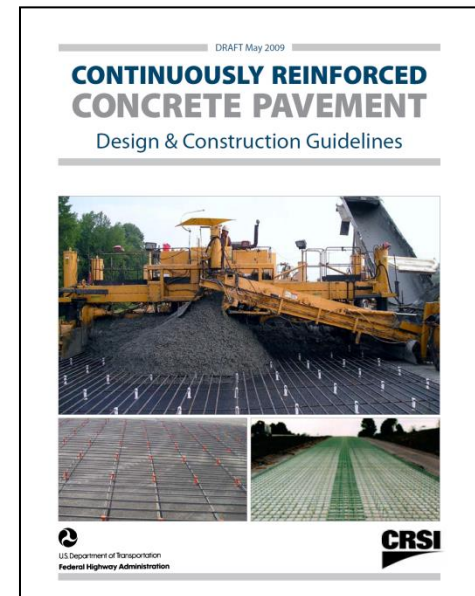
Cooperative Agreement- ACI

- ❑ Implementation of Ternary Mixtures
- ❑ Chemical Admixture Workshops
- ❑ Cementitious Materials Workshop
- ❑ Self Consolidating Concrete Workshop
- ❑ POC: Tom Yu



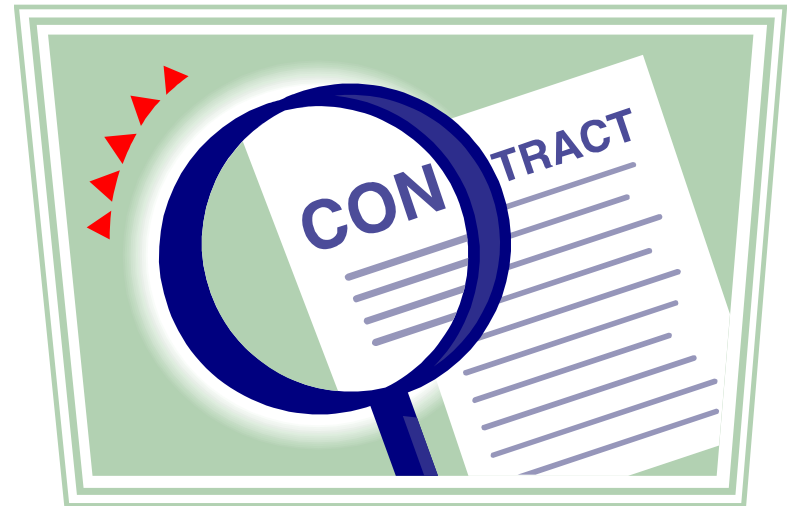
Cooperative Agreement-CRSI

- Technology Transfer Activities for CRCP
 - ▣ Workshops
 - ▣ Webinars
 - ▣ Provide technical assistance to State DOT's
 - ▣ Establishment of a Technical Working Group
 - ▣ POC: Sam Tyson



IDIQ Contract - Pending

- ❑ Established to assist in accomplishing goals under MAP-21
- ❑ 5 year award
- ❑ Pending Award in 2013
- ❑ 6 Task Areas Identified



IDIQ Contract- Pending

1. Development of Best Practice Guidelines
 - ▣ Tech Briefs, Technical Advisories, Guide Specifications
2. Technology Delivery
 - ▣ Workshops, Webinars, Web-Based Training, Open Houses
3. Demonstration Projects
4. Technical Assistance to States
 - ▣ Peer-to-Peer exchanges, forensic evaluation
5. National and International Conferences
6. Expert Task Groups
 - ▣ Gather stakeholder input and feedback



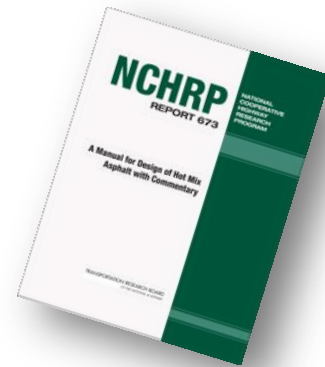
Asphalt Materials Lab Field Support

- Focus on Emerging Technologies -
New asphalt binder modifiers, high
recycled asphalt, warm mix asphalt,
recycled shingles, ground tire rubber
- Field Data QC/Testing
- Use/Demo Emerging Test Devices
- POC: Matthew Corrigan



Asphalt Mix Design & Testing

- Mix Design Manual - NCHRP 9-33
- Asphalt Mix Performance Tester (AMPT)
 - Refined under NCHRP 9-29
 - Provides Pavement ME Design input
 - Dynamic Modulus E^* | and Flow (Fn)
 - Fatigue Testing protocols
 - POC: Jeff Withee



Reclaimed Asphalt Pavement & Recycled Asphalt Shingles

- Guidance on use of High RAP +25%
- Guidance on RAS Usage
- Ongoing NCHRP Research Studies
- Update AASHTO Test Standards
- Usage: NAPA Member Survey

<http://www.asphaltpavement.org/>

- POC: Lee Gallivan

Website: www.moreRAP.us



Warm Mix Asphalt Initiatives

- Guidance on use of WMA
- Regional Training
- On-going and Proposed Research Needs
- Recommendation for AASHTO Test Standards
- EDC Technology and Industry Focus

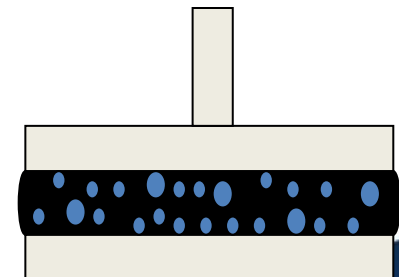
<http://warmmixasphalt.com>

- POC: Matt Corrigan



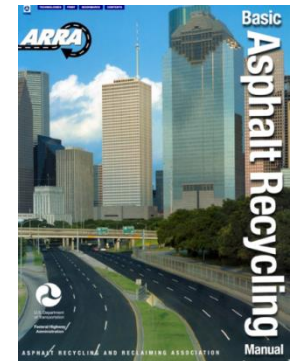
Ground Tire Rubber, GTR

- GTR blending study – size, source, %
- Evaluate GTR modified binders to the Superpave Performance Grading system.
- GTR size will effect test results
- Careful formulation is needed to meet all current asphalt binder standards.
 - but it can be done successfully
- POC: John Bukowski



In-Place Recycling Technologies


- Basic Asphalt Recycling Manual (Currently being updated by FHWA and ARRA for release in 2013)
 - Hot In-Place Recycling (HIR)
 - Cold In-Place Recycling (CIR)
 - Full Depth Reclamation (FDR)
- FHWA-NHI Training Course # 131050 (Asphalt Pavement In-Place Recycling Technologies)
 - Web Based Training
 - Instructor Lead Training (2-days)
- POC: Lee Gallivan



Quality Assurance

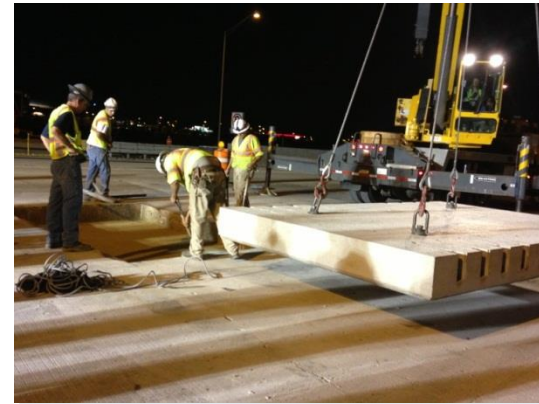
- State Programmatic Stewardship Review
 - Title 23 CFR Part 637
 - Since 2003 – 39 States
- QA Assessment - Average index score nationwide for materials quality assurance systems – 2013 75% target
- Information - Technical Advisory T 6120.3, FHWA-RD-02-095, FHWA-HRT-04-046, NHI Course 134042, TB FHWA-HIF-12-045
- Lab Accreditation
- POC: Rafalowski/Dvorak

Pavement Management and Preservation

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- Major component of MAP-21
 - New standards for management systems
 - Preservation an eligible Federal Aid activity
 - New training from NHI on PMS
 - Expanded partnership with TSP2 and NCPP

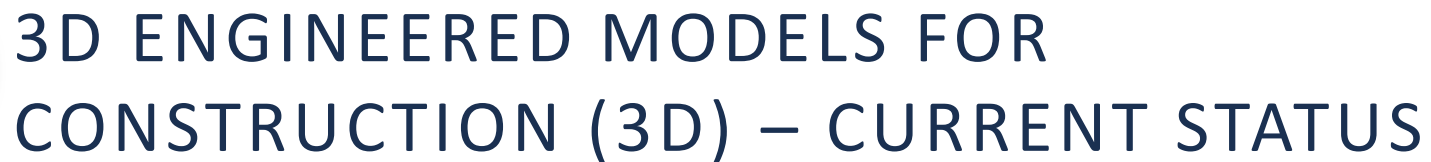
SHRP 2 Implementation of Renewal Research Products

- ❑ Preservation for High Volume Roadways (R26)
- ❑ Modular Pavement Technology (R05)
- ❑ Real-Time Smoothness Measurements on PCC Pavements During Construction (R06E)
- ❑ Performance Specification for Rapid Renewal (R07)
 - Guide specifications for concrete pavements and bridge decks



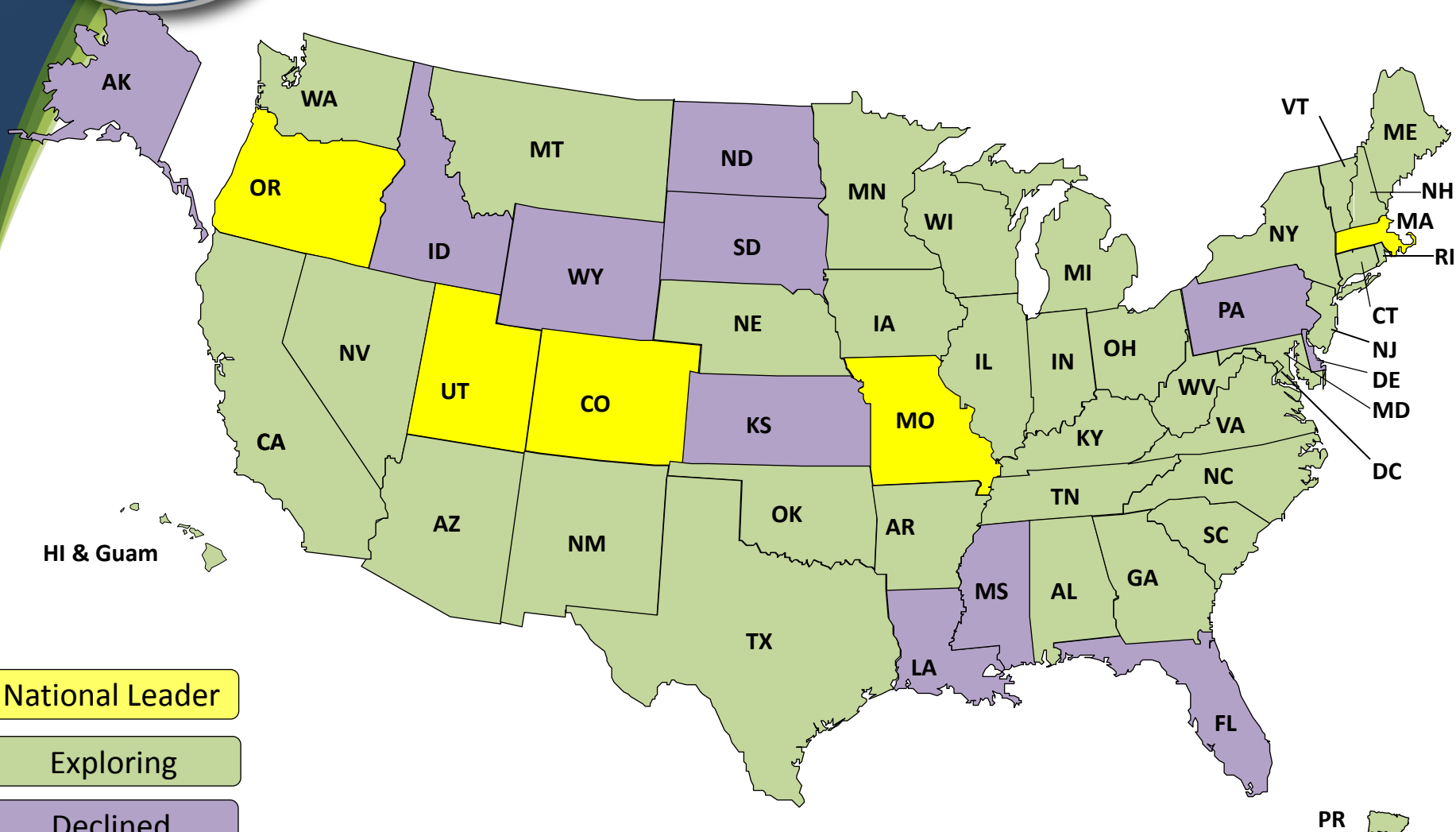
SHRP 2 Implementation of Renewal Research Products

- Composite Pavement Systems (R21)
 - ▣ Thin asphalt over concrete
 - ▣ Two-lift concrete
- Using Existing Pavements in Place (R23)
 - ▣ Long-Life Pavements
 - Lower cost over pavement life
 - Use substantially less new materials
 - Constructed quickly





EDC2 SLIDE-IN BRIDGE CONSTRUCTION – CURRENT STATUS



Source Data from EDC 2 Baseline Profiles July 19, 2013



THANK YOU!

QUESTIONS ?