



Identifying and Managing Utility Conflicts (R15B)



U.S. Department of Transportation
Federal Highway Administration



TRANSPORTATION RESEARCH BOARD
OF THE NATIONAL ACADEMIES



Agenda

- SHRP2 Overview
 - What is SHRP2?
 - Focus Areas
 - Implementation Assistance
- Technical Product Description
- Product Implementation
- Implementation Timeline
- Questions



Source: District DOT

Imagine the Possibilities



Innovations are available to transportation agencies through a variety of programs, including SHRP2 and EDC2. These innovations:

- May be applied individually or in combination with products from different programs.
- Are easy to learn more about through Websites, Webinars, demonstrations, and peer-to-peer programs.
- Are supported by funding and assistance opportunities that can help your agency quickly and confidently apply innovations to current challenges.

State-Based Transportation Innovation Councils



- Provides state-based leadership for the innovation strategies and solutions
- Helps facilitate deployment of innovation initiatives
- Engages all the key stakeholders in a state

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

SHRP2 Solutions offer new technologies and processes to enhance the efficiency of transportation agencies

Why is SHRP2 Important?

Tools for the Road Ahead

SHRP2 Solutions have the power to change the way transportation agencies do business.

- ➔ *By providing new research-based tools and innovative products and processes...*
- ➔ *That will create more efficiencies and a smarter use of state and federal investments of taxpayer dollars.*



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

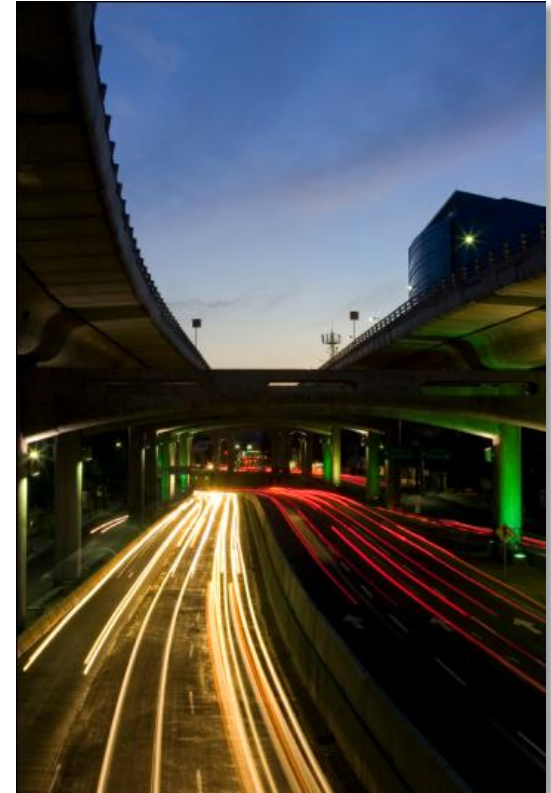


Reliability: reducing congestion and creating more predictable travel times through better operations

Implementing SHRP2 Solutions

Moving Forward

- Approximately 66 high-priority products introduced over the next several years
- Users run the gamut of the transportation industry
- Selected products integrated into current transportation practices



SHRP2 Implementation Assistance Program



Proof of Concept Pilot

- Funds for piloting products to evaluate readiness for implementation
- Contractor support to collect data and evaluate the application

Lead Adopter Incentive

- Funds for early adopters to offset implementation cost and mitigate risks
- Recipients required to provide specific deliverables designed to further refine the product, and possibly “champion” the product to other states and localities

User Incentive

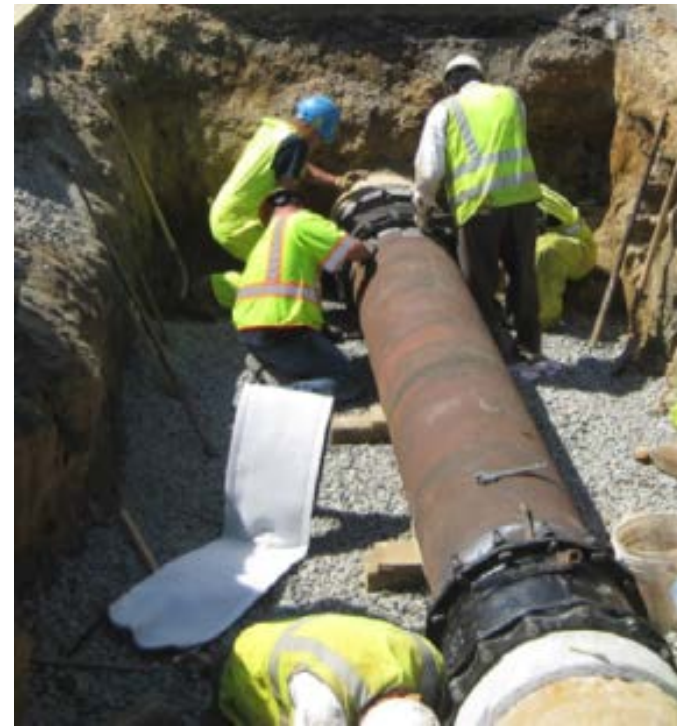
- Funds for implementation support activities after early adopter use
- Used to conduct internal assessments, build capacity, implement system process changes, organize peer exchanges, or offset other implementation costs

Round 1

Implementation Assistance

First Round at a Glance

- 34 states and the District of Columbia
- 6 SHRP2 Solutions at work on 108 transportation projects
- 2 proof of concept pilots
- 74 lead adopter incentives
- 24 user incentives
- Limited technical assistance to 8 states

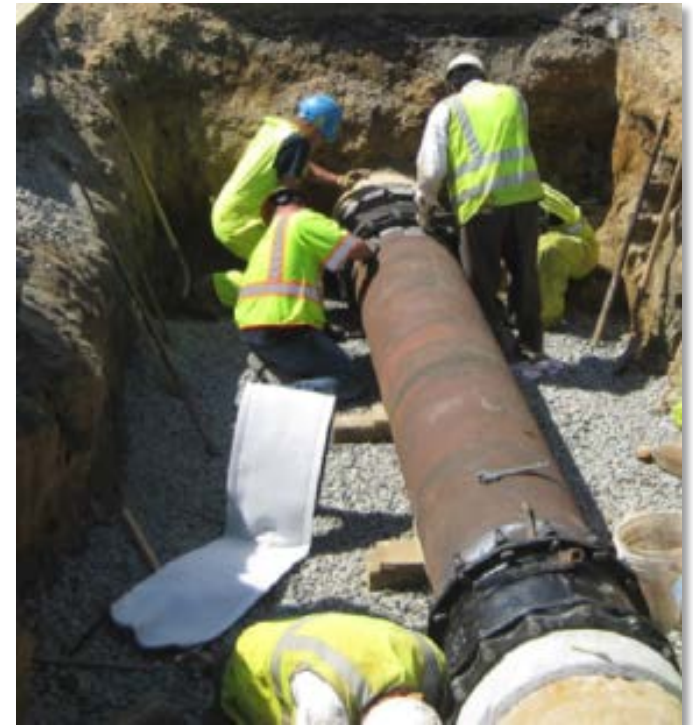


Round 2

Implementation Assistance

Second Round at a Glance

- 18 states
- 4 SHRP2 Solutions at work on 27 transportation projects
- 18 lead adopter incentives
- 9 user incentives



Round 3

Implementation Assistance



Capacity

- Freight Demand Modeling and Data Improvement (C20)



Renewal

- GeoTechTools (R02)
- Precast Concrete Pavement (R05)
- Identifying and Managing Utility Conflicts (R15B)
- Pavement Renewal Solutions (R23)

Product Implementation Assistance Opportunities

Product	Proof of Concept Pilot	Lead Adopter Incentive	User Incentive
Freight Demand Modeling and Data Improvement (C20)	<u>9-11</u>		
GeoTechTools (R02)			<u>5</u>
Precast Concrete Pavement (R05)		<u>5</u>	
Identifying and Managing Utility Conflicts (R15B)		<u>6</u>	
Pavement Renewal Solutions (R23)		<u>5</u>	<u>10</u>

Implementation Assistance Selection Criteria



General Criteria for Participants **(will vary somewhat among products)**

- Geographic diversity of participants
- Demonstrated culture to implement new products or processes
- Demonstrated past interest and/or efforts to implement similar products or processes
- High commitment to making institutional/organizational changes
- Commitment to conduct demonstration workshops
- Willingness to share experience by facilitating peer-to-peer activities
- Commitment to dedicate staff to the implementation project

Identifying and Managing Utility Conflicts (R15B)

Challenge

Utility issues are frequently cited as one of the top reasons for delays affecting transportation projects. A critical factor that contributes to these inefficiencies is the lack of adequate information about the location and other attributes of utility facilities that might be affected by a transportation project.

Solution

R15B resulted in three products that use a utility conflict matrix (UCM)-based approach, which are designed to help agencies and utility companies manage utility conflicts effectively during project development, design, and construction.



Identifying and Managing Utility Conflicts (R15B)

SHRP2 R15B Products

Product 1: Compact, standalone UCM

Product 2: Utility conflict data model and database

Product 3: One-day UCM training course



Product 1: Utility Conflict Matrix

- MS Excel format, includes drop-down lists
- Standalone UCM spreadsheet is the product
- Process embedded in table structure

Project Owner: _____						Utility Conflict Matrix Developed/Revised By: _____								
Project No. : _____						Date: _____								
Project Description: _____						Reviewed By: _____								
Highway or Route: _____						Date: _____								
Note: refer to subsheet for utility conflict cost analysis.														
Utility Owner and/or Contact Name	Conflict ID	Drawing or Sheet No.	Utility Type	Size and/or Material	Utility Conflict Description	Start Station	End Station	Start Offset	End Offset	Utility Investigation Level Needed	Test Hole	Recommended Action or Resolution	Estimated Resolution Date	Resolution Status

Product 1: UCM Cost Estimate Analysis

- MS Excel format, includes drop-down lists

Project Owner: _____					Cost Estimate Analysis Developed/Revised By _____						
Project No. : _____					Date _____						
Project Description: _____					Reviewed By _____						
Highway or Route: _____					Date _____						
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> Utility Conflict ID: _____ Utility Owner: _____ Utility Type: _____ Size and/or Material: _____ Project Phase: _____ </div> <div style="width: 50%;"></div> </div>											
Alternative Number	Alternative Description	Alternative Advantage	Alternative Disadvantage	Responsible Party	Engineering Cost (Utility)	Direct Cost (Utility)	Engineering Cost (DOT)	Direct Cost (DOT)	Total Cost	Feasibility	Decision

Product 1 Benefits/Limitations

- Benefits
 - Systematic management of utility conflicts
 - Improved tracking and accountability
 - Cost estimate analysis spreadsheet
 - No IT support needed
- Limitations/challenges
 - Scalability
 - Variety of UCM structures in use

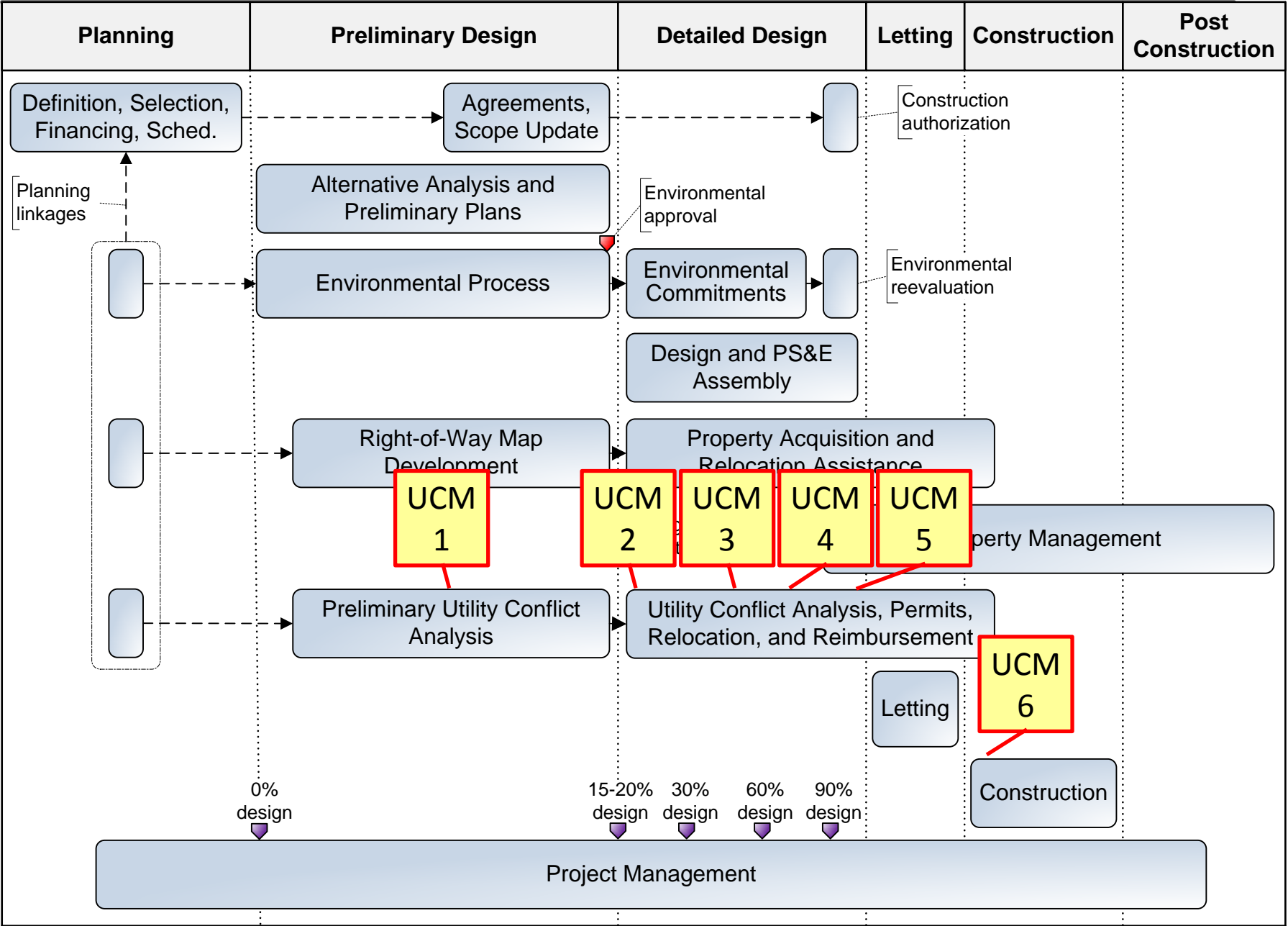
Product 2: Data Model and Database



- Formal data model (ERwin format)
- Enterprise database support (Oracle, SQL Server)
- Tested in MS Access using sample UCMs
- Focus on data model development and testing

Product 2 Benefits/Limitations

- Benefits
 - Efficient management of utility conflicts
 - Automated tracking and accountability
 - Wide range of queries and reports
 - More effective use of staff and other resources
- Limitations/challenges
 - IT support depending on implementation level/path
 - Higher initial investment
 - Need to develop user interface



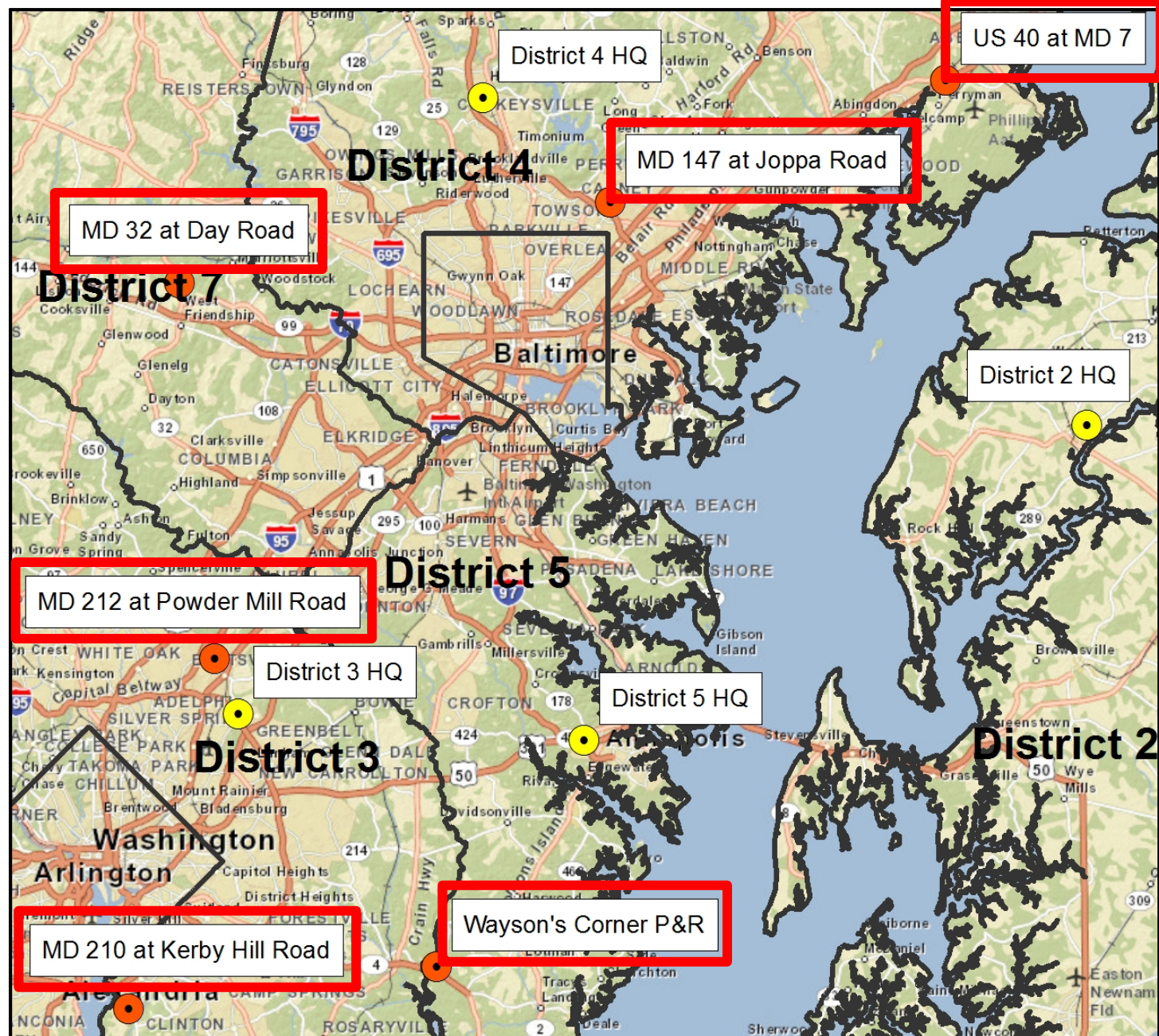
Product 3: UCM Training Course

- Lesson plan (6 lessons)
- Training course binder:
 - PowerPoint files
 - Presenter notes
 - Participant handouts
 - Sample project plans
 - UCM templates
 - Companion CD:
 - All training materials + Products 1 and 2

SHRP2 R15C: Pilot Implementation



- Objective:
 - Work with MDSHA to conduct a pilot implementation of the SHRP2 R15B products
- Deliverables:
 - Report describing application and lessons learned
 - Updates to SHRP2 R15B products



MD 32 Road Widening: Lessons Learned



- Avoided \$500,000 gas line relocation, resolved utility conflicts by changing drainage design
- 4-6 months time savings
- Changed construction sequencing, which avoided other conflicts
- Improved working relationship with utility owners, creating goodwill for future projects
- UCM challenged designers to think out of the box, facilitated teamwork
 - Made designers aware of utility issues on the project
 - Helped utility coordinators understand design process better
 - Brought district staff closer together

UCM Training Course



No need to wait for assistance

- ★ **The DRAFT standalone and database UCM products, as well as training materials, are already available on TRB's website if your agency is interested:**

http://www.trb.org/StrategicHighwayResearchProgram2SHRP2/Pages/Training_Materials_for_Identification_of_Utility_Conflicts_and_Solutions_709.aspx

Implementation Assistance



Awarded agencies will receive:

- Training on using the UCM excel and access databases
- Training on how to incorporate UCM in their existing business processes
- Technical assistance for tweaking current business processes within your agency to accommodate the use of the matrix throughout the design process

Recipient Requirements

Third Round - January 2014	Proof of Concept Pilot	Lead Adopter Incentive	User Incentive
R15B – Identifying and Managing Utility Conflicts		<u>6</u>	

Up to \$150,000 per award

Recipient Requirements



1. Commitment to use products
2. Commitment of applicant's leadership
3. Existing internal process for managing utility conflicts that would benefit from improvement
4. Willingness to host at least 1 training course, with technical assistance from our team
5. Identification of at least one geographic area in which to use product
6. Identification of two or more pre-construction projects to test the UCM at varying levels of design
7. Willingness to share the product to aid in future training materials, with technical assistance from our team

Recipient Requirements

8. Participation in R15B product evaluation
9. Willingness to share knowledge with future users, with technical assistance from our team
10. Willingness to participate in regional or national knowledge sharing events, with technical assistance from our team
11. Description of what the agency intends on accomplishing if they receive the award, including the complexity of the project(s) and when the project(s) would be let and a general timeline for implementation

Application Tips

Do	Don't
Make your application clear and concise	Forget to provide a thorough and thoughtful response in each of the fields
Describe any previous DOT efforts related to incorporating utility conflicts in the project design process	Assume the SHRP2 program is familiar with details about your DOT; narrative should be complete
Describe how the DOT anticipates implementing product including necessary resources	Forget that implementation assistance is to advance utility conflict management and improve upon existing business practices
Describe the outcomes and deliverables you expect to achieve	Apply if you do not represent a state DOT
Expect to share the results of your product implementation	Be late; applications are due by <u>February 14, 2014</u>

Round 3 Implementation Assistance Schedule

- Product Webinars held in December

R05: Precast Concrete Pavement	December 12	2 - 3:30 p.m.
R15B: Identifying and Managing Utility Conflicts	December 13	2 - 3:30 p.m.
R02: GeoTechTools	December 16	12 - 1:30 p.m.
C20: Freight Demand Modeling and Data Improvement	December 16	2:30 - 4:00 p.m.
R23: Pavement Renewal Solutions	December 17	2 - 3:30 p.m.

- Implementation Assistance Timeline

- | | |
|-----------------------------|-------------------|
| – Application period opens | January 17 , 2014 |
| – Application period closes | February 14, 2014 |
| – Awards announced | March 28, 2014 |

- More information at www.fhwa.dot.gov/goshrp2

Additional Resources

- State Visits



- SHRP2 Tuesdays

- [R05: Precast Concrete Pavement \(Sep 24, 2013\)](#)
- [R15B: Identifying and Managing Utility Conflicts \(July 30, 2013\)](#)
- R23: Pavement Renewal Solutions (February 4, 2014)
- C20: Freight Demand Modeling and Data Improvement (January 21, 2014)
- News on future webinars can be found at trb.org/SHRP2

GoSHRP2 on the Web

Rich source for details of implementation assistance along with focus area and product information

- **GoSHRP2**
www.fhwa.dot.gov/goSHRP2
 - Comprehensive information about SHRP2's implementation phase
- **SHRP2 @TRB**
www.TRB.org/SHRP2
 - Information about research phase
- **SHRP2 @AASHTO**
<http://SHRP2.transportation.org>
 - Implementation information for AASHTO members



2014: Full Steam Ahead



- Round 3 opens in January
- Support begins for Round 3 recipients
- Anticipated Round 4 products projected for June
 - R01A – Technologies to Store, Retrieve, and Use 3D Utility Location Data
 - R06A – Nondestructive Testing Technologies for Concrete Bridge Decks
 - R06G – Mapping Defects in or Behind Tunnel Linings
 - R06C – Rapid Technologies to Enhance Quality Control on Asphalt Pavements
 - R09 – Managing Risk in Rapid Renewal Projects
 - R10 – Innovative Strategies for Managing Complex Projects
 - R19A – Designing and Preserving Bridges to Achieve a 100-Year Service Life
 - R21 – Composite Pavement Systems
 - C03 & C11 – T-PICS / Economic Analysis Tools
 - C10 – Integrated Travel Demand Modeling
 - L02/05/07/08/37/38 – Reliability Data and Analysis Tools (Bundle)
- Continued technical and financial assistance for rounds 1 and 2 throughout the year

Questions?

R15B: [http://www.fhwa.dot.gov/goshrp2/Solutions/All/R15B/Identifying
and Managing Utility Conflicts](http://www.fhwa.dot.gov/goshrp2/Solutions/All/R15B/Identifying_and_Managing_Utility_Conflicts)

Implementation Assistance: www.fhwa.dot.gov/goSHRP2

Email: goSHRP2@dot.gov

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