



SHRP2 Round 6 Utilities

Implementation Assistance Program Webinar

Identifying and Managing Utility
Conflicts (R15B)

Utility Locating Technologies (R01B)

May 12, 2015



U.S. Department of Transportation
Federal Highway Administration

AMERICAN ASSOCIATION OF
STATE HIGHWAY AND
TRANSPORTATION OFFICIALS

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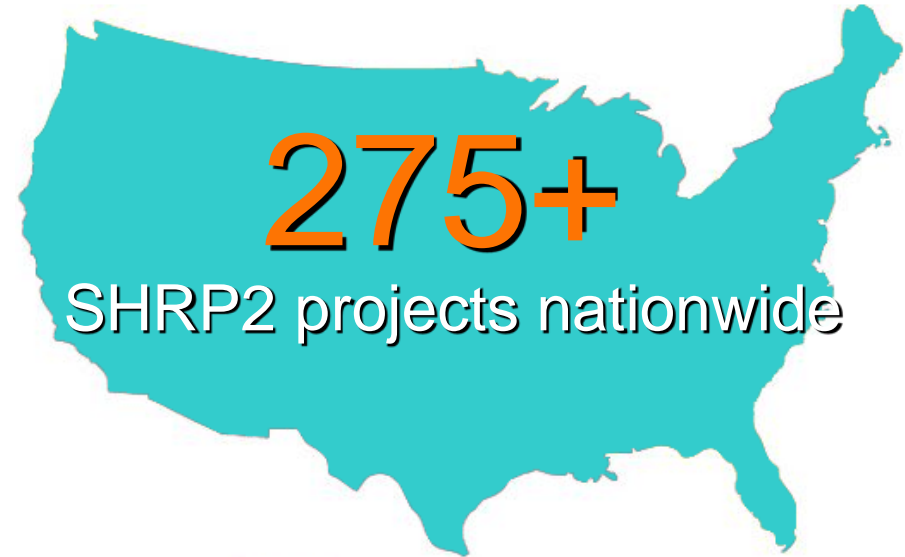


Agenda

- SHRP2 overview
 - SHRP2 at a glance
 - Focus areas
 - Implementation assistance
- Utility Locating Technologies (R01B)
 - R01B product description
 - Implementation assistance opportunities
- Identifying and Managing Utility Conflicts (R15B)
 - R15B product description
 - Implementation assistance opportunities
- Implementation timeline
- Questions

SHRP2 at a Glance

- **SHRP2 Solutions** – more than 64 products
- **Solution Development** – processes, software, testing procedures, and specifications
- **Field Testing** – refined in the field
- **Implementation** – 275+ transportation projects; adopt as standard practice
- **SHRP2 Education Connection** – connecting next-generation professionals with next-generation innovations



Focus Areas



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



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



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



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

SHRP2 Implementation Assistance Program

- Designed to help State DOTs, MPOs, local agencies, and other interested organizations deploy SHRP2 Solutions.

Proof of Concept Pilot	Lead Adopter Incentive	User Incentive
To evaluate product readiness.	To help offset costs associated with product implementation and risk mitigation.	To support implementation activities, such as conducting internal assessments, changing processes, and organizing peer exchanges.

- 26 SHRP2 products have been offered in Rounds 1-5 of the IAP.
- Round 6 is the second to last round to be offered.

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: _____
 Project No. : _____
 Project Description: _____
 Highway or Route: _____

Utility Conflict Matrix Developed/Revised By: _____
 Date: _____
 Reviewed By: _____
 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 _____						
Utility Conflict ID: _____											
Utility Owner: _____											
Utility Type: _____											
Size and/or Material: _____											
Project Phase: _____											
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

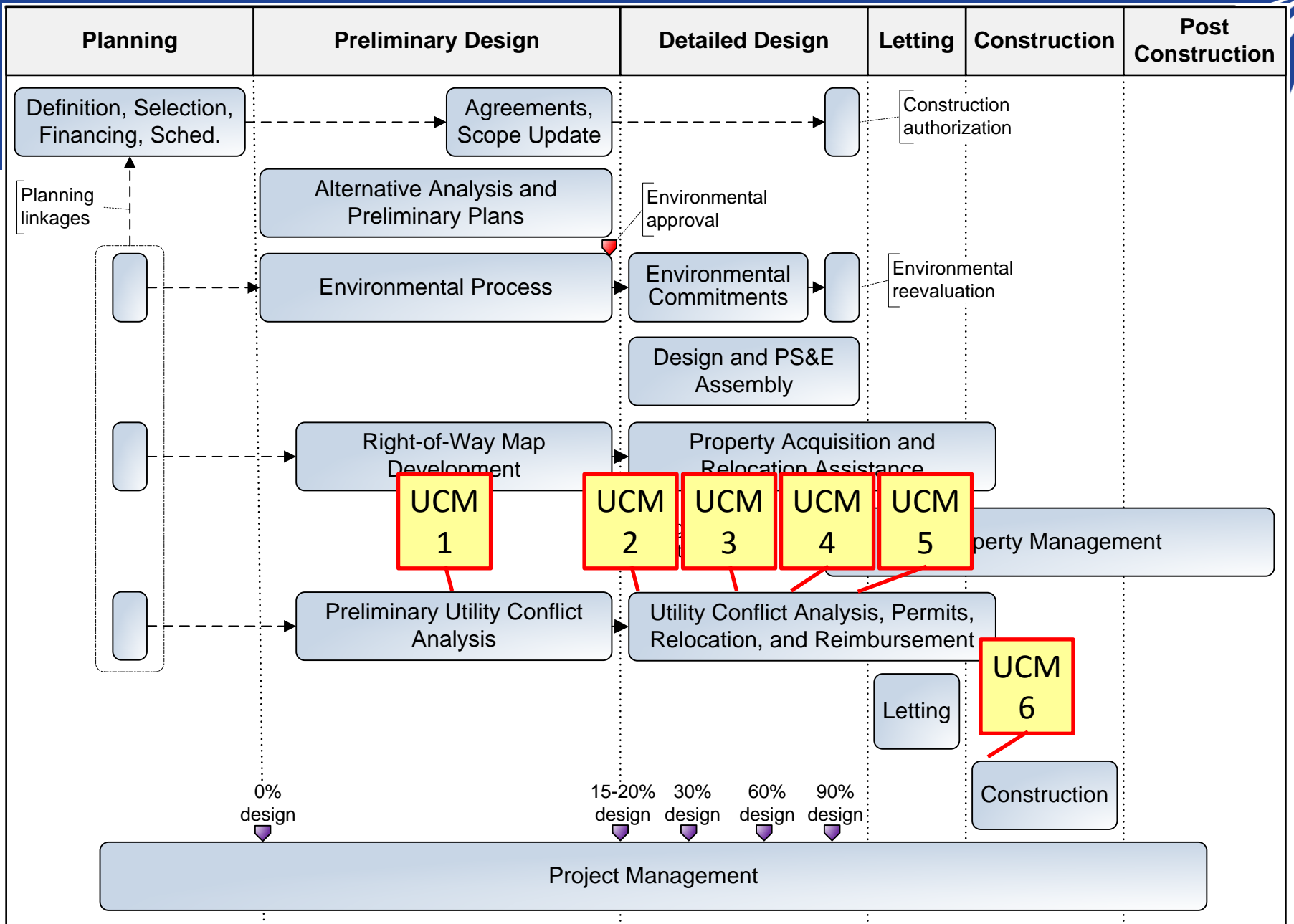
- Benefits
 - Systematic management of utility conflicts
 - Improved tracking and accountability
 - Cost estimate analysis spreadsheet
 - No IT support needed
- Limitations/challenges
 - Scalability
 - Variety of UCM structures in use

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

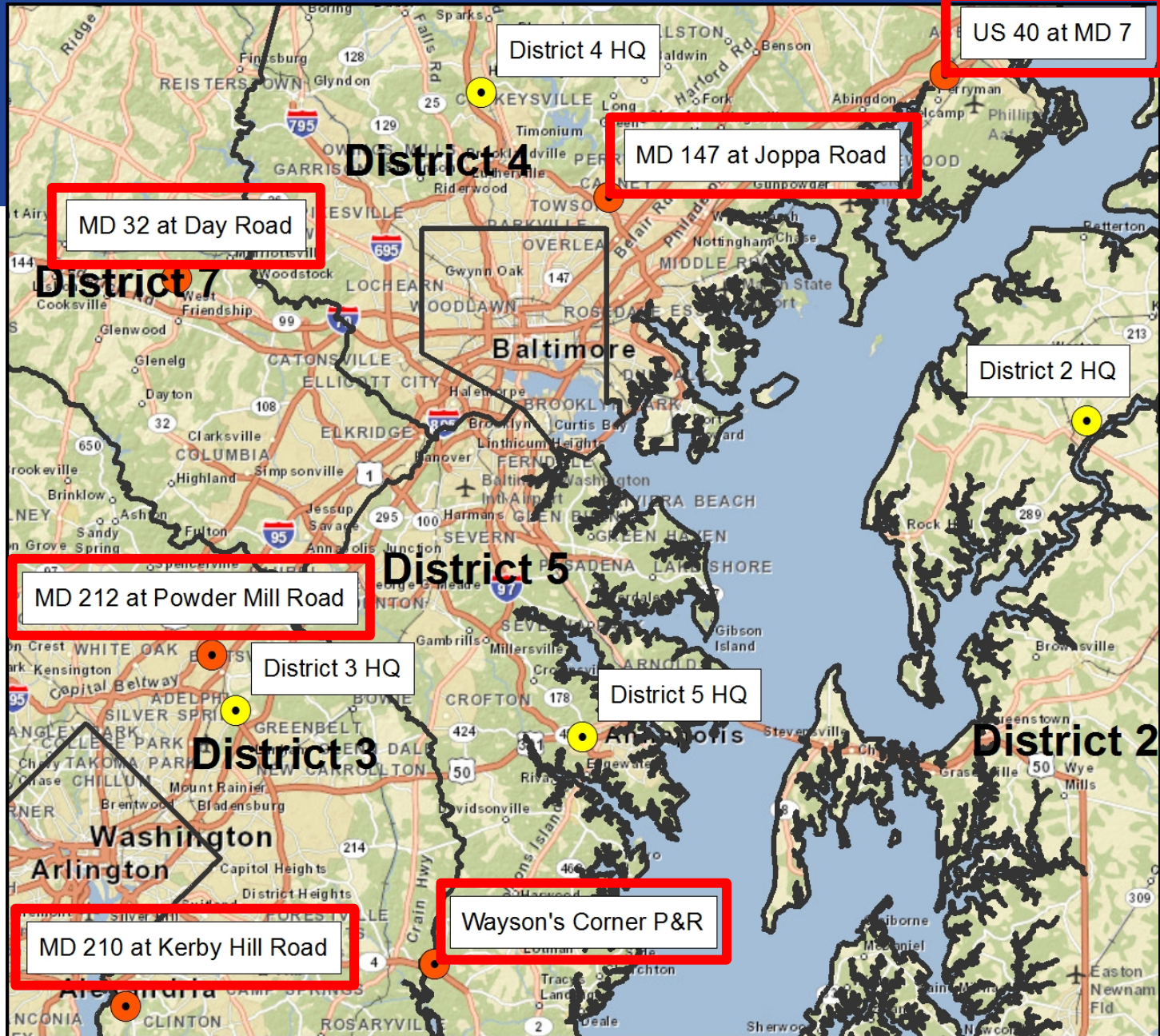


Product 3: UCM Training Course

- 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 the agency is interested today.

Folder Name	File Name	File Size	Format ^a
Binder	Training Material Binder participants	14.3 MB	pdf
	Training Material Binder presenter	40.8 MB	pdf
Forms	Instructor Review Form	540 KB	pdf
	Participant Feedback Form	540 KB	pdf
	Sign-in Sheet	540 KB	pdf
Instructional Materials	Lesson 1-6 Participant Handout	11.2 MB	pdf
	Lesson 2-5 Sample UCMs Plan Sheets Lookup Tables	3.16 MB	pdf
	Lesson 3 Test Hole Form	111 KB	pdf
	Lesson 3 Utility Conflict Matrix	182 KB	pdf
	Lesson 4 Group 1 Exercise Materials	4.22 MB	pdf
	Lesson 4 Group 2 Exercise Materials	4.32 MB	pdf
	Lesson 4 Group 3 Exercise Materials	4.22 MB	pdf
	Lesson 4 Group 4 Exercise Materials	4.22 MB	pdf
	Lesson 4 Group Assignment	693 KB	pdf
	Lesson 4 Group Exercise Instructions	107 KB	pdf
	Lesson 4 Test Hole Forms	160 KB	pdf
	Lesson 4 Utility Conflict Solution Sheet	716 KB	pdf
	Presenter Notes	28.3 MB	pdf
Lessons	Lesson 1	44.9 KB	pptx
	Lesson 2	7.56 MB	pptx
	Lesson 3	10.1 MB	pptx
	Lesson 4	6.24 MB	pptx
	Lesson 5	3.36 MB	pptx
	Lesson 6	44 KB	pptx
	UCM Training Outline	40 KB	xls
Prototype 1 – Stand-alone UCM	Utility Conflict Matrix	72 KB	xls
Prototype 2 – Data Model and Database	UCD Data Dictionary	172 KB	pdf
	UCD data model	1.41 MB	erwin
	UCD export schema Oracle 10	78 KB	sql
	Utility Conflict Database ^b	38.8 MB	mdb

Note: UCD = utility conflict database.

R15B Products

1. Compact, standalone UCM
2. Utility conflict data model and database
3. UCM training course

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

R15B Implementation Assistance Opportunities

Type of assistance	Number of awards	Amount of assistance
Lead adopter	Up to 5 awards	Up to \$100,000 per award

Who can apply: State DOTs, State Tollway and Thruway authorities, local agencies, tribal agencies.

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>June 29, 2015</u>



Utility Investigation Technologies (R01B)

Challenge

- Accurately knowing the location, depth, and important attributes of utilities enables more efficient and productive coordination with utility owners during the design process; helps minimize utility conflicts during the design process; and can save lives, money, and time through the sustainable application of SUE technologies.

Solution

- Round 6 IAP for the R01B product will include taking a two-step process to pilot advanced utility investigation technologies. The intended incentive to the IAP agencies is to help advance the state of the practice of utility investigation, in a manner that is beneficial to the agency in the future.

R01B Implementation Assistance

IAP Proof Of Concept Pilots will include taking a two-step process:

1. Run through the SUE process using normal and advanced utility investigation technologies.
2. Validate the accuracy of the advanced utility investigation technologies.

R01B Implementation Assistance

- **Important Note:** This award of up to \$150,000 includes the cost of equipment rental or purchase needed to conduct the implementation of the multi-channel GPR and TDEMI technologies.
- SHRP2 Implementation Assistance will include consultant and Subject Matter Expert (SME) support to help implement the Proof-of-Concept pilot activities.

R01B Implementation Assistance Opportunities

Type of assistance	Number of awards	Amount of assistance
Proof of concept	Up to 5 awards	Up to \$150,000 per award

Who can apply: State DOTs, State Tollway and Thruway authorities, local agencies, tribal agencies.



Additional R01B Product Information

- Project Brief:

- http://onlinepubs.trb.org/onlinepubs/shrp2/utilities_2012-03.pdf

- Research Report:

- <http://www.trb.org/Main/Blurbs/171470.aspx>

- Report:

- http://onlinepubs.trb.org/onlinepubs/shrp2/SHRP2_R01BandR01Cevaluationoftools.pdf

Round 6 Implementation Product Webinars (all times EDT)

Reliability

Date

Time

WISE: Work Zone Impact Estimation Software (R11) May 6 11:00 a.m. –12:30 p.m.

Renewal

Date

Time

Pavement Solutions Webinar (R05) & (R21) May 7 11:00 a.m. –12:30 p.m.

Utility Solutions Webinar (R01B) & (R15B) May 13 2:00 p.m. – 3:30 p.m.

Capacity

Date

Time

PlanWorks (C01) May 14 2:00 p.m. – 3:30 p.m.

Round 6 Product Research Webinar Recordings

Renewal

Identifying and Managing Utility
Conflicts (R15B)

<http://www.trb.org/StrategicHighwayResearchProgram2SHRP2/Blurbs/169143.aspx>

Precast Concrete Pavement (R05)

<http://www.trb.org/StrategicHighwayResearchProgram2SHRP2/Blurbs/169376.aspx>

New Composite Pavement
Systems (R21)

<http://www.trb.org/StrategicHighwayResearchProgram2SHRP2/Blurbs/169738.aspx>

Capacity

PlanWorks (C01)

<http://www.trb.org/StrategicHighwayResearchProgram2SHRP2/Blurbs/171080.aspx>

Reliability

WISE: Work Zone Impact
Estimation Software (R11)

<http://www.trb.org/StrategicHighwayResearchProgram2SHRP2/Blurbs/170675.aspx>

Round 5 Application Timeline

- Round 5 Application Period
May 29 – June 26
- Recipients Announced
Early August



For More Information

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Save time.

The second Strategic Highway Research Program (SHRP2) is at the forefront of transportation innovation—helping the Nation's transportation community improve safety, enhance productivity, boost efficiency, and increase reliability by introducing solutions that improve the country's highway network. [Read More](#)

What's New

New Brochure Highlights How States Will Use SHRP2 Safety Data in 11 Research Efforts

SHRP2 recently completed the largest study of in-vehicle driver behavior. The study collected trip and video data from more than 3,100 drivers over a 1- or 2-year period. A new brochure details how 10 State DOTs will use the newly available SHRP2 Naturalistic Driving Study and Roadway Information databases to pursue safety research across 11 topics. [More of What's New](#)

Register Now for Implementation Assistance Webinars

Round 5 Implementation assistance opens January 16, 2015. [Register now](#) for upcoming informational Webinars to learn more.

Visit: www.fhwa.dot.gov/GoSHRP2

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