JUNE 2013

TESTING RESEARCH IN THE REAL WORLD

37 STATES PARTICIPATE IN 119 SHRP 2 ACTIVITIES

To become resources that transportation agencies can use with confidence, research results must be tested rigorously, refined, and tested again. With that goal in mind, SHRP 2 is working in partnership with transportation agencies and other partners to learn together how the products of new ideas and strategic research can help meet today's challenges. Examples of such partnerships, including pilot tests and field demonstrations, are noted here. More details are available in the projects database at www.TRB.org/SHRP2.

SHRP2
STRATEGIC HIGHWAY RESEARCH PROGRAM

TRANSPORTATION RESEARCH BOARD
OF THE NATIONAL ACADEMIES

CAPACITY PROJECTS FOR PLANNING DECISIONS THAT STICK

Integrate Traveler Choice and Network Conditions into Travel Demand Estimates (projects C10A and B)
Florida, California

An advanced model for estimating travel demand that integrates traveler choice and network conditions was tested under real-world conditions in two pilot tests. In Jacksonville, Florida, the choices of nonhighway modes are limited and the model emphasizes the changes a traveler makes in response to highway conditions. In Sacramento, California, the model includes more mode choices. (The parameters from the Jacksonville model are also being transferred into a Tampa, Florida, model in an experiment to develop an advanced model more quickly and inexpensively.)

Development of Improved Economic Analysis Tools (project C11)
California, Washington

The travel time reliability economic benefits spreadsheet tool is being pilot tested by the Southern California Association of Governments (SCAG), CALTRANS, and Washington DOT. (Part of the L38 pilot test project)

Integrating Freight Considerations into Collaborative Decision Making for Additions to Highway Capacity (project C15)
Georgia, Texas, Utah

A guide for more effectively involving private sector freight stakeholders in the planning and development process for highway capacity projects is being beta tested by the Georgia DOT, North Central Texas Council of Governments, and Utah DOT.

Smart Growth (project C16)
Georgia, Maryland, Washington

The Thurston Regional Planning Council in Olympia, Washington; the Atlanta Regional Commission; and Maryland State Highway Administration beta tested software for analyzing the impacts of smart growth scenarios.

Pilot Test the Collaborative Decision-Making Framework (project C18)
Washington State Department of Transportation
Puget Sound Regional Council, Washington
Minnesota Department of Transportation
Pikes Peak Area Council of Governments, Colorado

Four pilots were undertaken to test different aspects of Transportation for Communities—Advancing Projects through Partnerships (TCAPP*) web portal, including performance measurement, integrating economic systems and land use decisions with transportation project planning, considering greenhouse gas emissions in the planning process, and community visioning.

Pilot Test Ecological Approaches to Environmental Protection (project C21)
California, Colorado, Oregon, West Virginia

In these pilot tests, products for integrating conservation and transportation planning—as well as the collaboration guidance elements of TCAPP*—were applied to improve the integration of conservation and transportation planning approaches to a project, set of projects, or plan.

Pilot Projects to Validate the Results of T-PICS (project C33A)
Minnesota

About 20 projects from Minnesota and other states will be used to vet Transportation Project Impact Case Studies (T-PICS). Minnesota DOT will also assess the usability of the web tool and suggest improvements.

Additional Pilot Tests to Improve TCAPP* (project C39)
Metro Regional Government, Portland, Oregon
Policy Consensus Initiative and Oregon DOT
South Carolina DOT
Thomas Jefferson Planning District Commission, Virginia

These agencies will conduct additional pilot tests of TCAPP* and the Decision Guide during decision making in the planning of additions to highway capacity.

Proof-of-Concept: Application of Geospatial, Ecological Tools and Data in the Planning and Programming (pre-NEPA) Phases of Delivering New Highway Capacity (project C40B)
California, Missouri

CALTRANS, SACOG (San Diego), Contra Costa County Transportation Authority, and the East-West Gateway Council of Governments (St. Louis) will work with the project team to evaluate and beta test the assessment tools developed in project C40A (Integration of National-Level Geospatial, Ecological Tools and Data).

RELIABILITY PROJECTS TO REDUCE CONGESTION AND IMPROVE TRAVEL TIME RELIABILITY

Establishing Monitoring Programs for Mobility and Travel Time Reliability (project L02)
California, Georgia, New Jersey, Virginia

The DOTs for these states provided input on selected procedures for gathering, storing, processing, and displaying data proposed for inclusion in the travel time reliability monitoring system that was developed in this project.

Institutional Architectures to Advance Operational Strategies (project L06)
Arizona, Colorado, Georgia, Nevada, North Carolina

Georgia DOT, Denver Regional Council of Governments, the Federal Highway Administration, Nevada DOT, and North Carolina DOT hosted capability maturity workshops for operations systems and management in these four states.

Evaluation of Cost-Effectiveness of Highway Design Features (project L07)
Georgia, Iowa, Maryland, Minnesota, Missouri, New York, New Jersey, Wisconsin

Staff from Maryland SHA, Minnesota DOT, Georgia DOT, Wisconsin DOT, Missouri DOT, and Port Authority of New York and New Jersey participated in focus groups on design treatments to reduce nonrecurring congestion, and they also conducted site visits to design treatments in their states. Missouri DOT held a weather workshop in Kansas City. Iowa DOT staff discussed ITS and snow-related treatments with the research team.

Improving Traffic Incident Scene Management (project L12)
Georgia, Indiana

DOTs in Indiana and Georgia, as well as people from other agencies that respond to roadway incidents in those states, participated in pilot tests to refine the incident management training course that was developed in this project.

"Train-the-Trainer" Pilot Courses for Incident Responders and Managers (project L32A)
Florida, Montana, Tennessee, Virginia

Additional pilot tests of the Train-the-Trainer course for incident responders and managers developed in Reliability project L12, in each of these four states. Tennessee also conducted an "Alumni Trainer" event, in which participants from the first Tennessee pilot conducted the training.

Local Methods for Modeling, Economic Evaluation, Justification and Use of the Value of Travel Time Reliability in Transportation Decision Making (project L35)
Maryland, Oregon

Models from this research will use data from Maryland SHA's Coordinated Highway Action Response Team (CHART) program. The Portland MPO will rely on research from this project to update their travel demand model.

Pilot Testing of SHRP 2 Reliability Data and Analytical Products (project L38)
California, Florida, Washington State

The DOTs in these states are testing and validating SHRP 2 Reliability products from projects L02 (Establishing Monitoring Programs for travel Time Reliability), L05 (Incorporating Reliability Performance Measures into the Transportation Planning and Programming Process), L07 (Evaluation of the Costs and Effectiveness of Highway Design Features to Improve Travel Time Reliability), and L08 (Incorporation of the Non-Recurrent Congestion Factors into the Highway Capacity Manual Methods).

SAFETY PROJECTS TO STUDY DRIVING BEHAVIOR

SHRP 2 Naturalistic Driving Study (NDS)
Tampa, Florida; Bloomington, Indiana; Raleigh/Durham, North Carolina; Buffalo, New York; State College, Pennsylvania; Seattle, Washington

DOTs in the six states where driving behavior studies are being conducted provide information to SHRP 2 regarding data on roadway characteristics and features and other data (such as data on incidents, work zones, traffic volumes, and safety campaigns) to support analyses of the NDS.

* TCAPP is Transportation for Communities—Advancing Projects through Partnerships, a website that integrates many products of SHRP 2 Capacity research. We encourage you to explore the site at www.transportationforcommunitites.com and share your comments in the Colleagues Corner section of the site.

RENEWAL PROJECTS TO SPEED PROJECT DELIVERY

Improved Technologies for 3-D Utility Location Data (project R01A)
Virginia

Virginia DOT, Virginia Utility Protection Services, and utility companies participated in a field test of a 3-D utility location data system that was developed in this project.

Utility Locating Utilizing Multi-Sensor Platforms (project R01B)
Virginia, Georgia

These pilots tested utility location devices with multiple sensors that were designed to advance the ability to rapidly and reliably locate and identify underground utility lines.

Expanding the Locatable Zone for Underground Utilities (project R01C)
Virginia, Georgia

This project tested prototype technologies for locating buried utilities that are of diverse composition, at depths of up to 20 feet, obstructed or "stacked," and in the challenging road construction environment.

Geotechnical Solutions for Soil Improvement, Rapid Embankment Construction, and Stabilization of the Pavement Working Platform (project R02)
Iowa, Kansas, Oklahoma, Texas

Iowa DOT, Kansas DOT, Oklahoma DOT, and Texas DOT participated in field testing to evaluate the performance of stabilized subgrade to assist in development of performance information for the R02 product.

Identifying and Reducing Worker, Inspector, and Manager Fatigue in Rapid Renewal Environments (project R03)
California

Caltrans assisted with information gathering for rapid renewal projects, including transportation project information, and data collection from DOT staff and construction company workers.

Innovative Bridge Designs for Rapid Renewal (project R04)
Iowa, New York, Vermont

The pilot project in Iowa used accelerated bridge construction (ABC) concepts and elements that were developed by SHRP 2. Preliminary construction is underway in the New York pilot, where lateral slide technology will be used to replace twin bridges over two weekends in September 2013. In Vermont, the ABC Toolbox was used to develop local guidance to replace two bridges, and five additional bridges are in project development.

Modular Pavement Technology (project R05)
California, Delaware, Illinois, Michigan, Minnesota, Missouri, New Jersey, New York, Texas, Virginia

These pilot tests included deflection testing of precast modular concrete pavement sections and a visual application survey of two precast modular concrete pavement test sections.

Nondestructive Testing to Identify Concrete Bridge Deck Deterioration (project R06A)
Virginia

Various nondestructive testing technologies were evaluated on a bridge in Virginia.

Evaluating the Application of Field Spectroscopy Devices (project R06B)
Connecticut, New Jersey, Pennsylvania, Rhode Island

This project conducted evaluations in Connecticut of field spectroscopy devices that are used to fingerprint commonly used construction materials. The project is is currently working with Connecticut DOT, New Jersey DOT, Pennsylvania DOT, and Rhode Island DOT to evaluate testing specifications and protocols.

Using Both Infrared and High-Speed Ground Penetrating Radar to Measure Uniformity of New HMA Layers (project R06C)
Florida, Maine, Minnesota, Pennsylvania, Texas, Vermont, Virginia

These states provided access to paving sites for field demonstrations in infrared and ground penetrating radar NDT techniques to assess hot-mix asphalt density and segregation.

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Nondestructive Testing to Identify Delaminations between HMA Layers (project R06D)
Kansas, Maine
Kansas DOT and Maine DOT participated in field tests of NDT techniques to detect HMA-layer delamination.

Real-Time Smoothness Measurements on Portland Cement Concrete Pavements During Construction (project R06E)
Arkansas, Georgia, Michigan, New York, Texas
In each of these states, the DOT hosted field evaluations of real-time smoothness measuring devices for portland cement concrete (PCC).

Development of Continuous Deflection Device (project R06F)
Virginia
Virginia DOT participated in field tests of a continuous pavement deflection device.

Nondestructive Testing Methods for Mapping Defects behind or within Tunnel Linings (project R06G)
Colorado, Texas, Virginia
NDT technologies for tunnel lining inspections were tested on Chesapeake Bay Bridge Tunnel in Virginia; Washburn Tunnel in Harris County, Texas; and Colorado DOT's Eisenhower Memorial Tunnel, Hanging Lake Tunnel, and No Name Tunnel.

Performance Specifications for Rapid Renewal (project R07)
Louisiana, Missouri, Virginia
Missouri DOT field tested a specification for performance-based earthworks/pavement foundation using intelligent compaction technology. Performance specifications for concrete bridge decks were tested in Virginia. Louisiana DOT assisted on field demonstration of intelligent compaction technology on an entire pavement section, including soil subgrade, subbase, and HMA layers.

Innovative Strategies for Managing Complex Projects (project R10)
Colorado, Michigan, Two Additional Validations TBD
This project conducted pilot tests of the five–dimensional complex project management tool in Colorado and Michigan. Two validations are also planned with other states (location TBD).

Strategic Approaches at the Corridor and Network Level to Minimize Disruption from the Renewal Process (project R11)
Arizona, Iowa, Additional Pilots Planned for New York and Florida
Arizona and Iowa conducted validation tests of a tool to assess optimal project sequencing and determine cost-effectiveness of strategies to minimize, mitigate, and manage road-user costs. Pilot tests in New York and Florida will use the software to analyze projects currently in the planning phase.

Identification of Utility Conflicts and Solutions (project R15B)
Arkansas, South Dakota
The Arkansas State Highway and Transportation Department and South Dakota DOT hosted sessions to pilot training materials that were developed as part of this project.

Composite Pavement Systems (project R21)
Illinois, Minnesota
The Illinois Tollway Authority designed and constructed composite pavements using the guidance developed in this project. Minnesota DOT participated in a demonstration project that included the construction, data collection, and monitoring of PCC/PCC and HMA/PCC test cells.

Achieving Long Life with Existing Pavements (project R23)
Washington State
Washington State DOT pilot tested guidelines for achieving long life with existing pavements, which were based on this research, on a major highway reconstruction project.