

From the Lab to the Real World

24 States Participate in 50 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 learning 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.

Capacity Projects to Reduce Congestion

Integrate Traveler Choice and Network Conditions into Travel Demand Estimates (project C10)

Jacksonville, Florida

Estimates of transportation demand will be a stronger basis for effective decisions about transportation management policies and strategies if they reflect how traveler choice and network conditions interact. An advanced model for estimating travel demand that integrates these factors is being tested under real-world conditions in two pilot tests. In Jacksonville, the pilot test is being conducted in a consultant partnership with the North Florida Transit Planning Organization. The Florida Department of Transportation (DOT) also is very engaged. In this setting, choices of nonhighway modes are limited and the model emphasizes the changes a traveler makes in response to highway conditions.

Sacramento, California

In Sacramento, the transportation demand model is being pilot tested in a community with more mode choices than Jacksonville. The results will include information on road pricing, transit service, parking policies, and other public policies aimed at reducing congestion. This pilot test is being conducted in a consultant partnership with the Sacramento Area Council of Governments.

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

These agencies are testing the content and functionality, as well as the principles and practices at the core of the philosophy embodied in Transportation for Communities—Advancing Projects through Partnerships (TCAPP). TCAPP is a website rich with guides, tools, case studies, and strategies that support a systematic approach to making collaborative decisions throughout the planning process so transportation projects can be delivered with less delay and more cooperation. Four pilots are under way to test different aspects of TCAPP, 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. The agencies will assess the quality and usefulness of the TCAPP sections they tested and evaluate the outcome against their customary processes.

Pilot Test Ecological Approaches to Environmental Protection (project C21)

California, Colorado, Oregon, West Virginia

Colorado State University with support from Colorado DOT

Rogue Valley Council of Governments with support from Oregon DOT

University of California, Davis, and California Department of Transportation (CALTRANS) District 4

West Virginia University Research Corporation and West Virginia Division of Highways These four teams are pilot testing the products of two SHRP 2 projects that developed ecological approaches to integrating conservation and transportation planning. In the pilot tests, these products—as well as the collaboration guidance elements of TCAPP*—are being applied to improve the integration of conservation and transportation planning approaches to a project, set of projects, or plan. The results will be submitted to regulatory review by the appropriate agencies to test their acceptability to federal, state, and local environmental regulatory agencies. By the end of SHRP 2, the ecological approaches, hardened by the pilot test results, will be incorporated into TCAPP.

* 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.transportationforcommunities.com and share your comments in the Colleagues Corner section of the site.



Capture our QR code to link to the SHRP 2 website.

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. Data from the NDS will include driving behavior data (such as speed, distance from the car ahead, acceleration, braking, seat belt use, and geographic location) and roadway information data (such as road type, geometry, shoulders, safety furniture, signage, and pavement markings).

Renewal Projects to Speed Project Delivery

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

Virginia

Virginia DOT participated in a field test of a 3-D utility location data system that was developed in this project. The project objective is to identify best practices for modeling, structuring, storing, retrieving, visualizing, and integrating 3-D utility data and to develop an innovative approach that leverages recent advances in technologies such as global positioning systems, ground penetrating radar, and geographical information systems.

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. The research focuses on three elements: (1) constructing new embankments and roadways over areas of unstable soils, (2) widening and expanding existing roadways and embankments, and (3) improving and stabilizing the support beneath the pavement structure.

Innovative Bridge Designs for Rapid Renewal (project R04)

Iowa

Iowa DOT has been coordinating with a SHRP 2 research team on the design and replacement of the Keg Creek Bridge near Council Bluffs, Iowa. This demonstration will use accelerated bridge construction design elements that were developed in the research. Construction of the prefabricated elements began in May 2011; on-site construction will take place over 10 days in late summer 2011. The products of this project will include standardized approaches to designing, constructing, and reusing (including future widening) complete bridge systems that address rapid renewal needs and efficiently integrate modern construction equipment.

Modular Pavement Technology (project R05)

California, Delaware, Illinois, Michigan, Minnesota, Missouri, New Jersey, New York, Texas, Virginia

CALTRANS, Delaware DOT, Illinois Tollway Authority, Michigan DOT, Minnesota DOT, Missouri DOT, New Jersey DOT, New York DOT, New York State Thruway Authority, Texas DOT, and Virginia DOT participated in deflection testing of precast concrete pavement sections. The Port Authority of New York and New Jersey provided site access at La Guardia International Airport to conduct a visual application survey of two precast concrete pavement test sections. Products of this project will include tools for public agencies to use when designing, constructing, installing, maintaining, and evaluating modular pavement systems.

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

Virginia

Virginia DOT provided site access and traffic control during the evaluation of various nondestructive testing (NDT) technologies on a bridge in Virginia. Products from this project will include a database to help practitioners match NDT techniques to the conditions and objectives of their projects.

Reliability Projects to Reduce Congestion and Improve Travel Time Reliability

Improving Traffic Incident Scene Management (project L12)

Indiana DOT, Georgia DOT

DOTs in Indiana and Georgia, as well as people from 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. Types of responders include police, fire, emergency management, emergency medical services, private-sector responders such as towers and hazmat responders, and operations and maintenance personnel from transportation agencies. Participants reacted enthusiastically to this interagency training approach.

Using Both Infrared and High-Speed Ground Penetrating Radar to Measure Uniformity of New HMA Layers (project R06C)

Florida, Minnesota, Texas

Florida DOT, Minnesota DOT, and Texas DOT provided access to paving sites for field demonstrations in infrared and ground-penetrating radar NDT techniques to assess hot-mix asphalt density and segregation. Texas DOT also tested its GPR equipment at the Texas site. Products of this research will include recommendations for how these technologies can be incorporated into existing DOT specifications for construction quality assurance.

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. This project will identify and develop NDT techniques that can find and determine the extent and depth of delaminations and discontinuities in HMA pavements.

Real-Time Smoothness Measurements on Portland Cement Concrete Pavements During Construction (project R06E)

Arkansas, Georgia, Michigan, New York, Texas

Arkansas DOT, Georgia DOT, Michigan DOT, New York DOT, and Texas DOT hosted field evaluations of real-time smoothness measuring devices for portland cement concrete (PCC). This project intends to enable real-time control of concrete pavement smoothness during construction. To accomplish this, technologies for measuring smoothness in real time are being evaluated, and model specifications and guidelines for use by transportation agencies are being developed.

Development of Continuous Deflection Device (project R06F)

Virginia

Virginia DOT participated in field tests of a continuous pavement deflection device. The project objective is to critically assess the potential of using existing continuous deflection devices as a practical and cost-effective tool for use in the development of optimum pavement rehabilitation strategies on rapid renewal projects.

Performance Specifications for Rapid Renewal (project R07)

Missouri

Missouri DOT participated in field testing a specification for performance-based earthworks/pavement foundation using intelligent compaction technology. Products of this research project will include specifications for various contracting scenarios (such as design-bid-build, design-build, and warranties) that could reduce the completion time of renewal projects while maintaining or improving quality.

Composite Pavement Systems (project R21)

Minnesota

Minnesota DOT participated in a demonstration project at MnRoad (Minnesota's Cold Weather Road Research Facility) that included the construction, data collection, and monitoring of PCC/PCC and HMA/PCC test cells. The objective is to investigate the design and construction of new composite pavement systems, as opposed to those resulting from the rehabilitation of existing pavements. The research is focusing on two promising applications of composite pavement systems: (1) an asphalt layer(s) over a PCC layer and (2) a PCC surface over a PCC layer.

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(as of June 2011)

