SHRP2 SOLUTIONS
TOOLS FOR THE ROAD AHEAD

SHRP2 Education Connection

Incorporating SHRP2 Solutions into Academia

Solutions from the second Strategic Highway Research Program (SHRP2) are being implemented in all 50 States on more than 300 projects. The SHRP2 Education Connection brings SHRP2 products into the university classroom, and extends the benefits of this national investment to the next generation of transportation professionals.

Ten universities received cooperative agreements totaling an estimated $100,000. Each university will integrate one or more SHRP2 products into its current transportation curriculum, including a broad spectrum of products from the Renewal, Capacity, and Reliability focus areas. These cooperative agreements provide an opportunity to incorporate SHRP2 products into transportation coursework, bringing state-of-the-practice solutions into the classroom.

The SHRP2 Education Connection connects undergraduate and graduate level students with the highly innovative tools and processes resulting from SHRP2. The SHRP2 products fit not only into traditional transportation curricula such as engineering and transportation planning, but also prove relevant to disciplines such as urban planning, economics, government and human resources. Learn more at www.fhwa.dot.gov/GoSHRP2/EducationConnection.

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STRATEGIC HIGHWAY RESEARCH PROGRAM

U.S. Department of Transportation | Federal Highway Administration
American Association of State Highway and Transportation Officials • Transportation Research Board

Bradley University — *Illinois*

By incorporating several products into the undergraduate and graduate courses, students will learn about cutting edge technologies and innovations in their respective professions. Through lectures and laboratory exercises, students will learn about the latest methodologies and practices in pavement design and analysis for renewal and reconstruction projects. In addition, the students will gain an understanding of foundation design and analysis. Through lectures and laboratory exercises, the students will be provided hands-on experience using the GeoTech Tools.

SHRP2 Solutions:

- *GeoTech Tools (R02)*
- *New Composite Pavement Systems (R21)*
- *Pavement Renewal Solutions (R23)*
- *Innovative Bridge Design for Rapid Renewal (R04)*
- *Nondestructive Testing for Concrete Bridge Decks (R06A)*
- *Service Life Design for Bridges (R19A)*

Colorado State University — *Colorado*

Undergraduate students will improve their understanding of both roadway and pavement materials and construction techniques and methodologies. Through lectures and case studies, the students will learn about the latest innovations in concrete pavement construction testing, asphalt pavement construction methods, and pavement preservation and maintenance techniques.

SHRP2 Solutions:

- *Technologies to Enhance Quality Control on Asphalt Pavement (R06C)*
- *Pavement Renewal Solutions (R23)*
- *Guidelines for the Preservation of High-Traffic-Volume Roadways (R26)*

Methodist University — *North Carolina*

An upper-level undergraduate course on the National Environmental Policy Act (NEPA) process will incorporate the Eco-Logical approach into planning. Students will understand how the Eco-Logical approach can complement the NEPA process through use of the Integrated Ecological Framework. Students will learn how the hierarchy of avoidance, minimization, and mitigation will enable better decision making and speed up project completion. Using case studies, students will evaluate if, and how, the use of the Eco-Logical methodology streamlined the environmental process. Students will make on-site visits to a major department of transportation project and document its progress.

SHRP2 Solutions:

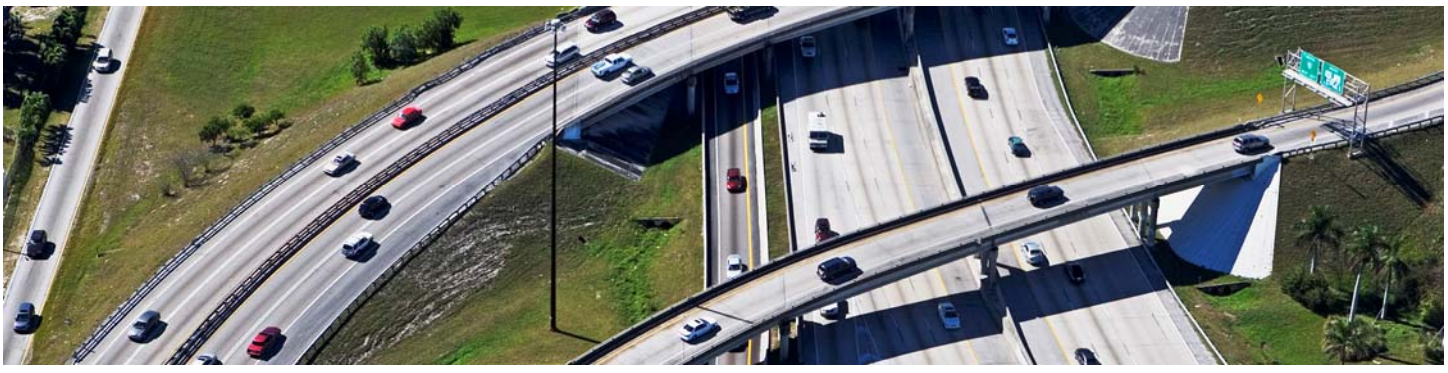
- *Implementing Eco-Logical (C06)*

North Dakota State University–Upper Great Plains Transportation Institute — *North Dakota*

Products will be integrated into graduate level courses so that students learn about state-of-the-art traffic congestion management. Through the use of lectures and case studies, students will examine the reliability tools and simulation and planning models using real situations and data sets. They will develop knowledge and experience with the latest reliability tools.

SHRP2 Solutions:

- *Incorporating Reliability Performance Measurements in Operations and Planning Modeling Tools (L04)*
- *Reliability Data Archive (L13)*
- *Organizing for Reliability Tools (L01/L06)*



Rowan University — *New Jersey*

A total of 16 SHRP2 products will be vertically integrated in 7 courses covering 4 years of Civil Engineering curriculum. This vertical integration scheme will first introduce SHRP2 products to freshman students. The depth of technical content of the SHRP2 modules will increase from freshman to senior/graduate level courses, building on information presented in the previous year(s). The selected senior and graduate level courses also will focus on applications of the SHRP2 products to provide hands-on experience. The instructors will further re-emphasize the relevant theoretical concepts using SHRP2 as a tool for a seamless transition from theory to practice.

SHRP2 Solutions:

- *Innovative Bridge Designs for Rapid Renewal (R04)*
- *Precast Concrete Pavement (R05)*
- *Nondestructive Testing for Concrete Bridge Decks (R06A)*
- *Technologies to Enhance Quality Control on Asphalt Pavements (R06C)*
- *Service Life Design for Bridges (R19A)*
- *New Composite Pavement Systems (R21)*
- *Pavement Renewal Solutions (R23)*
- *Incorporating Reliability Performance Measures in Operations and Planning Modeling Tools (L04)*
- *National Traffic Incident Management Responder Training Program (L12/L32A/L32B)*
- *Framework for Improving Travel-Time Reliability (L17)*
- *Reliability Data Archive (L13A)*
- *Regional Operations Forum (L36)*
- *PlanWorks (C01)*
- *Planning Process Bundle (C02/C08/C15)*
- *EconWorks (C03/C11)*
- *TravelWorks (C04/C05/C16)*

University of Missouri — *Missouri*

Undergraduate students will be introduced to new Nondestructive Evaluation (NDE) technologies through hands-on experimentation. This will allow the students to develop practical knowledge of the use and limitations of the technologies. Graduate students will develop a working knowledge through actual experience in making decisions regarding the appropriate applications and limitations of NDE technologies. They will do this by examining the issues associated with engineering decision making related to NDE (reliability issues, cost benefit analysis, etc.). Upon completion of the graduate course, students will have the tools for effective decision making regarding the application of NDE technologies.

SHRP2 Solutions:

- *Nondestructive Testing for Concrete Bridge Decks (R06A)*
- *Technologies to Enhance Quality Control on Asphalt Pavements (R06C)*
- *Nondestructive Testing for Tunnel Linings (R06G)*

University of Idaho — *Idaho*

The University of Idaho is developing a set of products based on SHRP2's *National Traffic Incident Management Responder Training (TIM)* program that can be integrated by university professors as part of their lesson plans when teaching a transportation operations-related course. Graduate and undergraduate level course materials and activities will incorporate simulations and real-world scenarios, and will include tests and student evaluation materials. These activities aim to promote and secure the role of SHRP2 in the classroom and advance innovations by promoting solutions that address current and emerging transportation issues.

SHRP2 Solution:

- *National Traffic Incident Management (TIM) Responder Training (L12)*

University of Nebraska–Lincoln — *Nebraska*

The SHRP2 product *Encouraging Innovation in Locating Utilities (R01)* will be incorporated into the University of Nebraska-Lincoln's Construction Methods and Equipment I course, which will be taught at both the Omaha and Lincoln campuses. Students will benefit by learning about actual construction issues as well as the construction methods and equipment used in locating underground utilities. The primary procedure in the design and construction of civil engineering projects is subsurface exploration of existing assets or utility relocation. The university will use this SHRP2 product in its curriculum to help disseminate research findings and knowledge of the physical principles behind utility location and characterization.

SHRP2 Solution:

- *Encouraging Innovation in Locating Utilities (R01)*

University of North Carolina–Charlotte — *North Carolina*

Through a series of lectures, students will learn the fundamentals of *TravelWorks* for integrated travel demand modeling. Students will be equipped to improve the understanding of how highway congestion and pricing affect travel demand; the understanding of the contributions of operations, technology, and design to meeting highway capacity needs; and the understanding of the effect of smart growth policies on travel demand. The goal is to provide the students with a solid foundation in understanding advanced traffic engineering, operations, and travel analysis tools for integrated travel demand modeling.

SHRP2 Solution:

- *TravelWorks (C04/C05/C16)*

University of Wisconsin — *Wisconsin*

Graduate and undergraduate students will learn about and gain experience working with Reliability concepts. Through lectures and laboratory exercises, the students will be provided hands-on experience with data requirements, data processing, analysis techniques, and modeling procedures. Students will analyze several travel-time reliability indices using rich traffic data. In addition, students will engage in network/regional-level travel-time reliability analysis or use micro simulation to analyze travel-time reliability using regional planning and operations models.

SHRP2 Solution:

- *Incorporating Reliability Performance Measurements in Operations and Planning Modeling Tools (L04)*

For More Information

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