

## Guidance and Tools Support Wider Use of Composite Paving System Construction

*New guidance for constructing cost-effective, safe, and longer-lasting pavement systems*

Composite pavement systems have been shown in the United States and Europe to have a longer service life with excellent surface characteristics and structural capacity, while being economical and sustainable. Despite this, these composite pavement systems are not widely used in the United States because studies of their installation and use were inadequate. The purpose of the product developed through the second Strategic Highway Research Program (SHRP2) project was to document the behavior of composite pavements and provide models to be used for design, performance prediction, and life-cycle cost analysis.

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### Composite Pavement Systems

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### The Solution

Two promising composite pavement systems: a thin, high-quality hot-mix asphalt layer over a Portland cement concrete (PCC) structural layer, and a thin, superior PCC surface over a second, less-expensive, recycled PCC layer were investigated as part of the research. The results of these tests, which were conducted in heavy-load highway and a variety of climatic conditions, were used to develop and validate models and design procedures to be used for design and construction of the new composite pavement systems. The new guidelines provide **practical recommendations for construction specifications and techniques, life-cycle costing, quality management procedures, and training materials.**

### The Benefits

With the new guidance, models, techniques, and specifications, state and local departments of transportation and other organizations can have confidence that the composite pavement systems they install and maintain will be long-lasting and have predictably low life-cycle costs. Agencies will no longer need to develop construction specifications and quality management guidelines on their own, but can instead consider using these. The training tools and case studies include all relevant design and construction issues and are essential to widespread adoption and use of composite pavements.

### Composite pavement systems save time and money

FOCUS AREA:  
Renewal (R21)

Tools include models, techniques, construction specifications, quality management guidelines, training tools, and case studies.

#### Save Lives

- Excellent skid resistance is due to high-quality top layer.
- Pavement is resistant to cracking, fatigue, and wear.



#### Save Money

- Thicker bottom layer is made of lower-cost material with recycled content.
- Higher quality, functional upper layer is thinner and renewable for additional savings.



#### Save Time

- Replacement or retexturing of top layer is economical and quick.
- Reduced maintenance needs limit traffic disruption.



## How can you learn more?

Implementation is expected in 2014.

Resources to learn more about Composite Pavement Systems is available at <http://apps.trb.org/cmsfeed/trbnetprojectdisplay.asp?projectid=2173>. The 2008 Survey of European Composite Pavements is available at <http://www.trb.org/Publications/Blurbs/163693.aspx>. The presentation to the MinnesotaROAD Research Conference is available at <http://www.dot.state.mn.us/mnroad/calendar/PDF's/Rao.pdf>.

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Photo Credit: Michael Darter, Applied Research Associates

### About SHRP2 Implementation



The second Strategic Highway Research Program is a national partnership of key transportation organizations: the Federal Highway Administration, the American Association of State Highway and Transportation Officials, and the Transportation Research Board. Together, these partners conduct research and deploy products that will help the transportation community enhance the productivity, boost the efficiency, increase the safety, and improve the reliability of the Nation's highway system.

### Strategic Highway Research Program

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