



CP Road Map E-News September-October 2011

The **CP Road Map E-News** is the bi-monthly newsletter of the [Long-Term Plan for Concrete Pavement Research and Technology \(CP Road Map\)](#), a national research plan developed and jointly implemented by the concrete pavement stakeholder community. To find out more about the CP Road Map, or to get involved, contact Dale Harrington, dharrington@snyder-associates.com, 515-964-2020.

The second edition of the CP Road Map is here!

The Federal Highway Administration (FHWA) and the CP Road Map pooled fund are getting ready to roll out the second edition of the CP Road Map. Research tracks and problem statements have been updated, and new versions of Volume I and Volume II will be online shortly. The MAP brief and the articles in this issue of the E-News follow the newly revised 12 tracks. For a comparison of the old tracks and the new tracks, [check out the September-October 2011 MAP Brief](#).

New Moving Advancements into Practice (MAP) Brief

Moving Advancements into Practice (MAP) Briefs describe promising research and technologies that can be used now to enhance concrete paving practices.

The [September-October 2011 MAP Brief: Introducing--The CP Road Map, 2nd Edition](#) has recently been published. This MAP brief describes the changes and updates made to the CP Road Map, 2nd edition.

[Download the September-October 2011 MAP Brief](#) (248 kb pdf).



News from the Road

News from the Road highlights research around the country that is helping the concrete pavement community meet the research objectives outlined in the CP Road Map.

Pennsylvania evaluates statewide design inputs for the Mechanistic-Empirical Pavement Design Guide

A recent University of Pittsburgh report addresses the selection of accurate input parameters when implementing the Mechanistic-Empirical Pavement Design Guide (M-E PDG) for rigid pavement design. The first major task of this research was to identify and summarize known inputs required for rigid pavement design given current Pennsylvania conditions. In order to determine inputs that were not yet defined, laboratory work was carried out and four pavement test sections were instrumented across the state. Based on these efforts, recommended design inputs were determined and discussed in detail, with special emphasis placed on concrete properties such as permanent curl/warp temperature difference and ultimate drying shrinkage. The researchers have also made numerous recommendations for future work including validation of climatic data, establishment of coefficient of thermal expansion (CTE) values for additional state mix designs, and further calibration of M-E PDG performance models.

[Click here to download the report.](#)

This research is helping to fill knowledge gaps outlined in [CP Road Map Track 2: Performance-Based Design Guide for New and Rehabilitated Concrete Pavements](#).

SNS Group publishes tech brief on backer rod absorption

A recent tech brief published by the Seal/No Seal (SNS) Group reports on an investigation into how backer rod absorption may contribute to premature joint deterioration. An experiment was carried out to evaluate the three types of backer rods in use today: open cell, closed cell, and hybrid, which consists of an inner open cell core surrounded by a closed cell perimeter lining. The experiment consisted of six-inch specimens submerged in tap water and weighed periodically over an 87-hour period. During this period, the closed cell backer rods exhibited no absorption, while



absorption by the open cell rods was significant, and the hybrid rods only absorbed a slight amount of water. Each specimen was then placed in a freezer for five days and removed to undergo a bending test to determine flexibility. The closed cell samples remained flexible, and the hybrid backer rods could be bent in a similar fashion. However, the open cell material broke in half during bending, suggesting that it is not acceptable for use in a wet-freeze environment. Currently, it is suggested that additional research be conducted to evaluate sealant designs before supporting backer rod induced joint damage.

[Click here to download the tech brief.](#)

This project is meeting research objectives outlined in [CP Road Map Track 6: Innovative Concrete Pavement Joint Design, Materials, and Construction](#).

Virginia DOT develops end-result specification for hydraulic cement concrete

A recent report by the Virginia Department of Transportation (VDOT) describes a study undertaken to develop an end-result specification (ERS) for concrete that incorporates both performance parameters and elements of prescriptive specifications. This study aims to demonstrate that an ERS allows the contractor to take authority and responsibility for the material produced, ultimately encouraging innovation and a high level of quality. The ERS was divided into three main parts. First, the contractor must develop a quality control (QC) plan that addresses elements including mixture design, aggregate sources, and testing. Second, the ERS covers approval of the mixture design by VDOT based on submitted documentation. Project acceptance, including pay adjustments, comprises the final section of the specification. To date, the first two parts of the ERS have been well received by the industry and have enabled innovation, minimized waste, and encouraged green initiatives. However, the pay adjustment portion of the ERS has met opposition within the industry and requires further evaluation. The author recommends that additional pilot projects are developed before the ERS can be fully adopted.

[Click here to download the final report.](#)

This work is contributing to research objectives outlined in [CP Road Map Track 1: Materials and Mixes for Concrete Pavements](#).

National CP Tech Center publishes tech summary on design of concrete overlays

A recent tech summary published by the National Concrete Pavement Technology Center at Iowa State University's Institute for Transportation provides an overview of the design process associated with bonded and unbonded concrete overlay systems in an effort to provide straightforward and simple guidance to the pavement designer. A variety of concrete overlay design procedures employed today, including the 1993 AASHTO Guide,



Mechanistic-Empirical Pavement Design Guide (M-E PDG), and American Concrete Pavement Association (ACPA) mechanistic overlay design procedure, are examined in detail, as well as critical design variables inherent to each process. However, it is important that the designer is able to fully understand specific design assumptions, strengths, and deficiencies, and how they relate to the type of overlay being considered before selecting an overlay design method. The final *Design of Concrete Overlays Using Existing Methodologies* guide will be available later this year and will include additional information related to design methodologies and step-by-step examples.

[Click here to download the tech summary.](#)

This research is meeting research needs identified in [CP Road Map Track 8: Concrete Pavement Construction, Reconstruction, and Overlays](#).

Updates from the States: Kansas

The Kansas Department of Transportation (KDOT) performs concrete pavement research through the Bureau of Materials and Research, whose responsibilities are vested in a headquarters section and four units: Research, Geotechnical, Materials Test, and Regional Inspection. The Bureau supports concrete pavement construction and maintenance projects through regional laboratories and geology offices dedicated to inspection of materials and support for analysis, testing, and research.



[Read on for more information about concrete pavement research in the State of Kansas...](#)

Newsletter staff

- [Dale Harrington](#), Snyder and Associates, Program Manager
- [Rob Rasmussen](#), The Transtec Group, Program Specialist
- [Jesse Kwilosz](#), The Transtec Group, Program Specialist
- [Sabrina Shields-Cook](#), National Concrete Pavement Technology Center, Editor

Newsletter archives

- [July-August 2011](#)
- [June 2011](#)
- [May 2011](#)
- [April 2011](#)
- [March 2011](#)
- [February 2011](#)
- [January 2011](#)
- [November 2010](#)
- [October 2010](#)
- [September 2010](#)
- [August 2010](#)
- [July 2010](#)

- [June 2010](#)
- [May 2010](#)
- [April 2010](#)

The [National Concrete Pavement Technology Center](#) at [Iowa State University](#) provides operations support services to the CP Road Map program.

CP Tech Center

2711 S. Loop Drive, Suite 4700

Ames, IA 50010

Phone: 515-294-5798

Fax: 515-294-0467

Email: [Program Management](#) ~ [Communications](#) ~ [Webmaster](#)

Site Design Copyright © 2007–2020, [Iowa State University](#). All rights reserved.