CP Road Map E-News March 2011

The ***CP Road Map E-News*** is the 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.

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.

MAP Brief 1:3 Fly Ash as a Supplementary Cementitious Material in Concrete Mixtures has recently been published under CP Road Map Track 1: Performance-Based Concrete Pavement Mix Design System.

Download MAP Brief 1-3 (1.1 mb 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.

FHWA publishes TechBrief on cements

The Federal Highway Administration (FHWA) recently published a TechBrief titled *Blended and Performance Cements* that focuses on the sustainable aspects associated with these cement types. The TechBrief also discusses how each cement is defined by the American Society for Testing and Materials International, and identifies concrete properties when either cement is used in the mix.

To access the TechBrief, click here.

This work is contributing to research objectives outlined in CP Road Map Track 1: Performance-Based Concrete Pavement Mix Design System.

Illinois DOT develops design charts based on mechanistic-empirical design for continuously reinforced concrete pavements

The Illinois Center for Transportation recently published *Mechanistic-Empirical Design Concepts for Continuously Reinforced Concrete Pavements,* which documents research to develop a method for Illinois DOT (IDOT) pavement engineers to design continuously reinforced concrete pavements (CRCP) using mechanistic-empirical (M-E) design models. Ultimately, it was determined that IDOT required an M-E design method that allowed users the flexibility to choose what models could be incorporated at any given point in time. The report outlines what models are included in the current IDOT M-E design method for CRCP. Design charts for CRCP were generated based on these models.

Click here to download the report.

This project is contributing to research objectives outlined in CP Road Map Track 2: Performance-Based Design Guide for New and Rehabilitated Concrete Pavements.

FAA recognizes need to evaluate materials-related distress in concrete pavements

The Innovative Pavement Research Foundation recently published a report under the Airport Concrete Pavement Technology Program. The report, *Final Report for Identification of Materials Related Distress and Projected Pavement Life Concrete Airfield Pavement*, documents research work funded by the Federal Aviation Administration (FAA) and identifies a need for a pavement evaluation procedure that considers the effects of material-related distress in order to assess the risk for development of foreign object debris and the requirements for rehabilitation. Research included a literature review, two site visits, and the development of a protocol for ascertaining a materials-related distress rating that complements the standard procedure for a pavement condition index survey (e.g., ASTM D 5340).

Click here to view the report.

This research can be categorized under CP Road Map Track 10: Concrete Pavement Performance.

Baylor University research explores microwave sensors for measuring w/cm ratio in concrete mixtures

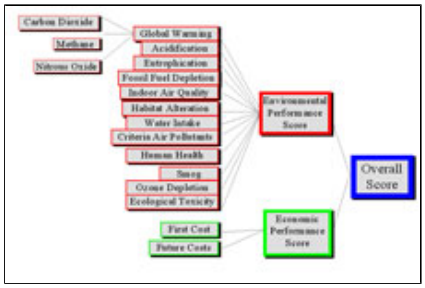
Baylor University research is exploring the use of a waveguide cutoff technique for measuring water content and water to cementitious materials (w/cm) ratio in fresh concrete mixtures. The technique involves testing methods that measure a sample of concrete material over a range of microwave frequencies in order to isolate changes in the sample's ability to store and dissipate energy in the electromagnetic field. The relationship between water content and permittivity is well known and has been demonstrated by others. What makes this research unique is that it is wide-band and can therefore achieve the w/cm measurement, which is more complex that just measuring percentage of water. This kind of technology can potentially improve the quality control process and may help contractors achieve increased durability.

To contact Baylor University Professor Randall Jean, who is in charge of this research, click here.

To read a news article on this project, click here.

As a precursor to future concrete pavement research, the BEES online tool can be categorized under CP Road Map Track 1: Performance-Based Concrete Pavement Mix Design System.

BEES now available online



BEES, the National Institute of Standards and Technology (NIST) Building for Environmental and Economic Sustainability (BEES) analysis tool, is now available online. BEES is a life-cycle assessment software program developed by the NIST Engineering Laboratory that evaluates building materials, including concrete. The program generates an overall score that is representative of two of the three categories that make up the triple-bottom-line that defines sustainability. BEES, however, is not specific to pavements and may be complicated and tedious for an analysis of a pavements project. BEES does identify the life cycle of portland cement concrete and can prove to be a useful resource during the first steps in establishing metrics for the development of a future pavements-specific tool.

For more information, click here.

As a precursor to future concrete pavement research, the BEES online tool can be categorized under CP

Road Map Track 13: Concrete Pavement Sustainability.

Updates from the States: Iowa

Concrete pavement research in Iowa is accomplished through programs operated by the Iowa Department of Transportation (Iowa DOT) Research and Technology Bureau and guided by the Iowa Highway Research Board (IHRB). Pavement research is conducted in-house by the Iowa DOT and through various partnerships.

The Iowa DOT partners with the University of Iowa, Iowa State University, and the University of Northern Iowa to accomplish research goals. The Institute for Transportation (InTrans) and National Concrete Pavement Technology Center (National CP Tech Center) at Iowa State University are actively involved with the Iowa DOT through DOT-university partnerships on a number of concrete pavement research efforts.

Read on for more information about concrete pavement research in Iowa...

Newsletter staff

- Dale Harrington, Snyder and Associates, Program Manager
- Rob Rasmussen, The Transtec Group, Program Specialist
- Sabrina Garber, The Transtec Group, Program Specialist
- Sabrina Shields-Cook, National Concrete Pavement Technology Center, Editor

Newsletter archives

- 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