

TERRA 2009 Highlights

The Transportation Engineering and Road Research Alliance (TERRA) facilitates collaborative pavement and road-related research. The success of TERRA research, engagement, and communications efforts continues primarily because of the committed service of its members, the TERRA Board, and three active committees structured around the organization's strategic directions. This brief report highlights TERRA activities during the past year—a quick look inside this flourishing, vibrant, and vital road research alliance.



Chairman James L. Oberstar and TERRA co-chair André Clover

Research

The TERRA Research and Implementation Committee guides research projects and initiatives that involve collaborations among agency, industry, and academic partners, including a series of pooled-fund projects initiated through the FHWA Transportation Pooled-Fund Program. Highlights from 2009:

- TERRA members are collaborating on a study of the **cold-weather performance of pervious concrete**. Pervious concrete, characterized by a permeable structure that allows water to filter into the groundwater, is widely used in moderate climates to reduce storm water runoff. TERRA-related research is focused on improving the ability of pervious concrete to withstand freeze-thaw cycles in cold climates.
- A TERRA-initiated research project is investigating the **impact of farm equipment on rural roads**. The three-year study is testing how pavement responds to agricultural equipment with live loads on the MnROAD farm loop.
- A research project involving multiple TERRA members is studying the **low-temperature cracking performance of warm-mix asphalt (WMA)** at the MnROAD facility to help roads better endure cold climates. The researchers plan to share their findings with a wider audience of city, county, and state engineers, consultants, contractors, and researchers throughout Minnesota and the entire country.

Fact sheets

TERRA added to an ongoing series of fact sheets that highlight timely research topics. Each fact sheet shares examples of how research has been implemented and provides several resources for further information about the topic.

Fact sheet topics:

- Impacts of Farm Equipment
- Rumble Strips
- Warm-Mix Asphalt
- Pervious Concrete
- Full-Depth Reclamation (FDR)
- Implementation of New Technologies
- Low-Volume Roads

Engagement

The Member and Partner Engagement Committee encourages new ways of thinking about research problems by emphasizing partnership and cooperation to address the large-scale challenges before transportation professionals and policymakers. Highlights from 2009:

- U.S. Rep. **James L. Oberstar**, chairman of the House Transportation and Infrastructure Committee, met with the TERRA Board at the University of Minnesota in November for an update on TERRA research activities. Oberstar recognized TERRA as a model for improving the efficiency and cost-effectiveness of the transportation research process. "This is the kind of format we need to better serve transportation," he said. "The answers we need are right here at this table."
- Mats Wendel, national coordinator of pavements for the Swedish Road Administration (SRA), has been part of a **work-exchange program** with Mn/DOT's Office of Materials and Road Research during the past year. Wendel shared best practices at TERRA Board meetings and the 2009 Minnesota Pavement Conference.
- TERRA conducts an **annual process for collecting project ideas** from partners and friends to facilitate opportunities for research collaboration on pavement, materials, and related transportation engineering challenges. During the past year, TERRA received 25 submissions on topics ranging from performance-based incentive contracts to low-cement-content concretes containing industrial waste products.

Communications and Outreach

The TERRA Marketing and Communications Committee is focused on providing up-to-date information about ongoing research, communicating research results to a variety of audiences worldwide, and engaging stakeholders in a dialogue on road research and implementation activities. Highlights from 2009:

- Representatives of cities, counties, and DOTs from the Upper Midwest met in Grand Rapids, Michigan, in July for a **TERRA Innovation Series** event. The half-day event, hosted by Michigan Tech and the Michigan DOT, featured innovative project site visits and Michigan's asset-management initiative, widely considered a model system.
- TERRA sponsored the daylong 13th Annual **Minnesota Pavement Conference** in February. Speakers discussed transportation investment strategies, risk analysis, innovative construction practices, sustainable pavements, and trends in the concrete and asphalt industries.
- Representatives of Scandinavian transportation agencies, as well as members of Minnesota transportation agencies, presented a **seminar on quiet pavement technologies** in May at the University of Minnesota. TERRA, along with several Minnesota members, sponsored the seminar.



13th Annual Minnesota Pavement Conference sponsored by TERRA



Pervious concrete pavement research at MnROAD

TERRA Members

The TERRA Board includes representatives of industry associations, private companies, transportation agencies, and university research organizations who collaborate to set directions for TERRA's research and outreach activities. **Four new member organizations** joined TERRA during the past year, three through a pooled fund recently established to provide more state DOTs the opportunity to become a member of the alliance.

Organizations currently represented on the board are:

Industry

- Aggregate and Ready Mix Association of Minnesota
- American Concrete Pavement Association
- American Traffic Safety Services Association–Northland Chapter*
- Associated General Contractors of Minnesota
- Caterpillar Global Paving
- Concrete Paving Association of Minnesota
- Minnesota Asphalt Pavement Association
- RMC Research and Education Foundation
- Road Science

State and Local Transportation Agencies

- Michigan Department of Transportation
- Minnesota Department of Transportation
- Minnesota Local Road Research Board
- New York State Department of Transportation*
- North Dakota Department of Transportation*
- Wisconsin Department of Transportation*

University Research Organizations

- University of Minnesota
- Iowa State University
- Michigan Technological University

* new member in 2009

National Transportation Agencies

- Norwegian Public Roads Administration
- United States Federal Highway Administration



Asphalt pavement samples at MnROAD