

TERRA 2010 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.



Mike Darter explains SHRP 2 composite pavements research.

Research and Implementation

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 Federal Highway Administration (FHWA) Transportation Pooled-Fund Program. Highlights from 2010:

- Field experiments at MnROAD are at the core of the four-year, \$4 million Strategic Highway Research Program (SHRP 2) project to investigate the design, construction, and performance aspects of composite pavements. Three new test cells were constructed for the study on the 3.5-mile mainline test portion of Interstate 94. Research partners are Applied Research Associates, the Minnesota Department of Transportation (Mn/DOT), the University of Minnesota, the University of California, and the University of Pittsburgh.
- The Technical University of Gdansk and the Swedish National Road and Transport Research Institute (VTI) have agreed to conduct a rolling resistance study at MnROAD. Rolling resistance indicates the energy loss from the tire-pavement friction. Denmark (DRI) is the lead organization for MIRIAM (Models for rolling resistance In Road Infrastructure Asset Management), a project started by 12 partners from Europe and the United States to optimize pavement strategies for reducing CO₂ emissions. FHWA and Mn/DOT are funding the MnROAD study.
- Preliminary findings from a TERRA-initiated project at MnROAD about the impact of farm equipment on rural roads found that the pavement of a typical 7-ton rural road is not strong enough to support repeated applications of heavy loads, and restrictions may be needed to prevent damage. The study, which began in 2008, is in its final year.



European visitors tour research facilities at the University of Minnesota.

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 2010:

- TERRA co-chair André Clover presented an overview of TERRA to a national audience at a research study session during the AASHTO Research Advisory Committee meeting in Kansas City. The meeting brought together private and public research organizations for a unique opportunity to take their research programs to the next level.
- TERRA was featured during a daylong visit in September by members of FEHRL (Forum of European National Highway Research Laboratories) and ECTRI (European Conference of Transport Research Institutes) on a scanning tour of U.S. transportation research facilities. FEHRL and ECTRI, which account for more than 3,800 European transportation researchers, toured facilities and discussed possible partnerships.
- During the past year, TERRA greatly expanded the number of projects considered (17, up from 3) and initiated (5, up from 1). New collaborative research and implementation projects include studying the impact of farm equipment on bridges, accommodating non-permitted trucks in roundabouts, evaluating guide sign fonts, and developing warm-mix asphalt for use in cold regions.

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 2010:

- Sustainability in transportation was the focus of the fourth TERRA Innovation Series event held in Madison, Wisconsin. Participants learned about evolving strategies to reuse and recycle materials as part of asphalt and concrete road projects. The event, held in conjunction with the 2010 Mid-Continent Transportation Research Forum, was hosted by TERRA in cooperation with the Wisconsin Department of Transportation, a TERRA member.
- TERRA added to an ongoing series of fact sheets to highlight timely research topics. The most recent topics feature concrete overlays, an increasingly popular option for extending pavement life, and the Greenroads rating system for sustainable road design and construction. Other fact sheet topics range from warm-mix asphalt and pervious concrete to rumble strips.



14th Annual Minnesota Pavement Conference sponsored by TERRA

- Presentations at the 2010 TERRA Pavement Conference addressed several topics, including innovative low-volume road construction practices, environmentally sensitive road construction and maintenance techniques, and the issue of heavy traffic and loads. The 14th annual event, which featured national and regional speakers, also marked the change of the name of the event to the TERRA Pavement Conference.

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. A key highlight of the year was welcoming the first contractor, Mathy Technology and Engineering Services, as a member.

Organizations currently represented on the TERRA board:

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
- Concrete Paving Association of Minnesota
- Mathy Technology and Engineering Services*
- Minnesota Asphalt Pavement Association
- RMC Research and Education Foundation
- Road Science

* new member in 2010

National Transportation Agencies

- Norwegian Public Roads Administration
- United States Federal Highway Administration

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

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



MnROAD farm road test track damage