



# **Transportation Engineering and Road Research Alliance**

# **STRATEGIC PLAN**

**FY 2009-FY 2013**  
(July 1, 2008 - June 30, 2013)

**February 8, 2012**

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## **STRATEGIC PLANNING BACKGROUND**

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The Transportation Engineering and Road Research Alliance (TERRA) is a new road research governance structure that will facilitate a comprehensive research program, with strategic focus to take advantage of the MnROAD test facility and associated resources. TERRA was created after a task force of government, industry, and academic representatives investigated road research governing structures and evaluated ways to broaden the use of the unique MnROAD research facility.

The Board of Directors conducted an initial planning session on Friday, December 10, 2004 to develop strategic directions and confirm their three-year business plan. In an effort to build national partnerships and maintain a broad perspective in the pavement research area, the TERRA Board invited public and private industry stakeholders to share their expertise and knowledge during this important planning step for the new organization. A full Strategic Planning Meeting Report is available upon request.

In October 2007 the TERRA Board held another strategic planning session to evaluate the status of the organization and provide vision for the next five years. A full report from this meeting is available upon request.

This Strategic Plan highlights the progress made at the strategic planning session held in 2007 and provides further explanation of the long-term direction of the organization. It also includes additions and changes resulting from an annual review by the TERRA Board of Directors.

## **EXTERNAL REVIEW**

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Listed below are external parties who may be interested in outcomes of the TERRA organization in order to gain further knowledge in the road research trend areas described.

### **Customers**

Customers are those that are interested in products and services brought about by the leadership of the TERRA Board and the research using the MnROAD facility. Examples include:

- Transportation engineers
- Transportation policy makers
- Road research personnel
- Product Producers

### **Stakeholders**

Stakeholders include, but are not limited to, the following:

- American Association of State Highway & Transportation Officials (AASHTO)
- State DOTs
- Local and Regional Transportation Organizations
- International Transportation Organizations
- Industry Associations
- Consultants
- Federal Highway Administration
- Legislature
- Materials Suppliers
- Pavement Research Facilities
- Private Industry
- Transportation Research Board (TRB)
- Universities

### **Major Trends**

The major trends in road research are in the following areas:

<b><i>Sustainability</i></b>	Sustainability research includes understanding the impact transportation has on the environment and society, and how it can contribute to achieving sustainability for economic growth, social equity, and a healthy environment. This includes developing innovative uses of alternative materials, sustainable design and construction methods, and recycling of materials from within and outside the industry.
<b><i>Infrastructure Preservation and Rapid Renewal</i></b>	The aging transportation infrastructure needs innovative design, materials and construction techniques that enable preservation and renewal of pavements and structures, with minimal disruption, long-lasting results, and high return on investment.
<b><i>Innovative Construction</i></b>	The goal of Innovative Construction is to quickly deliver high quality, safe, cost-effective transportation projects. This is being developed through the use of alternative contracting and construction methods, innovative design and application of new technologies.

**Major Trends (cont.)**

<i>Safety</i>	Highway safety encompasses a broad field that includes improvements to roads, vehicles, traffic operations, education, enforcement, emergency services and driver behavior.
<i>Congestion</i>	Increased congestion creates emphasis on the need for Innovation in capacity and multi-modal solutions, safety considerations, the need for long life pavements, mobility, and accessibility.

## **TERRA STRATEGY**

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### **Mission**

To develop, sustain, and communicate a comprehensive program of research on pavement, materials, and related transportation engineering challenges, including issues related to cold climates.

### **Vision**

A dynamic partnership of government, industry, and academia that continuously advances innovations in road engineering and construction.

### **Strategic Directions**

- Defining and launching a bold and synergistic research program
- Implementing research results “on the ground”
- Setting up activities that enhance TERRA’s role as a dynamic forum for research interchange
- Expanding TERRA’s membership proactively
- Developing governance and operating structures that assure a thriving, changing, and sustainable organization

## **FIVE-YEAR STRATEGIC DIRECTIONS**

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### **Strategic Direction A: Defining and launching a bold and synergistic research program**

A research agenda that *expands* beyond a MnROAD focus; *leverages* the power of the group; *utilizes* diverse funding sources and sponsors; *engages* and benefits members and *is recognized* nationally

#### *Related goal elements:*

1. TERRA takes on technology/economic challenges within its scope and benefits TERRA members in such areas as CO2 reduction, long-life pavement, 100 % recycling, rapid construction, etc.
2. TERRA leads highly collaborative research
  - Joint work between government and industry and even between competitors in the industry
  - Individual TERRA members support research projects through resource commitments
  - A delivery model that addresses the needs of all partners/stakeholders and defines each party's role in research projects (e.g. project identification, participation in the research process, providing research funding etc.)
3. TERRA is known for its exemplary and effective research

### **Strategic Direction B: Implementing research results “on the ground”**

Successful and visible implementation of transportation engineering and road research applications

#### *Related goal elements:*

1. Research results are put into practice through a “rubber meets the road ” approach
  - Research implementation produces short-term results in new products, services and practices
  - Implement innovations that demonstrate how research costs pay-off in benefits
  - Demonstrate the benefit of shared leadership among industry, academia and government
2. TERRA innovations are implemented elsewhere outside the alliance

### **Strategic Direction C: Setting up activities that enhance TERRA’s role as a dynamic forum for research interchange**

Continuous learning and sharing that enables members to *educate* each other and adapt to politics and a changing world through easily accessible information and ongoing exchange

#### *Related goal elements:*

1. TERRA serves as a “go to” group for...
  - ...communication and exchange of research results and progress to/among target audiences
  - ...new and innovative ideas for discussion, vetting, evaluation
2. Active technology transfer through support mechanisms, information exchange and marketing
3. Proactive marketing and implementation of plans
4. The TERRA research process is recognized as generating credible, effective, and high quality research

**Strategic Direction D: Expanding TERRA’s membership proactively**

New members identified, recruited and invited to increase TERRA’s research breadth, depth and resources

*Related goal elements:*

1. More stakeholders from state, local government, industry, academic/ research sectors are included as members
2. TERRA has champions outside Minnesota including key people from many Departments of Transportation.
3. Proactive recruiting results in a broader membership representing key niches
4. More international participation and research in multiple locations
5. Many things flow and follow from an expanded alliance

**Strategic Direction E: Developing governance and operating structures that assure a thriving, changing, and sustainable organization**

Constant improvement of operational structures, roles, agreements and practices that assure a thriving, sustainable and changing organization

*Related goal elements:*

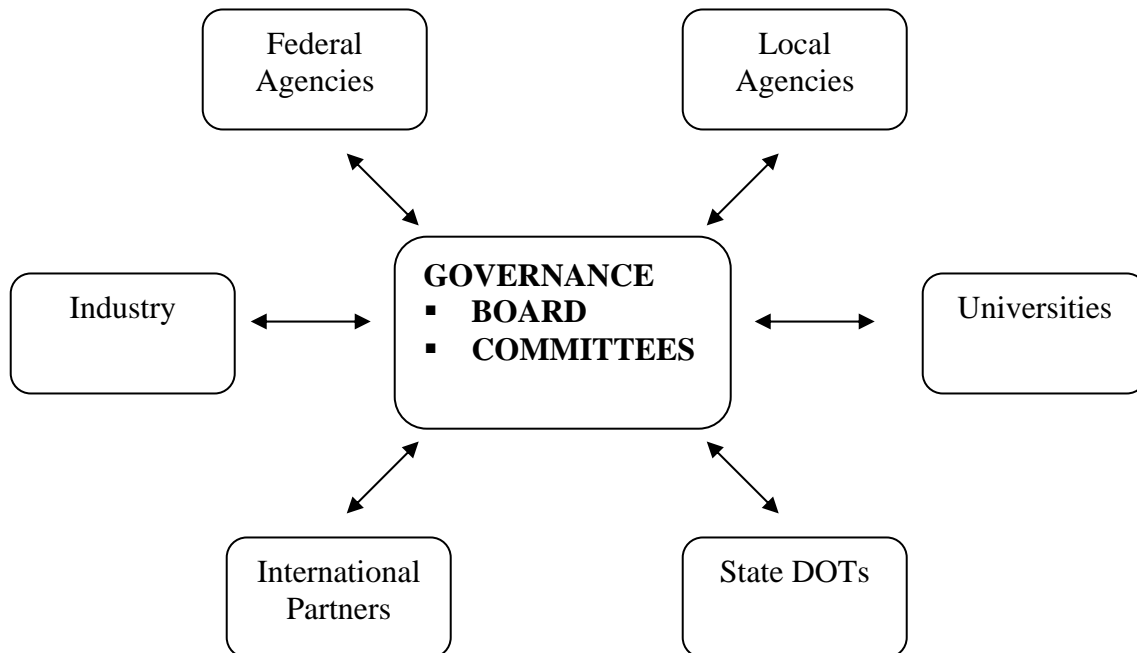
1. Operations have a strategic focus but maintain the ability to be opportunistic and look for near-term gains
2. Financial stability enables TERRA to “make it” and be recognized as an important and necessary research entity
3. A revised structure adds value to partners, engages more members and coordinates member activities effectively
4. TERRA has defined an effective means to develop intellectual property rights (e.g. set up a “Rent a Site” facility or cell, find other ways to conduct cooperative research, address the proprietary nature of TERRA research, etc.)

## TERRA BOARD

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### TERRA Board Members

The Board will be comprised of key partner representatives that come together around the shared mission statement. A Coordinating Committee of the Board will provide leadership and strategic guidance of Board activities. Membership on the TERRA Board and Coordinating Committee will initially be by invitation from the Commissioner. The Coordinating Committee will be responsible for establishing board membership criteria and appointing additional board members. The TERRA Board will be led by one public sector and one industry co-chair. The figure below illustrates the relationships envisioned for key partners.



Membership on the Board is extended to those entities willing and able to commit substantial resources, either in-kind or monetary, over a sustained period of time.

Founding members of the TERRA Board include:

*MnDOT*, as owner and operator of MnROAD and ongoing funder and conductor of pavement research, will have four Board members including:

- Director, Engineering Services Division
- Director, Office of Materials and Road Research
- Director, Office of Capital Programs and Performance Measures
- Director, State Aid Division

The *Local Road Research Board (LRRB)* and its Research Implementation Committee, as a strong and long-time financial supporter of pavement research and the MnROAD facility, will have two Board members including:

- Two LRRB representatives

*University of Minnesota*, as a key partner in the development of MnROAD, conductor of pavement research, pursuer of pavement research funds, and resource for the technology transfer, education, and outreach based on pavement research results, will have two Board members including:

Director, Center for Transportation Studies  
Head, Department of Civil Engineering

*Industry*, as a key partner in delivering pavement products based on research and an expected sustained contributor through in-kind or monetary resources. Board members will be invited from both the Minnesota and national chapters of:

Asphalt Pavement Association  
Aggregate and Ready-Mix Association  
Concrete Paving Association  
Associated General Contractors of Minnesota

*Federal Highway Administration*, as an on-going funder for the construction and re-construction of the MnROAD Facility and for pavement research, will have two Board members including:

Administrator, FHWA Minnesota Division  
Representative from FHWA Pavement Technology Program

*TERRA Resources*. To ensure the success of TERRA, key resources to the Board include:

Manager, Minnesota Road Research Section, Office of Materials and Road Research, Minnesota Department of Transportation  
Research Operations Engineer, Office of Materials and Road Research, Minnesota Department of Transportation  
Manager of Outreach Services and Events, Center for Transportation Studies (CTS)  
Program Coordinator, Center for Transportation Studies (CTS)

## **TERRA Board Roles**

### *Board Leadership*

The TERRA Board will be led by one public sector and one industry Co-Chair with staggered two-year terms.

### *Board Membership*

Membership to the TERRA Board will require the following commitments:

- Demonstrate a long-term commitment to transportation engineering and road-related research by contributing a membership fee or providing other TERRA-approved ongoing resources for the general support of TERRA.

From this commitment, Board members will be able to:

- Assist in development of the pavement and road-related research program at MnROAD
- Gain access to local and national leaders in the pavement and road-related research field
- Develop partnerships with local and national organizations
- Participate on TERRA Board, committees, and task forces
- Stay abreast of current pavement and road-related research projects at the MnROAD facility and of other board member sponsored research
- Receive communication of research results and TERRA activities

After initial membership invitation by the Commissioner, the Coordinating Committee will make final decisions on Board membership. In a situation where the Coordinating Committee is unsure if an organization meets the defined criteria, the case will be brought to the Board for discussion.

### *Board Responsibilities*

The Board will provide leadership in the following functions:

- Communication– Serve as a forum for exchange of information and sharing of ideas.
- Policy Direction – Set the rules for participation and conduct of partnership activities.
- Strategic Planning – Develop long-range plans for funding, research focus areas, and knowledge transfer to partners and the public.
- Action Planning – Monitor the implementation of projects and programs to ensure measurable progress is made toward goals and objectives.
- Advocacy – Serve as “champions” to advance the purpose of the organization.
- Partnership Formation – Encourage and facilitate new partnerships that add knowledge and relevance to the Board’s efforts.
- Financing – Assist in the acquisition of funding and in-kind contributions of needed resources.

### *Member Duties*

Each key partner will be asked to share responsibility in the following duties. The level of participation and role will vary with each partner as appropriate.

- Funding - Attract funding; Provide funding and/or in-kind resources
- Research - Identify research ideas/needs; Provide technical assistance and contribute knowledge; Conduct applied research; Conduct basic research; Collaborate in research efforts
- Technology Transfer - Perform and promote outreach and technology transfer; Build professional capacity; Implement proven results
- Education - Perform and promote education activities
- Program Management - Manage special projects; Manage the MnROAD facility; Participate in program management; Support the Board

## **TERRA Board Committees and Task Forces**

### *TERRA Board Committees*

The Board will be assisted in accomplishing its mission through the use of functional committees as appropriate. Participation will be limited to TERRA Board members and resources staff, or an appropriate designee. Criteria for TERRA committees include:

- Established for a clearly defined function needed for TERRA
- Will need to address issues on a recurring basis for the long-term

Initial Committees include:

- Coordinating Committee
- Member and Partner Engagement Committee
- Research and Implementation Committee
- Marketing and Communications Committee

### *TERRA Board Task Forces*

The Board may also develop a task force to assist in various duties. A TERRA task force will be:

- Established for a short-term, one-time initiative
- Established for a function that may eventually require a committee, but needs more evolution

TERRA Board members, resource staff, and project partners may participate in a TERRA task force.

## **TERRA PARTNERS AND FRIENDS**

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### **TERRA Partners**

TERRA project partners are those who:

- Provide financial or in-kind commitments or research services for pavement or road-related research projects of mutual interest with TERRA

From these requirements, project partners will gain:

- Access to MnROAD research
- Participation on project-related TERRA task forces
- Receive communication of research results and TERRA activities
- The opportunity to be a guest at TERRA committee and board meetings

### **Friends of TERRA**

Friends of the TERRA organization will be defined as:

- Those persons or groups interested in the TERRA organization and its activities

TERRA friends will:

- Receive communication of research results and TERRA activities