TWO CONFERENCES - ONE PLACE
February 4-5, 2014 • Minneapolis, Minnesota

Road Dust BEST MANAGEMENT Practices
& TERRA Pavement Conference
The Transportation Engineering and Road Research Alliance (TERRA) and the Road Dust Institute (RDI) would like to welcome you to their 2014 annual conferences. Jointly held in Minneapolis, MN at the Earle Brown Heritage Center, local, state and county road practitioners, as well as researchers and federal agencies have come together to identify best practices and lessons learned at the 3rd Road Dust BEST MANAGEMENT Practices Conference.

The 18th Annual TERRA Pavement Conference kicks off on February 5th. This one-day conference presents sessions that examine current practices and implementation of new pavement research and technology. National and local trends and innovations will be examined to expand attendee understanding of pavement challenges and solutions.

We welcome city and county engineers, public works officials, street and maintenance superintendents, managers, design and consulting engineers, contractors and others to these two events. We hope you find benefit in the co-location of such events and take advantage of the many networking opportunities available.

The Transportation Engineering and Road Research Alliance (TERRA) is a dynamic partnership of government, industry, and academia that continuously advances innovations in road engineering and construction. TERRA’s mission is “To develop, sustain and communicate a comprehensive program on research on pavement, materials, and related transportation engineering challenges including issues related to cold climates.”

The Road Dust Institute (RDI) provides tools to manage dust on transportation facilities through research, education and technology transfer thereby supporting improvements in health, safety, mobility, environmental sustainability and livability. RDI’s unique knowledge, experience and capabilities provides for collaboration, partnering and consolidation of resources to address the needs of industry, government and other stakeholders to reduce the impacts of dust.
The layout for the Earle Brown Heritage Center is provided here. All meetings and events will be held in the Tack Room (left), Captain’s Room (below) or Carriage Hall (below left).

Exhibitors

The following companies and organizations will have exhibits in the Carriage Hall throughout both conferences:
**Both the Road Dust BEST MANAGEMENT PRACTICES Conference and the TERRA Pavement Conference will be held at the Earle Brown Heritage Center.**

7:30 am  
**Registration**, Registration Area - Carriage Hall

8:30 - 10:00 am  
**Opening Session - Quantifying the Issues Associated with Dust**, Carriage Hall A

- New Developments in Formalizing Unpaved Road Management Procedures with Special Emphasis on Chemical Treatments  
  - Dave Jones, University of California Pavement Research Center
- Results from RDI User Survey  
  - Billy Connor, University of Alaska-Fairbanks
- Panel Discussion - What Are Evolving Needs Within the Industry?  
  - Dave Jones, University of California Pavement Research Center
  - Billy Connor, University of Alaska-Fairbanks
  - Ken Skorseth, SDSU/SDLTAP
  - TBA, industry representative

8:30 am - 12:00 pm  
**Vendor Setup**, Carriage Hall B

10:00 - 10:30 am  
Break, Registration Area outside Carriage Hall
<table>
<thead>
<tr>
<th>SESSION A1: Performance Evaluation of Materials, Tack Room A</th>
<th>SESSION A2: Environmental, Tack Room B</th>
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<tbody>
<tr>
<td>Performance and Longevity of Dust Control Palliatives in Relation to Fines Content</td>
<td>Advances in State of Knowledge of Environmental Impacts of Dust Palliatives in the Past Decade</td>
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<td>Dave Barnes and Billy Connor, University of Alaska-Fairbanks</td>
<td>Dave James, University of Nevada-Las Vegas</td>
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<td>There are a number of different devices that have been used by researchers to measure particulate matter (dust) that is lofted from gravel roads and runways. This presentation describes how the University of Alaska-Fairbanks measures performance and longevity of dust control palliatives.</td>
<td>This presentation reviews major studies completed and summarizes progress in the state of road dust control practices since the 2002 EPA workshop “Potential Environmental Impacts of Dust Suppressants: Avoiding Another Times Beach”.</td>
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<tr>
<th>Life-Cycle Cost Effects of Calcium Chloride Treatment: Issues and Answers</th>
<th>Field Tests of Dust Product Performance and Environmental Safety at Hagerman National Wildlife Refuge, Texas</th>
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<tr>
<td>George Huntington and Khaled Ksaiht, Wyoming LTAP</td>
<td>Bethany Kurz and Edward Little, US Geological Survey</td>
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<td>This presentation discusses the methods used to derive the inputs to a regression model predicting surface maintenance costs, including both strengths and weaknesses.</td>
<td>Road managers on Federal and Tribal Lands face particular challenges in controlling fugitive dust while protecting natural resources. This presentation will present the results of a collaboration between USGS and the USFWS to identify and test several non-toxic dust control products.</td>
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<tr>
<th>Alternative Solution for Unpaved Road Preservation</th>
<th>Dust Control Practices Used in the North Dakota Oil Patch</th>
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<tr>
<td>Chet Siefring, Midwest Industrial Supply, Inc.</td>
<td>William Anderson, North Dakota State University, Upper Great Plains Transportation Institute, LTAP</td>
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<tr>
<td>County and Township officials face challenges in preserving the integrity of unpaved roads. This presentation provides almost two years’ worth of data supporting an alternative solution to unpaved road preservation.</td>
<td>The Oil Patch in North Dakota has undergone rapid change in recent years. This presentation will discuss the hands on dust control practices currently being used as well as reviewing the traffic impacts associated with the oil industry. A review of the 2012 research by Mr. Francis Schwindt on “Investigation of Methodologies to Control Dust on County Roads in Western North Dakota,” and additional studies and procedures used on North Dakota county roads in relation to EPA AP423 calculations for fugitive dust emissions will also be covered.</td>
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<td>Thomas Wood and Eddie Johnson, Minnesota Department of Transportation</td>
<td>Gordon Keller, US Forest Service, Retired</td>
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<td>It is estimated that Minnesota generates more than 200,000 tons of shingle waste each year. One possible use would be to improve the performance of gravel surfacing and reduce dust. MnDOT, in conjunction with Jackson and Goodhue County, recently completed a research project that does that. This presentation will give the results of the project.</td>
<td>Fines loss from unpaved roads is not only a dust problem, it can also pollute nearby streams. Best management practices to control this problem have been developed and implemented by the US Forest Service and need to be taken into consideration when managing roads close to streams and water bodies.</td>
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10:30 am - 12:00 pm Concurrent Breakout Sessions, Tack Room A & B (see below)
# Road Dust BEST MANAGEMENT Practices Conference

## Tuesday, February 4th

### 1:00 - 2:30 pm  
Concurrent Breakout Sessions, Tack Room A & B (see below)

| SESSION B1: Dust Monitoring Methods, Tack Room A  
Moderated by Eli Cuchlo, Western Transportation Institute | SESSION B2: Vendor Session: New Products, Methods and Approaches, Tack Room B  
Moderated by Laura Fay, Western Transportation Institute |
|---|---|
| **How Dusty are Your Haul Roads? A Cutting Edge Approach to Measuring Your Controls**  
Judith Cox, Pacific Environment - Australia  
Increased public and regulatory scrutiny surrounding pollution by coal mining operations in Australia required a better understanding of the causes of variability of particulate emissions and the development of Best Practice Management. This presentation reports on the results of a research grant to better understand how emissions can be measured and managed. | **Comparing Dust Control Products**  
Joe Althouse, Occidental Chemical Corporation  
In dust control applications, chloride-based solutions often compete against each other, however there is no clear consensus regarding the concentrations and application rates that deliver equivalent performance. This presentation will show comparison data and explain how to determine equivalent application rates for common chloride-based dust palliatives. |
| **Standardization of Test Methods for Road Dust Control Performance Monitoring**  
Chatten Cowherd, Jr. retired (MRIGlobal) and Dave James, PhD, PE, University of Nevada-Las Vegas  
This presentation outlines the method standardization process and describes that status of published test methods that are applicable to road dust control performance monitoring including fence-line methods. | **Ionic Soil Stabilization Technology of Clay-Based, Gravel Roads**  
Rhino Rohrs, Rhide Technologies, Inc.  
Where clay is present in road bases, the effects of rain can cause severe rutting and maintenance problems. This presentation will be an overview of how Ionic Stabilization can mitigate problems caused by clay in the road base. |
| **Evaluate Dust Emissions Under Different Moisture Levels Using a Mobile Monitoring System**  
Dongzi Zhu, John Gillies and Vicken Etymezian, Desert Research Institute  
Unpaved road dust emission factor is a function of soil moisture level. It is difficult to evaluate unpaved dust emission factors under different moisture levels using the traditional AP42 silt content method. Using the TRAKER mobile road dust sampling platform, unpaved road emission factors under different soil moisture levels were tested at the Dugway Proving Ground, Utah. Data from treatment effectiveness tests at the Ocotillo Wells Park in California will also be discussed. | **Smart Roads. Healthy Roads.**  
Matt Dillon and Kyle Brown, North American Salt Company, A Compass Minerals Company  
County road budgets are tight and everyone is looking for ways to stretch their maintenance dollars. This presentation illustrates how the use of magnesium chloride is cost effective for both dust control and gravel road maintenance. |

### 2:30 - 2:45 pm  
Break, Carriage Hall

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Innovative Solutions for Fines Preservation and Road Surface Management  
David Justus, Midwest Industrial Supply, Inc.  
This presentation will discuss fines preservation and road surface management.
Road Dust BEST MANAGEMENT Practices Conference

Tuesday, February 4th

2:45 - 4:30 pm  
RDI Rollout and Membership Listening Session, Carriage Hall

RDI Business Plan - presented by Dave Jones, University of California Pavement Research Center

RDI Website - presented by Billy Connor, University of Alaska-Fairbanks

Facilitated Discussion - What do you want from RDI?
Laura Fay, Western Transportation Institute

7:00 pm  
Welcome Reception RDI & TERRA, Carriage Hall
7:30 am  Registration, Registration Area - Carriage Hall

7:30 - 8:15 am  Vendor Breakfast, Carriage Hall

8:15 - 10:00 am  Opening Plenary TERRA PAVEMENT CONFERENCE, Carriage Hall

8:15 – 8:35  Welcome 
Moderated by Mark Maloney, Public Works Director, City of Shoreview
Rory Rhinesmith, Deputy Administrator, Wisconsin Department of Transportation and TERRA Past Chair

8:35-8:45  Gerald Rohrbach Award Presentation
Rick Kjonaas, Deputy State Aid to Local Transportation Engineer, Minnesota Department of Transportation

8:45 – 9:20  Sustainability in Pavements: A Journey and Not a Destination
Kurt Smith, Program Director, Applied Pavement Technology, Inc.

As sustainability considerations begin to take root, there is some uncertainty as to what “sustainability” means to a roadway agency and how a roadway agency should work to be more “sustainable.” This presentation will describe why sustainability is relevant to the pavement community, emphasizing the importance of agency and project specific goals for sustainability solutions, and providing strategies for incorporating sustainability into all phases of a pavement life cycle.

9:20 – 10:00  Impact of Implements of Husbandry on Bridges, Communities and Transportation Infrastructure
Rory Rhinesmith, Deputy Administrator, Wisconsin Department of Transportation and TERRA Past Chair

The size and weight of agricultural equipment has increased over time to meet productivity and functionality needs in the field. This increase has reached a point where it is having a negative impact on public roads and bridges. This presentation will review the study on Implements of Husbandry in Wisconsin, discussing the process, study outcomes, and recommendations that attempted to strike a balance between Wisconsin’s vital and diverse agricultural industry and the need to protect the public’s investment in state and local roads and bridges while providing for safe travel for all users.

10:00 - 10:30 am  BREAK (time with Vendors), Carriage Hall
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<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>10:30 am - 12:00 pm</td>
<td><strong>Concurrent Breakout Sessions</strong></td>
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<td><strong>RDI</strong></td>
<td><strong>Selecting and Specifying Chemical Treatments for Unpaved Roads and Airports</strong>&lt;br&gt;Moderated by Deanna Pinkham, Compass Minerals</td>
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<td>New Tools for Selecting Unpaved Road Chemical Treatments&lt;br&gt;<em>Dave Jones</em>, University of California Pavement Research Center</td>
<td>A new procedure for ranking the selection of unpaved road chemical treatments has recently been developed on behalf of the FHWA. An overview of the procedure will be provided and the Internet version of the tool will be demonstrated.</td>
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<td>Generic Specifications for Sourcing and Applying Unpaved Road Chemical Treatments&lt;br&gt;<em>Dave Jones</em>, University of California Pavement Research Center</td>
<td>Calcium chloride is the only dust suppressant that carries a formal ASTM specification, which complicates the procurement of any of the approximately 200 proprietary products available. Provisional generic specifications have been developed for each category and subcategory of unpaved road chemical treatment.</td>
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<td>Implementing Chemical Treatment Specifications on Projects in Alaska&lt;br&gt;<em>Billy Connor</em>, University of Alaska - Fairbanks</td>
<td>The Alaska Department of Transportation and Public Facilities (AKDOT) has applied dust palliatives to 65 runways over the last few years. During that period, AKDOT has developed a set of specifications which include environmental requirement and performance specifications using the equipment developed at the University of Alaska Fairbanks. This presentation will discuss the evolution of those specifications including the successes and challenges.</td>
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<td><strong>TERRA</strong></td>
<td><strong>Concrete Pavements</strong>&lt;br&gt;Moderated by Steve Krebs, Wisconsin Department of Transportation&lt;br&gt;Tack Room, A/B</td>
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<td>Colored Concrete Pavements- Are They Here To Stay?&lt;br&gt;<em>Tom Burnham</em>, Minnesota Department of Transportation</td>
<td>Presentation of the final results from the Minnesota Local Road Research Board - sponsored research on the causes of rapid deterioration of colored concrete.</td>
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<td>Updated Guide for Concrete Pavement Preservation&lt;br&gt;<em>Kurt Smith</em>, Applied Pavement Technology, Inc.</td>
<td>Presentation summarizes the National Concrete Pavement Technology Center’s updated guide to assist state and local agencies in selecting and constructing preservation treatments for concrete pavements.</td>
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<td>Non-Destructive Testing for Concrete Pavement Thickness Quality Assurance&lt;br&gt;<em>Mark Dunn</em>, Iowa Department of Transportation</td>
<td>Presentation will detail the Iowa DOT’s use of the MIT-Scan-T2 device for determining concrete pavement thickness for quality assurance and incentive payment.</td>
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<tr>
<td>12:00 - 1:00 pm</td>
<td><strong>LUNCH (provided), Carriage Hall</strong></td>
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<td><strong>RDI Conference Concludes</strong></td>
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1:00 - 2:30 pm  Concurrent Breakout Sessions

TERRA - Low Volume Road Topics, Captain's
Moderated by Joel Ulring, Minnesota Department of Transportation

Use of High Float Roadways In Alaska
Billy Connor, University of Alaska - Fairbanks
High Float Emulsion over dense graded base courses have been used since the mid-1980’s as the predominant surface for roadways in rural Alaska. The presentation will discuss the design, use and performance of “High Float.”

TERRA - Asphalt Pavements, Tack Room A/B
Moderated by Jerry Geib, Minnesota Department of Transportation

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Types of Asphalt Failures
Ervin Dukatz, Mathy Construction Co.
Presentation on types of asphalt pavement failures and the issues that may have caused them.

Minnesota’s Experience with Lightly Surfaced Roads
Eddie Johnson, Minnesota Department of Transportation
A review of the performance of thin bituminous surfacing as used on Minnesota’s state, county, and city road systems.

Consistency Matters: Use of Infrared and Ground Penetrating Radar for Asphalt Pavements
Greg Johnson and Shangtao Dai, Minnesota Department of Transportation
Presentation on the use of infrared surface temperature profiles during construction to achieve uniformity and the use of ground penetrating radar to measure density of asphalt pavements.

Quantifying and Communicating the Effect of Heavy Vehicles on Pavements
W. James Wilde, Minnesota State University
Research results on the impacts of heavy vehicles (wind turbine construction, garbage haulers, etc.) on pavement structures have been incorporated into a simple tool. Communicating the impacts effectively to the public and decision-makers can be just as important as quantifying them accurately.

Asphalt Aging - What Does It Mean? Pooled Fund Study Update
Tom Wood, Minnesota Department of Transportation
Presentation on the findings of the MnROAD pooled fund study on measuring asphalt aging, and how it relates to pavement performance.

2:45 - 3:15 pm  Break (time with Vendors), Carriage Hall

3:15 - 4:45 pm  Closing Plenary, Carriage Hall
Moderated by Maureen Jensen, Minnesota Department of Transportation

“Don’t Shoot the Messenger” - Communicating Transportation Needs to Local Citizens and Officials
Rick West, Otter Tail County Engineer and Sue Miller, Freeborn County Engineer
This presentation will provide background information and the current status of the Systems Preservation Study, a MN Local Road Research Board project. Two counties will describe their individual approaches in educating and communicating the study’s results, strategy selections and what changes these efforts will bring about in their highway system preservation management.

Manitoba’s Winter Roads: From “Eh” to Z
Larry Halayko, Director of Contract Services, Manitoba Infrastructure and Transportation Department
An overview of Manitoba winter (ice) roads including construction techniques, challenges and successes.

Pavement Preservation Effectiveness: Lessons Learned
Dave Peshkin, Vice President, Applied Pavement Technology, Inc.
Mr. Peshkin will share his experiences on evaluating pavement preservation program cost effectiveness based on several projects. His “lessons learned” may be helpful to other agencies interested in knowing more about the cost-effectiveness of their own preservation programs.