



13th TRB International Conference on Low Volume Roads

JULY 23–26, 2023

Cedar Rapids, IA

Convened by

Transportation Research Board

Supported by

Federal Highway Administration

Iowa Highway Research Board

Bureau of Land Management

Institute for Transportation - Iowa State University

Sponsored by

AKD30 Standing Committee on Low-Volume Roads

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WELCOME FROM LAURA FAY & KEITH KNAPP COMMITTEE CHAIRS

On behalf of the conference steering committee and Low Volume Roads committee, it is our honor to welcome you to Cedar Rapids, Iowa for the TRB 13th International Conference on Low Volume Roads. After 44 years, we are happy to have the conference back in Iowa where about 75% of all roads and bridges are owned and maintenance by local agencies and are a part of a LVR network.

The 2023 Low Volume Roads conference continues the long tradition of holding a conference every four years since 1975 to provide a forum for the exchange of information and innovative ideas on all aspects of low volume roads planning, finance, design, construction, maintenance, operations, and safety. Building off changes implemented at the 2019 International Conference on Low Volume Roads held in Kalispell, MT, this conference includes hands-on Sunday workshops from which attendees will be able to walk away with readily implementable knowledge; hybrid poster sessions, which include a brief presentation by the author on the main take home messages; and mini workshop sessions that demonstrate applications or tools.

We have six Sunday workshops, covering rural road design using the dynamic cone penetrometer, bridge technology, remote sensing tools from drone to satellite imagery, application of validated intelligent compaction technology, safe system approach for roadway departures, and workforce recruitment and retention. The workshops are followed by the welcome reception and opening exhibits. Monday morning sees the opening session with welcome messages from the hosts and keynote addresses on the history of transportation research in Iowa, the Bipartisan Infrastructure Law in the United States, and innovations in low volume road technologies in developing countries. This is followed by a packed program with 24 technical sessions, including four lightning or hybrid poster sessions which combine a 3-minute podium presentation by each author along with meet-the-author poster discussions. We also have 10 U.S. state departments of transportation as a pooled fund project hosting a session and discussing the opportunities provided by the Bipartisan Infrastructure Law here in the United States. Monday night will cap off a day of presentations with Iowa Night hosted by the Iowa County Engineers Association. Tuesday afternoon is dedicated to a field trip that will highlight a unique concrete bridge, methods used to upgrade low volume roads, a rural roundabout, an application of an Ota seal, and the collection of unpaved road strength data using Validated Intelligent Compaction (VIC), followed by an evening of networking. The last day of the conference will provide more technical sessions, invited speakers and afternoon of mini-workshops, followed by the closing session.

Registrations are indicating a diverse local and international audience with the broad knowledge base. We look forward to meeting each of you, learning from all of you, and working with you to implement the knowledge that will be shared.

Finally, we would like to thank everybody who has contributed to making the conference a success, with special thanks to the organizing committee, TRB, Iowa local host, the pooled fund states, and the conference patrons.

Laura Fay

Chair of the Standing Committee on Low-Volume Roads (AKD30)

Keith Knapp

Chair of the 13th Low Volume Roads Conference Planning Committee



Laura Fay



Keith Knapp

PLANNING COMMITTEE

This conference would not have been possible without the combined efforts of many individuals and organizations.

LOW-VOLUME ROADS CONFERENCE PLANNING COMMITTEE

Keith Knapp, Iowa State University; LTAP, Chair

Alex Campbell, Anyway Solutions

Andrew Ceifetz, WSP

Eric Chase, Pennsylvania State University

Alex Davis, Buchanan County, Iowa

Vanessa Goetz, Iowa Department of Transportation

Maria Guercio, Federal Highway Administration

Sam Johnson, The World Bank

Dave Jones, UC Davis

Ning Li, Virginia Department of Transportation

David Orr, Cornell Local Roads Program

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Ricky Mitchell

Hesamaddin Nabizadeh

Inya Nlenanya

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Bruce Millar, Deputy Director, TRB Meetings Department; Joanie L. Johnson, Operations Coordinator

Emily Gribbin, Senior Meetings Assistant

The Transportation Research Board is one of seven major programs of the National Academies of Sciences, Engineering, and Medicine. The mission of the Transportation Research Board is to increase the benefits that transportation contributes to society by providing leadership in transportation innovation and progress through research and information exchange, conducted within a setting that is objective, interdisciplinary, and multi-modal. The Board's varied committees, task forces, and panels annually engage about 7,000 engineers, scientists, and other transportation researchers and practitioners from the public and private sectors and academia, all of whom contribute their expertise in the public interest. The program is supported by state transportation departments, federal agencies including the component administrations of the U.S. Department of Transportation, and other organizations and individuals interested in the development of transportation.

www.TRB.org

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SCHEDULE AT-A-GLANCE

Sunday, July 23, 2023		
8:00 AM–5:30 PM	Registration	<i>First Floor Pre-function</i>
9:00 AM–12:00 PM Concurrent Morning Workshops	Workshop #1: Rural Road Design Using the Dynamic Cone Penetrometer: A Paradigm Shift	<i>Grand Ballroom A</i>
	Workshop #2: Bridge Technology for Low Volume Roads	<i>Grand Ballroom B</i>
	Workshop #3: Remote Sensing Tools from Drones to Satellite Imagery in Low Volume Road Management	<i>Grand Ballroom C</i>
12:00 PM–1:30 PM	Lunch (on your own)	
1:30 PM–4:30 PM Concurrent Afternoon Workshops	Workshop #4: Iowa's Use of Validated Intelligent Compaction Technology to Improve Pavement Foundation Layers and Unpaved Granular Roads	<i>Grand Ballroom B</i>
	Workshop #5: A Safe System Approach for Roadway Departures on Low Volume Roads	<i>Grand Ballroom A</i>
	Workshop #6: Finding, Retaining, and Training the Workforce to Maintain Low Volume Roads	<i>Grand Ballroom C</i>
5:00 PM–6:30 PM	Exhibits Open and Welcome Reception	<i>Pre-function & Taft A/B</i>
Monday, July 24, 2023		
7:00 AM–5:00 PM	Registration	<i>First Floor Pre-function</i>
7:00 AM–8:00 AM	Conference Breakfast	<i>First Floor Pre-function</i>
8:00 AM–10:00 AM	Opening Plenary Session	<i>Exhibit Hall B/C</i>
10:00 AM–10:30 AM	Break	<i>First Floor Pre-function</i>
10:30 AM–12:00 PM Concurrent Sessions	Session 4: New Technologies & Innovations	<i>Grand Ballroom B</i>
	Session 5: Drainage	<i>Grand Ballroom A</i>
	Session 6: Special Applications: Airports & Cold Regions	<i>Grand Ballroom C</i>
12:00 PM–1:30 PM	Lunch	<i>Exhibit Hall B/C</i>
1:30 PM–3:00 PM Concurrent Sessions	Session 7: Pavement Maintenance and Preservation	<i>Grand Ballroom B</i>
	Session 8: Data Driven Safety and Operational Analysis	<i>Grand Ballroom A</i>
	Session 9: Forest Road Building	<i>Grand Ballroom C</i>
3:00 PM–3:30 PM	Break	<i>First Floor Pre-function</i>

MONDAY, CONTINUED >>

SCHEDULE AT-A-GLANCE

CONTINUED FROM PAGE 3

3:30 PM–5:00 PM Concurrent Sessions	Session 10: Geotechnical, Stabilization, and Dust Control	<i>Grand Ballroom B</i>
	Session 11: Safety Practices and Applications	<i>Grand Ballroom A</i>
	Session 12: Asset Management	<i>Grand Ballroom C</i>
6:00 PM	Affiliate Event: Iowa Night, Hosted by the Iowa County Engineers Association	<i>Off Site Event</i>
Tuesday, July 25, 2023		
7:30 AM–1:00 PM	Registration	<i>First Floor Pre-function</i>
7:30 AM–8:30 AM	Conference Breakfast	<i>First Floor Pre-function</i>
7:30 AM–8:30 AM	Low Volume Roads (AKD30) Committee Meeting	<i>Room 310</i>
8:30 AM–10:00 AM Concurrent Sessions	Session 13: Pavement Design and Construction	<i>Grand Ballroom B</i>
	Session 14: Bridges and Structures	<i>Grand Ballroom A</i>
	Session 15: Vulnerable Users of Low Volume Roads	<i>Grand Ballroom C</i>
10:00 AM–10:30 AM	Break	<i>First Floor Pre-function</i>
10:30 AM –12:00 PM Concurrent Sessions	Session 16: Climate Resiliency	<i>Grand Ballroom B</i>
	Session 17: Training & Research: Past, Present, Future	<i>Grand Ballroom A</i>
	Session 18: Bipartisan Infrastructure Law Opportunities for Low Volume Roads	<i>Grand Ballroom C</i>
12:00 PM–1:00 PM	Lunch	<i>Exhibit Hall B/C</i>
1:00 PM–5:00 PM	Conference Field Trip	
6:00 PM–8:00 PM	Conference Network Reception	<i>Exhibit Hall B/C</i>



SCHEDULE AT-A-GLANCE

Wednesday, July 26, 2023		
7:30 AM–3:30 PM	Registration	<i>First Floor Pre-function</i>
7:30 AM–8:30 AM	Conference Breakfast	<i>First Floor Pre-function</i>
8:30 AM–10:00 AM Concurrent Sessions	Session 19: Pavement Testing and Analysis	<i>Grand Ballroom B</i>
	Session 20: Pay Me Now or Pay Me Later – Pay me Pay Me Now or Pay Me Later - Sustainable Pavements	<i>Grand Ballroom A</i>
	Session 21: Innovations from Local Practitioners	<i>Grand Ballroom C</i>
10:00 AM–10:30 AM	Break	<i>First Floor Pre-function</i>
10:30 AM–12:00 PM Concurrent Sessions	Session 22: Unpaved Road Issues	<i>Grand Ballroom B</i>
	Session 23: Policy, Planning, and Economics	<i>Grand Ballroom A</i>
	Session 24: Building the Pipeline for Our Future Transportation Workforce	<i>Grand Ballroom C</i>
12:00 PM–1:30 PM	Lunch	<i>Exhibit Hall B/C</i>
1:30 PM–3:00 PM Concurrent Workshops	Session 25: Mini Workshop – Road Surfaces	<i>Grand Ballroom B</i>
	Session 26: Mini Workshop – Paved Road Management and Monitoring	<i>Grand Ballroom A</i>
	Session 27: Mini Workshop – Geotechnical Issues and Truck Weights	<i>Grand Ballroom C</i>
3:00 PM–3:30 PM	Break	<i>First Floor Pre-function</i>
3:30 PM–5:00 PM	Closing Plenary Session	<i>Exhibit Hall B/C</i>
5:30 PM–7:30 PM	A0040C Rural Transportation Issues Coordinator Council Meeting	<i>Room 310</i>
Thursday, July 27, 2023		
7:30 AM–9:00 AM	LVR2023 Conference Committee Meeting (MEMBERS ONLY)	<i>Room 310</i>
7:30 AM–4:00 PM	Optional Affiliated Event: Iowa Bridge Site Bus Tour & Workshop, Sponsored by: Buchanan County, Iowa and the Short Span Steel Bridge Alliance	

EXHIBITS ARE LOCATED IN PRE-FUNCTION & TAFT A/B

Exhibit Hours:

Sunday, July 23, 5:00 PM–6:30 PM (Opening/Reception)

Monday, July 24, 7:30 AM–3:30 PM

Tuesday, July 25, 7:30 AM–1:30 PM

CONFERENCE PROGRAM



To view the conference program online, scan the QR code or go to: <https://qrco.de/be80lB>

SUNDAY, JULY 23, 2023

8:00 AM–5:30 PM

Registration

First Floor Pre-function

9:00 AM–Noon

SESSION 1: Sunday Morning Workshops

Workshop #1: Rural Road Design Using the Dynamic Cone Penetrometer: A Paradigm Shift

Grand Ballroom A

- Mike Pinard, InfraAfrica Consultants
- Gerrie van Zyl, Mycube Asset Management Systems

Workshop #2: Bridge Technology for Low Volume Roads

Grand Ballroom B

- Justin Dahlberg, Iowa State University
- Guy Nelson, Valmont Industries
- Jim Wacker, United States Department of Agriculture (USDA) Forest Products Laboratory
- Brian Keierleber, Buchanan County, Iowa
- Zhengyu Liu, Iowa State University

Workshop #3: Remote Sensing Tools from Drones to Satellite Imagery in Low Volume Road Management

Grand Ballroom C

- Colin Brooks, and Richard Dobson, Michigan Tech University
- Halil Ceylan, Iowa State University



Noon–1:30 PM

LUNCH (on your own)

1:30 PM–4:30 PM

SESSION 2: Sunday Afternoon Workshops

Workshop #4: Iowa's Use of Validated Intelligent Compaction (VIC) Technology to Improve Pavement Foundation Layers and Unpaved Granular Roads

Grand Ballroom B

- David White, Ingios Inc.
- Melissa Serio, Iowa Department of Transportation (IowaDOT)
- Brian Moore, Iowa County Engineers Association Service Bureau

Workshop #5: A Safe System Approach for Roadway Departures on Low Volume Roads

Grand Ballroom A

- Jamie Sullivan, Western Transportation Institute
- Richard Albin, Federal Highway Administration (FHWA)
- Kushla Tapper, Roads Consulting Ltd
- Todd Kinney, Clinton County IA
- Larry Legg, Lancaster County, NE
- Holly Kostrzewski, National Highway Traffic Safety Administration (NHTSA)

Workshop #6: Finding, Retaining, and Training the Workforce to Maintain Low Volume Roads

Grand Ballroom C

- David Orr, New York State LTAP
- Ronald Eck, West Virginia LTAP
- Andi Bill, Wisconsin LTAP
- Joe Conway, Transportation Workforce Development, Federal Highway Administration (FHWA)
- Steve Strength, Louisiana Department of Transportation and Development LTAP Center
- James Forseth, U.S. Forest Service
- Jennifer Lynn Sharkey, Indiana LTAP

5:00 PM–6:30 PM

Exhibits Open and Welcome Reception

Pre-function & Taft A/B



MONDAY, JULY 24, 2023

7:00 AM–5:00 PM

Registration

First Floor Pre-function

7:00 AM–8:00 AM

Conference Breakfast

First Floor Pre-function

8:00 AM–10:00 AM

SESSION 3: Opening Plenary Session

Exhibit Hall B/C

Moderator: Keith Knapp, Iowa State University, 13th Low Volume Roads Conference Planning Committee, chair

Welcome from Conference Chair

- Keith Knapp, Iowa State University

Welcome from TRB and Paper Award

- Nancy, Whiting, Transportation Research Board (TRB)

Welcome from Local Host

- Paul Geilenfeldt, Iowa County Engineers Association

Iowa's Rich History of Transportation Research

- Sandra Larson, Sandra Q. Larson, LLC

Bipartisan Infrastructure Law Funding & Technical Assistance

- Amanda Rogers, U.S. Department of Transportation, Office of the Secretary

Innovations in Low Volume Roads Technology in Developing Countries: Challenging Traditional Paradigms

- Michael Pinard, Infra Africa Consultants, Botswana

10:00 AM–10:30 AM

Break

First Floor Pre-function

10:30 AM–Noon

CONCURRENT SESSIONS

SESSION 4: New Technologies & Innovations

Grand Ballroom B

Moderator: Jonathan Wood, Iowa State University

Development, Construction, and Instrumentation of Pilot Freeze-Thaw Resistant Granular Roadways Test Cells

- Mohammad Wasif Naqvi, Michigan State University

A Demonstration of Automated Driving System Performance on Rural Roadways

- Cheryl Roe, University of Iowa

A Preliminary Engineering Design of a Very Remote Project During a Global Pandemic: The Use of Advanced Satellite Technology to Plan and Design Low Volume Roads

- Alex Campbell, Anyway Solutions

The Use of a Linear Crusher to Reduce Stoniness Fixed in Existing Gravel Wearing Course Layer

- Herman Wolff, Western Cape Government

SESSION 5: Drainage

Grand Ballroom A

Moderator: Benjamin Worel, Minnesota Department of Transportation (MnDOT)

Managing Roadside Ditches and Landowner Right-of-Ways: Connecting the Lines

- David Orr, Cornell University

Performance of Low-Volume Roads Built Over Expansive Soils Reinforced with Wicking Geotextiles

- Nripojyoti Biswas, Texas A&M University

Detection and Localization of Culverts on a Road Stretch Using Ground Penetrating Radar

- Clara Weber, Norwegian University of Science and Technology

Wildlife Friendly Drainage Structures

- Gordon Keller, Genesee Geotechnical

SESSION 6: Special Applications: Airports & Cold Regions

Grand Ballroom C

Moderator: Jeff Skalberg, Wapello County, Iowa

Application of Light Weight Deflectometer to Assess Structural Competency of Nontraditional Airfield Pavements during Contingency Aircraft Operations

- Victor Garcia, U.S. Army Engineer Research and Development Center (ERDC)

The Role of Temperature Gradient and Soil Thermal Properties on Frost Heave

- Bora Cetin, Michigan State University

Development of Deceleration-Based Friction Prediction Models and Methods on Semi-prepared Runway Surfaces

- Andrew Ward, U.S. Army Corps of Engineers (USACE)

Continued >>

Innovative Air Convection Embankment for Cold/Arctic Region Low Volume Roads

- Xiong Zhang, Missouri University of Science and Technolog

Noon–1:30 PM

Lunch

Exhibit Hall B/C

1:30 PM–3:00 PM

CONCURRENT SESSIONS

SESSION 7: Pavement Maintenance and Preservation

Poster Session 
Grand Ballroom B

Moderator: Dwayne Heintz, Jefferson County, Iowa

Assessment of Life-Cycle Benefits of Bio-Based Fog Sealant for Low-Volume Asphalt Pavement Preservation

- Bo Yang, Iowa State University

Performance of Cape Seal Treatments Used for Pavement Preservation

- Adriana Vargas-Nordcbeck, National Center for Asphalt Technology

Best Practices for Chip Sealing Low-Volume Roads in Ohio

- Andrew Russ, Ohio University Russ College of Engineering and Technology

Pilot Demonstration of Cape Seals for Pavement Preservation in Clinton County, IA

- Todd Kinney, Clinton County, Iowa

Optimizing the Effective Use of RAP in Local Roadways

- Munir Nazzal, University of Cincinnati

SESSION 8: Data Driven Safety and Operational Analysis

Grand Ballroom A

Moderator: Rosemarie Anderson, Federal Highway Administration (FHWA)

Systemic Safety Screening in San Juan National Forest – A Practical Approach with Limited Crash Data

- Ian Hamilton, VHB

Development of SPFs for Iowa's High Speed Paved Secondary Roads

- Nicole Oneyear, Federal Highway Administration (FHWA)

Contributing Factors for Crashes on Low-Volume Unpaved Roads

- Sumon Mojumder, University of Kansas

Comparison of Analytical and Simulation results for One-Lane Operation on Low Volume Two Lane Highway

- Hongjae Jeon, University of Illinois Urbana-Champaign

SESSION 9: Forest Road Building

Grand Ballroom C

Moderator: Margarita Ordaz, U.S. Army Engineer Research and Development Center (ERDC)

Timber Bridges – Design, Standards, and Non-Destructive Evaluation

- James Wacker, United States Department of Agriculture (USDA)

Temporary Roads Made from Chunked Wood

- C. Adam Senalik, United States Department of Agriculture (USDA)

Optimized Solutions to Improve Access of Wet Weak Forest Roads

- Pape-Masseck Thiam, FPIInnovations

3:00 PM–3:30 PM

Break

First Floor Pre-function

3:30 PM–5:00 PM

CONCURRENT SESSIONS

SESSION 10: Geotechnical, Stabilization, and Dust Control

Poster Session

Grand Ballroom B



Moderator: Cathy Nicholas, Black Hawk County, Iowa

A Case Study on the Implementation of the Unstable Slope Management Program (USMP)

- Nicholas Farny, Western Federal Lands Highway Division

Modeling Dust Generation on Low-Volume Roads Based on Vehicle Speed and Surface Fines Content

- Mohammad Ahmad Alsheyab, Iowa State University

Investigations on Strength, Durability and Shrinkage Characteristics of Stabilized Silty Sand for Low Volume Roads

- Shiva Kumar Mahto, National Institute of Technology

Disaster Risk Preparedness and Repair Activities of Low Volume Roads in Selected Developing Countries

- Jacob Greenstein, USAID

Preliminary Study on Directional and Stress Dependency of Stiffness Characteristics of Granular Roadway Materials

- Bora Cetin, Michigan State University

Trafficability Study of Full-Scale Geosynthetic Portable Road Building System

- Benjamin Rutherford, U.S. Army Engineer Research and Development Center

SESSION 11: Safety Practices and Applications*Grand Ballroom A***Moderator:** Richard Albin, Federal Highway Administration (FHWA)**Local Road Safety Practices and Perceptions in North Dakota**

- Kelly Bengtson, Upper Great Plains Transportation Institute at North Dakota State University

Road Safety Audits – Lessons Learned from Rural and Low-Volume Facilities

- Andrew Ceifetz, WSP

Impact of Level 1 and 2 AV Technologies on Traditional Safety**Countermeasures: A Case Study of Lane Keeping Systems and Rumble Strips**

- Ye Dong, Iowa State University

Keeping Your Agency Out of Court: Safety Lessons Learned from Lawsuits Against Local Road Agencies

- Ronald W. Eck, West Virginia University

SESSION 12: Asset Management*Grand Ballroom C***Moderator:** Steve Strength, Louisiana Department of Transportation and Development, LTAP Center**Predicting Iowa Concrete Overlay Performance and Remaining Service Life using Statistics and Deep Learning Techniques**

- Nazik Citir Razavi, Iowa State University

Data-Driven Approach to Identify Maintained Pavement Segments and Estimate Maintenance Type for Local Road

- Abdallah Al-Hamdan, Iowa State University

Sign Life Expectancy on Low Volume Roads

- David Veneziano, Iowa State University

Survival Analysis of Concrete Overlays on Low Volume Roads in Iowa

- Daniel King, Iowa State University

6:00 PM–9:00 PM**Iowa Night—Affiliated Off-site Event**

Hosted by the Iowa County Engineers Association. Buses departing the Conference hotel starting at about 5:40 p.m.



TUESDAY, JULY 25, 2023

7:30 AM–1:00 PM

Registration

First Floor Pre-function

7:30 AM–8:30 AM

Conference Breakfast

First Floor Pre-function

7:30 AM–8:30 AM

Low Volume Roads (AKD30) Committee Meeting

Room 310

8:30 AM–10:00 AM

CONCURRENT SESSIONS

SESSION 13: Pavement Design and Construction

Poster Session

Grand Ballroom B



Moderator: David Veneziano, Iowa State University

Validation of a Compact Man-Portable Automatic Dynamic Cone Penetrometer

- Ernest Berney IV, U.S. Army Engineer Research and Development Center

Mechanistic-Empirical Pavement Design for Low Volume Roads

- David Orr, Cornell University

Investigation of In-Situ Strength of Various Construction/Widening Methods Utilized on Local Roads

- Andrew Russ, Ohio State University

Layered Viscoelastic Analysis of Low Volume Roadway Pavement Response Due to Moving Loads

- Jesse Doyle, US Army Corps of Engineers (USACE)

Environmental and Structural Factors Influencing a Section with Different Interlayer Thicknesses of a Low Volume Road Unbonded Overlay

- Bernard Izevbekhai, Minnesota Department of Transportation (MnDOT)



SESSION 14: Bridges and Structures*Grand Ballroom A***Moderator:** Benjamin Rutherford, U.S. Army Engineer Research and Development Center**Field Demonstration of an Innovative Box Beam Connection**

- Zhengyu Liu, Iowa State University

Local Bridge Construction and Repairs

- Brian Keierleber, Buchanan County, Iowa

Development of a Bridge Railing Optimized for Rural, Low-Volume Roads

- Scott Rosenbaugh, University of Nebraska-Lincoln

Expanding the Applicability of Press-Brake-Formed Tub Girders through the Extension of the Maximum Span Length and the Evaluation of Pier Continuity

- Karl Barth, West Virginia University

SESSION 15: Vulnerable Users of Low Volume Roads*Grand Ballroom C***Moderator:** Rosemarie Spano, U.S. Bureau of Land Management**RAGBRAI and Related Low Volume Road Management Perspectives**

- Dan Malsom, Kimley-Horn & Associates

Mitigation of the Damage of Amish Buggies to Local Roads

- Munir Nazzal, University of Cincinnati

Roadway Design Adjustments for Horse Drawn Vehicles

- Jay Grossman, Valparaiso University
- Charles McKenzie, Elkhart County Highway Department

Addressing Vulnerable Road User Safety through Complete Streets

- Rosemarie Anderson, Federal Highway Administration (FHWA)

Improving Access and Safety for Vulnerable Road Users in National Parks

- Erica Simmons, National Park Services (NPS)

10:00 AM–10:30 AM**Break***First Floor Pre-function***10:30 AM–Noon****CONCURRENT SESSIONS****SESSION 16: Climate Resiliency****Poster Session***Grand Ballroom B***Moderator:** Victor Garcia, U.S. Army Engineer Research and Development Center (ERDC)

Infrastructure Adaptation and Climate Resilience for California's National Forests

- Gordon Keller, Genesee Geotechnical

Considering Sustainability for Rural Bridge Design

- Michael Barker, University of Wyoming

**Road Stream Crossings for Storm Resiliency and Aquatic Organism Passage:
A Pennsylvania Perspective**

- Eric H. Chase, Penn State University

**Planning of LVR Drainage Works, Considering Climate Change in Selected
Developing Countries**

- Jacob Greenstein, USAID

**Evidence-Based Targeting of Infrastructure Investments to Foster Human
Capital Development and Reduce Accessibility Gaps in Rural Areas: The
Khyber Pakhtunkhwa Rural Accessibility Project, Pakistan**

- Sara Zafar Cheema, South Asia Transport Practice, World Bank

Forest Service Road-Stream Crossings: Designing for Flood Resilience

- Erica Borum, United States Department of Agriculture (USDA)

SESSION 17: Training & Research: Past, Present, Future

Grand Ballroom A

Moderator: Cina Fisher, Alaska LTAP

A History of the Local Technical Assistance Program (LTAP)

- David Orr, Cornell University

**Development of Sustainable Research Capacity Building of the RDU for
Myanmar Rural Road Sector**

- So Htun Naing, Ministry of Construction, Naypyidaw, Myanmar

**Overview of Applications used in MnROAD Low Volume Roadway from Past
to Present: What do they give to Future Engineers?**

- Emil Bautista, Minnesota Department of Transportation (MnDOT)

Outcomes of the 2019 Low Volume Roads Conference

- Laura Fay, Western Transportation Institute (WTI), Montana State University

**SESSION 18: Bipartisan Infrastructure Law Opportunities
for Low Volume Roads**

Grand Ballroom C

Moderator: Inya Nlenanya, Iowa State University

Idaho: Idaho's Approach to Local Roads Funding

- John P. Bilderback, Consultant

Iowa: Iowa's Approach to Local Public Agency Funding

- Nicole Moore, Iowa Department of Transportation (IowaDOT)

Continued >>

Kansas: Biggest Impact to Kansas Low Volume Roads from Bipartisan Infrastructure Law

- Tod Salftrak, Kansas Department of Transportation (KDOT)

Louisiana: Infrastructure Investment and Jobs Act (IIJA) Funding Offers Relief for Low Volume Louisiana Roads

- David North, Louisiana Department of Transportation & Development (DOTD)

Michigan: Bipartisan Infrastructure Law Funding & Resource Impacts in Michigan

- Ryan Doyle, Michigan Department of Transportation (MDOT)

Missouri: Missouri's Local Public Agency Program and Impacts of Bipartisan Infrastructure Law

- Ashley Buechter, Missouri Department of Transportation (MoDOT)

Ohio: Bipartisan Infrastructure Law Funding in Ohio

- Robert Taylor, City of Dublin Ohio

Texas: Impact of the Infrastructure Investment and Jobs Act (IIJA) on Texas Low Volume Roads

- Lacy Peters, Texas Department of Transportation (TxDOT)

Virginia: Bipartisan Infrastructure Law Opportunities for Low Volume Roads: VDOT Overview

- Kevin Wright, Virginia Department of Transportation (VDOT)

Noon–1:00 PM

Lunch

Exhibit Hall B/C

1:00 PM–5:00 PM

Conference Field TripField Tour Stops

- Methods of Unpaved Road Upgrades Using Macadam and Choke Stone Bases with Chip Seal Surfaces
- Installation of a Rural Roundabout
- A 560' Concrete Extradosed Bridge Over the Iowa River
- Sealing Low Volume Roads with Slag Seal and Otta Seal Along
- Demonstration of Iowa's Use of Validated Intelligent Compaction (VIC) Technology to Improve Pavement Foundation Layers and Unpaved Granular Roads

6:00 PM–8:00 PM

Conference Network Reception

Exhibit Hall B/C

WEDNESDAY, JULY 26, 2023

7:30 AM–3:30 PM

Registration

First Floor Pre-function

7:30 AM–8:30 AM

Conference Breakfast

First Floor Pre-function

8:30 AM–10:00 AM

CONCURRENT SESSIONS

SESSION 19: Pavement Testing and Analysis

Grand Ballroom B

Moderator: Eric H. Chase, Penn State University

Revisiting Field Performance of CCPR Test Sections at MnROAD LVR

- Joseph Podolsky, Minnesota Department of Transportation (MnDOT)

Light Weight Deflectometer Evaluation of Low Volume Road Structural Deterioration Under Rapidly Increased Traffic Patterns

- Margarita Ordaz, U.S. Army Corps of Engineers (USACE)

Alternative Installation Procedure for Asphalt Strain Gauges in Low Volume Road Pavements

- Jesse Doyle, U.S. Army Corps of Engineers (USACE)

Using Bender Elements to Investigate the Effect of a Multi-Axial Geogrid on Aggregate Layer Stiffness

- William Jeremy Robinson, U.S. Army Corps of Engineers (USACE)

SESSION 20: Pay Now or Pay Later

Grand Ballroom A

Moderator: Brian Moore, Iowa County Engineers Association Service Bureau

The focus of this lectern session is to build off of the joint Low Volume Roads and Pavement Design and Rehabilitation workshop held at the TRB Annual Meeting in 2023. A key theme from the workshop was the was road design from the perspective of low volume roads falling into the categories of over-designed to not designed, and the grey area in between, and how to help folks in the design, redesign, preservation and maintenance. Specifically, what can be done to reduce the potential of climate change impact to low volume roads? The lectern session will include presentations from local, state, and federal entities and the research community on design, costs, and asset management to ensure a sustainable and resilient low volume roads network.

Continued >>

Data Science for Efficient Pavement Management

- William Buttlar, University of Missouri

Life Cycle Impact of Recycled Pavement Projects in Virginia

- Eugene A. Amarh, Virginia Tech Transportation Institute

Federal Funding Opportunities for Local Public Agencies

- Mark Johnson, Federal Highway Administration (FHWA)

Panel/Open discussion**SESSION 21: Innovations from Local Practitioners***Grand Ballroom C***Moderator:** Alex Davis, Buchanan County, Iowa**The Enemy of Innovation – We Have Always Done It This Way**

- Pamela Dingman, Lancaster County, Nebraska

Building a Better Mousetrap...I Mean Bridge

- Lance Malburg, Dickinson County, Michigan Road Commission

Using Rejuvenators for Better and Longer-Lasting Pavements

- Nathan Schwartz, Dekalb County, Illinois

Advantages of Cold In-Place Recycling, County Perspective

- Todd Kinney, Clinton County, Iowa

10:00 AM–10:30 AM**Break***First Floor Pre-function***10:30 AM–Noon****CONCURRENT SESSIONS****SESSION 22: Unpaved Road Issues***Grand Ballroom B***Moderator:** Mark Nahra, Woodbury County, Iowa**A Gravel Loss Prediction Model Using Beta Regression**

- Shafkat Alam-Khan, Michigan State University

The Development of a Tool for Determining Optimal Material Blends for Unpaved Road Wearing Courses

- David Jones, University of California, Davis

Rehabilitation Options and Guidance for Severely Distressed Low Volume Paved Roads with a Focus on Conversion to Engineered Unpaved Surfaces

- David Jones, University of California, Davis

Rapid Ground Stabilization of Low-Volume Roads for Military Vehicle Traffic

- Haley Bell, U.S. Army Engineer Research and Development Center (ERDC)

Louisiana's Development of Minimum Design Guidelines on Locally Owned Roads

- Mary Stringfellow, Federal Highway Administration (FHWA)

SESSION 23: Policy, Planning, and Economics

Grand Ballroom A

Moderator: Andrew Ceifetz, WSP

Low Volume Track Paths in Austria - Theory and Application

- Wolfgang Haslehner, State Government of Burgenland, University of Natural Resources and Life Sciences

Mechanistic Basis for Permit Fee Decision of Superloads Traveling on Low-Volume Roads Using Structural Damage Evaluation

- Yongsung Koh, Iowa State University

Bureau of Land Management National Long Range Transportation Plan

- Emily Navarrete, U.S. Department of Transportation (USDOT) Volpe Center

Local Government Wheel Tax for Road Infrastructure Improvements

- Sam Owusu-Ababio, University of Wisconsin, Platteville

Identifying Colonial Roads in Southern New Jersey: An Application of Remote Sensing, Field and Archival Methods to Document the Locations, Condition and Routes of Critical American Revolutionary War Supply Chains

- Jonathan Peters, College of Staten Island (CSI) CUNY

SESSION 24: Building the Pipeline for Our Future Transportation Workforce

Grand Ballroom C

Moderator: Nicole Moore, Iowa Department of Transportation (IowaDOT)

Ideas and Resources from the Finding, Retaining, and Training the Workforce to Maintain Low Volume Roads – Outcomes from the Sunday Workshop

- David Orr, Cornell University

Comprehensive Approaches to Workforce Development, Training, and Education for Road Safety Practitioners – Challenges and Opportunities

- Timothy Barnett, The University of Alabama

Partnerships: Building a Successful Workforce Development Program

- Joe Conway, Federal Highway Administration (FHWA)

Noon–1:30 PM

Lunch

Exhibit Hall B/C



1:30 PM–3:00 PM

CONCURRENT MINI WORKSHOPS

SESSION 25: Mini Workshop – Road Surfaces

Grand Ballroom B

Moderator: Geoff Scott, NYS LTAP Center – Cornell Local Roads Program

Local Road Surface Selection Tool

- Bradley Wentz, Upper Great Plains Transportation Institute

Grading Optimization Tool

- Jeremy Ashlock, Iowa State University

Gravel Road Management Tool

- Benjamin Worel, Minnesota Department of Transportation (MnDOT)

SESSION 26: Mini Workshop – Paved Road Management and Monitoring

Grand Ballroom A

Moderator: Steve Bloser, Penn State University

Flooded Road Management Tool

- Eshan Dave, University of New Hampshire

Automated Pavement Monitoring Tool

- Hamed Majidifard, University of Missouri

Life Cycle Assessment Pave Tool

- Jennifer Aponte, Federal Highway Administration (FHWA)

SESSION 27: Mini Workshop – Geotechnical Issues and Truck Weights

Grand Ballroom C

Moderator: Greg Parker, Johnson County, Iowa

Geosynthetics Field Installation Pocket Guide

- Daniel Alzamora and Trinetta Ballard, Federal Highway Administration (FHWA)

Unstable Slope Management Program

- Nick Farney, Federal Highway Administration (FHWA)

Truck Weight Calculator

- Leanna Emmer, North Dakota LTAP

3:00 PM–3:30 PM

Break

First Floor Pre-function

3:30 PM–5:00 PM

Closing Plenary Session

Exhibit Hall B/C

Moderators: Keith Knapp, Iowa State University, and Laura Fay, Western Transportation Institute (WTI), Montana State University

Wrapping Up a Career: A Look to the Future of Low Volume Roads

- Ronald W. Eck, West Virginia University

Embracing Change in Transportation Careers,

- Brandon Jutz, Regional Transportation Coordinator, U.S. Fish and Wildlife Service

Collection/Discussion of Conference Resolutions

- Laura Fay, Western Transportation Institute (WTI), Montana State University

Closing Remarks

- Keith Knapp, Iowa State University, 13th Low Volume Roads Conference Chair

5:30 PM–7:30 PM

A0040C Rural Transportation Issues Coordinator Council Meeting

Room 310

THURSDAY, JULY 27, 2023

7:30 AM–9:00 AM

LVR2023 Conference Planning Committee Meeting (Members only)

Room 310

7:30 AM–4:00 PM

Optional Affiliated Event: Iowa Bridge Site Bus Tour & Workshop

Sponsors: Buchanan County, Iowa and the Short Span Steel Bridge Alliance



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For the Professional Development Hours Credit Statement for Registrant Records, please scan the QR Code, or go to <https://qrco.de/be6Hti>.



CONGRATULATIONS!!

to the

2023 TRB International Low Volume Roads Conference

Outstanding Paper Award recipients

Stephanus Johannes Louw and David Jones

For their paper

Development of a Tool for Determining Optimal Material Blends for Unpaved Road Wearing Courses



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First Floor

Room Legend

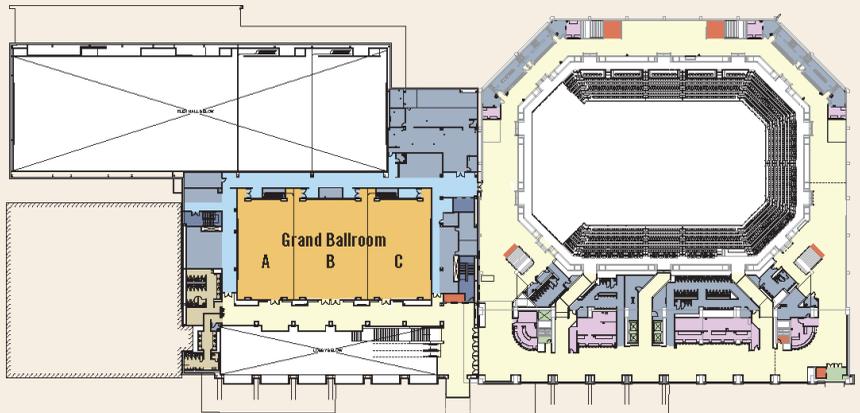
- ADMINISTRATION
- BACK OF HOUSE
- BACK OF HOUSE CORRIDOR
- BACK OF HOUSE STAIRS / ELEVATOR
- HOTEL SERVICES
- MEETING ROOM / FLEX HALL
- POCHÉ
- PUBLIC CIRCULATION
- RESTROOMS
- RETAIL / CONCESSIONS
- VERTICAL CIRCULATION (PUBLIC)



Second Floor

Room Legend

- BACK OF HOUSE
- BACK OF HOUSE CORRIDOR
- BACK OF HOUSE STAIRS / ELEVATOR
- HOTEL SERVICES
- MEETING ROOM / FLEX HALL
- PUBLIC CIRCULATION
- RESTROOMS
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