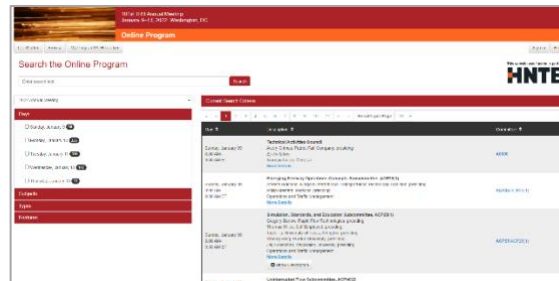




Winter Maintenance Research at the 2022 TRB Annual Meeting

Resource Spotlight: Transportation Research Board Annual Meeting Online Portal

If you're searching for the latest research on a transportation topic, be sure to visit the [TRB Annual Meeting Online Program](#). The program includes papers, posters and presentation materials from the 2022 Annual Meeting as well as the previous three meetings.



The [Clear Roads pooled fund](#) has compiled links to selected posters, presentations and papers related to winter maintenance that were presented at the 2022 Annual Meeting. **Access to materials is free for employees of state DOTs and other TRB Sponsor organizations.** Sign in to the Online Program to access all the resources shown here.

If you have trouble accessing this information, check with your DOT or other transportation library.

Contents

Equipment and Facilities	2
Materials	2
Infrastructure, Pavements and Structures	2
Technology, Information Systems and Performance Management.....	3
Weather and Road Conditions.....	4

Equipment and Facilities

22-20028 Green Warning Lights Make Winter Maintenance Trucks More Visible

[Poster Session](#) with [presentation](#)

Carol Aldrich, Ali Zockaie

Michigan Department of Transportation; Michigan State University

Materials

22-00001 Comparing the Deicing Performance and Skid Resistance of Liquid Deicing Agents

[Poster Session](#) with [presentation](#)

Michael Gruber, Bernhard Hofko

Technische Universitat Wien

22-20031 Corn-Based Deicers

[Poster Session](#) with abstract

Ravi Kiran

North Dakota State University

22-01162 Increasing Friction on Roadway Ice with Water-Heated Sand

[Poster Session](#) with abstract

Andrew Erickson, Mugurel Turos, Peter Weiss, John Gulliver, Mihai Marasteanu

University of Minnesota, Twin Cities; University of Minnesota; Valparaiso University

22-01877 Salt Brine Applications in Winter Maintenance: A Field Performance Evaluation

[Lectern Session](#) with [presentation](#)

Boris Claros, Madhav Chitturi, Andrea Bill, David Noyce

University of Wisconsin-Madison

Infrastructure, Pavements and Structures

22-02094 Enhancement of Highway Conditions During Winter Weather Operations Through Coupling Raised Pavement Markers with Rumble Strips

[Poster Session](#) with [full paper](#)

Md Al-Amin, Vivek Turkar, Mike Rung, Raissa Ferron

University of Texas, Austin

22-03562 Feasibility of Bridge Deicing Using Geothermal Energy Piles in Different U.S. Climates

[Lectern Session](#) with abstract

Suguang Xiao, Muhannad Suleiman, Neti Sudhakar, Clay Naito

Clarkson University; Lehigh University

22-20311 Geothermal Energy for Deicing of Bridge Decks: Geoenvironmental Assessments of Deicing Fluids for Potential Soil Contamination

[Poster Session](#) with [presentation](#)

Prince Kumar

Texas A&M University

22-20317 An Investigation of Thermally and Mechanically Balanced Structural Design of Insulated Pavements for Cold Region Applications

[Poster Session](#)

Cheng Zhu

Rowan University

22-02813 Protecting Asphalt Pavements Against Frost Action with an Electrical Heating System

[Lectern Session](#) with abstract

Quentin Adam, Eyal Levenberg

Danmarks Tekniske Universitet; DTU Byg

Technology, Information Systems and Performance Management

22-01507 Effects of Inclement Weather Events on Road Surface Conditions and Traffic Safety: An Event-Based Empirical Analysis Framework

[Poster Session](#) with abstract

Ahmed Abohassan, Karim El-Basyouny, Tae J. Kwon

University of Alberta

22-00100 Factors Influencing Pavement Friction During Snowstorms

[Poster Session](#) with abstract

Ahmed Abohassan, Karim El-Basyouny, Tae J. Kwon

University of Alberta

22-02228 Leveraging Telematics for Winter Operations Performance Measures and Tactical Adjustment

[Lectern Session](#) with abstract

Jairaj Desai, Justin Mahlberg, Woosung Kim, Rahul Sakhare, Howell Li, Jeremy McGuffey, Darcy Bullock

Purdue University; Indiana Department of Transportation

22-00458 Optimization Models for Snowplow Routes and Depot Locations: A Real-World Implementation

[Lectern Session](#) with abstract

Shuoyan Xu, Mingjian Wu, Tae J. Kwon, Max Perchanok

University of Toronto; University of Alberta; CIMA+

Weather and Road Conditions

22-00413 Continuous Mapping of Winter Road Surface Conditions via Deep Learning and Geostatistics

[Poster Session](#) with abstract

Mingjian Wu, Tae J. Kwon, Liping Fu

University of Alberta; University of Waterloo

22-00424 Development of a Highly Transferrable Urban Winter Road Surface Classification Model: A Deep Learning Approach

[Poster Session](#) with [presentation](#)

Qian Xie, Tae J. Kwon

University of Alberta

22-00969 Development of a Novel Road Weather Information System Location-Allocation Model Considering Multiple Road Weather Variables Over Space and Time

[Poster Session](#) with abstract

Simita Biswas, Tae J. Kwon

University of Alberta

22-01250 Forecasting Short-Term Road Surface Temperatures Using Artificial Neural Network

[Poster Session](#) with abstract

Tasnia Nowrin, Tae J. Kwon

University of Alberta

22-03353 A Machine Learning Approach for Surface Condition Detection from Webcam Leveraging Color, Texture, and Local Binary Pattern–Based Image Features

[Poster Session](#) with abstract

Md Nasim Khan, Mohamed Ahmed

University of Wyoming