

NRRA CONFERENCE

APRIL 30 - MAY 1, 2024

Shoreview Community Center
Shoreview, Minnesota

presented by



DAY 1 – APRIL 30, 2024

- 7:00 – 8:00 a.m. Check-in & breakfast
- 8:00 – 10:00 a.m. Welcome and Introductions
- Awards Presentation
 - Keynote Speaker, Skok Award Recipient – “Asphalt Pavement Design – An (In)Complete History:” David Timm, National Center for Asphalt Technology at Auburn University
 - Team Implementation
- Rigid Implementation: Tom Burnham, Minnesota DOT, Rigid Chair
- Evaluation of Long-term Impacts of Early Opening of Concrete Pavements: Maria Masten, Minnesota DOT
 - Reduced Cementitious Material in Optimized Concrete Mixture (MnROAD Cells 138/238): Bernard Izevbekhai, Minnesota DOT
 - Panel discussion: John Lee, Cemstone; Aaron Perez, North Dakota DOT; Peter Taylor, CP Tech Center at Iowa State University (via video); Mary Vancura, AET; Matt Zeller, Concrete Paving Association of MN
- 10:00 – 10:30 a.m. Break & networking opportunity
- 10:30 – 11:45 a.m. Preventative Maintenance Implementation: Joel Uling, Minnesota DOT, PM Chair Support
- Thinlay as a PM Treatment – State Perspectives:
 - Summary of Research Synthesis: Joel Uling, Minnesota DOT
 - MnDOT Implementation: John Garrity, Minnesota DOT
 - National Perspective: Todd Shields, Indiana DOT
- 11:45 a.m. – 12:30 p.m. Lunch provided
- 12:30 – 3:00 p.m. Geotechnical Implementation, Ceren Aydin, Minnesota DOT and Raul Velasquez, Minnesota DOT, Geotechnical Chair
- Thoughts on Barriers for Geotech Research Implementation:
 - Discussion and brainstorming around following completed projects:
 - Determining Pavement Design Criteria for Recycled Aggregate Base and Large Stone Subbase (2017)
 - Environmental Impacts on the Performance of Pavement Foundation Layers (2019)
 - Continuous Moisture Measurement during Pavement Foundation Construction (2020)
 - Permeability of Base Aggregate and Sand (2019)
- Flexible Team: Curt Dunn, North Dakota DOT, Flexible Chair
- National/West Coast Perspective of BMD implementation, FHWA efforts, Nevada experience: Elie Hajj, University of Nevada-Reno
 - NRR State Implementation/Experiences Panel: Erik Lyngdal, Wisconsin DOT; Jacob Graessle, Missouri DOT; Oak Metcalfe, Montana DOT; Aaron Perez, North Dakota DOT; Ian Gilhooly, Illinois DOT
- 3:00 – 3:30 p.m. Break & networking opportunity
- 3:30 – 4:45 p.m. Intelligent Construction Implementation, Kyle Hoegh, Minnesota DOT, ICT Chair
- Use of dielectric (AKA density) profiling systems for asphalt compaction assessment
 - Training videos created by FHWA & MnDOT: Monica Jurado, FHWA and Mercedes Kuznia, Minnesota DOT and Phase II DPS Pooled Fund Announcement
 - State Agency Use of DPS Technology
 - North Dakota comparison with other ICT and pavement characteristics: Amy Beise, North Dakota DOT
 - Minnesota: Veta Statistical analysis and use cases with comparison to other ICT: Kyle Hoegh, Minnesota DOT
 - General Veta use cases: Amanda Gilliland, The Transtec Group
 - Use of Kontur (AKA: 3D GPR) for Project Scoping Pavement Evaluation: Successes, Challenges and Ongoing Research work: Eyoab Zegeye, Minnesota DOT
- 4:45 – 5:00 p.m. Day 1 wrap-up & dinner on your own

DAY 2 – MAY 1, 2024

7:00 – 8:00 a.m. Breakfast

8:00 – 9:30 a.m. ICT Team Updates

- Current Activities: Kyle Hoegh, Minnesota DOT, ICT Chair
- Highlighted Project: Asphalt Real Time Smoothness (ARTS) for Asphalt Paving: Subu Sankaranarayanan, The Transtec Group

Flexible Team Updates

- Project Highlight: Mix Rejuvenator Phase II: Jo Sias, University of New Hampshire
- Current Activities: Curt Dunn, North Dakota DOT, Flexible Chair

Geotechnical Team Updates

- Current Activities: Raul Velasquez, Minnesota DOT, Geotechnical Chair
- Highlighted Project: Performance Evaluation of Wicking Geotextiles for Improving Drainage and Stiffness of Road Foundation: Md Fyaz Sadiq, Minnesota DOT NSF intern and Bora Cetin, Michigan State University

9:30 – 10:00 a.m. Break & networking opportunity

10:00 – 11:30 a.m. Rigid Team Updates

- Current Activities: Tom Burnham, Minnesota DOT, Rigid Chair
- Highlighted Project: Alternative Cementitious Materials in Concrete: Prashant Ram, Applied Pavement Technologies

Preventative Maintenance Team Updates

- Current & Future Activities: Joel Ulring, Minnesota DOT, PM MnDOT Contact
- Highlighted Project: Lab Testing of Pavement Cores for Spray Applied Rejuvenator Study: Raquel Moreas, National Center for Asphalt Technology at Auburn University

Marketing & Communications: Lauren Dao, Minnesota DOT, NRRRA Communications

Meeting Overview and Future Direction: Ben Worel, Minnesota DOT, NRRRA Executive Director

11:30 a.m.– 12:00 p.m. Lunch provided

12:45 – 3:30 p.m. MnROAD tour: MnROAD, 9011 77th St NE, Otsego, MN 55362

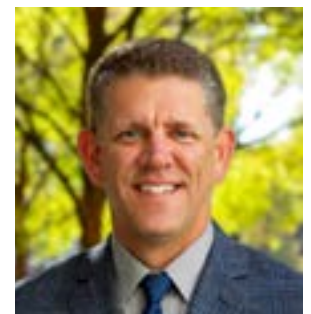
AWARD RECIPIENTS

The Minnesota Pavement Conference was the original form of the NRRRA Conference, which began in 1997. Each year, someone received an award for service in pavement, which was later named after Gerald Rohrbach, a prominent figure from Minnesota DOT. Beginning in 2016, a second award was established in honor of Eugene Skok, Ph.D., P.E., a well-known instructor, researcher, and mentor to many in Minnesota pavement and beyond. This year's recipients were nominated and voted on by their peers.



The Gerald Rohrbach Award for Excellence in Pavement Research in Minnesota is being presented to Jerry Geib, P.E. of Minnesota DOT. Jerry Geib retired at the beginning of April 2024 after nearly 25 years at Minnesota DOT. The nomination summary described Geib as instrumental player in the asphalt pavement industry both in Minnesota and nationally. “Very few people have worked behind the scenes as hard as Jerry,” it read. He was also described as dedicated to an industry that is not glamorous. “Without his knowledge, dedication, and passion for improving the quality and performance of flexible pavements, it is safe to say that we would not be where we are today.”

The Eugene Skok Award for Contributions to Pavements in United States is being presented to Dave Timm, Ph.D., P.E. of the National Center for Asphalt Technology at Auburn University. Timm is the Brasfield & Gorrie Professor in Auburn University's Department of Civil and Environmental Engineering. In the nomination summary, he was described as “one of the most known and respected experts in pavement engineering and asphalt materials evaluation in US.” During his doctoral program, Timm worked with the award's namesake, Dr. Gene Skok, at the University of Minnesota. Timm is the keynote speaker at this year's NRRRA Conference.



Congratulations to Jerry and Dave!

NOTES

OUR SPEAKERS

Ceren Aydin, Ph.D. earned her Ph.D. from Michigan State University and is currently a Research Project Engineer at Minnesota DOT. Her focus areas include the mechanical characterization of geomaterials, moisture monitoring, freeze-thaw, advanced geotechnical modeling, and the analysis of pavement foundation layers and rigid pavements.

Amy Beise, P.E. is currently the Director for the North Dakota Department of Transportation Materials & Research Division. Amy is a registered professional engineer in the state of North Dakota. She holds a B.S. and M.S. in civil engineering from North Dakota State University.

Bora Cetin, Ph.D. is faculty in the Geotechnical and Geoenvironmental Engineering Area in the Department of Civil and Environmental Engineering at Michigan State University. His research activities are mainly focused on the following fields: (1) Improvement of the sustainability of pavement foundation systems; (2) environmental suitability of geotechnical structures built with waste materials and industrial byproducts; and (3) frozen ground engineering.

Lauren Dao, M.A. is the Communications Coordinator for the National Road Research Alliance. She has spent her career in communications, marketing and branding working across a wide variety of industries.

Curtis Dunn, P.E. began his career at North Dakota DOT in 1995 with the Materials & Research Division until 1999. Since then, Curt has been a Highway Materials Engineer in the Grand Forks District.

John Garrity, P.E. is the Bituminous Engineer for the Office of Materials and Road Research at Minnesota DOT. He has worked at MnDOT for the last 35 yrs. He is a graduate of North Dakota State University.

Ian Gilhooly, MBA is a Materials Investigation Engineer for the Central Bureau of Materials at Illinois DOT. He has a B.S. in Industrial Engineering and an MBA.

Amanda Gilliland, P.E. is a Project Manager at The Transtec Group, focusing on intelligent construction technologies (ICT). She supports the implementation of ICTs and Veta software.

Jacob Graessle, P.E. is a Field Materials Engineer for the Missouri DOT (MoDOT), a position he has held for the past 2 years. He was previously a construction inspector for MoDOT upon graduating in 2018 from the University of Missouri with a B.S. in civil engineering.

Elie Y. Hajj, Ph.D. is a Professor at the University of Nevada, Reno with over 21 years of experience in academia and industry with an emphasis on asphalt pavement technologies. He has authored/co-authored over 120 publications and made more than 150 presentations in professional meetings, conferences, and workshops.

Kyle Hoegh, Ph.D., P.E. is a Research Engineer at the Minnesota DOT (MnDOT) who specializes in nondestructive evaluation. He is the project manager of the Transportation Pooled Fund TPF-5(443) titled, "Continuous Asphalt Mixture Compaction Assessment using Density Profiling System (DPS)." Kyle received his Ph.D. in civil engineering from the University of Minnesota in 2013 and has been working at MnDOT for almost 10 years.

Bernard Izevbekhai, Ph.D., P.E. is a Research Operations Engineer at Minnesota DOT. He has been at MnDOT since 1999 in several roles. He has a B.Eng. (civil engineering) and M.Eng. (civil/structural engineering) from University of Benin (Nigeria), and M.S. (infrastructure systems engineering) and Ph.D. from University of Minnesota. Bernard is a reviewer of multiple international journals and a member of several TRB Standing Committees. He has received several industry awards, been published in numerous research reports and peer-reviewed journals. His research interests include infrastructure systems, stochastic systems, and mathematical modeling.

Monica Jurado has over 15 years of experience with the Federal Highway Administration, as the lead for the Nondestructive Evaluation (NDE) for Pavement's Initiative working closely with NDE technologies such as the MIRA, GPR MiniXT, and the Portable Seismic Property Analyzer (PSPA) through the Mobile Concrete Technology Center (MCTC) Equipment Loan Program. She is currently leading the deployment of the use of Ground Penetrating Radar (GPR) for density measurements with the Density Profiling System (DPS) with the Mobile Asphalt Technology Center (MATC) Equipment Loan Program. Monica earned her B.S. and M.S. in civil engineering from University of Texas at El Paso.

Mercedes Kuznia is a Research Scientist with the Materials and Road Research Office and has been with MnDOT for 5 years. She works with the Density Profiling System pooled fund as the lead field worker for DPS data collection and trains others on best practices for collecting quality data.

John D. Lee, P.E., LEED AP® is the Director of Business Development for Cemstone. He has worked at Cemstone for 15 years where he consults with owners, specifiers, contractors and municipalities in furthering concrete as the material of choice for buildings and pavements. John has been in the Twin Cities construction industry for nearly 33 years and also worked for Element Materials (formerly Twin City Testing), where he tested and evaluated concrete anchors, concrete fibers and other materials. He attended the University of Minnesota where he received a B.S. in civil engineering in 1992 and is a licensed professional engineer in 7 states.

Erik Lyngdal, P.E. is the Chief Materials Engineer at Wisconsin DOT (WisDOT). He has had several roles since he started at WisDOT in 2016. Lyngdal earned a B.S. and M.S. in civil engineering from the University of Wisconsin - Madison.

Maria Masten, P.E. is the Concrete Engineer at MnDOT. She is a registered engineer in the State of MN and has worked for MnDOT primarily in the Concrete Office for 28 years. Masten is actively involved in many national concrete-related organizations.

Ross "Oak" Metcalfe, P.E. has been with the Montana DOT for over 24 years and is currently the State Materials Engineer. Before his time with Materials, he spent 7 years with Field Construction doing project inspection, surveying, and contract administration. Oak is also very involved with AASHTO and is currently the Chair of AASHTO COMP TS-2d, Proportioning Asphalt-Aggregate Mixtures, the AASHTO Resource Administrative Task Group, and the AASHTO PEAS Technical Committee on Geosynthetics.

Raquel Moreas, Ph.D. received her M.S. and Ph.D. in civil engineering from the University of Wisconsin-Madison, and a B.S. in industrial chemistry and an M.S. in inorganic chemistry from Brazil. Her research interfaces chemistry and civil engineering, focusing on

OUR SPEAKERS

advanced asphalt binder characterization pre- and post-oxidative aging and modification through innovative technologies, polymers, rejuvenators, recycled materials, warm mix additives, mineral fillers, and anti-stripping agents. She is the PI leading the spray-on rejuvenator experiments at the NCAT Test Track and MnROAD. Raquel is PI of NCHRP 10-114 while also working on 09-63, 09-65, and 09-66 projects. She has published over 60 journal papers and conference proceedings, 36 technical reports, and delivered over 90 presentations at national and international conferences.

Aaron Perez, P.E. is the Pavement Sections Team Leader for Materials & Research at the North Dakota DOT (NDDOT). Aaron graduated from North Dakota State University in 2016 with a degree in civil engineering. He started at NDDOT in 2018 and his current role at Materials & Research includes leading the pavement design team, overseeing Falling Weight Deflectometer and pavement smoothness activities, and the evaluation of materials related testing and specifications.

Prashant Ram, P.E. is a Senior Engineer at Applied Pavement Technology, Inc. (APTech) with over 15 years of experience. He also holds an M.S. in civil engineering from Purdue University. He is involved in a range of technical projects, from formal research projects on paving materials, to hands-on pavement evaluation, pavement management, and asset management projects.

Md Fyaz Sadiq is a Ph.D. candidate from Michigan State University currently working at MnDOT as a National Science Foundation intern. His research is focused on advancing freeze-thaw resilience on roadways using wicking geotextiles and water repellents, pavement geotechnics, and advanced computational modeling to simulate frost action and analyze slope stability.

Subu Sakaranaryanan, Ph.D. is a Project Engineer in the Transtec Group's research team, where he works on research, implementation, and training for Intelligent Construction Technologies. He graduated with his Ph.D. in civil engineering from University of Texas - Austin specializing in geogrid-stabilized road bases for flexible pavements.

Todd Shields, P.E. is a professional engineer and project management professional. He is currently the Transportation Asset Preservation Engineer with the National Center for Pavement Preservation, where he joined in October 2022. Previously, he had worked for the Indiana DOT for 28 years in different capacities and functional areas including Maintenance, Operations, Design, and Asset Management.

Jo Sias, Ph.D. is a Professor at University of New Hampshire (UNH), where she's been since 2001. She earned both her M.S. and Ph.D. from North Carolina State University. Jo is currently Editor-In-Chief of the International Journal of Road Materials and Pavement Design and the Director of UNH Center for Infrastructure Resilience to Climate.

Peter Taylor, Ph.D., P.E. is the Director of the National Concrete Pavement Technology Center, and a Research Professor in the Department of Civil, Construction and Environmental Engineering at Iowa State University. He helps agencies and contractors implement best practices in concrete pavement design, construction, and maintenance. His research is focused on developing sustainable mixtures engineered to meet the requirements of the environment that will be used in, and developing test methods to prove that a mixture on site is going to survive. He is a Professional Engineer

registered in Illinois and active in multiple professional societies.

David Timm, Ph.D., P.E. is the Brasfield & Gorrie Professor of Civil & Environmental Engineering at Auburn University where he has been a faculty member since 2001. His research focuses on full scale flexible pavement structural testing under accelerated loading at the National Center for Asphalt Technology Pavement Test Track. David is the past chairman of the TRB committee on Asphalt Pavement Design & Rehabilitation, serves on the AAPT board of directors, and is a registered professional engineer in Alabama.

Joel Ulring, P.E. is a Pavement Preservation Engineer for Minnesota DOT (MnDOT). He has been working as an engineer for more than 30 years, the last 10 of which have been at MnDOT. Joel received his B.S. in civil engineering from South Dakota State University.

Mary Vancura, Ph.D., MBA, P.E. is a Principal Engineer at American Engineer Testing (AET). Previously, she was an engineer and Vice President at Beton Consulting Engineers, LLC. She earned a B.S. in civil engineering from Gonzaga University, M.B.A. from Augsburg University, and Ph.D. in civil engineering from the University of Minnesota.

Raul Velasquez, Ph.D. is a Geomechanics Research Engineer at the Office of Materials and Road Research (OMRR) at the Minnesota DOT (MnDOT). He is mainly involved in conducting subsurface research with a focus on pavement foundation and provide geomechanics technical assistance to the MnDOT Specialty Sections and Districts.

Ben Worel, P.E. is the MnROAD Operations Engineer for the Minnesota Department of Transportation for the last 27 years. His efforts focus on the day-to-day operations of MnROAD, development of research projects and oversight along with supporting partnerships including working with a number of different states, universities, and companies highlighted with major studies with NCAT and the National Road Research Alliance (NRRRA) which includes 13 government agencies and over 80+ associate members. Currently the co-chair of TRB AKG30 - Geo-Environmental and Climatic Impacts on Geomaterials and is the Executive Director of NRRRA.

Eyoab Zegeye, Ph.D. holds M.S. and Ph.D. degrees, specializing in the characterization and modeling of pavement materials and systems, from the Polytechnic of Turin (Italy) and the University of Minnesota, respectively. He leads the Road Doctor Program at Minnesota DOT's (MnDOT) Office of Materials and Road Research which is evaluating and progressively integrating 3D Ground Penetrating Radar (3D-GPR) and Traffic Speed Deflectometer (TSD) into MnDOT's project scoping practices. Eyoab is the PI for TPF-5(504), concentrating on the automated detection of subsurface pavement defects via NDT-based testing methodologies. Eyoab is the technical liaison for TPF-5(385), facilitating the integration of TSD for network and project-level pavement evaluations. Prior to MnDOT, his experience includes time at Federal Highway Administration (FHWA) and American Engineering Testing (AET).

Matthew J. Zeller, P.E. has worked at Concrete Paving Association of Minnesota (CPAM) in since 2001, focusing on the promotion of concrete pavements to various transportation agencies. Prior to CPAM, Matt worked for the Minnesota DOT (MnDOT) for 10 years, 9 of which as MnDOT's Assistant/Deputy Concrete Engineer. Matt is a registered professional engineer and graduated with a B.S. in civil engineering from North Dakota State University.