OTRD

OKLAHOMA TRANSPORTATION RESEARCH DAY

"Transportation Excellence Through Research and Implementation"

2022

# OKLAHOMA TRANSPORTATION RESEARCH DAY

## Transportation Excellence Through Research and Implementation

Tuesday, October 18

Hosted by

Southern Plains Transportation Center

Oklahoma Transportation

ABC UTC

Accelerated Bridge Construction University Transportation Center

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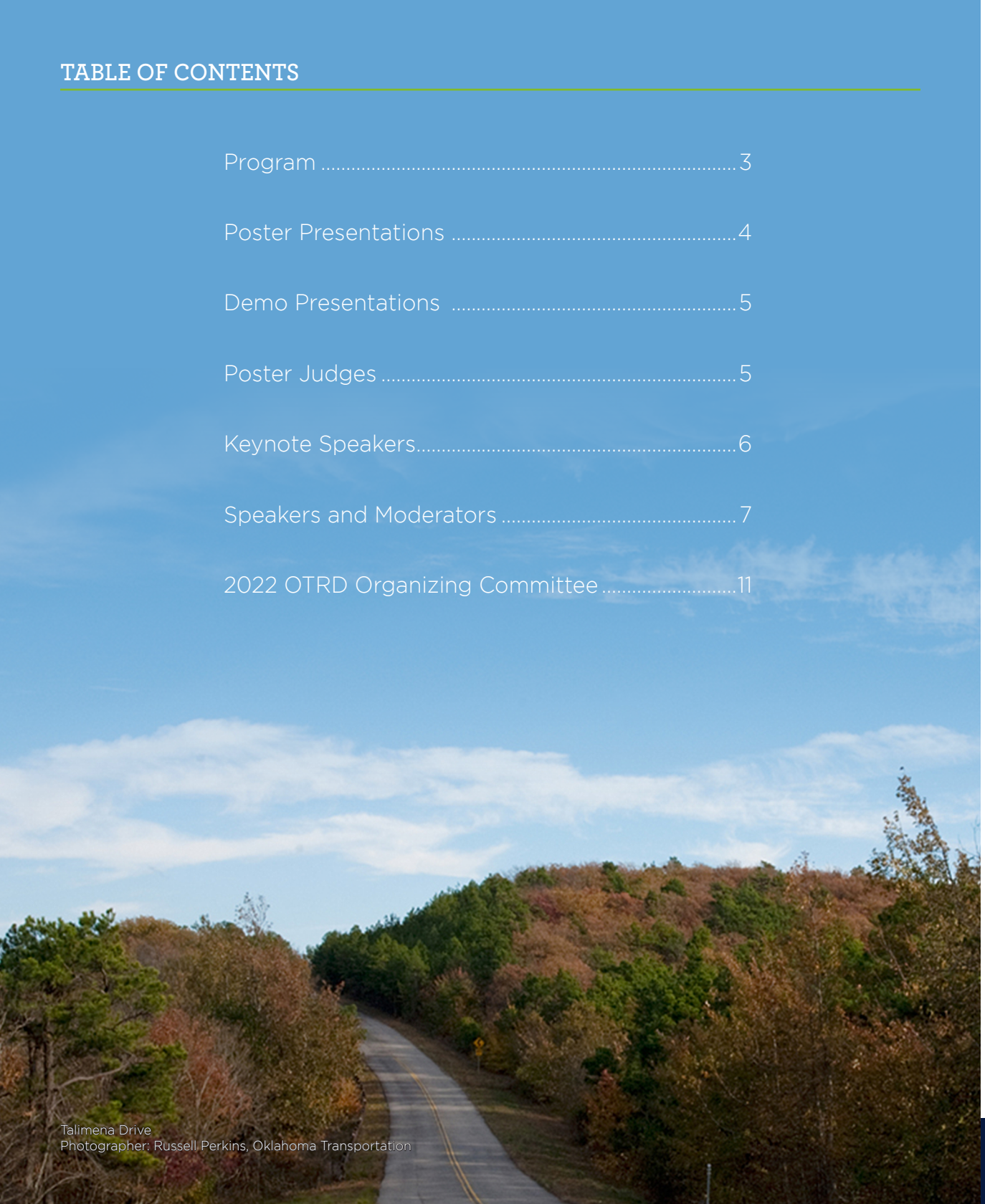


Talimena Drive
Photographer: Russell Perkins, Oklahoma Transportation

# PROGRAM

7:30 a.m. **Registration and Breakfast**

8:30 a.m. **Welcome and Opening Remarks**
*Moderator:* Joni Seymour, Chief Innovation Officer, Oklahoma Transportation Cabinet Agencies
Tim Gatz, Oklahoma Secretary of Transportation

8:45 a.m. **Keynote Lecture One**
*Moderator:* Joni Seymour, Chief Innovation Officer, Oklahoma Transportation Cabinet Agencies
**How Research and TRB Benefit All Parts of a state DOT: From Front Line Worker to CEO**
Neil Pederson, Executive Director, Transportation Research Board

9:15 a.m. **Networking Break and Poster and Demo Viewing**

## TECHNICAL SESSIONS ONE

*Moderator:* Kelvin Wang, Oklahoma State University

10:00 am **Keynote Lecture Two**
**FHWA's R&D: Innovation for the Future of Transportation**
Craig Thor, Chief Scientist, Turner-Fairbank Highway Research Center, Federal Highway Administration

10:30 a.m. **Evaluation of Performance of Existing Reinforcement for Oklahoma Bridges**
David Darwin, University of Kansas, and Walt Peters, Oklahoma Transportation

10:50 a.m. **Implementation Plans for Balanced Mix Design in Oklahoma**
David Vivanco, Oklahoma Transportation

11:10 a.m. **The Importance of Section 508 Compliance**
Enid White, Research Manager, Wyoming Department of Transportation

11:30 a.m. **Advanced Mobility Task Force**
Jamey Jacob, Oklahoma State University, and Tara Brown, Oklahoma Transportation

11:50 a.m. **Lunch and Poster and Demo Viewing**

## TECHNICAL SESSIONS TWO

*Moderator:* Royce Floyd, The University of Oklahoma

1:00 pm **Keynote Lecture Three**
**Addressing Critical Issues Through Transportation Innovation**
Kevin Womack, Associate Administrator, Research and Innovative Technology Administration, US Department of Transportation, Retired; Senior Research Scientist, Texas A&M Transportation Institute

1:30 pm **Compost Filter Socks for Storm Water and Erosion Control in Construction**
Jason Vogel, The University of Oklahoma

1:50 pm **Probabilistic Approach for the Design of Drilled Shafts in Weak Rock in Oklahoma**
Erik Loehr, University of Missouri, and Shon Jessee, Oklahoma Transportation

2:10 pm **Response of Bridge Abutments to Backfilling and Crane Loading During Construction**
Tommy Bounds, The University of Oklahoma

2:30 pm **Shrinkage Induced Deformations in Steel Bridges Made Composite with Concrete Deck Slabs**
Bruce Russell, Oklahoma State University, and Walt Peters, Oklahoma Transportation

2:50 pm **Effect of Nanomodification on Freeze Thaw Behavior of Fiber Reinforced Polymers**
Shreya Vemuganti, The University of Oklahoma

3:10 p.m. **Networking Break and Poster and Demo Viewing**

3:30 p.m. **Poster Awards Ceremony and Video Presentations of Winning Posters**
Poster Judge Panel

4:00 pm **Closing Remarks**
Joni Seymour, Chief Innovation Officer, Oklahoma Transportation Cabinet Agencies, and Musharraf Zaman, Director, Southern Plains Transportation Center, The University of Oklahoma

# POSTER PRESENTATIONS

**1. Chemical Additives to Boost Strength Development of BCSA Cement at Colder Temperatures**
Behzad Farivar and Cameron D. Murray | University of Arkansas

**2. Identify Best Practices for Project Bundling using Semi-Structured Interviews**
Saurav Shrestha, Yongwei Shan, and Paul M. Goodrum | Oklahoma State University

**3. Developing Mix Proportions of Class C Fly Ash Based Alkali-Activated Mortar in View of Different 3D-Printing Approaches**
Fareh Abudawaba, Ahmed Gheni, and Mohamed ElGawady | Missouri University of Science and Technology

**4. Impacts of Different Parameters of CSS on Particle Size Compared to Other Asphalt Emulsion**
Anik Roy | University of Arkansas

**5. A Two-Stage Stochastic Optimization Model for Port Infrastructure Planning**
Sanjeev Bhurtyal, Sarah Hernandez, Sandra Eksioglu, and Manzi Yves | University of Arkansas

**6. Effectiveness of Rail-Mounted Strain Gauges for Track Support Condition Assessment**
Md. Fazle Rabbi, Rakan Alturk, Radim Bruzek, Theodore Sussmann, Hugh Thompson, and Debakanta Mishra | Oklahoma State University

**7. Evaluating the Impact of Various Asphalt Rejuvenating Agents on the Performance of Asphalt Binders**
Sagar Ghos, Syed Ashik Ali, Kenneth R. Hobson, and Musharraf Zaman | University of Oklahoma

**8. Impact of Equipment Type on Particle Size Measurement of Civil Engineering Materials**
Tanner Turben and Andrew Braham | University of Arkansas

**9. Development of A Verified Non-Linear Winkler Model for the Seismic Analysis of Pile Foundations in Improved Soils**
Ali Shojaeian, Sumangali Sivakumaran, and Kanthasamy K. Muraleetharan | University of Oklahoma

**10. Mitigation of Swelling Soil-Induced Problems in Oklahoma Using Chemical Injections**
Luis Urbina Barrios, Roy Khalife, Matias Mendez Larrain, Musharraf Zaman, and Talayeh Razzaghi | University of Oklahoma

**11. Automated Damage Detection in Transportation Infrastructure**
Aditya Nayak, Somayeh Shojaeikhah, and Mohamed Soliman | Oklahoma State University

**12. Development of A Rapid Setting, Self-Consolidating Concrete (RS-SCC) Mixture Design for Structural Repairs**
Elizabeth Poblete and Cameron Murray | University of Arkansas

**13. Life Cycle Assessment of Asphalt Mixtures and Pavements**
Manouchehr Zeidi, Aisan Ranjbar Moshfeghi, and Adeoluwa Gbolade | Oklahoma State University

**14. Effect of Chemical Warm-Mix Additives on Asphalt Binder Rheological and Chemical Properties in the Context of Aging**
Aisan Ranjbar Moshfeghi, Debakanta Mishra, and Fujie Zhou | Oklahoma State University

**15. Influence of Seasonal Changes on Shear Wave Velocity in Compacted Soils**
Tareq Abuawad, Gerald Miller, and Kanthasamy Muraleethran | University of Oklahoma

**16. Criticality Assessment Metrics of Arkansas's Highway System using the Analytical Hierarchy Process (AHP) Model**
Kwadwo Amankwah Nkyi | University of Arkansas

**17. Analysis of Instrumented Airfield Pavement Data**
Kaustav Chatterjee and Debakanta Mishra | Oklahoma State University

**18. Study to Determine an Ideal Binder Blending Parameter**
Mohammad Tahir Ansari | University of Arkansas

**19. In Channel Sediment Basin Design Enhancement**
Cheyenne Mata, Jaime Schussler, and Mike Perez | Oklahoma State University

**20. Implementing Localization and Mapping with Advanced AI for Autonomous Navigation**
Daniel Vargas and Golnaz Habibi | University of Oklahoma

**21. Compaction Control for Open Graded Aggregate Using Light Weight Deflectometer**
Ratul Mondal, Md. Fazle Rabbi, and Debakanta Mishra | Oklahoma State University

**22. Experimental and Numerical Study of Geogrid Aggregate Interaction**
Mahsa Gharizadehvarnosefaderani, and Debakanta Mishra | Oklahoma State University

**23. Identifying Crisis Response Communities in Online Social Networks for Compound Disasters: The Case of Hurricane Laura and Covid 19**
Khondhaker Al Momin, Imran Kays, and Arif Mohaimin Sadri | University of Oklahoma

**24. Computational and Fourier-Transform Infrared Spectroscopy Study of Chemical Composition and Its Effect on Asphalt Aging**
Emmy Huang, A.K. Fazlur Rahman, Sagar Ghos, Musharraf Zaman, Edgar A. O'Rear III, and Liangliang Huang | University of Oklahoma

**25. Modifying Superpave Gyratory Compaction Specification to Increase Pavement Durability**
Jonathan Stonestreet | University of Arkansas

**26. Navigating the New Normal: Status of Telecommuting in the US in a Pandemic Era**
Adedolapo Ogungbire and Suman Mitra | University of Arkansas

**27. Evaluation of Bridge Approach Slab and Dynamic Load Allowance (IM) Using Sub-mm 3D Laser Imaging Technology**
Guolong Wang, Kelvin C. P. Wang, Guangwei Yang, and Joshua Qiang Li | Oklahoma State University

**28. Investigating Freeze-Thaw Behavior of Nanomodified Fiber-Reinforced Polymers**
Alexandra Liever, Stephanie Castillo, and Shreya Vemuganti | University of Oklahoma

**29. Collaborative Multi view Perception for a Safe, Robust, and Scalable Autonomous Driving**
Yuki Zheng, Parisa Masnadi Khiabani, Tyler Roman, Golnaz Habibi | University of Oklahoma

**30. IOT-Based Concrete Structure Health Monitoring System**
Justin Davis, Angela Franco, and Jasmine Brown | University of Central Oklahoma

**31. Laboratory Evaluation of Strength, Permeability and Durability of Recycled Concrete Aggregate (RCA) for Pavement Base Construction**
Paul Cancino, Syed Ashik Ali, Musharraf Zaman, and Kenneth Hobson | University of Oklahoma

**32. Enhancement of Data Analysis Procedure of Traffic Speed Deflection Device for Pavement Structural Evaluation**
Matias Mendez Larrain, Syed Ashik Ali, Kenneth Hobson, and Musharraf Zaman | University of Oklahoma

**33. Exploring the Interdependencies between Transportation and Stormwater Networks: The Case of Norman, Oklahoma**
Imran Kays, Arif M. Sadri, K.K. Muraleetharan, Scott Harvey, and Gerald Miller | University of Oklahoma

**34. Leveraging Social Media Data to Identify Latent Indicators of Diversity, Equity, and Inclusion (DEI) of Transportation System**
Fariha Nazneen Rista, Md Rakibul Alam, Khondhaker Al Momin, and Arif M. Sadri | University of Oklahoma

**35. Exploring the Effects of Directionality Interventions in Road Networks Based on Topological Credentials: The Case of Sioux Falls**
Imran Kayes, Arif M. Sadri, and Maisha Khan | University of Oklahoma

**36. Implementation of Ultra-High Performance Concrete in the Replacement of the Lake Eufaula Spillway Bridge**
Omar Yadak and Royce Floyd | University of Oklahoma

## DEMO PRESENTATIONS

**Flooding Monitoring and Prediction System Development and ODOT Radar System for Real-Time Traffic Flow Monitoring**
Hazem Refai, The University of Oklahoma

**GRS-IBS Website**
Kianoosh Hatami, The University of Oklahoma

**Feasibility of Blast Furnace Slag for Stabilizing Sulfate Bearing Soil (Harvard Miniature Device)**
Gerald Miller, The University of Oklahoma

**Oklahoma Transportation Virtual Library**
Michael Molina, The University of Oklahoma

**On-Demand Skid Studies, Grip Tester**
Joshua Li, Oklahoma State University

**Hawkeye Website for Traffic Speed Deflectometer (TSDD), Portable Light-Weight Deflectometer, SmartRock – Aggregate and Rip-Rap Analysis Device**
Deb. Mishra, Oklahoma State University

**Unmanned Aerial Systems (UAS) and Post Processing Demo**
Jamey Jacob and Victoria Natalie, Oklahoma State University

**Incremental Creep at Low-Temperatures (iCCL), Dynamic Shear Rheometer**
Mohamed Elkashef, Oklahoma State University, and Miguel Toj, Anton Paar

**Traffic Incident Management (TIM)**
Roger Stratka, Oklahoma Transportation

**Local Technical Assistance Program – LTAP**
Kimberly Johnson, Oklahoma State University

**Houston Radar Traffic Data Collection System with Speedlance Pro Interface**
Michael Smith, Oklahoma Transportation

**Roadside Vegetation Management (RVM)**
Dennis Martin, Oklahoma State University

**American Concrete Pavement Association, Oklahoma/ Arkansas Chapter**
Brent Burwell, American Concrete Pavement Association

**Machine Intelligence – Estimating Real-Time Density of Asphalt Pavements During Compaction**
Sesh Commuri, Garrett Winkelmaier, Shankar Poudel, University of Nevada, Reno

## POSTER JUDGES

**Walt Peters**
Bridge Division, Oklahoma Transportation

**Craig Parker**
Silver Star Construction Company, Inc.

**André Guzmán Rocha**
Duit Holdings, Inc.

**Brent Burwell**
Oklahoma Concrete Paving Association

**Teresa Stephens**
Research Engineer, Oklahoma Transportation

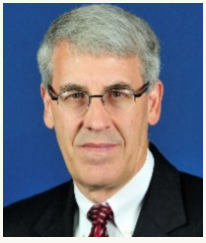
"Roads remain the **essential network** of the non-virtual world. They are the **infrastructure** upon which almost all other infrastructure depends. They are the **paths** of **human endeavor**."

—Ted Conover
*Author and journalist*

## KEYNOTE SPEAKERS

**Neil Pedersen** has been Executive Director of the Transportation Research Board (TRB) since 2015. In that role he provides executive direction and leadership to TRB's technical activities, including its annual meeting of over 14,000 transportation professionals, its 180 technical committees, its conferences, and its publications; its peer reviewed policy consensus studies; and its multimodal cooperative research programs. Prior to joining TRB, Neil spent 29 years at the Maryland Department of Transportation, where he served the last eight years as State Highway Administrator and Governor's Highway Safety Representative.

**Craig Thor** has served as the Chief Scientist at the FHWA Turner-Fairbank Highway Research Center (TFHRC) since August 2021. In this role he serves as a technical advisor to the Leadership Team at TFHRC and supports the Associate Administrator for Research and Development in areas of technical coordination, scientific integrity, and research planning - ensuring that research conducted at TFHRC is addressing the future needs and the goals of the U.S. Department of Transportation. Prior to this role, Dr. Thor served as the Senior Research and Technology (R&T) Legislation and Budget Analyst in the Office of Corporate Research, Technology & Innovation Management at TFHRC. Prior to this he served as a Research Civil Engineer in the FHWA Office of Safety Research and Development. Dr. Thor has been with FHWA for 12 years. He has a Bachelor's degree in Material Science Engineering from Michigan State University and a Master's degree and Ph.D. in Biomedical Engineering from the Virginia Tech-Wake Forest School of Biomedical Engineering and Sciences.



**Kevin Womack** joined the Texas A&M Transportation Institute in October of 2019, upon retiring from the US Department of Transportation (USDOT) as the Director of the Office of Research, Development and Technology and the Director of the Transportation Safety Institute, both within the Office of the Secretary. Dr. Womack began his tenure at the US Department of Transportation in August 2011 as the Associate Administrator for Research, Development and Technology in the Research and Innovative Technology Administration, where he oversaw the University Transportation Centers program and was also responsible for coordinating research across the USDOT. Prior to accepting his position at the USDOT, he was a Professor of Civil Engineering and Director of the Utah Transportation Center at Utah State University. While at Utah State University, he served in the university's central administration as an Associate Vice-President for Business and Finance. Dr. Womack also served as an At-Large Director for the American Society of Civil Engineers (ASCE) and was elected a Fellow to the Society in April of 2010. From 2002 to 2008 Dr. Womack was on the National Academies Research and Technology Coordinating Committee, which serves as a research advisory committee to the FHWA.

## SPEAKERS AND MODERATORS

**Tara Brown** was named the Oklahoma Transportation Cabinet's Deputy Chief Innovation Officer in February 2022. Brown assists Chief Innovation Officer Joni Seymour in overseeing all modernization and innovation-related efforts, including the Autonomous Vehicle Working Group and Work Zone Safety Program. Since 2017, Brown served as the Oklahoma Department of Transportation's Coordinator of Executive Staff and previously served in numerous and oftentimes concurrent roles from 2013-2017 within the Department. Brown holds a bachelor's degree from Oklahoma State University in Sociology and began her state service career at the Oklahoma Department of Human Services in 2009. Later she moved to the Oklahoma Public Employees Retirement System and eventually joined ODOT in 2013. Originally from Ardmore, she and her husband Byron, live in Moore with their three children.

**Tommy Bounds** is a Postdoctoral Research Associate in the School of Civil Engineering and Environmental Science at the University of Oklahoma where he received his Ph.D. He has taught courses related to geotechnical engineering such as foundation engineering, soil-structure interaction, and soil dynamics. His research interests are in the following areas: (1) soil-structure interaction; (2) unsaturated soil mechanics; (3) influence of natural hazards on civil infrastructure; (4) numerical modeling of geomaterials; and (5) behavior of soft soils. Prior to completing his Ph.D., he worked as a geotechnical engineer at Red Rock Consulting based in Edmond, Oklahoma. During that time, he performed site investigations, laboratory and in-situ testing, geotechnical analysis, and field inspections for commercial, state DOT, and federal clients. He is an active member of several ASCE technical committees. He is currently the vice-president of the Oklahoma Chapter ASCE Geo-Institute.

**David Darwin** is the Chair and Deane E. Ackers Distinguished Professor of Civil, Environmental, Architectural Engineering at the University of Kansas. He received his BS in Civil Engineering and MS in Structural Engineering from Cornell University and PhD in Civil Engineering from the University of Illinois at Urbana-Champaign. His areas of research include structural engineering and engineering materials, reinforced concrete behavior, concrete materials and constructions, bond between reinforcing steel and concrete, cracking in reinforced concrete structures, and corrosion of reinforcing steel. He is a fellow of the American Association for the Advancement of Science, a fellow and an honorary member of American Concrete Institute, a distinguished member of American Society of Civil Engineers (ASCE), and a fellow of Structural Engineering Institute of ASCE.

**Royce Floyd** is an Associate Professor in the School of Civil Engineering and Environmental Science at the University of Oklahoma and is a registered structural engineer in Oklahoma. His current research is focused on extending the life of transportation infrastructure using innovative concrete materials, such as ultra-high performance concrete and calcium sulfoaluminate cement concrete. He has been a PI or Co-PI on more than twenty research projects sponsored by Oklahoma Department of Transportation, Southern Plains Transportation Center, and Accelerated Bridge Construction – University Transportation Center and has published more than 40 journal articles. He teaches courses on reinforced concrete, prestressed concrete, and structural wood design and has supervised 19 master's thesis and Ph.D. students at OU. He is a member of the American Society of Civil Engineers, Precast/Prestressed Concrete Institute, and American Concrete Institute.

**Tim J. Gatz** was appointed Oklahoma Secretary of Transportation by Gov. Kevin Stitt in January 2019 and was subsequently confirmed by the Oklahoma Senate in April 2019. He currently serves as the governor's appointee as executive director of the Oklahoma Department of Transportation and as executive director of the Oklahoma Turnpike Authority. Gatz previously served as ODOT Deputy Director from 2013 until his appointment to OTA in 2016. He has nearly 30 years of service with ODOT, beginning his career with the agency in 1990 as a drafting technician and advancing to various roles in transportation project management and program delivery. He is a member of the American Association of State Highway and Transportation Officials, the International Bridge, Tunnel and Turnpike Association and the American Society of Landscape Architects.

**Jamey Jacob** is the Director of the Unmanned Systems Research Institute and John Hendrix Chair and Professor of Aerospace Engineering in the School of Mechanical and Aerospace Engineering at Oklahoma State University. His current efforts are focused on advanced air mobility and their enhanced operation in the national airspace for broader innovative applications. He currently leads the NASA University Leadership Initiative program, WINDMAP, to develop aviation weather solutions for advanced aerial mobility applications, including drones and urban air taxis. He is the director for the Counter-UAS Center of Excellence. He received his B.S. in Aerospace Engineering from the University of Oklahoma in 1990 and his M.S and Ph.D. in Mechanical Engineering from the University of California at Berkeley in 1992 and 1995, respectively. He was a National Research Council Summer Faculty Fellow in the Air Force Research Laboratory and received the SAE Ralph Teetor Award, the Lockheed Martin Teaching Award, and the OSU Regents Distinguished Teaching and Research Awards, among other mentoring accolades.

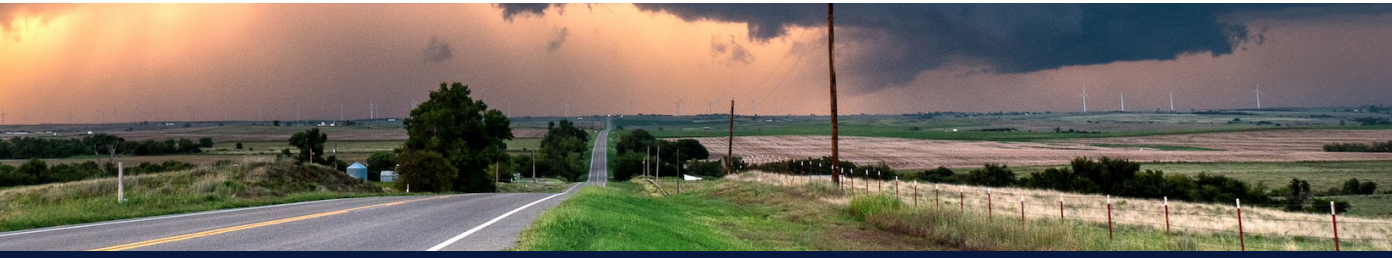
**Shon Jessee** has worked as a geotechnical engineer in the Bridge Division at the Oklahoma Department of Transportation since 2015, where he provides support for design and construction of foundations and retaining walls for ODOT projects. Prior to that, he worked as a geotechnical engineer at Terracon. He holds a Bachelor of Science in Civil & Environmental Engineering from the University of Utah, and a Master of Science in Civil Engineering from Brigham Young University. He has authored publications including Passive Pressure on Skewed Bridge Abutments and Passive Force-Deflection Curves. For Skewed Abutments.

**J. Erik Loehr** is the Glen A. Barton Professor in the College of Engineering at the University of Missouri. He received his BS, MS and PhD degrees from the University of Texas at Austin. He has over thirty years of experience conducting geotechnical engineering research, most recently including work to evaluate the benefits of post-grouting for drilled shafts with funding from the Federal Highway Administration and the California Department of Transportation. He has authored or co-authored numerous publications, including the most recent updates to FHWA's Geotechnical Engineering Circulars 5, 10, and 15, and has contributed to development of practical reliability-based design provisions for several state departments of transportation and AASHTO. He is active in professional organizations including the Deep Foundations Institute, the International Association of Foundation Drilling (ADSC), the ASCE Geo-Institute, and the Transportation Research Board.

**Walt Peters** has worked for the Oklahoma Department of Transportation for the last 49 years all in the Bridge Division except when he was an EIT in 1973. He spent the first 15 years of his career in bridge design, progressed to a project manager, and is presently serving as the Assistant Bridge Engineer for Maintenance. He is working primarily coordinating bridge research, bridge inspection contracts, and specifications. Walt is married to Rita. They have three children and six grandchildren. Walt is a graduate of Texas Tech University. He likes model railroading (S scale) and Bible study. He is a member of the YMCA and goes swimming on Saturdays. He likes bike riding.

**Bruce W. Russell** has served Oklahoma as a faculty member with leadership roles at both The University of Oklahoma and Oklahoma State University. Since mid-1990s, he has successfully completed over $8 million in externally funded research and supervised more than 40 graduate students; seven of his former students hold faculty positions at universities across the U.S. He has published more than 40 refereed manuscripts, and has been a regular speaker at national and international conferences. He won the T.Y. Lin Award from ASCE, the Martin P. Korn Award from the PCI Journal, and the George D. Nasser Award from PCI. He has served as the Faculty Sponsor of American Indian Science and Engineering Student Association (AISES). In 2021, Dr. Russell was inducted as an Honorary Chapter Member of Chi Epsilon chapter at OSU. He is currently serving his third term as a voting member of ACI 318P, Building Code sub-Committee for Prestressed Concrete. Also, currently, he serves as a voting member of the PCI Committee on Bridges.

**Joni Seymour** was selected to serve as Chief Innovation Officer (CINO) for the Oklahoma Transportation Cabinet Agencies, which include the Oklahoma Department of Transportation (ODOT), Oklahoma Turnpike Authority (OTA) and Oklahoma Aeronautics Commission (OAC), in April 2021. In the newly created CINO position, Seymour will work with every business unit across the entire state Transportation Cabinet to promote innovation that streamlines organizational and technological processes. Most recently Seymour served as the Chief Information Officer for OTA, beginning in 2017. She was responsible for information technology matters relating to personnel, budget, and the overall technological systems at the agency. Her career with OTA began in 2004 as a technology analyst. In 2010, she was promoted to be the Software Development Manager. She worked in this role until 2013 when she left to work in the private sector briefly before returning to OTA in 2017. While at OTA, Seymour supervised multiple system developments and upgrades, including the ongoing switch to cashless tolling. Seymour continues her work in the interoperable world and currently serves as Vice Chair of the Central US Interoperability Steering Committee. Seymour earned her associate degree in computer information systems from Oklahoma State University – Oklahoma City in 2011. She went on to complete her Bachelor of Science in organizational leadership in 2015 and her Master of Business Administration in 2017 at Southern Nazarene University (SNU). She and her husband, Johnny, live in Yukon and have two adult children. Seymour enjoys gardening as well as spending time with her family, grandchildren and friends.



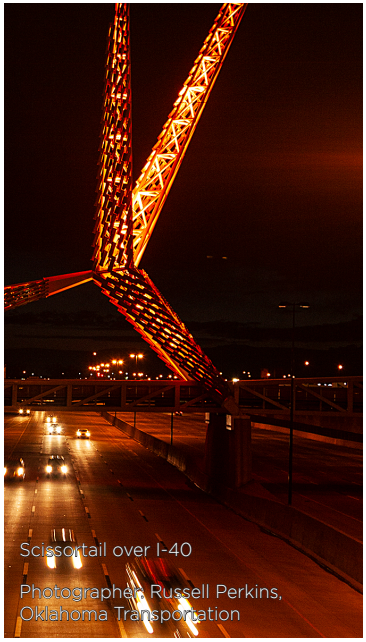
**Shreya Vemuganti** has been an assistant professor of Civil Engineering and Environmental Science at The University of Oklahoma since Fall 2021. She received her Ph.D. from the University of New Mexico, graduating as the outstanding student. She is a recipient of the AREMA national educational award and other honors. She has worked as a bridge load rater for the New Mexico Department of Transportation and as a research intern at Sandia National Labs. Her research is focused on developing innovative technologies with cementitious materials and fiber-reinforced polymer (FRP) composites. Her research has been recognized through journal publications and technical competitions through best paper awards, editor's choice awards, and best poster and presentation awards.

**David Vivanco** is the Bituminous Branch Manager at Oklahoma Department of Transportation. After receiving his bachelor's degree in Civil Engineering from the Universidad del Valle de Mexico, David worked on infrastructure projects in the Monterrey metro area from 2010 to 2013. He then relocated to South Texas and obtained his master's degree from Texas A&M University – Kingsville in 2016. After graduating, David joined ODOT as an Engineer Intern and selected the Bituminous Branch as his permanent assignment assisting the branch manager with research and implementation projects and the mix design and liquid labs' daily operations. After two years of working with ODOT, David decided to pursue his Ph.D. at Auburn University and served as a Graduate Research Assistant at the National Center for Asphalt Technology from 2019 to 2021, focusing on his research in Balanced Mix Design and obtaining the status of Ph.D. candidate; he expects to defend his dissertation in 2023. David moved back to Oklahoma in March 2022 to take the Bituminous Branch Manager position, overseeing the State's asphalt-related materials design, production, construction, and quality assurance. He enjoys traveling, bike riding, and spending time with his wife and two Schnauzer dogs.

**Jason Vogel** is a professor of Civil Engineering and Environmental Science at The University of Oklahoma (OU). He has worked to develop solutions for water issues throughout the Great Plains of the United States and beyond for more than 25 years. He has served as Director of the Oklahoma Water Survey at the University of Oklahoma (OU) since June 2017. Prior to joining OU, he held faculty and research positions at Oklahoma State University and at the U.S. Geological Survey, respectively. Since the onset of the COVID-19 pandemic, Vogel has led a team that has developed into the preeminent source for wastewater-based epidemiology in Oklahoma. He is recognized as one of the leading experts in low-impact development stormwater management systems in the region. Vogel has served the water sector at the national, state, and local levels for a variety of groups, including the American Society of Civil Engineers, the American Society of Agricultural and Biological Engineers, the American Ecological Engineering Society, and the Oklahoma Clean Lakes and Watersheds Association.

**Kelvin Wang** is a Regents Professor and Dawson Chair in Transportation Engineering at Oklahoma State University. He received his Ph.D. from Arizona State University in 1992. His research interests focus on automated technologies for pavement survey and pavement data systems for design and management. His technological contributions in recent years include sub-mm 3D laser imaging of pavements at full-lane coverage and highway speed for data collection, and automated data processing for distresses and safety evaluations based on unique and novel Deep-Learning techniques. His technologies are used in the US, Brazil, South Africa, China, India, and Japan. In 2021, American Society of Civil Engineers (ASCE) bestowed its highest honor to Dr. Wang as a Distinguished Member of ASCE (Dist.M.ASCE). He has received many awards and honors including the Master Medal in 2011 and the Turner Award in 2017, both from ASCE. He was FY2017 president of ASCE Transportation & Development Institute. He is a co-editor-in-chief and co-founding editor of the International Journal of Rail Transportation.

**Musharraf Zaman** holds the Aaron Alexander Professorship in Civil Engineering and Alumni Chair Professorship in Petroleum and Geological Engineering at the University of Oklahoma. He served as the associate dean for research and graduate education, OU Gallogly College of Engineering from July 2005 to December 2013. During his tenure at OU, he has received several prestigious national-level teaching awards from the American Society of Engineering Education and more than $30 million in external funding from various state and federal agencies and the industry. He has published more than 475 peer-reviewed journal and conference papers and 17 books and book chapters and supervised more than 90 theses and dissertations. Several of his papers have won prestigious awards from international societies and organizations. He is a fellow and life member of American Society of Civil Engineers. He served as the editor-in-chief of the International Journal of Geomechanics, ASCE for 11 years and is currently serving as a co-editor. Since October 2013, he has been serving as the director of the Southern Plains Transportation Center.



Scissortail over I-40

Photographer: Russell Perkins, Oklahoma Transportation

Elm Creek Bridge on SH-30

Photographer: Russell Perkins, Oklahoma Transportation

## 2022 OTRD ORGANIZING COMMITTEE

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