



Welcome to the 19<sup>th</sup>  
**ARIZONA PAVEMENTS /  
MATERIALS CONFERENCE**

**2022** Infrastructure Resiliency  
and Preservation



**Tempe, Arizona**  
**November 16-17, 2022**



## Sponsors

### Presented By



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### Conference Sponsor



## Exhibitors





Updates  
Preservation

Modified Asphalt Binders  
Sustainability

Geotechnical Issues  
Innovations

## Infrastructure Resilience and Preservation

### We are featuring presentations on:

- Infrastructure Bill & Arizona
- FHWA/ADOT/MCDOT Overview
- Concrete Pavement Performance
- Plastics and Rubber in Asphalt Pavements
- Targeting Net Zero Emissions
- ACPA Concrete Pavement Update
- Pavement Preservation: Successes and Failures
- The History of Pavement Research in Arizona presented by ASU's Southwest Pavement Technology Initiative

### Accommodations

Visit our website

<https://pavement.engineering.asu.edu> for a list of hotels conveniently located within walking distance of the campus. Contact the hotel directly to make your reservation. ASU and government rates may be available.

### Location

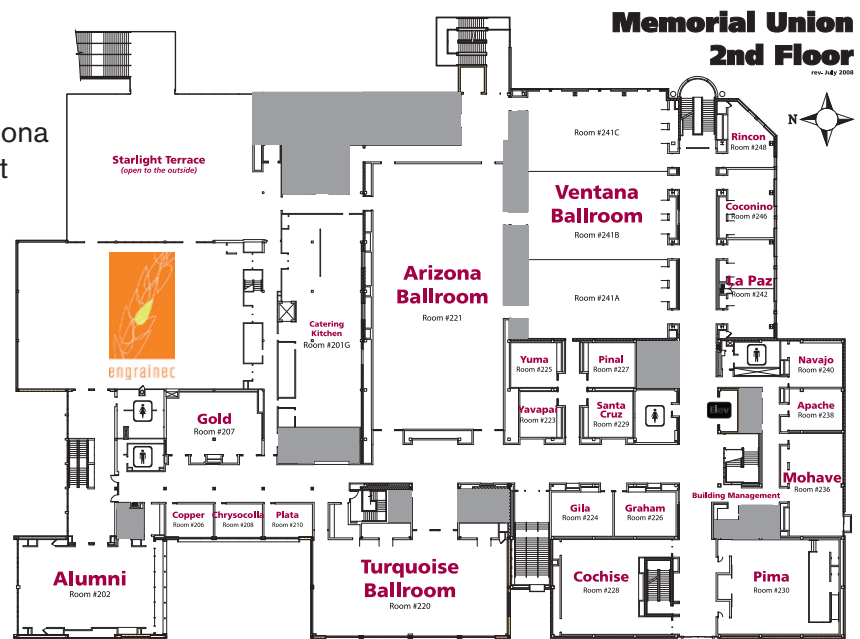
### Parking at ASU

Visitor parking is available in the following parking structures.

- **Apache Blvd. Structure** located at Apache Blvd and Normal Avenue (NW corner)
- **Rural Road Structure** located at Rural Road and Terrace Road (SW corner)
- **Fulton Center Structure** (ASU Foundation Building) located at University Drive and College Avenue (NE corner)

The cost of parking is included in your registration fee. Please bring your parking ticket to the registration table when you arrive to obtain a validation ticket.

ASU parking locations and maps are located at <https://campus.asu.edu/tempe/>



This two-day conference sponsored by Arizona State University (ASU), Arizona Department of Transportation (ADOT), Federal Highway Administration (FHWA), Arizona's industry and local governments will be held at Arizona State University, Tempe Campus (301 E. Orange Street, Tempe, AZ 85281) on November 16-17, 2022 in the **Memorial Union (MU)**. The MU serves as the central meeting and conference center for the ASU community.

# 2022 Program

## DAY 1 | Wednesday, November 16, 2022

8:00-10:00am	<b>Registration</b> - Ventana Ballroom   <b>Exhibit Viewing, Continental Breakfast</b> - Arizona Ballroom	
	<b>OPENING SESSION:</b> Ventana Ballroom 241	
10:00-10:10am	<b>ASU Welcome Address</b> Ram Pendyala, <i>Director</i> , School of Sustainable Engineering and the Built Environment	
10:15-10:35am	<b>FHWA Overview - Extending Pavement Life Through Resiliency and Preservation</b> Timothy Hess, <i>Associate Administrator</i> , Federal Lands Highway	
10:40-11:00am	<b>ADOT Overview</b> Gregory Byres, <i>State Engineer</i>	
11:05-11:25pm	<b>McDOT Overview</b> Kurt Sharp, <i>Special Projects &amp; Assets Branch Manager</i>	
11:30-12:00pm	<b>IJA Buy America and Buy Clean</b> Jay Hansen, <i>Executive Vice President</i> , Advocacy, NAPA	
12:05-1:30pm	<b>LUNCH: Arizona Ballroom 221- (Community Service Awards Luncheon, Witczak Endowment Presentation)</b> Moderator: Amanda McGennis, <i>Sr. Vice President</i> , Arizona Chapter AGC	
	<b>TRACK 1</b>	<b>TRACK 2</b>
	<b>SESSION 1: Sustainable Construction Practices</b> Ventana Ballroom 241 Moderator: Mo Rahman, Ergon Asphalt	<b>SESSION 2: Pavement Preservation: Successes and Failures</b> Turquoise Ballroom 220 Moderator: Jeff Stempihar, NCE
1:30-1:55pm	<b>The Use of RAP at the City of Phoenix</b> Ryan Stevens, City of Phoenix	<b>Multi-Layer Systems</b> Jeffrey R. Smith, Cactus Asphalt
2:00-2:25pm	<b>High Friction Surface Treatment</b> Mazen Muradvich, MCDOT	<b>Asphalt Pavement Recycling</b> Todd Gonser, Cutler Repaving Inc.
2:30-2:55pm	<b>Trackless Tack</b> Nye McCarty, ADOT	<b>Concrete Pavement Joint Sealing</b> Kurt Smith, Applied Pavement Technology, Inc.
3:00-3:30pm	<b>BREAK:</b> Arizona Ballroom 221	
	<b>GENERAL SESSION:</b> Ventana Ballroom 241 Moderator: Larry Scofield, International Grooving & Grinding Association	
3:30-4:15pm	<b>ACPA Moving Forward</b> Laura O'Neill Kaumo, President and CEO - ACPA	
4:15-6:00pm	<b>WELCOME RECEPTION - STUDENT POSTER SESSION</b> Turquoise Ballroom   Arizona Ballroom Door Prizes   Refreshments   All conference attendees are invited to attend.	



## DAY 2 | Thursday, November 17, 2022

7:00-8:00am	<b>Registration</b> - Ventana Ballroom   <b>Exhibit Viewing, Continental Breakfast</b> - Arizona Ballroom	
	<b>GENERAL SESSION: Modified Asphalt Binders</b> Moderator: Pat Weaver, Roadworthy Plastic Materials, LLC	
8:00-8:25am	<b>Construction and Performance Impacts of Asphalt Mix Additives at the NCAT Pavement Test Track</b> Buzz Powell, NCAT	
8:30-8:55am	<b>Polymer Modified Asphalt: A Supplier's Perspective</b> Robert McGennis, HF Sinclair	
9:00-9:25am	<b>The Use of Highly Modified Asphalt in Wearing Courses and Interlayers</b> Gary Fitts, Kraton Polymers U.S. LLC	
9:30-9:55am	<b>Aerogel Modified Bituminous Materials - aMBx</b> Kamil Kaloush, ASU	
10:00-10:25am	<b>BREAK:</b> Arizona Ballroom 221	
	<b>TRACK 1</b>	<b>TRACK 2</b>
	<b>SESSION 3: Concrete Pavements Performance</b> Ventana Ballroom 241 Moderator: Larry Scofield, IGGA	<b>SESSION 4: Plastics and Rubber in Asphalt Pavements</b> Turquoise Ballroom 220 Moderator: Robert McGennis, HF Sinclair
10:30-10:55am	<b>Performance Engineered Mixes - Durability and Sustainability Intertwined</b> Peter Taylor, Iowa State University	<b>National Update</b> Richard Willis, NAPA
11:00-11:25am	<b>Joint Activation - Minnesota's Efforts</b> Matthew Zeller, Concrete Pavement Association	<b>Enabling more sustainable pavements using recycled plastic and Reactive Elastomeric Terpolymers (RET)</b> CJ DuBois, Dow Inc.
11:30-11:55am	<b>Design Showdown – Pavement ME v. AASHTO 93</b> Eric Ferrebee, ACPA	<b>Innovations in Rubberized Asphalt Technology</b> Douglas Carlson, Liberty Tire Recycling
12:00-1:00pm	<b>LUNCH:</b> Arizona Ballroom 221 (Sponsors/Exhibitors Awards Luncheon / Student Poster Competition Presentation) Moderator: Ruben Guerrero, Jr., Director of Corporate Affairs, Salt River Materials Group	
	<b>SESSION 5: Targeting Net Zero Emissions</b> Ventana Ballroom 241 Moderator: Hasan Ozer, ASU	<b>SESSION 6: Geotech</b> Turquoise Ballroom 220 Moderator: Armando de la Rocha, Western Technologies, Inc.
1:05-1:30pm	<b>Non-Fossil Carbon Asphalt</b> Ellie Fini, ASU	<b>GeoTechTools – The First Place to Look</b> Vernon R. Schaefer, Iowa State University
1:35-2:00pm	<b>Leveraging the FHWA LCA Framework and Federal LCA Commons Data for developing LCA decision-support tools</b> Amlan Mukherjee, Michigan Tech	<b>Mitigating Expansive Soil Swelling using Geocells: A Case Study</b> Bhaskar Chittoori, Boise State University
2:05-2:45pm	<b>GENERAL SESSION:</b> Ventana Ballroom 241 Moderators: Ellie Fini, ASU and Mo Rahman, Ergon Asphalt	
	<b>Center for Bio-mediated &amp; Bio-inspired Geotechnics</b> , Ed Kavazanjian, ASU	
2:45-3:30pm	<b>The History of Arizona's Pavements</b> , Rob Duvall, City of Phoenix	
3:30pm	<b>END OF CONFERENCE   Grand Prize Drawing</b>	

# Speakers



**Gregory Byres, PE**  
**Deputy Director**  
**State Engineer**  
**ADOT**

Greg currently serves as state engineer and deputy director for transportation.

As leader of the Infrastructure Delivery and Operations Division (IDO), Transportation Systems Management and Operations Division (TSMO), and the Multimodal Transportation Division (MPD), he oversees development and delivery of the ADOT construction program, including environmental studies, engineering design, land acquisition and construction. He also supports the maintenance and operation of more than 6,000 miles of interstate and state highways in Arizona.



**Douglas D. Carlson**  
**Vice President Asphalt Products**  
**Liberty Tire Recycling**

Doug is a Rubberized Asphalt Technologist with

24 years in the rubberized asphalt industry, focusing on market development. He is a member ASTM, ASCE, AGC, TRB, NAPA and Rubberized Asphalt Foundation providing insights to the development of specifications that can use recycled tire rubber in asphalt. Doug served in the USMC as a combat engineer and bulk fuel specialist and is a veteran of operations Desert Shield and Desert Storm. He is a graduate of Arizona State University in Business Administration, 1990.



**Bhaskar Chittoori, PhD, PE (TX, ID)**  
**Associate Professor and Associate Chair**  
**Boise State University**

Dr. Chittoori is also the director of the Sustainable

and Resilient Geotechnical Engineering (SuRGE) Research Laboratory. His research focuses on developing sustainable and resilient solutions to complex geomechanics issues via experimental and numerical modeling studies. Some of the research topics include microbiological, chemical, and mechanical ground modification, tree-root-inspired foundation systems, and sustainability and resiliency assessments of various civil infrastructures.



**CJ DuBois, PhD**  
**Application Development Leader | Roofing and Paving**  
**Dow, Inc.**

Dr. DuBois received his BS in Chemistry from Louisiana State

University and his PhD in Chemistry from the University of Florida with a focus on polymer synthesis and characterization. With almost 18 years of industrial experience, he is currently Dow's North America Application Development Leader for Roofing and Paving applications. He has authored more than 25 journal articles or presentations, has filed 92 patents, and participates in a number of organizations including the National Academy of Science's Transportation Research Board, the National Asphalt Paving Association (NAPA) including the Recycled Plastics Task Force, and the Asphalt Institute.



**Rob Duvall**  
**Materials Supervisor**  
**City of Phoenix**

Rob has over 21 years of experience working in the construction materials testing field, including 16

years with the City of Phoenix. Rob is active with several committees including Maricopa Association of Governments specification materials working group, Southwest Pavement Technology Center advisory committee, Arizona Technical Testing Institute technical advisory board and Pavement and Materials Conference planning committee. Rob is also the owner and operator of Dubeyscape, a photography and videography company. His documentary film titled; The History of Arizona's Pavements is premiering at this year's conference.



**Eric C. Ferrebee, PE (IL)**  
**Senior Director of Technical Services**  
**American Concrete Pavement Association**

Eric is the Senior Director

of Technical Services with the American Concrete Pavement Association. He is responsible for providing technical resources and consulting services to ACPA members and the agencies and owners they serve. He is a key team member in the development of key industry tools such as PavementDesigner.org and WikiPave. Eric has earned both his Bachelors and Masters Degrees in Civil Engineering from the University of Illinois at Urbana-Champaign.



**Ellie Fini, PhD**  
**Associate Professor, School of Sustainable Engineering and the Built Environment**  
**ASU**

Dr. Fini is an Associate

Professor at Arizona State University, an Invention Ambassador at the American Association for the Advancement of Science, a Fulbright Scholar of Aalborg University of Denmark, a Senior Sustainability Scientist at the Global Institute of Sustainability and Innovation and Director of the Innovation Network for Materials, Methods and Management. Her research focuses on the production, characterization and atomistic modelling of sustainable novel materials for use in construction. She received her PhD in Civil Engineering from the University of Illinois Urbana-Champaign.



**Gary L. Fitts, PE**  
**Manager, Market Development**  
**Kraton Polymers U.S., LLC**

Gary is a registered professional engineer in

Texas with engineering degrees from the University of Texas at Austin. His career has focused on pavements and asphalt since the 1980's including roles with Shell Bitumen and the Asphalt Institute. He joined Kraton Polymers in December 2018.



**Todd Gonser, PE (CO)**  
**Western States Manager**  
**Cutler Repaving Inc.**

As a former Materials and Pavement Design Engineer for the Colorado DOT, Todd will offer a unique perspective on the topic

of Pavement Preservation through Hot In-Place Recycling. He has enjoyed working on both sides of this industry. At the DOT, he was charged with finding, developing and implementing cost-effective surface treatment strategies for highways in Colorado that would ultimately give taxpayers efficient, long-lasting, quality pavements for transportation. Now as a contractor, he lends his expertise to helping local agencies and DOTs throughout the Western US find, develop and implement the Hot In-Place strategy as an effective option for those very same Materials and Pavement Design Engineers. He received his Civil Engineering degree at Metro State College in Denver.



# Speakers



**Jay Hansen**  
Executive Vice  
President, Advocacy  
NAPA

Jay joined NAPA in 1998 as Vice President for government affairs and in 2011 was named NAPA's Executive Vice President. He leads NAPA's government affairs team on federal legislation and issues important to the asphalt pavement industry. His primary focus is educating members of Congress and their staff on asphalt's role in America's economy and keeping the industry informed on issues pending in Washington, D.C. Jay has a BA in Political Science from San Diego State University.



**Timothy Hess,**  
**PE (IL)**  
Associate Administrator  
for Federal Lands  
Federal Highway  
Administration

Timothy has served as the Associate Administrator for Federal Lands in the Federal Highway Administration since 2015, providing senior executive level leadership for over 700 employees who design and oversee the construction of over \$1B annually in highway infrastructure projects for federal agencies and state DOT partners. Timothy holds a M.S. in Civil Engineering from the University of Wisconsin-Madison, and a M.S. in National Security Strategy from the National War College.



**Kamil Kaloush,**  
**PhD, PE**  
Professor, School of Sustainable  
Engineering and the Built  
Environment  
ASU

Dr. Kaloush is a FORTA Professor of Pavement Engineering in the School of Sustainable Engineering and the Built Environment, affiliate faculty in the School of Sustainability and co-founder / advisor to the National Center of Excellence on SMART Innovations. He has over 35 years of industrial and academic experience in pavement engineering. He received his PhD degree, specializing in pavements and materials, from Arizona State University. His areas of expertise include pavement materials design, thermal properties, advanced laboratory testing, field performance evaluation, and pavement management systems.



**Edward Kavazanjian,**  
**PhD, PE, NAE**  
Regents Professor &  
Ira A. Fulton Professor of  
Geotechnical Engineering  
ASU

Dr. Kavazanjian's expertise includes geotechnical engineering for civil infrastructure systems, design and construction of waste containment systems, geotechnical earthquake engineering, the mechanical properties of solid waste, and the emerging field of biogeotechnical engineering. In 2013, he was elected to the National Academy of Engineering for his work on landfills and geotechnical earthquake engineering. In August 2015, he became Director of the Center for Bio-mediated and Bio-inspired Geotechnics (CBBG), a National Science Foundation-funded Gen-3 Engineering Research Center.



**Nye F. McCarty, PE**  
Flagstaff Regional  
Materials Engineer  
ADOT

Nye received his Bachelor of Science Degree in Civil & Environmental Engineering from Arizona State University in 2007. In his current role as the Flagstaff Regional Materials Engineer with the Arizona Department of Transportation, he has been instrumental in developing and implementing efforts to increase the durability and improve the performance of roads and bridges within ADOT's transportation network. Nye's passion for materials is driven by sustainability where he is concentrating his efforts to develop materials-related components of sustainable pavement systems to guide future design and construction of transportation facilities.



**Robert B. McGennis,**  
**PE (AZ, NM, TX)**  
Technical Manager |  
Asphalt  
HF Sinclair

Bob is the Asphalt Technical Manager for the HF Sinclair Corporation, a position he has held since 1998. He has management authority over quality control, PG binder and asphalt emulsion formulations, raw materials, and technology for the HF Sinclair asphalt group. He served as President of the Association of Asphalt Paving Technologists and for six years was Chair of TRB's Asphalt Materials Section. He is a past recipient of the Arizona Pavements and Materials Community Service Award. He received Bachelors and Masters of Science degrees in Civil Engineering from the University of Texas at Austin.



**Amlan Mukherjee,**  
**PhD, PE**  
Professor, Civil, Environmental and  
Geospatial Engineering  
Michigan Technological University

Dr. Mukherjee has been involved with construction research and education for almost 20 years. He has extensive background and experience in project management and life cycle assessment for the pavement construction industry. The outcomes of his research support efficient and sustainable decision-making during the design, construction and maintenance of civil infrastructure systems. He works closely with the construction materials industry, and federal and state agencies in ensuring the dissemination and application of his research in design, procurement and construction. Dr. Mukherjee has facilitated the development and implementation of the Environmental Product Declaration Program for the North American asphalt mixtures working for the National Asphalt Pavement Association.



**Mazen Muradvich,**  
**PE (AZ)**  
Civil Engineer, Design &  
Safety  
Maricopa County DOT

Mazen is a Transportation Civil Engineer with 30 years of experience in the public and private sectors. Since 1991, he has been serving transportation agencies in the U.S. in the capacity of Material & Research, Estimating, Roadway & Traffic design and Safety Engineering. Prior to that, he worked for 10 years in Europe and the Middle East as Drainage and Water System Design Engineer and in Construction Management. Currently at Maricopa County DOT, Mazen is managing the Transportation Systems Management Roadway Safety Program and leads the roadside design effort for the implementation of new safety hardware standards. He holds a BSE degree in Civil Engineering from Louisiana Tech University.



**Laura O'Neill**  
**Kaumo**  
President & CEO  
American Concrete  
Pavement  
Association

Laura is President & CEO of the American Concrete Pavement Association. She previously served as the COO of the American Council of Engineering Companies, Senior VP of Government Affairs for the National Stone, Sand, and Gravel Association, and the Director of Government Affairs for the Owner-Operator Independent Drivers Association. O'Neill Kaumo began her career in sports law with her J.D. from the University of Miami, working for the Florida Marlins and later the Boston Red Sox as a member of the Bar in Massachusetts.

# Speakers



**Ram Pendyala, PhD**  
**Director, School of Sustainable Engineering and the Built Environment ASU**

Dr. Pendyala is the director of ASU's School of Sustainable Engineering and the Built Environment. He teaches and conducts research in transportation systems engineering with a focus on travel behavior analysis and multimodal transportation demand forecasting. He is also the Director of TOMNET, a Tier 1 University Transportation Center sponsored by the U.S. Department of Transportation. Dr. Pendyala has held a number of leadership positions with the Transportation Research Board and the International Association for Travel Behavior Research.



**R. Buzz Powell, PhD, PE**  
**NCAT Associate Director and Auburn University Research Professor**

Dr. Powell worked for a state highway agency for 12 years writing and enforcing specifications. He then worked in the private sector for 2 years supporting specification compliance by industry. He became NCAT's first Test Track Manager in 1999, building hundreds of test sections in eight 3-year research cycles using methods, materials, and specifications from all over the United States. Buzz promotes implementation of vetted innovation from the perspective of writing/enforcing specifications as well as from the perspective of bidding/building profitable jobs that together provide safe and sustainable asphalt pavements at the lowest possible life cycle cost.



**Vernon R. Schaefer, PhD, PE**  
**James M. Hoover Chair of Geotechnical Engineering Iowa State University**

As the Principal Investigator and Project Manager for the SHRP 2 R02 project Geotechnical Solutions for Soil Improvement, Rapid Embankment Construction, and Stabilization of the Pavement Working Platform, Dr. Schaefer led a team of 12 researchers and over 40 graduate students in the development of a system for geotechnical solutions for transportation infrastructure between 2007 and the present time. GeoTechTools has been online for ten years and is a widely regarded web-based information and guidance system for more than 50 ground improvement and geoconstruction technologies.



**Kurt Sharp**  
**Special Projects & Assets Branch Manager MCDOT**

Kurt has 24 years of experience in the public sector and is currently the Assets & Special Projects Branch Manager for the Maricopa County Department of Transportation (MCDOT). Prior to joining the MCDOT team a year and a half ago, he served the residents of the Town of Gilbert as Recreation Coordinator, Management Assistant, Budget Analyst, Special Assistant to the Mayor, and Community Outreach Coordinator. Kurt holds a Bachelor of Arts in Education degree and a Master of Public Administration degree, both from Arizona State University.



**Jeffrey R. Smith**  
**Sales, Marketing & Technology Cactus Asphalt**

Jeff is a veteran of the tire recycling, chip seal and paving aspects of the asphalt-rubber industry. He started his career in 1976 and has worked with various companies involving numerous positions. In 2004 Jeff took a position with International Surfacing Systems and served as their senior pavement preservation specialist. Jeff is two-time past President of the Rubber Pavements Association and currently serves as the chair of the Arizona AGC Pavement Preservation Committee and on the BOD of Arizona Association of County Engineers.



**Kurt Smith**  
**Program Director and Principal Applied Pavement Technology, Inc.**

Kurt is a Program Director and Principal at Applied Pavement Technology, Inc. and has more than 38 years of experience in the pavement engineering field. His technical areas of interest include concrete pavement design and construction, concrete preservation and rehabilitation, and pavement sustainability.



**Ryan Stevens, PE (AZ)**  
**Engineering Manager, Pavement Management City of Phoenix**

Ryan is the Engineering Manager for the Pavement Management Team which develops the 5-year Pavement Maintenance Program to keep Phoenix's 5,000 street miles in good condition. The team is involved with collecting and analyzing pavement condition data, optimizing pavement maintenance treatments and timing, managing construction of pavement maintenance activities, and forecasting future conditions. His current projects include the City's \$200 million Accelerated Pavement Maintenance Program and the Cool Pavement Pilot Program. Ryan holds a master's degree in Civil Engineering from Arizona State University.



**Peter C. Taylor, PhD, PE (IL)**  
**Director, National Concrete Pavement Technology Center Iowa State University**

Dr. Taylor is the Director of the National Concrete Pavement Technology Center at Iowa State University. He is involved in conducting projects and programs investigating materials related aspects of concrete pavements. He also spends time helping agencies and contractors implement best practices in concrete pavement design, construction and maintenance. His research is focused on developing mixtures that are engineered to meet the requirements of the environment that they will be used in. He is a Professional Engineer, registered in Illinois and active in several professional societies.



**Richard Willis, PhD**  
**Vice President, Engineering, Research & Technology National Asphalt Pavement Association (NAPA)**

Dr. Willis serves as NAPA's expert on mix design, recycled materials, life-cycle cost analysis, and pavement design. He serves as the staff liaison for NAPA's Committee for Asphalt Research and Technology; Council for Engineering, Research, and Sustainability; Workforce Development Committee; and Pavement Economics Committee Life-Cycle Cost Analysis Task Force. He is also a co-host of NAPA's "Pave It Black" podcast. Before joining NAPA, Richard worked as an associate research professor at the National Center for Asphalt Technology at Auburn University (NCAT). He received his PhD from Auburn University.



**Matthew (Matt) J. Zeller, PE**  
**Executive Director Concrete Paving Association of Minnesota (CPAM)**

Matt has over 30+ years of experience with road and highway construction. He served as the Director of Engineering Services for CPAM from 2001 to 2004 and Executive Director since August 2004 to the present.

He was an Assistant Concrete Engineer with the Minnesota Department of Transportation for 9 years from 1991 to 2001. Matt earned his Bachelor of Science in Civil Engineering from North Dakota State University in 1988.