September 22-25, 2020

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ON Roads & Streets
VIRTUAL

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69th Arizona Conference on Roads & Streets

September 22, 2020
Laptop Computer
Phoenix, Arizona

Dear (VIRTUAL) Sponsors, Exhibitors, and Attendees,

To say that these last few months have been challenging would be an understatement. We are part of a vibrant industry that deeply believes in the power of live events and face-to-face meetings, and yet we now find ourselves in this new normal – at least for the short term – of social distancing and isolation. As a leader in this industry, we feel a responsibility to attempt to provide perspective around the question everyone is asking: “How do we bounce back?” We learn, we adapt, and we collaborate. As we navigate these uncertain times, I can confidently say that the only way through is together. We prepare for the better times ahead. We begin today at the first of its kind Arizona (VIRTUAL) Conference on Roads & Streets.

While embracing necessary change and simultaneously remaining committed to the roots of the Arizona Conference on Roads & Streets established 69 years ago, we have not only added a day to this year’s conference, but filled all four days with inspiring keynotes, thought-provoking breakout sessions, a robust exhibit hall, and the opportunity to connect with professionals from Arizona and throughout the country who share common interests and believe that collaboration and knowledge-sharing are critical to our collective success. As a collective, we stand ready to offer our passion, share our expertise, and deliver solutions to help the industry not just recover, but thrive, in the months and years ahead.

On behalf of myself, the Board of Directors of the American Council of Engineering Companies of Arizona, and the 2020 (VIRTUAL) Conference Committee, thank you for being part of an exciting, essential, and enduring event at a moment in time like no other. As we weather this storm together, let’s remember to take pride in our incredible industry and the crucial impact it has on communities big and small. After all, great leaders, great businesses, and great industries are forged by fire. Ours is such an industry.

Wishing you and yours health and wellbeing,

Justan A. Rice
Justan A. Rice
President
American Council of Engineering Companies of Arizona
Tradeshow Open
Exhibit Hall

Keynote Address
Dr. Michelle Rozen
Change Management Expert
CEO of ChangeMakers

Dr. Michelle Rozen is the author of three books, a Huffington Post writer, and has been featured on NBC, ABC, CNN, FOX News and many other media outlets discussing change, motivation, and how the human mind works to become exceptional in every area of our lives, personally and professionally.

Rozen’s expertise and passion are change management and motivation. She is one of the most sought-after change management motivational leadership speakers nationwide as well as internationally.

She speaks to the audience from personal experience. Years ago, unhappy with her job, life and future, she decided to turn her life around, embarking on a journey to achieve her goals. After achieving her PhD in Psychology, it became Dr. Michelle’s purpose and passion to help others.

Dr. Michelle Rozen is a nationwide as well as international authority on leadership development, employee engagement, motivation and change management, and she always works with you to and with your team to create a customized program that works perfectly for your event’s agenda. Dr. Michelle always takes the time to interview key stakeholders and team members, review materials, and weave in relevant themes and areas of focus based on interviews, materials and your specific requests.

Her talks, books and seminars uplifting and engaging. She is humorous, highly interactive and provides real strategies to change our lives, accomplish our goals and become the best version of ourselves, personally and professionally, in a rapidly changing world.

Main Stage
A Walk in Our Shoes: How Phoenix is Addressing Pedestrian Safety

Speaker: Mailen Pankiewicz, City of Phoenix

From public engagement to emergency funding, as Phoenix’s pedestrian collisions and fatalities have increased in the last few years, the city allocated budget for pedestrian safety. Participants will learn how the city is using collaborations, budget and programs to increase pedestrian safety.

Driver Distraction from Unmanned Aerial Systems: Evidence and Mitigation

Speaker: Zach Barlow, Ironside Engineering & Development, Inc.

Unmanned aerial systems (UASs), more commonly known as drones, have recently achieved commercial success for many public and private applications. As with all emerging technologies, new safety concerns and conflicts with existing paradigms are likely to arise. Many potential applications of UASs will result in their operation near roadway infrastructure, possibly distracting drivers and decreasing the safety of both drivers and UAS operators. This study approached this emerging challenge through quantifying the distraction caused by UASs near roadways and identifying potential mitigation strategies to improve driver and UAS operator safety. The Oregon State University (OSU) driving simulator was used in conjunction with a survey questionnaire to evaluate driver distraction and provide recommendations for policy and mitigations strategies to limit the safety risks associated with UASs operating near roadways. Results showed that UAS’s can cause drivers to make risky glances away from the roadway. These glances are more likely in rural environments and when the UAS operation is immediately adjacent to the roadway. Based on the characteristics of the evidence of the safety concerns, policy recommendations and mitigation strategies were developed and evaluated. In summary, the recommendations based on this work suggest the limiting of UAS operations within 25ft of the edge of the road and more strongly considering this limitation in rural areas. New UAS specific signs were developed and evaluated, and three of these signs were found to be more effective than the currently adopted sign for general surveying operations. In summary, as research like this works to define the safety risks and establish reasonable boundaries, UASs will be more effective and continue to be implemented for various applications.

Team Building Tips to Take Your Team From Ordinary to Extraordinary!

Speaker: Patty Wyatt

What happens when motivation and morale is low? It’s important to focus on the positive. Employees need to not only feel appreciated and valued, but to enjoy the relationships at work!

How do we rekindle the motivation and help bond the relationships? By incorporating creative and innovative teambuilding occasions into your best practices. Using brain-teasers, innovative thinking and conducting powerful brainstorming sessions will enable your team to bond and forge productive working relationships.

The big idea in this session is for you to not only walk away with concepts that will boost morale, it will also help you with practical ideas assisting you in building team synergy, connecting others and establishing trust within team members. Let’s move your team from here to there!

Breakout Room 1

Breakout Room 2

Breakout Room 3
New Funding Mechanisms in Tribal Transportation

**Speakers:** Jennifer Jack, PE Road Section Manager, Salt River Pima-Maricopa Indian Community

Unveiling two new funding mechanisms in tribal transportation, the Tribal Transportation Self-Governance Program and 202(a)(9) fund transfer agreements. Both programs provide Tribes greater control and reduced administrative burdens. Basic structure of each program will be covered. SRPMIC will share first-hand experience with entering into a 202(a)(9) agreement with the State of Arizona.

Breakout Room 4

Accelerated Construction – a TEXRail Project Overview

**Speakers:** Matt Hemsath, PE, Senior Project Manager, The Walsh Group and Doug Van Slambrook, The Walsh Group

The TEXRail project is a 27-mile, 14-station regional commuter rail line for Fort Worth’s “Trinity Metro” transit agency. Linking southwest Fort Worth with Dallas-Fort Worth International Airport (DFWIA), the line affords its riders an alternative to the region’s congested roadways, increasing mobility and providing significant environmental benefits. TEXRail operates on portions of Fort Worth and Western Railroad (FWWR), Union Pacific Railroad (UPRR), Trinity Railway Express (TRE) commuter rail, and Dallas Area Rapid Transit (DART)-owned Cotton Belt commuter rail lines and has additional interfaces with the Fort Worth Intermodal Transportation Center (ITC), AMTRAK, and Burlington Northern Sante Fe Railway (BNSF). The $493MM CM/GC 24-month project scope included: 24 bridges; 41 grade crossings; 622,000 CY of excavation; 241,000 SF of Retaining Walls and 53,000 LF of Relocated Utilities.

Much of the TEXRail corridor was upgraded via the rehabilitation of existing FWWR tracks under 3 and 5-day outages, while the subject work area of this paper was completed over the course of 3 separate, 36-hour outages of the TRE/UPRR/AMTRAK alignment under TxDOT Spur-280. Constructability reviews began on this CMGC project in June of 2015, and revenue service operations began in January of 2019.

One major challenge in the TEXRail project’s scope, and the focus was work performed in an area known as the “Hole in the Wall” – a point of confluence in downtown Fort Worth of UPRR, BNSF, AMTRAK’s passenger rail line, and the TRE regional commuter rail line. In addition to the daily presence of the previously mentioned rail entities coming together at the Hole in the Wall (HITW), TxDOT’s State Highway Spur-280 runs closely overhead. An innovative solution was required for the replacement of the existing BNSF/UPRR Choctaw Bridge under three separate, short outages.

This presentation will explore the accelerated construction methods employed during the completion of this regionally important public transportation project, and inform the audience of best practices that can be applied to their own work.

Breakout Room 1

Five Automated Shuttle Feasibility Studies Across North America

**Speaker:** Jonathan Garrett, Smart Mobility Specialist, Stantec

With a growing interest in Low Speed Automated Vehicles (LSAV) this presentation will explore their use-cases and capabilities, discuss how LSAVs fit into the larger mobility landscape, present an approach to site evaluation that considers LSAVs as part of a larger implementation process, and discuss lessons learned during 5 LSAV feasibility studies across North America.

Breakout Room 2
Phoenix Grand Canalscape Shared Use Path Project, Phases I and II

**Speaker:** Mario Brown

With limited resources and a growing city that requires alternative mobility improvement for a vital transportation network. City of Phoenix Street Transportation Department partnered with the Salt River Project (SRP) to create safe and continuous commuter route for bicycle and pedestrian traffic.

Breakout Room 3

Optimizing Transportation Investment – How ICE (Intersection Control Evaluation) is helping ADOT & PCDOT

**Speakers:** Felipe Ladron de Guevara, PE, Kittelson & Associates; Kerry Wilcoxon; and Steve Wilson

In this session, we'll take a deep dive into Intersection Control Evaluation (ICE) which is a data-driven, performance-based, life-cycle cost evaluation that allows agencies to consistently identify the optimal investment and solution to improve intersection operations and safety. ADOT will describe the benefits of the new approach in evaluating intersection alternatives and its applicability, including the current status of the Arizona ICE program. Pima County Department of Transportation will describe the Pima Intersection Control Evaluation Spreadsheet (PICES) which is a planning-level tool developed by Kittelson & Associates that uses a life-cycle cost analysis to evaluate intersection alternatives. PICES uses calculations based on national research to estimate user and agency costs that are monetized to allow for a quantitative comparison of alternatives. PICES can be used to evaluate the following intersection alternatives: two-way stop, a four-way stop, traffic signal, roundabout, continuous flow, Michigan left-turn, and unsignalized restricted crossing U-turn. The results of the alternative evaluation in PICES are provided in a tabular format and include benefit-cost ratios for the evaluated alternatives. The tool was developed using Visual Basic and has been used to evaluate several intersection treatments in Pima County.

Breakout Room 4

**Tuesday, Sept. 22nd Sessions**  ◆ 11:15 a.m. to 12 p.m.

Indirect Lefts: Are They Right for You?

**Speaker:** Jeff Weller, P.E., Senior Transportation Engineer, Stantec

Senior Transportation Engineer Jeff Weller will be discussing how motorists, pedestrians, and bicyclists face greater mobility challenges and safety risks at intersections as congestion worsens.

Breakout Room 1

Enhancing Local Transportation Departments’ Role in Emergency Management

**Speaker:** Al Zubi, P.E., PTOE, Supervising Engineering at City of Mesa

Emergency management of risks requires all affected and all involved to be part of the planning, mitigation, response and recovery processes. The effort is often lead by a manager from outside the transportation profession, thus unaware of the abilities and possibilities that a local transportation agency can provide. Typically the involvement from transportation departments is limited to a list of specific and predetermined tasks, rarely changing. This presentation proposes possibly new assignments that are not usually seen in a transportation department’s role in emergency management, such as: jurisdiction specific pedestrian evacuation modeling, infrastructure recovery prioritization, evacuation assistance and modeling, and special needs residents’ coordination and evacuation (transit).
goal is to take the department’s role to a new level, by improving the planning, mitigation, response and recovery operations, by using existing resources in a transportation department, and freeing up emergency services resources and staff to optimize their delivery of their mission.

Breakout Room 2

**Impacts of Transformational Technologies on Land Use and Transportation**

**Speaker:** Abby Morgan

This presentation will cover the results of a 15-month, national research effort to develop a guidebook to help local and state transportation and land use decision makers assess the likely impact of transformational technologies on future land use and travel demand. This project goes beyond just connected and automated vehicles, taking a broader focus that includes all technological developments that will potentially transform the movement of people and goods. The final guidebook provides a comprehensive assessment of the impacts of transformational technologies on land use and transportation, and how local and state agencies can best respond to the challenges.

Breakout Room 3

**Transitioning Regional Planning Recommendations to ADOT’s Second Largest P3 Project – A Reflection on I-10 Broadway Curve Project Development**

**Speakers:** Amy Ritz, Project Manager, ADOT Major Projects Group and Becky Fly, GEC Manager, WSP

The I-10 Broadway Curve represents a key connection within the region for local jurisdictions, business enterprises and the traveling public. This presentation will recap the events of the last 2 years on the Broadway Curve project development, including: schematic development, NEPA environmental clearance, preliminary ROW acquisition, early utility coordination and P3 procurement document drafting for this regionally significant project. With so many regional customers interested in the improvements, the project team collected information and developed a preliminary schematic that ensured that the P3 process could foster the innovation and creativity of the Proposers, while delivering the procurement and ultimately the final construction as soon as possible.

Breakout Room 4

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**Tuesday, Sept. 22nd**  
**12:30 p.m. to 3:30 p.m.**

**Tradeshow Open**

*Exhibit Hall*
Wednesday, Sept. 23rd  ❖  7 a.m. to 8 a.m.

Tradeshow Open
Exhibit Hall

Wednesday, Sept. 23rd Sessions  ❖  8 a.m. to 8:45 a.m.

Taking Control of Your Shared Micromobility Program by Innovation

Speaker: Michael Cano, Traffic Engineer, City of Phoenix

The presentation will provide a brief introduction to how the E-Scooter program was initiated and eventually developed. The presentation will include the steps on developing policy changes such as the required e-scooter designated parking locations. The presentation will highlight the unique regulation requests from stakeholders and City management. The presentation will also include how staff resolved to create innovated solutions to these unique requests to incorporation in the program. The presentation will conclude with lessons learned from the process and briefly explain how the program is doing.

Breakout Room 1

Arizona Strategic Traffic Safety Plan – A Plan for the Roaring 20’s

Speakers: Kerry Wilcoxon, ADOT, Lane Departure

Since the last Roads and Streets Conference, ADOT has completed and published the update Strategic Traffic Safety Plan for Arizona which outlines the safety priorities for the state over the next five years. This session will provide a high level overview of the 2019 STSP including the vision, goals and objectives and then lead into discussion of work being done in the three infrastructure related safety emphasis areas (Lane Departure, Intersection Safety and Pedestrian). The discussion would include how data is being evaluated, how sites are selected for further review and how potential infrastructure related safety projects are identified and developed. The session would end with a discussion of funding strategies for completing these projects.

Breakout Room 2

Light Speed Construction of a GRS-IBS at the I-40 Meteor City TI-OP

Speakers: Brent Conner and William Downes

This presentation will address the construction of a GRS-IBS, the first for the State of Arizona, and the use of unreinforced PPC as a deck for adjacent box beam bridges.

Breakout Room 3
Shading the ROW: Equity in Active Transportation

**Speaker:** Justin Azevedo, PLA, ASLA, Director of Landscape Architecture & Planning, Coffman Studio

The session will be based on the recently completed Shade Action plan for the City of Goodyear, current best practices in the southwest, research, and proposed methodologies. The outline to the session will be as follows.

- Existing conditions – how to measure shade?
  - Identify sun angles
  - When do you Measure shade
- Where does shade come from
  - Trees – Identify species for the climate of arid regions of the southwest; Where and how; Water
  - Structures – Types; Where and how
  - Cost Benefit analysis
- Existing condition case studies
  - 5 sites showing a range of site typologies from new to exiting streets in varying locations – Show existing shade measurements; Show proposed shade implementations; Show new potential shade measurements
- Review existing standards and potential new solutions
- Present toolbox of increased shade and active transportation accessibility

Breakout Room 4
Downtown Phoenix: Planning the Transformation

**Speakers:** Ravi Ambadipudi, Jason Pagnard and Matt Wilson

Downtown Phoenix is rapidly changing. Nearly 100 active developments are underway, with concentrations in three high-growth areas. By 2025, a 66% increase in population, 61% increase in number of households, and 13% increase in employment are anticipated. There has also been a shift in travel modes within and to downtown Phoenix.

The Downtown Transportation Study evaluated system improvements to address accessibility, circulation, and safety. A robust planning process that engaged the public including residents and business owners, interest groups, and city departments and leadership was utilized. Ultimately the planning process will lead to a final study document to be reviewed by City Council. Complex traffic analysis tools were developed to integrate travel modes and incorporate future transportation improvements already underway, such as light rail transit extensions. The session will share information on items such as:

- Stakeholder engagement process
- Complex traffic operations modeling (macro, meso, and microscopic modeling)
- Accommodating future unknown development (sensitivity analysis)
- Transit oriented development and parking challenges
- Intersection pedestrian scrambles and new HAWK locations
- Increasing travel within existing right-of-way
- Evaluating opportunity corridors for enhanced multimodal travel
- Ride-share considerations
- One-way to two-way street conversions
- Lessons learned

Breakout Room 1

Deployment of Broadband Infrastructure in the Highway Right of Way

**Speaker:** Julie Johnston

This presentation will provide an overview of broadband infrastructure accommodation in the highway right of way.

Breakout Room 2

South Mountain – The Final Product

**Speakers:** Zach Davis, Steve Mishler and Doug Lamont, WSP

Over three years after major construction began on the Loop 202 South Mountain Freeway, construction on the state’s largest single highway project is now complete.

The 22-mile corridor has it all. Over 107,000 tons of asphalt pavement, dozens of bridges, artistic sound walls, message boards above the future travel lanes, 20 miles of drainage pipe, walls, other structures and so much more.

Connect 202 Partners, the developer responsible for the design and construction of the South Mountain Freeway, and ADOT worked diligently to open the freeway on schedule in December of 2019.

Breakout Room 3
Where Transportation & Infrastructure Meet Economic Development

**Speaker:** William Jabijiniak, City of Mesa Economic Development Director

Presentation of two case studies where transportation and infrastructure improvements resulted in robust economic development growth.

1. Mesa’s Elliot Road Technology Corridor has become home to two of the country’s top technology companies in Apple and Google. We will review how the City of Mesa’s investment in infrastructure has paid off with technology company growth.

2. Industrial growth on Mesa’s Ray Road, adjacent to Phoenix-Mesa Gateway Airport. In less than 10 years, installing this roadway, with utilities, has allowed for development of approximately 2 million square feet of buildings.

Breakout Room 4

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Wednesday, Sept. 23rd Sessions • 10 a.m. to 10:45 a.m.

Data-Driven Approaches to Improving Traffic Operations

**Speaker:** Yao-Jan Wu, PhD, PE and Abolfazi Karimpour

With increasing data collected from intelligent transportation systems sensors and devices, transportation data are ubiquitous but data usability is still difficult to improve. Therefore, transportation engineers have been solving transportation problems using scarce data or pure professional judgment. This presentation will discuss the innovative data-driven solutions developed by the University of Arizona Smart Transportation Lab and how these solutions can help transportation engineers to deal with common traffic operations issues on both freeways and arterials.

Breakout Room 1

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Structural Testing and Long-Term Monitoring – I-15 Virgin River Bridges

**Speakers:** David Benton, Ed Cinadr and Jesse Sipple

The purpose of this presentation is to educate the bridge engineering community about state-of-the-art technologies available for structural health monitoring (SHM). Important topics include load testing, rating model calibration, sensor selection and installation, and long-term monitoring.

Breakout Room 2

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So You’ve Got a Project. Now You Want Me to Pay for It?

**Speakers:** Julian Dresang and Shelly Seyler

Cities depend on multiple funding sources to pay for transportation infrastructure. This includes government issued bonds (secondary property taxes), impact fees, grants (federal, state, etc.), state shared revenue (HURF), special revenue (transit sales tax), and cash (sales tax, etc.). Julian Dresang (City Engineer) and Shelly Seyler (Deputy Director - Transportation) will provide an educational and entertaining presentation on a subject that is normally very boring in nature. By the end of the presentation, each person in attendance will have a solid understanding about the different ways that he/she (knowingly or unknowingly) pays for transportation infrastructure and how cities like Tempe
use this funding to provide a safe and efficient multi-modal transportation system that meets the needs of our residents, visitors and community as a whole.

Breakout Room 3

Roadway-Generated Stormwater in Arizona: A Survey

Speaker: David Mack, CHMM, CPESC

The State of Arizona has a population of approximately 7.172 million people. It is the sixth largest state of all the United States. Elevations span from 70 feet to over 12,000 feet above sea level. It is also located within the Sonoran Desert and receives about seven to fifteen inches of rain a year usually in the summer monsoon season. Arizona is a diverse state and managing the quality of stormwater runoff in an MS4 composed of linear corridors running through this diversity is a complex task. Stormwater itself is a complex aqueous mixture of water and suspended and dissolved chemical components, before discharging, untreated into local Clean Water Act (CWA) regulated surface waters. The uncertainty of sources for pollutants of concern (POC), despite their documented or suspected presence in highway runoff, makes the choice and design of control strategies problematic. The lack of data on arid Southwestern runoff composition and the erratic nature of Arizona storm events further complicate the situation. To develop practices to control pollutants, a better understanding of their sources is necessary. The work presented is the first step-an exploratory survey-in a longer-lived program to better understand the origins and treatment options of highway derived stormwater in Arizona.

Breakout Room 4

Congratulations 2020 ACEC Arizona Engineering Excellence Awards Winners!

Judges Choice
Dibble Engineering, Grand Canyon National Park Airport Drainage Master Plan & Water Use Study

Clifford C. Sawyer Achievement Award
Jacobs Engineering Group, Gilbert Road Light Rail Extension

Best Large Project (Over $2.5 Million)
J2 Engineering & Environmental Design, Mansel Carter Oasis Park

Best Small Project (Under $2.5 Million)
Dibble Engineering, Grand Canyon National Park Airport Drainage Master Plan & Water Use Study

Grand Award
Carollo Engineers, Pinal Valley Recharge and Recovery Facility
Dibble Engineering, Grand Canyon National Park Airport Drainage Master Plan & Water Use Study
J2 Engineering & Environmental Design, Mansel Carter Oasis Park
Jacobs Engineering Group, Gilbert Road Light Rail Extension
Kimley-Horn & Associates, Uptown Sedona Roadway Improvement Project
Kimley-Horn & Associates, El Paso & Southwestern Greenway from Simpson Street to 10th Avenue
Pomas, I-10/Ina Road Traffic Interchange

Honor Award
Dibble Engineering, Haviland Rest Area Truck Parking Expansion
Kimley-Horn & Associates, Arizona State Aviation System Plan (SASP) Update
Pomas, La Cañada Drive and Moore Road Roundabout
Stanley Consultants, Laveen Stormwater Basins Project
Keynote Address

Charlie Cook
Editor & Publisher of the Cook Political Report
Columnist for the National Journal

Dr. Charlie Cook is widely considered to be one of the nation’s most respected and impartial analyst of American politics, elections and political trends. As the editor and publisher of The Cook Political Report, columnist for National Journal, political analyst for NBC News and co-author of the upcoming 2020 edition of the Almanac of American Politics, Charlie’s prodigious writing is a direct line to the heart of politics. Deemed “the Picasso of election analysis” by The Wall Street Journal, he produces the sharpest and most impartial political handicapping in the business, serving as the one-man, go-to-source for Americans who want to be “in the know” about politics.

Cook’s expertise receives endless praise. The New York Times called him “one of the best political handicappers in the nation” and noted that The Cook Political Report is “a newsletter that both Parties regard as authoritative.” The Washington Post said he is “perhaps the best non-partisan tracker of Congressional races,” and the Washingtonian called him “the man who knows more about politics than anyone else.”

With his encyclopedic knowledge, memorable stories, quick wit, and meaningful insights, Charlie Cook focuses on the broad implications of the latest election results. Using poll numbers, economic indicators, and historical data, he forecasts the fortunes of each party in a non-partisan way, leaving audiences with the concrete information they need in today’s political environment.

Main Stage

Wednesday, Sept. 23rd 11 a.m. to 12 p.m.

Wednesday, Sept. 23rd 12:30 p.m. to 3:30 p.m.

Tradeshow Open

Exhibit Hall
Tradeshow Open
Exhibit Hall

Keynote Address

David Burstein, PE
Senior Principal, PSMJ Resources, Inc.

Dave Burstein is a Director and Senior Consultant with PSMJ. He provides consulting and training on a wide range of management and leadership topics. Prior to joining PSMJ, Dave worked for 26 years at Parsons Corporation, one of the world’s largest and most respected engineering-construction firms. During his tenure at Parsons, Dave held a variety of positions including President of Parsons’ 1,600-person, environmental subsidiary and President of Parsons’ 120-person, planning subsidiary.

While serving as President of two subsidiaries of Parsons Corporation, Dave participated in several major strategic planning efforts. Since joining PSMJ, he has facilitated strategic planning retreats for over 100 A/E/C firms ranging in size from fewer than 10 employees to more than 1,000 employees. Reflecting on this experience, he co-authored Strategic Planning: Preparing Your Firm for Success in the Future, first published in 2004 with a second edition published in 2009.

Upon joining PSMJ full-time in 1998, Dave developed PSMJ’s Principals Bootcamp and Financial Management for A/E/C Firm Leaders, which are two-day seminars for current and aspiring principals in A/E/C firms. Since then, he has presented these programs hundreds of times.

Dave is known for his ability to find patterns and provide market insights by analyzing industry data. He uses his analytical skills to help his strategic planning clients understand their opportunities/threats and to provide market outlooks as a speaker for conferences around the country. He uses PSMJ’s Quarterly Market Forecast to find trends in proposal activity in A/E/C submarkets.

David has both bachelor’s and master’s degrees in civil engineering from New Mexico State University and has completed the Crosby Executive Quality College program. He has been a registered professional engineer in many states and is a Diplomate of Environmental Engineering.

Main Stage
Thursday, Sept. 24th Sessions  •  9:15 a.m. to 10 a.m.

Development and Implementation of the Accelerated Pavement Maintenance Program and Corresponding Public

**Speakers:** Rubben Lolly, PE and Ryan Stevens

Learn how the City of Phoenix Street Transportation Department was able to use strategic collaboration, innovative thinking, and efficient planning practices to accelerate three years’ worth of paving activity over ten months.

Breakout Room 1

Implementing a Complete Streets Program in the City of Tucson

**Speakers:** Patrick Hartley and Jesse Soto

In February of 2019 Tucson’s Mayor and Council unanimously approved, by ordinance, a new City of Tucson Complete Streets policy, marking the culmination of more than two years of work. The City of Tucson’s Complete Streets Policy shall guide the development of a safe, connected, and equitable transportation network that promotes greater mobility for people of all ages and abilities including, but not limited to, people walking, biking, using transit, driving, or using wheelchairs or other mobility devices. The policy includes a 14-item chart which outlines the specific activities the City needs to pursue in order to make progress on implementation.

The Complete Streets session will focus on progress the City of Tucson has made with policy implementation since February 2019. Major initiatives include developing new Complete Streets design guidelines for City of Tucson transportation projects, initiating a 20+ Mobility Master Plan, and beginning construction on Tucson’s first “Complete Streets” branded street improvement.

The session will provide information on each of the three above-mentioned activities, showing how they all fit together under the City’s new complete streets framework.

The session will consist of short presentations on the Complete Streets policy and Design Guidelines, an overview of the Mobility Master Plan, and the 12th Ave. Complete Streets project, with time left for Q and A.

Breakout Room 2

The Billion Dollar Decision

**Speaker:** Larry Scofield

This presentation will evaluate the performance of the rubber asphalt surfacing over the past 15 years in terms of ride performance, distress, noise performance, and economics. The surfacing was placed to mitigate the noise properties produced by the transverse tining of the concrete pavement. At the time of placement, ADOT developed the largest quiet pavement research program ever undertaken in the US. The study is done and the actual performance can be described as well as additional surface characteristics such as ride comfort. The paper will also present the first life cycle cost analysis of this decision and compare it to the original concrete options that would not use transverse tining.

Breakout Room 3

Utilities in the Right of Way

**Speaker:** Julie Johnston

This presentation will provide an overview of FHWA's National Utility Review, including scope, observations and findings, recommendations, and next steps. This discussion will be followed by an overview of activities underway in Arizona.

Breakout Room 4
Why Silica Fume Concrete for Full Depth Bridge Decks?

Speakers: Rosemarie Cvijanovic and Nye McCarthy

One of the primary sources of bridge deterioration is the corrosion of reinforcing steel in concrete bridge decks. This is especially problematic in the northern regions of Arizona where there is heavy use of deicing salts and chemicals in the winter. Studies have shown that the use of silica fume improves the durability of concrete by reducing chloride permeability which would be very beneficial to bridge deck construction, as it would greatly reduce the amount of chloride that is allowed to permeate into the concrete. Currently, the primary focus of silica fume concrete has been for bridge deck overlays however, this is the first time ADOT has used it for the placement of full-depth bridge decks. This presentation will evaluate the construction, performance, and cost of full-depth silica fume bridge decks in Arizona, specifically on the Virgin River Bridges, and determine whether they are a feasible alternative to the standard bridge deck construction practices that are currently being used. It will also address some of the concerns raised regarding the use of silica fume and how these problems can be easily solved by changes to some of the current procedures.

Breakout Room 1

Quantum Computing – A Technology for Complex Problem Solving

Speaker: Quntao Zhuang

Quantum computing is an active research field currently and could be the future for solving very complex data intensive problems that are difficult or impossible to solve with current classical computer technology. It is important for engineers and computer professionals in the workplace to become familiar with its concepts. In an article in the October 24, 2019 issue of the Journal Nature, Google claimed quantum supremacy with its 53-qubit quantum computer that solved a complex probability distribution problem in 200 seconds, and would take the world’s fastest classical super computer 10,000 years to solve (IBM disputes the claim). Regardless of the validity of the claim, quantum computing is likely here to stay. Quantum computers could provide near real-time solutions and impacts for a variety of transportation issues such as system management strategies; investments; system operational responses to congestion and major events such as storms; air quality management and other complex modeling issues.

Breakout Room 2

Schooled by a School Zone

Speaker: Sabine Ellis

As traffic increased and the road widened, a 15-mph school crosswalk was planned to be converted to a traffic signal. Many design factors (such as ADA, signal timing, accommodation of buses) needed to be considered and coordination with the associated school was crucial. The construction schedule was aggressive to ensure completion before the 2019/2020 school year. This presentation will discuss the design process as well as issues encountered during and after construction, how the issues were addressed, how they could have been prevented, and ultimately, how a disastrous first day of school with the new signal was turned into a successful project.

Breakout Room 3
The Pima-Maricopa Irrigation Project on the Gila River Indian Community

Speaker: David H. DeJong, Ph.D., Project Director, Pima-Maricopa Irrigation Project

Breakout Room 4

Federal and State Tribal Transportation Updates

Speakers: Manuel Enrique Sanchez, MPA, and Arlando Teller

Breakout Room 2

Drones: The Bridge Inspector’s Newest Tool Outside of the Box

Speakers: Ryan Nataluk and Sam Johnson

The impact of drones on improving bridge inspections; types of bridges; drone equipment and software; data/monitoring; agencies/governmental entities endorsing this new technology; how to implement drone technology for inspections; and future of drones for bridge inspections—where do we fly next?

Breakout Room 3

You’ll Never Finish if You Don’t Start | Multiple GMP’s Can Help

Speakers: Ryan Cannon and Dan Casmer

Find out how to make the integration of multiple GMP’s work for your project through this dynamic case study. Uncover why multiphase GMP’s accelerate project delivery and ultimately save money. This duo will provide tangible examples of why this practice might be right for your next project.

Breakout Room 4

Tradeshow Open

Exhibit Hall
Nicole R. Nason
Administrator, Federal Highway Administration

Nicole R. Nason’s tenure as Administrator of the Federal Highway Administration began on April 22, 2019. In this role, she leads a Modal Administration within the U.S. Department of Transportation that is responsible for the Nation’s $49 billion Federal-aid Highway program. Previously, Ms. Nason was Assistant Secretary of the U.S. State Department’s Bureau of Administration from December 2017 to March 2019. Ms. Nason has served in numerous roles in Washington, D.C., notably as Administrator of the National Highway Traffic Safety Administration (NHTSA) at the U.S. Department of Transportation (2006–2008), where she was a two-time gold medal winner, the department’s highest honor. She also served as DOT’s Assistant Secretary for Government Affairs (2003–2006). Previously, Ms. Nason served in the legislative branch as counsel for the U.S. House Judiciary Committee. A black belt in karate, Ms. Nason founded Project Koe (KOH-ee) in Connecticut in 2014, empowering women and improving health and fitness using traditional Japanese martial arts techniques. Ms. Nason earned a B.A. in political science and government at American University and a J.D. at Case Western Reserve University School of Law.

Kelly Regal, PhD
Associate Administrator for Research, Development, and Technology, Federal Highway Administration

In January, Dr. Kelly Regal was named Associate Administrator for Research, Development, and Technology with the Federal Highway Administration. Dr. Regal previously served as the Associate Administrator for Research and Information Technology in the Federal Motor Carrier Safety Administration (FMCSA). In that role, she acted as the principal executive and advisor to FMCSA leadership on commercial motor vehicle research programs, safety data statistical and analysis programs, carrier licensing and insurance requirements, and stakeholder customer service. Previously, Dr. Regal served as the FMCSA Chief Information Officer and the Director, Office of Information Technology, where she directed a comprehensive information technology modernization program. Dr. Regal joined FMCSA in 2009 and has worked in the transportation industry for her entire career, beginning with the Federal Aviation Administration. She has more than 30 years of research, engineering, and information technology leadership and management experience from the private sector and in the Federal Government. Dr. Regal holds a Ph.D. in transportation engineering from the New Jersey Institute of Technology, an M.S. in aviation science and management from Embry-Riddle Aeronautical University, and a B.S. in Computer Science from Seton Hall University.

Main Stage
Financing Transportation Projects through the Build America Bureau

**Speakers:** Carl Ringgold and David Wessel

This presentation will address:

- An introduction to the discretionary credit programs (and, potentially, grant programs) offered by the Office of the Secretary’s Build America Bureau. In addition to a general introduction to the TIFIA program, the presentation will highlight the special loan features the Bureau offers to projects in rural areas. The Bureau often works with projects that have applied for the DOT’s INFRA and BUILD grants, so the context of these programs is likely important to provide.

- The $100 million TIFIA loan in 2017 to the City of Bellevue, Washington for the BelRed Street Network, a dozen roadway improvements to support redevelopment of the BelRed neighborhood as a multi-modal, pedestrian-friendly, and transit-oriented district in the heart of the City. The project has been spurred by the introduction of East Link light rail by Sound Transit, which is connecting the region’s main population centers.

- Highlights from the City of Flagstaff’s discovery of the Build America Bureau and its programs; and an overview of how the City explored its capital program in search of a project that would benefit from these innovative financing tools. MetroPlan Planning Manager David Wessel will present on the array of projects considered, funding and financing challenges, outreach to the Bureau, and steps taken to address the challenges.

**Recent Research on Bicycle Facility Planning and Safety**

**Speakers:** Steven Gehrke and Brendan Russo

This presentation will focus on bicycle facility planning and safety. The first portion of the presentation will present the development of the Cyclist Routing Algorithm for Network Connectivity (CRANC), which is a planning tool that integrates cyclist type and level of traffic stress in route choice. An application of the CRANC tool to quantify the regional destination accessibility benefits of a proposed shared use path will also be discussed. The second portion of the presentation will be focused on the impacts of intersection and traffic characteristics on bicyclist safety using surrogate measures of safety (i.e. bicycle-vehicle conflicts). Factors affecting the frequency and severity of bicycle-vehicle conflicts measured using post-encroachment time (PET) are explored using data extracted from field-collected video, and recommendations related to infrastructure and traffic characteristics are discussed.

**Writing to Win – Persuasion and Influence**

**Speaker:** Barbara Shuck, Everest Marketing Services

Successful professionals CAN craft compelling and persuasive messages, even if they’re accustomed to writing “dry, boring text.” In this program, attendees will gain practical and relevant skills to help them produce strong communications that are well-written and stand out from the crowd. This practical session will incorporate strong persuasive and influence strategies for letters, emails, funding grants, proposals, and more. We will evaluate 6 persuasive writing strategies that will undoubtedly help technical professionals. The examples are amazing, and the take-aways will make a difference when you return to work.
Revisiting Redundancy of Steel Bridges

**Speaker:** Jason Lloyd, PhD, PE

Two new AASHTO Guide Specifications were released at the end of 2018. They offer the analytical framework needed to revisit the way we evaluate redundancy in steel bridges considering system level and member level redundancy for new or existing bridges. For the last four decades, the steel bridge industry has become accustomed to determining redundancy through engineering judgement married to a single approach, namely load path redundancy (referring to the number of girder lines). Publication of these Guide Specifications enables designers and owners to design outside the box that we put ourselves in 40 years ago. In addition, The Guide Specifications also include a methodology to establish an inspection interval for a special inspection of internally redundant members (IRMs) that is of sufficient depth to reliably detect a severed component. This is a major departure from the current calendar-based approach to setting inspection intervals and is a first step toward developing an integrated fracture control plan by AASHTO.

This presentation will discuss the development of these new AASHTO Guide Specifications and the two new load cases created for the redundancy evaluation process. It will explore the research behind them, suggested implementation, while helping the audience further understand the value of integrating the fracture control plan in this way.

**Breakout Room 1**

The City of Phoenix Key Corridors Master Plan: Creating Complete Transportation Networks By Planning

**Speakers:** Brian Fellows and Vamshi Yellisetty

This presentation will address the City of Phoenix’s goals of:
- Developing flexible guidelines in street design.
- Programming future transportation improvement projects.
- Guiding developers to more specific areas of the city that fit their needs.
- Acting as a guiding document to define opportunities for further study.

**Breakout Room 2**

Utility Collaboration Statewide

**Speakers:** Garrick, Sandi, Area Construction Manager, Markham Contracting; and Rick Ellis, Transportation Services Director, Pima Association of Governments

In early 2019, the Arizona Coalition for Utility Safety & Damage Prevention was established with stakeholders across the state representing public and private industries. This presentation will discuss the challenges and benefits of creating such a group, an overview of the topics that have been prioritized across the state, and the Recommendations developed by the Coalition. Topics include expanded SUE services during design, the role of one-call locating services during design and construction, overview of resources, and usage of the national Damage Information Reporting Tool provided by the Common Ground Alliance. The live session format is intended to facilitate open discussion of any questions or topics from the group.

**Breakout Room 3**
Into the Unknown with MCDOT TSP 2040

Speakers: Cynthia Alvarez, PE, Project Engineer, Burgess & Niple; Angela Horn; and Lynndsay O’Niell

MCDOT completed the Transportation System Plan (TSP) 2035 in 2017 and subsequently began the TSP 2040 approximately two years later. TSP 2035 identified several project identification and programming needs; MCDOT completed over ten studies in the short time between TSP 2035 and 2040. This allows planning and prioritization of projects spanning additional need categories, such as active transportation and ITS. MCDOT will discuss:

• Integration of ten need categories into their long-range plan
• New data sets for planning and programming
• Scenario planning to test the future network
• Recommended investment choice for outer year programming flexibility
• Stakeholder engagement, including interactive map
• Identification and programming for “complete” projects

MCDOT will share lessons learned and implemented thus far in the planning process.

Breakout Room 4

Introducing a New Design Method for Geogrid Stabilized Foundation Rafts with Multi-axial Geogrid

Speakers: Garrett Fountain and Aaron Schlessinger

The design of foundations using geogrid stabilized rafts typically involves the calculation of a two-layer bearing capacity analysis. Existing calculation models are empirical with imprecise input parameters while other proposed methods have tended to involve multiple design charts and more suited to either strip or circular foundations only. It has also been difficult to accurately incorporate the benefits of geogrid materials. The recently developed “T-Value Method” defines bearing capacity simply in terms of the ratio of strengths of the two layers. It also allows realistic incorporation of the benefit of multi-axial stabilizing geogrid through the enhanced shear strength of the upper granular layer. This is leading to significant cost savings due to thinner working platforms that are designed in a safe and scientifically rigorous way. The greater ductility of stabilized granular layers also provides greater assurance that the assumed failure mechanisms can be fully mobilized before strain softening in the granular layer occurs. This concept was used to construct the SR347 over-crossing. The planned SR 347 bridge approach south of the new UPRR bridge was constructed on a fill embankment up to about 30 feet high. Portions of the embankment consisted of Mechanically Stabilized Earth (MSE) walls. The underlying soil in this area consists of potentially compressible clay. The purpose of the geogrid stabilized raft was to reduce the potential for settlement and increase the bearing capacity.

Our presentation will discuss design details as well as cost and time savings analysis on the ADOT Maricopa 347 project installed this past year.

Breakout Room 1
Investment Decision-Making Through the AZ HSIP

Speakers: Mona Aglan-Swick and Larry Talley

This session will:

• Present the historical update on funding
• Present the plan for the next call for projects,
• Overview of guidance and safety manual
• Components of AZ Highway Safety Implementation program HSIP: Planning, implementation and evaluation
• Development and delivery requirement for local and state HSIP projects
• Relationship between the State Traffic Safety Plan STSP and HSIP.
• Crash Cost update

Breakout Room 2

Planning for Change: Tucson’s Pedestrian Safety Action Plan

Speakers: Krista Hansen and Felipe Ladron de Guevara, PE, Kittelson & Associates

In this session, we’ll take a deep dive into the City of Tucson’s Pedestrian Safety Action Plan to learn how Tucson is working towards positive, sustained safety outcomes. The Department of Transportation teamed up with Kittelson & Associates to conduct an in-depth pedestrian crash analysis to then identify the high-injury network, and prioritize future improvements. This session will explore national and citywide collision trends, dissect the causes behind the statistics, and outline the development of a clear, actionable plan to improve pedestrian safety on Tucson’s streets.

Breakout Room 3

Arizona’s Infrastructure Report Card 2020 Update – Did We Pass?

Speaker: Jose Aguilar, PE, ENV, SP

Infrastructure affects all of us; from the roads we drive on, to the airports we use to travel, to the water that we drink! In 2015, Arizona earned a C on the American Society of Civil Engineers (ASCE) Infrastructure Report Card. Join me to find out Arizona’s NEW grade in the 2020 update, spoiler alert, we did not get an A+! We will learn more about key recommendations to help raise the grade and address our infrastructure needs. Engineers, politicians and the general public all play an important role in improving our infrastructure and we all need to be aware of the power we hold.

Breakout Room 4

Friday, Sept. 25th ◆ 12:30 p.m. to 3:30 p.m.

Tradeshow Open

Exhibit Hall
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September 22, 23, 24 & 25, 2020

The following list follows the order of sessions in this program.

**Tuesday, September 22nd**
1 PDH ___ Tuesday Keynote Address
1 PDH ___ A Walk in Our Shoes
1 PDH ___ Driver Distraction
1 PDH ___ Team Building Tips
1 PDH ___ New Funding Mechanisms
1 PDH ___ Accelerated Construction
1 PDH ___ Five Automated Shuttle Studies
1 PDH ___ Phoenix Grand Canalscape
1 PDH ___ Optimizing Transportation Investment
1 PDH ___ Indirect Lefts
1 PDH ___ Enhancing Local Transportation
1 PDH ___ Impacts of Transformational Tech.
1 PDH ___ Transitioning Regional Planning

**Thursday, September 24th**
1 PDH ___ Thursday Keynote Address
1 PDH ___ Development & Implementation
1 PDH ___ Implementing Complete Streets
1 PDH ___ The Billion Dollar Decision
1 PDH ___ Utilities in the Right of Way
1 PDH ___ Drone Applications
1 PDH ___ Silica Fume Concrete
1 PDH ___ Quantum Computing
1 PDH ___ Schooled by a School Zone
1 PDH ___ Pima-Maricopa Irrigation Project
1 PDH ___ Federal & State Tribal Trans. Update
1 PDH ___ Drones: The Bridge Inspector’s Tool
1 PDH ___ You’ll Never Finish if You Don’t Start

**Wednesday, September 23rd**
1 PDH ___ Taking Control of Micromobility
1 PDH ___ AZ Strategic Traffic Safety Plan
1 PDH ___ Light Speed Construction
1 PDH ___ Shading the ROW
1 PDH ___ Downtown Phoenix
1 PDH ___ Deployment of Broadband
1 PDH ___ South Mountain
1 PDH ___ Where Trans. & Infra. Meet
1 PDH ___ Data-Driven Approaches
1 PDH ___ Structural Testing
1 PDH ___ So You’ve Got a Project
1 PDH ___ Roadway-Generated Stormwater
1 PDH ___ Wednesday Keynote Address

**Friday, September 25th**
1 PDH ___ Friday Keynote Address
1 PDH ___ Financing Trans. Projects
1 PDH ___ Bicycle Facility Planning
1 PDH ___ Writing to Win
1 PDH ___ Revisiting Redundancy
1 PDH ___ City of Phoenix Key Corridors
1 PDH ___ Utility Collaboration
1 PDH ___ Into the Unknown w/ MCDOT
1 PDH ___ Geogrid Stabilized Foundation
1 PDH ___ Investment Decision-Making
1 PDH ___ Planning for Change: Tucson
1 PDH ___ AZ Infrastructure Report Card 2020

Total Professional Development Hours: ________