



November 6-9, 2019

International Conference on Sustainable Infrastructure

Leading Resilient Communities Through the 21st Century



www.icsiconference.org



Welcome to the 2019 International Conference on Sustainable Infrastructure!

Dear Colleagues,

Welcome to Los Angeles! Our program has been carefully planned over the past two years to help expand attendees' horizons and understanding of sustainable and resilient infrastructure. Our venue, the Millennium Biltmore Hotel, once the home of the Academy Awards presentations for excellence in the movie industry, is a fitting location for sharing excellence in sustainability and resilient infrastructure from around the world. Our audience includes not just civil engineers, but the partners to engineers such as practitioners, owners, construction managers, financial experts, technology developers, and government decision makers, who work together to create better integrated multi-beneficial projects. Further, this conference is being held to acknowledge the massive changes and challenges that we are facing as we move further into the 21st Century.

Many exciting features and events are in store for attendees at this amazing conference:

Pulitzer Prize Author and Keynote Speaker: Jared Diamond, Ph.D.

Jared Diamond will be discussing "The Crisis of Global Sustainability". Diamond is the author of *Guns, Germs, and Steel: The Fates of Human Societies*, *Collapse: How Societies Choose to Fail or Succeed*, and his most recent book, *Upheaval: How Nations Cope with Crisis and Change*.

Let's Connect ... in L.A.

This is a special networking outreach forum designed for engineers, technical experts, policy makers, academia, developers, infrastructure investors, governments, asset managers, and the insurance industry, to meet and explore future sustainable infrastructure business opportunities.

Technical Presentations and Posters

Hear from over 190 presenters from around the globe in special panel discussions, presentations, and lightning talks, and explore the many posters that will be on display.

Institute for Sustainable Infrastructure's Envision V3

Learn more about the premier Sustainable Infrastructure rating system, its certification process, and recently awarded Platinum level projects.

Green Infrastructure Technical Tours

Explore local sustainability and resilience efforts taking place in the L.A. region.

On behalf of the entire team of organizers for the 2019 International Conference on Sustainable infrastructure, we welcome you to one of the most exciting international hubs of commerce, development, and infrastructure growth in the world, Los Angeles, California.

Enjoy your time with us!

Mark R. Norton, P.E., ENV-SP, LEED AP, F.ASCE

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Santa Ana Watershed Project Authority

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Michael Baker, ASCE Committee on Younger
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Youn Sim, Ph.D., P.E., ENV SP Los Angeles
County of Public Works

Michael Sarullo, DWP, City of Los Angeles
Thomas Small, Mayor, Culver City

Schedule-At-A-Glance

(Subject to Change)

Wednesday, November 6

- 8:30 a.m. – 5:00 p.m. Technical Tours*
- 12:00 – 5:30 p.m. Registration, Crystal Ballroom Foyer

Thursday, November 7

- 7:00 a.m. – 6:00 p.m. Registration, South Galleria
- 7:00 – 8:30 a.m. Continental Breakfast, Biltmore Bowl
- 8:00 – 8:30 a.m. Welcoming Remarks, Crystal Ballroom
- 8:30 – 10:30 a.m. Plenary Sessions, Crystal Ballroom
- 10:30 – 11:00 a.m. Morning Networking Break, Biltmore Bowl
- 11:00 a.m. – 12:30 p.m. Plenary Sessions, Crystal Ballroom
- 12:30 – 1:30 p.m. Lunch On Your Own
- 1:30 – 5:00 p.m. *Let's Connect...* in L.A., Gold Ballroom
- 1:30 – 3:00 p.m. Concurrent Technical Sessions (See Technical Grid pg. 7)
- 3:00 – 3:30 p.m. Afternoon Networking Break, Biltmore Bowl,
Sponsored by JM Eagle
- 3:30 – 5:00 p.m. Concurrent Technical Sessions (See Technical Grid pg. 8)
- 6:00 – 7:30 p.m. Welcome Reception, Biltmore Bowl, *Sponsored by Bentley*

Friday, November 8

- 7:00 a.m. – 5:00 p.m. Registration, South Galleria
- 7:30 – 9:00 a.m. Continental Breakfast, Biltmore Bowl
- 8:00 – 9:30 a.m. Plenary Session, Crystal Ballroom
- 8:30 a.m. – 5:00 p.m. *Let's Connect...* in L.A., Gold Ballroom,
- 9:30 – 10:00 a.m. Morning Networking Break, Biltmore Bowl,
Sponsored by Kimley Horn
- 10:00 – 11:30 a.m. Concurrent Technical Sessions (See Technical Grid pg. 9)
- 10:00 a.m. – 4:30 p.m. Poster Displays, Biltmore Bowl
- 11:30 a.m. – 1:00 p.m. Keynote Luncheon, Crystal Ballroom, *Sponsored by WSP*
- 1:15 – 2:45 p.m. Concurrent Technical Sessions (See Technical Grid pg. 11)
- 2:45 – 3:00 p.m. Afternoon Networking Break, Biltmore Bowl,
Sponsored by Los Angeles Department of Water and Power
- 3:00 – 4:30 p.m. Concurrent Technical Sessions (See Technical Grid pg. 11)
- 4:30 – 6:00 p.m. Concurrent Technical Sessions (See Technical Grid pg. 12)

Saturday, November 9

- 7:30 – 8:45 a.m. Awards Breakfast, Crystal Ballroom, *Sponsored by Aramco*
- 8:00 a.m. – 12:30 p.m. Registration, South Galleria
- 9:00 – 10:30 a.m. Concurrent Technical Sessions (See Technical Grid pg. 13)
- 10:30 – 11:00 a.m. Morning Networking Break, Biltmore Bowl, *Sponsored by GHD*
- 11:00 – 12:30 p.m. Concurrent Technical Sessions (See Technical Grid pg. 15)
- 12:30 – 2:00 p.m. Closing Plenary Lunch, Crystal Ballroom,
Sponsored by Burns & McDonnell
- 2:30 – 5:00 p.m. Sustainability Leadership Workshop*

*Requires Additional Ticket

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Thursday, November 7

Welcoming Remarks

8:00 a.m. – 8:30 a.m.

[Crystal Ballroom](#)

Mark Norton, Conference Chair, MC, SAWPA; Tom Smith, Executive Director, ASCE; K. N. Gunalan, ASCE President 2020; Cris Liban, Chair, Committee on Sustainability, L.A. Metro; Mikhail Chester, Chair, ICSI 2019 Program Committee

Future World Vision 2050

Innovation and the Relationship to Sustainability and Resilience: Problems, Challenges, Gaps

8:30 a.m. – 9:30 a.m.

[Crystal Ballroom](#)

Jerry Buckwalter, COSO, ASCE, Moderator

Greg Bentley, Bentley Systems; John D. Porcari, WSP USA; Kevin James, L.A. City Public Works; Mark Pestrella, L.A. County Dept Public Works

Engineers as Global Change Agents and Catalysts for Action: How Do We Engage and Partner to Unlock the Potential?

9:30 a.m. – 10:30 a.m.

[Crystal Ballroom](#)

Tom Lewis, WSP, Moderator

Gloria Gray, Metropolitan Water District of Southern California; Carol Haddock, Director Public Works, Houston; Gregor Robertson, former Mayor Vancouver Ambassador, Global Covenant of Mayors; Debra Roberts, Sustainable and Resilient City Initiatives, Durban South Africa

International Event Planning – Sustainability of Big Events

11:00 a.m. – 11:45 a.m.

[Crystal Ballroom](#)

Discussing the various sustainability aspects of large sporting venues and large city-wide events. Examples include greening of notable sporting venues, moving of people, and design and policy of infrastructure before, during and after events. What are the social and environmental benefits of sustainable large events?

Joel Farrier, Burns & McDonnell, Moderator

Leslie Duke, Burns & McDonnell; Steven Cheung, LAEDC/WTC; Benny Tran, LAFC; Ron Miller, LA OC Building Trades

Communicating Infrastructure Sustainability: Best Practices and Lessons Learned – What Works/What Doesn't

11:45 a.m. – 12:30 p.m.

[Crystal Ballroom](#)

Mikhail Chester, Arizona State University, Moderator

Alissa Walker, Curbed; Joe Linton, Streetsblog; Susan Carpenter, KPCC

Welcome Reception

6:00 p.m. – 7:30 p.m.

[Biltmore Bowl](#)

Sponsored by  Bentley
Advancing Infrastructure

Friday, November 8

Keynote Speaker Dr. Jared Diamond, UCLA

The Crisis of World Sustainability

11:30 a.m. – 1:00 p.m.

[Crystal Ballroom](#)

Plenary Lunch Sponsored by 



Jared Diamond, Ph.D.,

Professor and Chair of Geography, UCLA

Jared Diamond is author of the Pulitzer Prize winning book, *Guns, Germs, and Steel: The Fates of Human Societies*, and best-sellers, *Collapse: How Societies Choose to Fail or Succeed*, and most recently, *Upheaval: How Nations Cope with Crisis and Change*.

As a professor of geography at University of California at Los Angeles (UCLA), he is known for his breadth of interests, which involves conducting research and teaching in three other fields: the biology of New Guinea birds, digestive physiology, and conservation biology.

His prizes and honors include the U.S. National Medal of Science, the Pulitzer Prize for Non-fiction, the Tyler Prize for Environmental Science, and election to the U.S. National Academy of Sciences. He is a director of World Wildlife Fund/ U.S. and of Conservation International.

Saturday, November 9

Awards Breakfast

Sponsored by  أرامكو السعودية
saudi aramco

7:30 a.m. – 8:45 a.m.

[Crystal Ballroom](#)

Closing Plenary Lunch – What Have We Learned in this Conference and How Do We Put that in Practice?

12:30 p.m. – 2:00 p.m.

[Crystal Ballroom](#)

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Mark Norton, 2019 Conference Chair

Welcome to Houston – ICSI 2021

Carol Haddock, ICSI 2021 Conference Chair

Closing Keynote

Marissa Aho, Chief Resilience Officer Houston

Cris Liban, Chair ASCE Committee on Sustainability

Technical Program/Technical Tours

Wednesday, November 6, 2019

Technical Tours *(Requires Ticket Purchase)*

8:45 a.m. – 12:30 p.m.	Port of L.A./Port of Long Beach with Harbor Cruise
1:30 p.m. – 5:00 p.m.	L.A. River
1:30 p.m. – 5:00 p.m.	L.A. Cleantech Incubator (LACI)

Technical Tours

Wednesday, November 6

Port of L.A./Port of Long Beach with Harbor Cruise

8:45 a.m. – 1:00 p.m.

The Port of Los Angeles (Port of L.A.) is the nation's busiest seaport and the #1 container port in North America. It is located in the San Pedro Bay and only 20 miles south of downtown Los Angeles. The Port of L.A. is connected to the L.A. Waterfront, which has restaurants, museums, historical landmarks, marinas, beaches, art scenes, shopping and a marine aquarium. The Port of L.A. has had a positive impact on international trade by providing responsible and sustainable growth. This tour will provide a history of the Port Complex, its importance to the global economy, and sustainability features that are leading the way.

L.A. Cleantech Incubator (LACI)

1:30 p.m. – 5:00 p.m.

LACI is a non-profit organization that empowers green, start-up companies in Los Angeles. LACI is recognized as one of the most innovative business incubators in the world. LACI has helped 73 portfolio companies and created 1,700 green jobs. LACI has transformed markets in clean energy, zero emissions and smart, sustainable cities. By partnering with the L.A. Department of Water & Power (LADWP), LACI has encouraged Green House Gas Reduction, Cleaner Air Quality and continues to produce green jobs within Los Angeles. During this walking tour, attendees will learn the history and mission of the campus and its commitment to sustainable clean technologies.

L.A. River

1:30 p.m. – 5:00 p.m.

The L.A. River flows through the nation's 2nd largest urban region into two of the world's busiest ports and into the world's largest body of water, the Pacific Ocean. Due to a series of floods, the U.S. Army Corps of Engineers channelized the LA River in the 1930's. Today, cities are reclaiming their rivers. The Revitalization Master Plan provides walking and bicycling paths, parks and trails. The L.A. River Ecosystem Restoration Project has rejuvenated 11 miles of the L.A. River from Griffith Park to downtown L.A.

Attendees will walk 2.5 miles (approximately 50 minutes) as a guide shares details about the LA River history and the LA River revitalization masterplan.



Thursday, November 7, 2019

8:00 a.m. – 8:30 a.m. <i>Crystal Ballroom</i>	Welcoming Remarks Mark Norton, <i>Conference Chair, MC, SAWPA</i> ; Tom Smith, <i>Executive Director, ASCE</i> ; K. N. Gunalan, <i>ASCE President 2020</i> ; Cris Liban, <i>Chair, Committee on Sustainability, L.A. Metro</i> ; Mikhail Chester, <i>Chair, ICSI 2019 Program Committee</i>	
8:30 a.m. – 9:30 a.m. <i>Crystal Ballroom</i>	Future World Vision 2050/Innovation and the Relationship to Sustainability/Resilience: Problems, Challenges, Gaps Jerry Buckwalter, <i>COSO, ASCE – Moderator</i> Greg Bentley, <i>Bentley Systems</i> ; John D Porcari, <i>WSP USA</i> ; Kevin James, <i>L.A. City Public Works</i> ; Mark Pestrella, <i>L.A. County Dept Public Works</i>	
9:30 a.m. – 10:30 a.m. <i>Crystal Ballroom</i>	Engineers as Global Change Agents and Catalysts for Action: How Do We Engage and Partner to Unlock the Potential? Tom Lewis, <i>WSP, Moderator</i> Debra Roberts, <i>Sustainable and Resilient City Initiatives, Durban South Africa</i> Gloria Gray, <i>Metropolitan Water District of Southern California</i> ; Carol Haddock, <i>Director Public Works, Houston</i> ; Gregor Robertson, <i>former Mayor Vancouver Ambassador, Global Covenant of Mayors</i>	
10:30 a.m. – 11:00 a.m. <i>Biltmore Bowl</i>	Morning Networking Break	
11:00 a.m. – 11:45 a.m. <i>Crystal Ballroom</i>	International Event Planning, Sustainability of Big Events Joel Farrier, <i>Burns & McDonnell, Moderator</i> Leslie Duke, <i>Burns & McDonnell</i> ; Steven Cheung, <i>LAEDC/WTC</i> ; Benny Tran, <i>LAFC</i> ; Ron Miller, <i>LA OC Building Trades</i>	
11:45 a.m. – 12:30 p.m. <i>Crystal Ballroom</i>	Communicating Infrastructure Sustainability: Best Practices and Lessons Learned, What Works/What Doesn't Mikhail Chester, <i>Arizona State University, Moderator</i> Alissa Walker, <i>Curbed</i> ; Joe Linton, <i>Streetsblog</i> ; Susan Carpenter, <i>KPCC</i>	
12:30 p.m. – 1:30 p.m.	Lunch (On Your Own)	
1:30 p.m. – 3:00 p.m. <i>Gold Ballroom</i>	Let's Connect with... ICSI Sponsors Facilitator: Tom Lewis, <i>WSP</i> Meet with large businesses and infrastructure industry leaders in a "speed-networking" format. Develop new connections or strengthen existing relationships. Learn how these partners in sustainability are leading the industry in resilient and sustainable design, construction, or building. Lastly, identify potential partnering opportunities. Scheduled in 15-minute increments at each sponsor host table on a first-come basis	
1:30 p.m. – 3:00 p.m.	Technical Sessions	
Track A Tiffany Room <i>Sponsored by Santa Ana Watershed Project Authority</i>	Track B Heinsbergen Room <i>Sponsored By Los Angeles County Public Works</i>	Track C Emerald Ballroom
Climate Change 1 Moderator: Bill Kelly, <i>American Society for Engineering Education (retired)</i>	Practice 1 – Lightning Presentations Moderator: Joel Farrier, <i>Burns & McDonnell</i>	Building a Sustainable Infrastructure in the Middle East Moderator: Dilara El-Assaad Rodriguez, <i>LA Metro</i>
Building Coastal Resilience for Disaster Risk Reduction and Climate Change Adaptation Through Green-Gray Infrastructure , Janet Bruins, <i>Bechtel Corp.</i> State-of-Practice Assessment for Sea-Level Rise Resilient Mega-Cities , Breanna Gribble, <i>Louis Berger</i> Infrastructure Longevity and Extreme Climate Change Impacts , Hilda Blanco, <i>University of Southern California</i> Urban Infrastructure Hardening and the Interplay of Critical Facilities and Longer-Term Resilience Strategies in the New York City and New Jersey Region , Edgar Westerhof, <i>Arcadis</i> A Methodology for Climate Risks Assessments for First Nations Communities , Guy Felio, <i>Stantec</i>	Sustainable Solar Powered SVE Remediation of Former Oil and Gas Production Pits , Kyle Waldron, <i>Marathon Petroleum</i> North Fork Matilija Creek: A Model for Environmentally Nuanced Restoration Projects , Steven Bell, <i>CWE</i> Durable Concrete Design Guidelines for Bangladesh Using Chloride Mapping , G. M. Sadiqul Islam, <i>Chittagong University of Engineering and Technology</i> Building a SmartBMP at Bolivar Park , Oliver Galang, <i>CraftWater Engineering Inc.</i> Calling Engineers to Rise to the Challenges of Meeting the United Nations' Sustainable Development Goals (UN SDGs) , Theresa E. Harrison, <i>City of South Bend IN</i> Bridge to Vision 2025 - Engineering Sustainable Solutions , Elizabeth Ruedas, <i>Michael Baker International</i>	The middle east has always been a great source of energy for the rest of the world, but due to its local challenges has not been engaged on the global platform; especially when the subject of sustainability is being discussed. The goal is to open this conversation at the ICSI 2019 conference with a panel of at least three speakers plus a moderator. This also will be the perfect platform to invite the participants to ICSI 2020 to be held in Lebanon. There will be a speaker from the federation of Lebanese engineers, and two to three speakers from the AAAEA, and local professionals from that region. Presenters: Ghina Yamout, <i>ALTA Environmental</i> Adel H Hagekhalil, <i>City of LA</i> Abdul Menhem Alameddine, <i>World Federation of Engineering Organizations</i>

Technical Program *(continued)*

Thursday, November 7, 2019 *(continued)*

3:00 p.m. – 3:30 p.m. <i>Biltmore Bowl</i>		Afternoon Networking Break Sponsored by 	
3:30 p.m. – 5:00 p.m. <i>Gold Ballroom</i>		Let's Connect with... Infrastructure Owners and Policy Makers from Public Agencies Meet with local California project owners and policy makers from public agencies for informal conversations about their funding and contracting opportunities in a "speed –networking" format. Scheduled in 15 –minute increments; 6 slots available at each organization's table on a first – come basis. Hear directly from the source so you can best position and partner for future success with their program!	
3:30 p.m. – 5:00 p.m.		Technical Sessions I	
Track A Tiffany Room Sponsored by Santa Ana Watershed Project Authority		Track B Heinsbergen Room Sponsored By Los Angeles County Public Works	Track C Emerald Ballroom
Resilience I Moderator: Tona Rodriguez-Nikl, Cal State LA		Disruptive Technologies – Lightning Presentations Moderator: Larry Tortuya, GHD	Sustainable Los Angeles Moderator: Rossana D'Antonio, County of Los Angeles
<p>An Assessment of Direct and Indirect Pathways of Disruption Within Interconnected Infrastructure Systems, Samuel Markolf, <i>Arizona State University</i></p> <p>Can Sustainability Be Unethical? Michael Avery, <i>FHWA</i></p> <p>The Lessons for Hurricane Resilience, Behnam Shadravan, <i>Florida A&M University</i></p> <p>Best Practices in Natural Disaster Recovery and the Importance of Resilience Planning, Catherine Sheane and Emily Brown, <i>Parsons</i></p> <p>Design Standards for Resiliency: Uncertainty Is the Issue but the Time Has Come to Act, Joel Farrier, <i>Burns & McDonnell</i></p>		<p>Construction Information Management Systems: Conceptual Model to Improve Residential Construction Project Resilience and Productivity in New Zealand and Saint Vincent and the Grenadines, Daniel Campbell, <i>Caribbean Engineering and Design Consultants Ltd</i></p> <p>Solar Updraft Tower Compost Waste Heat (SUT+CWH) Powerplant for Infrastructure Sustainability, Kevin Anderson, <i>Cal Poly Pomona</i></p> <p>Harnessing IoT to VR-Enable Smart City Digital Twins, Neda Mohammadi, <i>Georgia Tech</i></p> <p>Breaking Down Silos: Trends in Resilient & Sustainable Infrastructure Planning, Elizabeth Bradford, <i>Jacobs</i></p> <p>From Creative Destruction to Our Creative Future – Sustainable Infrastructure's Moment Is Now., Martin Janowitz, <i>Stantec</i></p> <p>Regional Green Infrastructure (GI) BMPs, Larry Tortuya, <i>GHD</i></p>	<p>LA Industry Program: How to Create a Win-Win Public-Private Collaborative Partnership Jennifer Kong, <i>City of Los Angeles LA Sanitation</i></p> <p>100% Wastewater Reuse with a One Water LA Trigger-Based Approach Azya Jackson, <i>LA Sanitation & Environment</i></p> <p>Incorporating Sustainability Into Airport Infrastructure Projects, Tami McCrossen-Orr, <i>Los Angeles World Airports</i></p> <p>Sustainability in Transportation, Cris Liban, <i>L.A Metro</i></p>
6:00 p.m. – 7:30 p.m. <i>Biltmore Bowl</i>		Welcome Reception Sponsored by 	



Friday, November 8, 2019

8:00 a.m. – 9:30 a.m. <i>Crystal Ballroom</i>	Plenary Breakfast - Alternative Forms of Finance for Sustainable Infrastructure Moderator: Cris Liban, <i>LA Metro</i> Doug Sims, <i>NRDC</i> ; Fiona Ma, <i>CA State Treasurer</i> ; Ben Harper, <i>Zurich Ins</i>	
8:30 a.m. – 5:00 p.m. <i>Gold Ballroom</i>	Let's Connect Private Appointments Need more time to meet or continue your discussion from Thursday with fellow ICSI attendees as current or potential partners in sustainability? Schedule a conversation directly with them and at a mutually agreed upon time. Your table is reserved for you and your meetings during the day Friday.	
9:30 a.m. – 10:00 a.m. <i>Biltmore Bowl</i>	Morning Networking Break Sponsored by 	
10:00 a.m. – 11:30 a.m.	Technical Sessions	
Track A Tiffany Room <i>Sponsored by Santa Ana Watershed Project Authority</i>	Track B Heinsbergen Room <i>Sponsored By Los Angeles County Public Works</i>	Track C Emerald Ballroom
Climate Change 2 - Lightning Presentations Moderator: Kelly Sanders, <i>University of Southern California</i>	Practice 2 - ENVISION Moderator: John Hogan, <i>David Evans and Associates, Inc.</i>	Policy 1 Moderator: Theresa Harrison, <i>City of South Bend, IN</i>
Adapting Green Infrastructure Tracking and Design Methods for a Diversity of Programs , Alysondria Eason, <i>Hazen and Sawyer</i> Urban Flood Hazard Modeling and Mapping Using PCSWMM , Aysha Akter, <i>Chittagong University of Engineering & Technology</i> Sustainable Stormwater Infrastructure Improvements for Improved Coastal Resiliency / City of Naples, Florida , Karyn Erickson, <i>Erickson Consulting</i> Reducing Flood Hazards Through Groundwater Recharge: Garvey Avenue Underpass , Steven Bell, <i>CWE</i> Chasing Storage During Flood Events in a Small, Multi-Jurisdictional Urban Watershed , Shirley Clark, <i>Penn State University</i> Sustainable Energy Operations in Cogeneration -City of Los Angeles Hyperion Water Reclamation Plant , Ibrahim Hafeez, <i>City of Los Angeles</i> Challenges and Potentials for Technology Advancement of Bioretention Cells in Stormwater Management , Mohammadsoroush Tafazzoli, <i>Washington State University</i>	Albion Riverside Park Project , Bryan Powell, <i>City of Los Angeles</i> Duel or Dual: Co-Benefits of Applying LEED and Envision , Graham Twyford-Miles, <i>Stantec Consulting Ltd.</i> Sustainability of Tire-Derived Aggregate Concrete: A Case Study on Energy, Emissions, Economy, and ENVISION , Fariborz Tehrani, <i>California State University Fresno</i> Sustainability Assessment and ENVISION Rating of Lightweight Masonry Walls in Conventional Buildings , Fariborz Tehrani, <i>Cal State University Fresno</i> Envision: Implementation Through Verification in Los Angeles , Chris Sheppard, <i>Los Angeles County DPW</i>	Procurement and Policies for Soliciting Sustainable Infrastructure , Perrin Falkner, <i>Wiley Wilson</i> Ladera Park Stormwater Improvements Project , Armando D'Angelo, <i>Los Angeles County DPW</i> Sustainable Infrastructure Systems in Developing Nations: An Integrated Framework , Daniel Campbell, <i>Caribbean Engineering and Design Consultants Ltd</i> Franklin D. Roosevelt Park Regional Stormwater Capture Project , Thuan Nguyen, <i>Los Angeles County DPW</i> Effect of Project Delivery Systems in Reducing Potential of Corruption in Infrastructure Projects: A Systems Dynamics Approach , Ayman Raouf, <i>Hamad Bin Khalifa University</i>
11:30 a.m. – 1:00 p.m. <i>Crystal Ballroom</i>	Plenary Lunch sponsored by  Keynote Speaker: Dr. Jared Diamond, <i>UCLA</i> <i>The Crisis of World Sustainability</i>	

ASCE Los Angeles Local Organizing Committee: Featured Events and Projects

Arts Installation

An on-site local artist will provide an interactive experience with conference attendees

Urban Heat Island Mapping

Working with Climate Resolve, explore the effects of urban heat island hot spots around Downtown LA.

Girls to Green Careers

A workshop designed to inspire high school youth to consider green infrastructure

Green Alley

A design contest to create a pedestrian friendly Green Walkway connecting local business and a transportation hub

Younger Member Networking Mixer

Friday, November 8, 6:30 pm – 8:00 pm

Hosted by the L.A. Section Younger Members

Join us for appetizers and beverages to meet with industry professionals, younger members, and students. Network with fellow sustainability-minded individuals to learn more about the field and career opportunities. The event is sponsored by the International Conference on Sustainable Infrastructure and the ASCE Younger Member Forums. Event will be held Friday, November 8th at the Biltmore Hotel. Event requires additional registration.

www.mlab-ymf.org/events/sustainability-networking-mixer

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Friday, November 8, 2019 *(continued)*

1:15 p.m. – 2:45 p.m. Technical Sessions		
Track A Tiffany Room <i>Sponsored by Santa Ana Watershed Project Authority</i>	Track B Heinsbergen Room <i>Sponsored By Los Angeles County Public Works</i>	Track C Emerald Ballroom
Resilience 2 - Lightning Presentations Moderator: Cliff Davidson, <i>Syracuse University</i>	Society and Urbanization 1 Moderator: Doug Dietrich, <i>Burns & McDonnell</i>	Design Standards for Resiliency Moderator: Brianna Pilkinton, <i>Burns & McDonnell</i>
<p>Risk Assessment and Hydraulic Modeling of Fire Following Earthquake Risks Across Los Angeles: The City of Los Angeles' Efforts Toward Water System Seismic Resilience and Sustainability, Lauren Abustan, <i>Tetra Tech</i></p> <p>Advancing Resilient and Sustainable Buildings Through a New Normative Workflow for Integrated Life-Cycle Assessments, Karen Angeles, <i>University of Notre Dame</i></p> <p>Integrated Master Planning: Resiliency, Reliability and Robustness by Design, Anni Luck, <i>Hazen and Sawyer</i></p> <p>Organizational Resiliency: Communication Systems and Organizational Structure Drive Things Too, Tara Dunseith, <i>Burns & McDonnell</i></p> <p>Advanced Integrated Hydrologic and Hydraulic Modeling for Coastal Resiliency Planning, Charles Wilson, <i>Hazen and Sawyer</i></p>	<p>The Olympics Infrastructure : the Importance of Stakeholder Engagement and Sustainable, Intentional Urban Planning, Melissa Elder, <i>Burns & McDonnell</i></p> <p>Anti Corruption, Ethics, Sustainable Infrastructure and the UN Sustainable Development Goals, William Henry, <i>ret., ASCE President (2005)</i></p>	<p>Panel Participants:</p> <p>Deanna Haines, <i>SCG</i></p> <p>Noopur Jain, <i>CA High Speed Rail</i></p> <p>Lincoln Bleavens, <i>Burbank Water/Power</i></p> <p>Michael DeBacker, <i>Burns & McDonnell</i></p> <p>Caroline Field, <i>Arup</i></p> <p>Kyle Waldron, <i>Marathon Petroleum</i></p>
2:45 p.m. – 3:00 p.m. <i>Biltmore Bowl</i>		
Afternoon Networking Break Sponsored by  Los Angeles Department of Water & Power		
3:00 p.m. – 4:30 p.m. Technical Sessions		
Track A Tiffany Room <i>Sponsored by Santa Ana Watershed Project Authority</i>	Track B Heinsbergen Room <i>Sponsored By Los Angeles County Public Works</i>	Track C Emerald Ballroom
Climate Change 3 Moderator: Francine Eide, <i>Olympia WA</i>	Practice 3 Moderator: Elizabeth Ruedas, <i>Michael Baker International</i>	Resiliency 3 Lightning Presentations Moderator: Alysha Helmrich, <i>Arizona State University</i>
<p>Evaluating the Feasibility of a Decision Support System for Transportation Infrastructure Resiliency in Response to Extreme Weather Events, Joe Rosalez, <i>California State University Los Angeles</i></p> <p>ADAPT and THRIVE: Strategies for Life Along a Dynamic and Changing Coastline, Jenni Zell, <i>AHBE Landscape Architects</i></p> <p>Adoption of Green Roofs by Municipalities for Managing Stormwater, Cliff Davidson, <i>Syracuse University</i></p> <p>Use of Historical Data to Assess and Forecast Regional Climate Change, Yuchuan Lai, <i>Carnegie Mellon University</i></p>	<p>Results Follow Process – Leveraging Integrated Design Process to Fundamentally Change How We Design Public Infrastructure, Quin MacKenzie, <i>Stantec</i></p> <p>Protecting the Beach and the Beneficial Use of Stormwater: Santa Monica CBI Project, Oliver Galang, <i>CraftWater</i></p> <p>Defining Sustainable Infrastructure for Underground Water Infrastructure using International Standards, Gregory Baird, <i>Water Finance Research Foundation</i></p> <p>Land Management for Healthy Watersheds - A New Financial Incentive in the Mid-Atlantic, Chandler Van Voorhis, <i>Acre Investment Management</i></p>	<p>Living with the Bay Resiliency Strategy and Program, Michael Bomar, <i>Tetra Tech</i></p> <p>Preparation for a World of Resilience Investment, John F Williams, <i>Impact Infrastructure, Inc.</i></p> <p>Recommended Climate Change Mitigation for Infrastructure & Built Environment in Coastal Communities, Teresa Vangeli, <i>WSP USA</i></p> <p>Comparison of Conventional Diesel and Solar Hybrid Power Generators in Long-Term Temporary Power Applications, Alex Nadolishny, <i>WSP USA</i></p> <p>Dynamic Simulation of Bridge Resilience to Precipitation and Maintenance Timing, Wesley Meertens, <i>Concordia University</i></p> <p>Use of the CHAMPS Model for Simulating Moisture and Heat Flux on an Extensive Green Roof, Yige Yang, <i>Syracuse University</i></p>

Technical Program *(continued)*

Friday, November 8, 2019 *(continued)*

4:30 p.m. – 6:00 p.m.

Technical Sessions

Track A Tiffany Room <i>Sponsored by Santa Ana Watershed Project Authority</i>	Track B Heinsbergen Room <i>Sponsored By Los Angeles County Public Works</i>	Track C Emerald Ballroom
Resilience 4 Moderator: Mike Sarullo, City of Los Angeles A Granular Simulation of Bridge Closures Due to a Hypothetical Large Southern California Earthquake and Its Effects on the Disruption and Recovery of Freight Traffic to and from Port of Los Angeles, Barbaros Cetiner, <i>UCLA</i> Assessing Possible Implications and Adaptation Strategies for a Major Disruption to the Interstate Highway System in the Southwest United States, Samuel Markolf, <i>Arizona State University</i> Earthquake Resilience of California's Water Distribution System, Jonathan Stewart, <i>UCLA</i> Assessment of the Dynamics of Human System Networks in Water Infrastructure Adaptation to Sea-level Rise Impacts, Tamarah Ridha, <i>Texas A&M University</i> Integrated Approach to Sustainable and Resilient Infrastructure Planning, Steve Foran, <i>Jacobs</i>	Disruptive Technologies 2 - Lightning Presentations Project Case Study, Thomas Honles, <i>LA Department of Water and Power</i> Real-Time Updating of Post-Earthquake Damage and Restoration Forecasts of Water Distribution Systems Using Bayesian Networks, Agam Tomar, <i>UCLA</i> Embracing Change for Smart Cities: Electrification of Taxi Fleets, Judith Rodriguez, <i>Harvard University</i> Enhancing Sustainability with Battery Storage in Wastewater, Jerry Burke, <i>Inland Empire Utilities Agency</i> Investigating Unmanned Aerial Vehicles (UAV's) for Vertical Structural Inspection and Analysis, Chris Apoder ORIordan-Adjah, <i>Principia College</i> Thermo-Economic Sustainability Study of Pumped Hydro Energy Storage in the San Bernardino County Basin, Hadasa Reyes Lagos, <i>Cal Poly Pomona</i> Assessing the Long-term Effects of Autonomous Vehicles on Highways' Traffic Volume and Capacity, Amirsaman Mahdavian, <i>University of Central Florida</i> Willingness to Pay in the Autonomous Vehicle Age, Mariana Torres-Montoya, <i>Louis Berger</i> A 4D BIM-based LCA Approach to Account for Greenhouse Gas Emission of Bridge Construction, Shoshanna Saxe, <i>University of Toronto</i>	Education 1 Moderator: Yvette Pearson, <i>Rice University</i> Green Economy: Lessons Learned., Camil Boulous, <i>Boulos Developments LLC</i> Creating Continuing Education Partnerships for Employee Development: City of Los Angeles Bureau of Engineering and Loyola Marymount University, Los Angeles, Lorraine Moreno, <i>City of Los Angeles</i> Pragmatic Evaluation of Owner and Manager Influence Toward Effective Management of Small-medium Construction Company in South Africa, Imisiouluseyi Akinyede, <i>Cape Peninsula University of Technology</i> The Evolution and Infrastructure for the Sustainability of Supplier Diversity, Workforce Development, and Inclusion Programs, Giovanna Brasfield, <i>Hensel Phelps</i> Campus Sustainable Infrastructure as Living Labs at California State University Los Angeles, David Blekhan, <i>Cal State LA</i>



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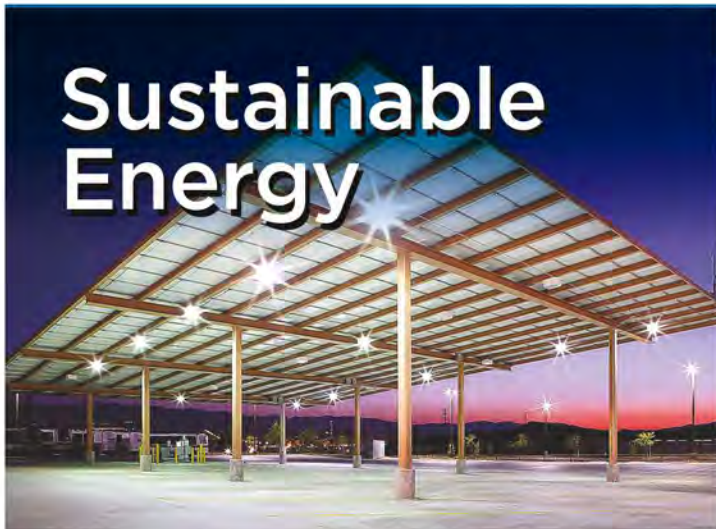


Saturday, November 9, 2019

7:30 – 8:45 a.m. <i>Crystal Ballroom</i>		Awards Breakfast Sponsored by  أرامكو السعودية Moderator: Tom Smith, <i>Executive Director, ASCE</i> <ul style="list-style-type: none"> – ISI Envision Award – ASCE Innovation in Sustainable Engineering Award – Student Paper Award 	
9:00 a.m. – 10:30 a.m.		Technical Sessions	
Track A Tiffany Room <i>Sponsored by Santa Ana Watershed Project Authority</i>	Track B Heinsbergen Room <i>Sponsored By Los Angeles County Public Works</i>	Track C Emerald Ballroom	Session Gold Ballroom
Climate Change 4 - Lightning Presentations Moderator: Shoshanna Saxe, <i>University of Toronto</i>	Practice 4 Moderator: Jeff Rex, <i>Cardno</i>	Younger Members Shaping the Future of the Profession Moderator: Elizabeth Ruedas, Michael Baker International	ENVISION: Implementation through Verification in Los Angeles Moderator: Denise Nelson, Berkley Group
Performance-Based Design of Flood Protection Infrastructure , Alessandro Fascetti, <i>University of Waikato</i> A New Approach to Climate-resilient Design: Infrastructure Canada's Climate Lens , Shane O'Hanlon, <i>Stantec Consulting Ltd</i> A Civil Engineer's Perspective on AB2800: Climate Safe Infrastructure Legislation and How the Profession Will Need to Adapt , Sameer Shah, <i>Burns & McDonnell</i> Climate Change Resiliency of Gas Pipelines: Overview of Land Subsidence and Associated Issues in Central California , Mehrshad Ketabdar, <i>Southern California Gas Company</i>	Evaluation of Resilience and Sustainability Guidance for Underground Transportation Infrastructure , Tonatiuh Rodriguez-Nikl, <i>Cal State LA</i> Building Connections with the Sanitary Sewer for Stormwater Compliance , Kristen Ruffell, <i>Los Angeles County Sanitation Districts</i> The Big Canyon Restoration and Water Quality Improvement Project as an Integrated Approach to Using Sustainable Infrastructure for Multiple-benefit Projects , David Pohl, <i>Burns & McDonnell</i> Sixth Street Viaduct Replacement Project Presenter: Julie Allen, <i>City of Los Angeles</i> Los Angeles Department of Water and Power: John Ferraro Building LEED Case Study , Maria Sison-Roces, <i>LA Department of Water and Power</i>	<p>This Younger Member Roundtable Discussion will be subdivided into two sessions, Strategic Issues and Public Policy. At the start of each one, an ASCE expert will begin by providing background information on that specific topic before allowing Younger Members to ask questions.</p> <p>Subsequently, Younger Members will work together to identify, discuss and develop a list of strategic issues that they would like to tackle during the upcoming year. The discussion will be led by the ASCE Committee on Younger Members and will be open to all attendees looking to learn more about the status of critical issues affecting future generations.</p>	<p>This presentation will focus on Envision adoption and implementation procedures and progress from local Los Angeles jurisdictions. Presenters will explain the steps of the Envision verification process and provide examples from own experience including initial project assessments, credit documentation, and level of effort required. Recommendations, case studies, "lessons learned," and next steps will be shared. We will provide a brief discussion on the update to Envision Version 3.</p> <p>Presenters: Mike Sarullo, <i>City of Los Angeles</i> Chris Sheppard, <i>Los Angeles County DPW</i> Cris Liban, <i>L.A. Metro</i></p>



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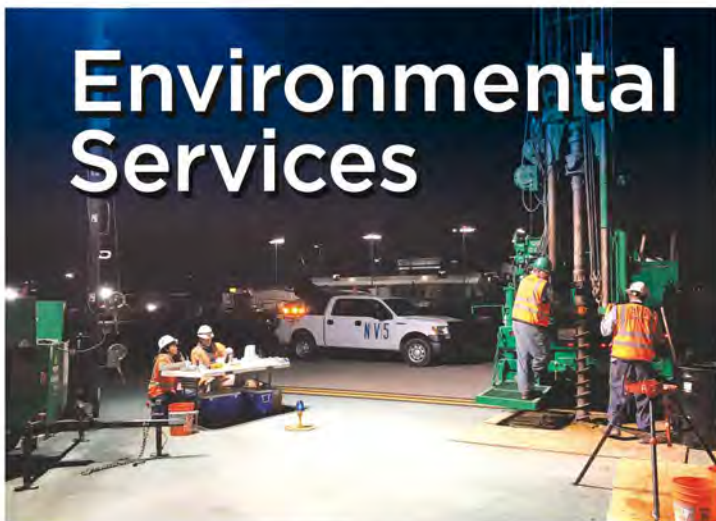
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Saturday, November 9, 2019 *(continued)*

10:30 a.m. – 11:00 a.m. <i>Biltmore Bowl</i>	Morning Networking Break Sponsored by 		
11:00 a.m. – 12:30 p.m.	Technical Sessions		
Track A Tiffany Room <i>Sponsored by Santa Ana Watershed Project Authority</i>	Track B Heinsbergen Room <i>Sponsored By Los Angeles County Public Works</i>	Track C Emerald Ballroom	Session Gold Ballroom
Resilience 5 – Lightning Presentations Moderator: Eliza Jane, <i>EVV Consulting</i>	Society and Urbanization 2 Moderator: Youn Sim, <i>County of Los Angeles County PW</i>	Sustainable Infrastructure: A Solution to Park-Poor Communities Moderator: Lynda Bybee, <i>LSA</i>	Sustainability Education Moderator: Cliff Davidson, <i>Syracuse University</i>
Probabilistic Sustainability Assessment of Bridges Subjected to Multi-Occurrence Hazards , Nariman L. Dehghani, <i>Ohio State University</i> Probabilistic Lifecycle Sustainability Analysis of Levees Against Storm Surge Hazards , Mehrzad Rahimi, <i>Ohio State University</i> Restoring Eden – The Mesopotamian Marshes , Sam Ali, <i>Orange County Public Works</i> Resiliency for Parking Structures , Teresa C. Vangeli, PE, <i>WSP USA</i>	Issues, Challenges and Opportunities of Sustainably Managing Water Within the Urban Framework Jimmy Galvez, <i>Sherwood Design Engineers</i> Taxonomy of Uncertainty in the GHG Assessment of Infrastructure Delivery , Shoshanna Saxe, <i>University of Toronto</i> Transformational Change Through Leadership: Lessons from the First Electric Metro Line in Lima , Judith Rodriguez, <i>Harvard University</i> Analyzing the Environmental and Economic Sustainability of Building Materials Flow Under Geopolitical Uncertainties , Shaikha Al-Nuaimi, <i>Hamad Bin Khalifa University</i> Elevating Humanity to Optimize the Mobility Revolution , Kaia Nesbitt, <i>HDR</i>	<p>Infrastructure is most commonly labeled as sustainable by meeting specific standards outlined by the Institute for Sustainable Infrastructure or U.S. Green Building Council. However, as noted in the American Society of Civil Engineers' "Five-Year Roadmap to Sustainable Development," sustainable infrastructure is more than a set of design standards. It is the application of economic, environmental, and social resources to "enhance the safety, welfare, and quality of life for all of society."</p> <p>In this panel presentation we will examine three case studies in which truly sustainable infrastructure was used to solve a defined safety, welfare, or quality of life issue. Each project example applied social resources to an infrastructure issue by creating active or passive park space in a park poor community. We will identify the key elements that led to the successful implementation of these triple bottom line sustainable infrastructure projects, including: i) Creative Design, ii) Funding, iii) Public Participation/Engagement, and iv) Political Will.</p> <p>When we hone in on the definition of sustainable infrastructure, we see that it isn't just about limiting consumption of energy, water, and building materials.</p>	<p>Urban infrastructure for wastewater, drinking water, energy, transportation, and other services continues to degrade in many U.S. cities. Some of this infrastructure is crumbling and in need of replacement, and design of the new infrastructure is the responsibility of civil engineers. Unfortunately, most practicing civil engineers are out-of-date with regard to current demands for engineering design.</p> <p>The session will explore ways of solving this problem so that large numbers of practicing engineers can increase the level of sustainability associated with urban infrastructure projects. Questions such as the best target audience for educational materials (e.g., managers versus engineers on-the-job), the most effective mode of education delivery (e.g., videotapes versus real-time webinars or in-person workshops), and ways of providing incentives for engineers to change their practice will be explored in this session.</p>
12:30 p.m. – 2:00 p.m. <i>Crystal Ballroom</i>	Closing Plenary Lunch – What have we learned in this conference and how do we put that in practice? Sponsored by  Mark Norton, <i>2019 Conference Chair</i> Welcome to Houston – ICSI 2021 Carol Haddock, <i>ICSI 2021 Conference Chair</i> Closing Keynote Marissa Aho, <i>Chief Resilience Officer Houston</i> Cris Liban, <i>Chair ASCE Committee on Sustainability</i>		
2:30 p.m. – 5:00 p.m.	Sustainable Leadership Workshop for Younger Members *Separate Registration - \$25 Spiros Lazaris, <i>Spiros Lazaris Engineered Solutions L.L.C.</i>		

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Thursday, November 7

10:00 a.m. – 5:00 p.m.

Biltmore Bowl

Finance and Management

- Risk Assessment of Results-based Funding Mechanisms for Infrastructure Programs. **Kareem Zahran**, *American University in Cairo*
- Port of Baltimore - a Case Study for Asset Management as a Risk Reduction Tool for Sustainability Initiatives. **Byron Dunlap**, *Cardno*
- Washington Boulevard Stormwater and Urban Runoff Capture Project: A Successful Public-Private Partnership (P3). **Katie Harrel**, *CWE*
- Challenges and Strategies with LA County's Urban Infrastructure Investment. **Youn Sim**, *LA County Dept. of Public Works*
- Framework to Optimize Cost of Quality in Delivering and Operating Green Buildings. **Ayman Raouf**, *Hamad Bin Khalifa University*
- Managing Sustainability and Resilience in Developing Communities. **Fariborz Tehrani**, *Cal State Fresno*

Climate Change

- FEMA/California Task Force Urban Search & Rescue Team. **Brian Smith**, *Los Angeles County Public Works*
- Seattle Digs Deep for Sustainability with the Ship Canal Water Quality Project. **Jennifer Ninete**, *HDR*
- Designing Resilient Stormwater Treatment Systems to Mitigate Climate Change Impact. **Renan Valenca**, *UCLA*
- Buried Corrugated Metal Culvert Failure Mechanisms Due to the Environmental Deterioration Using Finite Elements Methods. **Etham Nakhostin**, *Carleton University*

Friday, November 8

10:00 a.m. – 4:30 p.m.

Biltmore Bowl

Society and Urbanization

- Burton Way: A Sustainable Solution to Stormwater Quality in Beverly Hills. **Katie Harrel**, *CWE*
- Roadways as Integrated Stormwater Treatment Systems: Potential of Roadside Best Management Practices to Treat Stormwater Runoff. **Annesh Borthakur**, *UCLA*
- Creating a Common Language. How Does the Sustainable Infrastructure Criteria Compare to the SDGs? **Cristina Casado**, *Harvard*
- Following in San Fernando's Footsteps: A Guide to Efficiently Implementing Sustainable and Cost-Effective Multi-Benefit BMPs. **Katie Harrel**, *CWE*
- The Cities We Have, the Cities We Want. **Steve Fisher**, *Tetra Tech*
- North Shore Community Park - Society and Urbanization. **Paris Borovilos**, *Arup*
- The Parkwood Tech Centre: Leveraging the Built Environment to Tackle Inequity in Urban Education. **Morgan Abbett**, *HDR*
- Bradley Green Alley - Delivering a New Future for Pacoima. **Anthony Kirby**, *Arup North America Ltd.*
- Investigating Barriers to Sustainable Urbanization. **Mohammadsoroush Tafazzoli**, *Washington State University*
- Sustainability in the Developing World: An Investigation on How Emerging Economies Are Performing. **Camil Boulos**, *Boulos Developments LLC*
- The Role of Engineers in the Completion of the United Nations Sustainable Development Goals. **Will Reichard**, *Rowan University*

Construction, Materials, and Structures

- Carbon-neutral Cementation: From Seashells to Concrete for the Built Environment. **Gaurav Sant**, *UCLA*
- Life Cycle Sustainability Assessment of Fugitive Dust Control Methods. **Alena Raymond**, *UC Davis*

- Recommending Adequate Concrete Cover for Desired Service Life in Corrosion Prone Environment to Ensure Sustainability. **Bayezid Baten**, *Bangladesh University of Engineering and Technology*
- Behavioral Trends of Reinforced Concrete Beams Strengthened with NSM-SMA Method. **Behrouz Farahi**, *University of Wisconsin-Milwaukee*
- Improving Shearing Resistance of MSE Wall Base Using Recycled Plastic Pins. **Md Nur Basit Zaman**, *University of Texas Arlington*
- Magnetic Corrosion Detection in Concrete Structures. **Azam Elyasigorji**, *University of Wisconsin-Milwaukee*
- Safe Distance Between Cars. **Mohammed Almashani**, *Oman Traffic Safety Committee*

Saturday, November 9

9:00 a.m. – 12:30 p.m.

Biltmore Bowl

Practice and Workforce Development

- A Data-Driven Risk Assessment Approach for Evaluating Resilience of Transportation Infrastructure. **Michael Ibrahim**, *Cal State LA*
- How Multi-Disciplinary Teams Can Improve the Sustainable Design Process and Project Outcomes. **Theresa Harrison**, *City of South Bend, Indiana*
- Role of Infrastructure in Creating Socially Inclusive Outcomes. **Davide Stronati**, *Mott MacDonald*
- Community Partnering for Sustainable Infrastructure. **Sam Ali**, *Orange County Public Works*
- Development of Civil Systems for a More Resilient Philippines. **Francis Uy**, *University of the Philippines*

General Information

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Early Bird and Advance registrants will receive their name badges and tickets at the registration desk during registration hours. To expedite the check-in process, it is recommended you bring your email confirmation with you – especially if you registered after October 16.

Conference Attire

The dress code for the conference is business casual (slacks, casual dresses). Meeting room temperatures will vary, so wear layered clothing to ensure your personal comfort. We also recommend attendees wear comfortable shoes.

Meeting Room Overcrowding

ASCE will make every effort to schedule popular events in rooms large enough to accommodate anticipated attendance. Since many events are extremely popular, it is wise to select alternative events as you plan your conference schedule. ASCE and the hotel personnel are REQUIRED to follow local fire regulations and may ask participants in rooms filled to capacity to choose another event.

Medical Emergencies

ASCE hopes that your visit to Los Angeles and the International Conference on Sustainable Infrastructure will be free of medical incident. However, if you become ill at the Millennium Biltmore Hotel Los Angeles, please contact the front desk and tell them you have a medical emergency that requires immediate attention.

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Reservation Cut-off date: Wednesday, October 16, 2019

Online registration will be open until this date. Keep up with current information at www.icsiconference.org

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