

# TECHNICAL PROGRAM OVERVIEW

## PLENARY SESSIONS

*Subject to Change*

**MONDAY, JUNE 29**

**8:00 am—9:15 am**

### **Lifeline Performance under Extreme Events**

This presentation will explore the behavior of lifelines under extreme natural events and human threats. Major lessons learned over the past decade will be summarized with respect to lifeline component and system performance, focusing on how the Los Angeles earthquakes, the World Trade Center Disaster, and Hurricane Katrina affected various lifeline systems, including water distribution, electric power, oil and gas delivery, transportation, and telecommunications. The concept of critical infrastructure will be discussed, including its definition according to the U.S. National Infrastructure Protection Plan. Lifeline interdependencies will be explored, and illustrated with examples from recent extreme events. Key lessons learned with respect to community resilience will be summarized in light of recent disasters, and recommendations for improving both lifeline system and community response to extreme events will be given.

**Thomas O'Rourke, M.ASCE, Ph.D.**

*Thomas R. Briggs Professor of Engineering, School of Civil and Environmental Engineering, Cornell University, Ithaca NY*

**TUESDAY, JUNE 30**

**8:00 am—9:00 am**

### **Critical Infrastructure—Key to a Sustainable and Resilient Renewal**

In recent decades, the physical infrastructure systems that form the basis of America's social and economic fabric have been allowed to decline into alarming disrepair. Reconstructing these systems is a costly but critical endeavor that demands leadership from the engineering community in developing improvements over the existing systems to make them sustainable and resilient.

This presentation addresses this leadership role, which must include the development of improved risk identification and communication methods, integrated system evaluation, updated design criteria and operational procedures, and informed risk-reduction decision-making processes.

**Blaine D. Leonard, F.ASCE, P.E.,**

*Research Program Manager, Utah Dept. of Transportation, Salt Lake City UT, and President-Elect of American Society of Civil Engineers*

**TUESDAY, JUNE 30**

**11:45 am—1:15 pm**

### **AWARDS LUNCH**

### **Toward Resilient, Smart, and Self-Healing Interdependent Infrastructures**

Virtually every crucial economic and social function depends on the secure and reliable operation of energy, telecommunications, transportation, financial, and other infrastructures. These major infrastructure systems are dynamic and complex, and management of disturbances in all such networks due to natural disasters, purposeful attack, or unusually high demands requires a basic understanding of the true system dynamics rather than mere sequences of steady state operations. Following such disturbances, effective, intelligent, and distributed control of infrastructure operations is required that would enable parts of the networks to remain operational or even automatically reconfigure in the event of local failures or even threats of failures. This presentation addresses these issues by summarizing holistic risk-based dynamical systems approaches to analysis of the interdependent national infrastructure. These approaches build on advances in the mathematics of complexity, methods of probabilistic risk assessment, and techniques for fast computation and interactive simulation with the goal of increased agility and resilience for large-scale infrastructure systems.

**S. Massoud Amin, Professor and Honeywell/H.W. Sweatt Chair in the Technological Leadership and Director of the Center for the Development of Technological Leadership, University of Minnesota, Minneapolis MN**

**TUESDAY, JUNE 30**

**3:30 pm—4:15 pm**

### **Disaster Risk Management from the Perspective of a Multilateral Financial Institution**

This panel session will summarize the function of a multilateral financial institution, such as the World Bank, in supporting its clients' development of strategic plans for disaster risk management. This function includes assistance in mitigating impacts of disasters, reducing building and infrastructure vulnerabilities in hazard prone areas, and facilitating rapid post-disaster recovery. The importance of mainstreaming disaster risk reduction (DRR) into development programs to help prevent future disasters will be explored, along with methods for integrating DRR into recovery planning in order to ensure that rebuilt assets are sustainable and resilient to future disasters. Case studies of World Bank assistance to risk management efforts following disasters caused by tsunamis, typhoons, flooding, and earthquakes will be presented. Successful and unsuccessful aspects of these assistance programs will also be addressed, along with institutional challenges and socio-economic impacts.

**Panelists from World Bank, including**

**John Scales, China Transport Section Coordinator, Beijing, China**

**WEDNESDAY, JULY 1**

**9:45 am—11:15 am**

### **Lifelines and the National Earthquake Hazards Reduction Program (NEHRP)**

The seismic performance of our nation's lifeline systems is an important element of the National Earthquake Hazards Reduction Program (NEHRP). This panel will review the NEHRP program, NEHRP's direction for lifelines, and lifelines as they relate to the 2009 ASCE report card and new stimulus policies.

**Moderator: Yumei Wang, P.E., F.ASCE**

*Oregon Dept of Geology and Mineral Industries and member of NEHRP Advisory Committee on Earthquake Hazards Reduction (ACEHR)*

**Jack Hayes, Ph.D., A.M.ASCE**

*National Institute of Standards Technology, Gaithersburg MD, NEHRP Director*

**Chris Poland, M.ASCE**

*President and CEO of Degenkolb Engineers, San Francisco CA, Chair of NEHRP ACEHR*

**Brian Pallasch, AffM.ASCE**

*ASCE Managing Director, Government Relations and Infrastructure Initiatives, Reston VA*

