

## Community Resilience Panel: Transportation Standing Committee Meeting

**MEETING DATE:** November 9, 2015  
**TIME:** 1:45 pm EST to 4:15 pm EST  
**LOCATION:** National Institute of Standards and Technology (NIST), Gaithersburg, MD  
**ISSUE DATE:** December 4, 2015

**ATTENDEES:**

Attendee	Affiliation
Susanne DesRoches (Chair)	NYC Office of the Mayor
Peter Adams	Port Authority of New York and New Jersey
John Contestabile	Johns Hopkins University
Charles Crisostomo	Montgomery County, Maryland
Joseph Englot	HNTB Corporation
Steven Ernst	Federal Highway Administration
Eliot Evans	U.S. Air Force and DE Air National Guard
Michel Ghosn	The City College of New York / CUNY
Gordana Herning	CAIT Rutgers University
Michael Hockstein	Hagerty
Joe Kendall	Homeland Security Studies and Analysis Institute
Anne La Lena	LeapFrog Solutions
Zoubir Lounis	National Research Council Canada
Terri McAllister	NIST
Stacey Stanchfield	MITRE
Alper Ucak	WSP - Parsons Brinckerhoff
Thomas Wall	Argonne National Laboratory

**DISTRIBUTION:** Attendees and Transportation Standing Committee

**NOTES BY:** Terri McAllister, NIST

**1. Welcome and Introductions**

Susanne DesRoches led introductions of the participants and reviewed the goals for the meeting.

**2. Discussion of first question for report-out: What are the largest gaps and needs within your sector that need to be addressed in resilience planning and guidance products?**

The discussion began with participants identifying challenges that currently exist, such as the differences in designing new infrastructure vs. rehabilitating existing infrastructure, and how to address degradation of aging infrastructure. The group also noted that there are many jurisdictional challenges to overcome, including lack of funding within communities, as well as responsibility for funding infrastructure that connects communities.

Participants felt that one gap was that the conversation about transportation infrastructure was often reactive rather than preventative. Furthermore, the group felt that understanding acceptable levels of risk and community goals are necessary, especially for public perception. Participants also noted that the level of risk is currently driven by policy rather than standards. Land use planning, operational capabilities, and cyber security interdependencies were also identified as being pertinent to the transportation sector.

The group also discussed needs related to modeling transportation systems, including the need for consistent inputs (including hazards), unknown probabilities and changing vulnerabilities associated with climate change. Participants also noted that standards/codes are specific to sectors (e.g., rail, highway, etc.) rather than developed at a system level, making it difficult to translate the existing standards to system performance/behavior at a larger scale.

### **3. Discussion of the second question for report-out: Identify significant interdependencies and gaps with other sectors that impact resilience.**

Through the standing committee's conversation, it divided dependencies into two categories: 1) Dependencies of transportation infrastructure on other systems; and 2) Other systems that depend on transportation infrastructure. Participants stated that transportation systems were dependent on power, cyber security, and communications systems. Moreover, drainage, supply chains, and rights-of-way were all considerations that the group felt needed to be considered in the planning process. Conversely, emergency manage, energy repair crews, water systems, and supply chains depend on transportation systems. Additionally, it was discussed that transportation systems had unique intermodal dependencies. That is, roadways, rail, waterways, and air transport are often used in sequence to transport people and good.

### **4. Discussion of the third question for report-out: How do we address the needs and gaps we identified?**

When discussing ways to address the gaps and needs previously identified, participants felt that an acceptable risk performance framework/model was needed. This risk performance framework model would be used to identify operational capabilities, key parameters, provide forward looking climate inputs for planning and design, incorporate useful life of assets, and determine recovery time.

Addressing interdependencies was considered as a significant challenge. In many cases, it was felt that these could not be solved using traditional standards. Rather, it was felt that identifying areas where there is a lack of data available would be a valuable exercise. Furthermore, developing ways to address differences in private vs. public infrastructure ownership, and site specific dependencies were also identified as potential ways to overcome gaps in knowledge.

A number of other solutions for addressing the challenges previously discussed were listed, including development of tabletop exercises, threat analysis benchmarking, early assessment to identify potential issues/problems, and developing procurement methodologies that allow a quicker purchasing process, particularly in a recovery process.

**5. Discussion of the fourth question for report-out: Are there others we need to engage to help us address these needs? Others may include SMEs/groups not at the meeting in your sector or SMEs/groups from other sectors.**

The group was interested in engaging a broader group of stakeholders to gain additional perspectives in addressing these previously identified challenges. Participants felt system analysts would be useful to help better understand multi-modal challenges. It was also discussed that engaging others who had developed models, and learned from those experiences, such as LEED, was needed. Including social scientists and economists was also considered to assist with risk communication. Beyond identifying other stakeholders to engage, participants also felt that identifying other international frameworks (e.g., Denmark) would be useful to see what other lessons have been learned around the world from similar efforts.

**6. Discussion of the fifth question for report-out: What are existing codes, standards, guidance, goals, and/or protocol that have been published, or are in-process, in your respective sectors?**

The participant listed a number of bodies that have existing codes, standards, or other guidance documents/documents related to transportation infrastructure, including:

- NEPA
- MPOs
- AASHTO
- AREMA
- ASCE 7 and 24
- FRA/FTA mandated risk assessment
- FEMA
- FHWA – earthquake and security
- NFPA
- RAMCAP
- Transportation resilience framework from New Zealand
- TRB, including ACRP, NCHRP, and TCRP

The group also noted that there is a lot of past research and guidance available with respect to asset management systems and storm modeling.