

**National Earthquake Hazards Reduction Program (NEHRP)
Advisory Committee on Earthquake Hazards Reduction (ACEHR)
National Institute of Standards and Technology
Gaithersburg, MD
March 12, 2019**

Teleconference Meeting Summary

Meeting Attendance

Advisory Committee Members

Glenn Rix, Vice Chair	Geosyntec Consultants, Inc
Greg Deierlein	Stanford University
John Gillengerten	Consulting Structural Engineer
James Goltz	CA Emergency Management Agency
Nathan Gould	ABS Consulting
Ryan Kersting	Buehler & Buehler Structural Engineers, Inc.
Keith Koper	University of Utah, Salt Lake City
Lisa Grant Ludwig	University of California, Irvine
Peter May	University of Washington, Seattle
Lori Peek	University of Colorado, Boulder
David Simpson	IRIS Consortium

NEHRP ICC Member-Agency Representatives and NIST Support

Howard Harary	NIST/EL Director
Jason Averill	NIST/EL/MSSD Chief
Luciana Astiz	NSF Program Director, Division of Earth Sciences
Bill Blanton	DHS/FEMA, Chief Building Science Branch
Tina Faecke	NIST/EL/MSSD, NEHRP Program and Management Analyst
John Harris	NIST/EL/MSSD Acting NEHRP Deputy Director
Steven McCabe	NIST/EL/MSSD, NEHRP Director
Steve Potts	NIST/EL/MSSD, NWIRP Program and Management Analyst

I. Opening.

Harary opened the meeting at 3:00 p.m. Eastern Time. He stated the purpose of the meeting is to discuss the ACEHR biennial report due by the end of September. He welcomed Keith Koper as the newest member of the ACEHR, and stated that Tina Faecke will be the Designated Federal Official.

The next in-person ACEHR meeting is scheduled for April 30-May 1 at NIST in Boulder, CO. This meeting will be devoted to getting progress reports from the four NEHRP agencies . Harary

suggested they get as much work done as possible on the report at the April meeting. The follow-up in-person meeting will be at NIST in Gaithersburg, MD on August 20-22, 2019. Between these two in-person meetings, Rix anticipates making progress on the report and assigning homework. There may also be a need for one or two teleconferences during the summer.

Rix said the most significant development since we last met has been the reauthorization of NEHRP. He recommended the first goal for the biennial report be a vision for the Program. He suggested that the four-tier model (from awareness to integration) that Harary described at the last meeting might provide a framework for the committee's recommendations. McCabe reiterated that the audience for the biennial report is the NEHRP Interagency Coordinating Committee (ICC) and Congress.

Gillengerten asked if anything substantial changed in the reauthorization. McCabe said there are tweaks to some of the procedural things, for example the ICC meeting frequently was reduced to once per year, as opposed to three times per year. The USGS has a management plan on the Advanced National Seismic System (ANSS) network (<https://earthquake.usgs.gov/monitoring/anss/>) to develop by December 2019. FEMA and NIST are responsible for convening a Committee of Experts to assess and recommend options for improving the built environment and critical infrastructure to reflect performance goals stated in terms of post-earthquake reoccupancy and functional recovery time. NSF will have to develop a biennial tracking report showing what earthquake-related research has been funded. The Government Accounting Office (GAO) is required to do a complete review of hazard risk reduction measures within three years. They will have the ACEHR reports, and the most recent ones will influence what they decide to look at.

McCabe added that NEHRP is required to update its Strategic Plan. Harary asked NEHRP to read the existing Strategic Plan and assess what's good, what's been accomplished, what hasn't been accomplished, what's needed, and what resources are necessary to get there. ACEHR's comments will be valuable in this work. McCabe said updating the Strategic Plan is our first item of business, with plans to develop a draft by the end of the calendar year. The big things we've got to look at are resilience, lifelines and performance standards, and rating systems.

Rix suggested that the biennial report have the following goals:

- Highlight key changes from reauthorization;
- Provide a technical vision aligned with reauthorization;
- Assist the agencies in getting the resources they need to get their work done;
- Provide a useful mechanism for how the agencies can work better together, so the sum is greater than the sum of its parts;
- Assess the current state of understanding earthquake risks and recommend next steps;
- Assess public communication of the science and recommend next steps; and,
- Highlight NEHRP accomplishments.

Kersting suggested we include a goal about public policy. He said there has been good development on codes, standards and techniques, but we need to discuss how we can help the states from a policy perspective. Harary reminded them that state and local public policy are just

what they say. NIST influences that by doing economic analysis of the impacts of code adoption. He said the codes are model ordinances, and we work hard with state and local governments to help develop the model codes. It is then up to the localities to adopt them in any way they see fit. The economic analysis can be very helpful to state and local governments when the construction community says people don't want to pay for earthquake resistant features.

Rix asked if there should be a discussion on implementation gaps. Koper suggested it's a good idea to show progress for previous investments, and proposed the Cook Inlet earthquake in Alaska may be a good example. There were no fatalities or serious damage in a major metropolitan area. McCabe said we sent a team up to Anchorage during the shutdown. The response and performance of Anchorage was a success story, but it was also a very deep earthquake and could have been worse if the epicenter were shallower. There's no doubt that had the 1964 event occurred the outcome would not have been as good.

Rix asked if there are any specific instructions we want to provide to the agencies or to the NEHRP Office. Kersting asked if the agencies could provide their take on the Strategic Plan, and Deierlein requested they describe how they imagine responding to the legislation. May said we should be looking at recommendations from the previous ACEHR reports and agency responses to them. There were some responses in the March meeting, but not responses from all agencies, we need to make sure we have those responses available for the April meeting.

Simpson asked if there has been any progress on an ICC meeting. Harary said the NEHRP Program Coordination Working Group (PCWG) is working on an agenda, but new Administration officials, like the OSTP Director, are still coming on board. Simpson reminded the committee that the last two biennial reports have said how important that meeting is, and they still haven't met. This point needs to be emphasized and added to the agenda for the next ACHER meeting.

McCabe would like input from ACEHR on the Strategic Plan and where we ought to be headed. One of the questions from a representative during the field hearing in May was about the seismic performance of public housing. They wanted to know how those buildings would perform in an earthquake given that they are older, built to older codes, and occupants have limited resources. This question gets to the inequality in the effects of hazards and the impacts on people with fewer resources. There are policy and legal aspects that we haven't considered. We can develop all of the technical aspects, but it's difficult to actually get things done. He added that in the Immediate occupancy work NIST did, we spent a lot of time discussing the reactions of the construction community. It's the other end of the spectrum we may need to address. Grant-Ludwig said in the context of public health, we talk about disparities for vulnerable populations in public housing, and seniors in nursing homes. They should be considered as well. Harary reminded the group about the importance of infrastructure (e.g. the Camp Fire). Grant-Ludwig said another concept that's relevant is called years of potential life lost. When dealing with illnesses that strike only 90-year old people, that doesn't result in the same number of years of life lost as those of infants. Prioritizing retrofits should consider who uses the building in terms of years of life lost. An example was the Long Beach earthquake that occurred on a weekend. Lots of schools collapsed and everyone recognized that if the community had lost an entire

population of school children it would have been devastating. If we are considering challenges outside of the box, the question of retrofit prioritization is something that could be considered. Gillengerten said that the way building codes are written, people who can't care for themselves are generally held to higher code standards. Maybe the case can be made, but it has a visceral impact on politicians. Another issue is replacing rent-controlled buildings with those that are not rent-controlled.

Next Steps and Closing

Action Items:

- Rix asked for the November 2018 ACEHR meeting summary;
- Rix will develop a new report outline and suggest people annotate it as they see fit on issues they feel strongly about;
- Rix will work with Faecke to get reference documents assembled in one location on the NEHRP website where the committee can access them;
- Rix will give homework assignments to people who can summarize the reference documents prior to the April mtg;
- Rix will work to ensure that writing assignments for the report are across disciplinary boundaries. He will consider Deierlein's suggestion to divide the report into three categories listed below to help get away from disciplinary silos.
 - 1) Societal Needs – resilience and functional recovery;
 - 2) New Technologies – computational simulations and seismic hazard characterization;
and
 - 3) Implementation and Impact – communication and policy issues.

The meeting ended at 4:56 p.m. Eastern Time.