

Committee Charge

The NHERI Network Independent Advisory Committee (NIAC) charge is to provide independent guidance and advice to the NHERI Council. The NIAC is also charged with keeping the community informed of NIAC activities through production of this annual report.

Committee Members

- Catherine Petroff (NIAC Chair, FY24) – Coastal Engineering, U.S. Army Corps of Engineers
- Glenn Rix (NIAC Vice-Chair, FY24) – Geotechnical Engineering, Geosyntec Consultants, Inc.
- William Hansmire (NIAC Chair FY23) - Geotechnical Engineering, WSP USA
- John van de Lindt (NIAC Vice-Chair, FY23) - Wood and Earthquake Engineering, Colorado State University
- Lesley Ewing - Coastal Engineering, Social Sciences and Policy, California Coastal Commission, retired
- Carol Shield - Earthquake Engineering, University of Minnesota, Emerita
- Peter Vickery - Wind Engineering, Applied Research Associates, retired

Committee Process

The Committee work for the year included virtual meetings in committee, virtual meetings with PIs of NHERI sites, and an in-person meeting at the RAPID facility at the University of Washington on September 12-13, 2024. The following site PIs met with the NIAC in preparation for this report:

- Lori Peek, CONVERGE, University of Colorado Boulder (virtually on Aug 28)
- Joel Conte and John McCartney, University of California San Diego (virtually on Aug 29)
- Jim Ricles, Lehigh University (virtually on Aug 29)
- Jennifer Bridge, University of Florida (virtually on Aug 29)
- Ken Stokoe, University of Texas at Austin (virtually on Aug 29)
- Arindam Chowdhury, Florida International University (virtually on Aug 29)
- Dan Cox and Pedro Lomonaco, Oregon State University (virtually on Aug 30)
- Jason DeJong, University of California at Davis (virtually on Sep 12)
- Ellen Rathje, DesignSafe, University of Texas at Austin (virtually on Sep 12)
- Joe Wartman, RAPID, University of Washington (in-person on Sep 12)
- Greg Deierlein and Matt DeJong, SimCenter (virtually on Sep 13)

The following questions were adapted as needed to the nature of each facility.

- (1) How has being in the NHERI network benefitted your site
 - a. In terms of advancement of research?
 - b. In terms of investment/return for your organization (bang for the buck)?
- (2) Which other site(s) has(have) something that your site can benefit from or that you can contribute to? What are you planning to do/are you doing to develop that synergy?
- (3) In your view, what has been the impact of the NHERI network
 - a. from a natural hazards research standpoint?
 - b. From the standpoint of implementation of measures to reduce natural hazard impacts?
- (4) What research trends do you see developing at your site?
- (5) What is your strategy in response to the announcement from NSF for Natural Hazards funding for 2026-2035
- (6) Do you have any additional comments that you would like to share with the advisory committee?

FY24 Evaluation

Based on the interviews with the PIs and the NCO as well as NIAC experience over the years, the NIAC has organized its guidance and advice into the four main sections below:

1. Value/Impact of NHERI

During the period from 2017 to 2024, the NHERI network of facilities has greatly improved the understanding of natural hazards and improved public safety from natural hazards.

Benefits to the profession from the NHERI network include:

- Implementing findings in codes and practices;
- Training undergraduates, graduates and faculty in natural hazards issues and science; and
- Broad dissemination of research findings and test results through publications, presentations, and public distribution of data for use by other researchers.

Benefits to facilities from association with NHERI include:

- Enabling researchers to expand to multi-hazard testing that is more representative of real-world conditions;
- Opportunities to leverage resources within the NHERI network, such as SimCenter, DesignSafe, RAPID and CONVERGE to allow facility resources to focus on research;
- Engaging multiple stakeholders among federal and state agencies, as well as industry to leverage limited NSF research funds; and
- Providing a point of pride for home institutions, as noted by several universities.

2. Recommendations for NHERI 2025-2035

Since the upcoming solicitations will shape the next iteration of NHERI, the NIAC offers the following recommendations now to help guide this process. NHERI could benefit from:

- Development of broad metrics that span the various disciplines and speak to the long-term impacts of NHERI, and recognize and encourage the values identified from NHERI as it exists today;
- Facilitation for prompt uploading of all test data to DesignSafe;
- Increased support for and emphasis on cross-disciplinary research;
- Guidance and support for effective inclusion of social science and other non-engineering disciplines into applications of the research to real-world situations;
- Examination and reduction of barriers to cooperative, multi-disciplinary research that better represents real hazard conditions;
- Greater use of shared resources (RAPID, DesignSafe, SimCenter, and CONVERGE) within NHERI and within the broader NSF programs, as appropriate;
- Continued or expanded annual In-person symposia for NHERI site PIs and CONVERGE at a location similar to the 2024 NHERI Summit;
- Development of research information directed at practitioners, through booths and presentations at professional conferences, tech notes, etc. using NCO resources; and
- Promotion of NHERI site capabilities throughout NSF. Facilities are concerned that NSF grantees outside of NHERI are unaware of opportunities to work with NHERI facilities. Example: use of RAPID equipment for social science surveys. NSF Small Business Innovation Research could make use of NHERI facilities and are not necessarily aware of the opportunities.

3. Funding and Budget Concerns

During the NIAC interviews with NHERI sites, several common concerns related to the present economic climate and NSF funding structure emerged:

- Interruptions in funding such as the shift from the last funding cycle ending in 2025 to the upcoming solicitation make it difficult to retain qualified staff. The NCO should work with the sites and NSF to develop staff retention plans.
- Increases in labor and materials costs often exceed grant increases. Research sites may initiate or increase user fees; however, some components such as Design Safe and SimCenter are not set up to charge user fees. As an example, DesignSafe now relies more on junior staff than in 2015 yet they are spending \$313,000/yr more while present day staffing has one less FTE.
- To address community scale progress in natural hazards mitigation, NSF should consider connecting social science and engineering by grand challenge funding to address multi-discipline, and cross-program problems.

4. Lessons learned for NIAC

The NIAC reviewed its activities over the last two funding cycles and makes the following recommendations for its future structure, operation and activities.

NIAC Structure:

- Maintain a composition of NIAC that mirrors the technical disciplines in NHERI;
- Maintain the current size (7-9 people) of NIAC;
- Improve representation from Social Sciences and pay attention to the diversity of the NIAC; and
- Suggest member rotation off the NIAC after 6 years (+/-), while replacing no more than about 2 members at a time.

Leveraging of Technology:

- Use virtual meetings, recorded meetings, curated AI summaries, online workspace (through a member's SharePoint) to help NIAC members coordinate throughout the year
- Ensure continuity by migrating to a virtual workspace on DesignSafe with public, private and archival storage. This would move NIAC's work from a committee member's workspace to a NHERI site.

Interactions with NHERI elements:

- Continue in-person meetings, annual (or more frequent) physical visits to a NHERI site, annual interviews with all NHERI sites, inclusion in NHERI community meetings such as Summer Institute, NHERI Summit, symposia and trainings. These opportunities have been essential to NIAC's review process and should be maintained beyond 2025.
- Engage with NCO more actively, following the model of NHERI site interactions, with a focus on conversations during interviews and limited presentation sizes (3 slides max per presenter)
- Continue to formulate question sets for the research sites to help facilitate NIAC review responsibilities
- Formulate separate question sets geared toward NIAC interactions with NCO, DesignSafe and SimCenter prior to interviews.

NIAC Governance:

- Continue NCO assistance in planning and facilitating NIAC activities
- Write a charter for NIAC that outlines committee structure, operating procedures and timing of annual activities. This will provide continuity as new NIAC members rotate onto the committee.