U.S. NATIONAL SCIENCE FOUNDATION
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NSF 24-117

Dear Colleague Letter: NSF Support for Natural Hazards Engineering Research Infrastructure (NHERI) during FY 2026-FY 2035

August 13, 2024

Dear Colleagues:

The purpose of this Dear Colleague Letter (DCL) is to inform the natural hazards engineering research community of plans for U.S. National Science Foundation (NSF) support for operations of the Natural Hazards Engineering Research Infrastructure (NHERI) during fiscal year (FY) 2026-FY 2035.

Since 2015, NHERI has operated through NSF support as a national distributed, multi-user facility that provides the natural hazards engineering community with access to research infrastructure - earthquake and windstorm engineering testing facilities, cyberinfrastructure, computational modeling and simulation tools, and research data - coupled with education and community outreach activities to advance knowledge and innovation for the performance of the nation's civil infrastructure and communities under natural hazard events (earthquakes, windstorms, and the associated hazards of tsunamis and storm surge).

PAST AND CURRENT NSF SUPPORT

The NHERI portfolio is described at the NHERI web portal. NHERI was developed through two NSF program solicitations NSF 14-605 and NSF 15-598. As the outcomes of these two solicitations, NSF supported eleven cooperative agreements for a Network Coordination Office (NCO), Cyberinfrastructure (CI), Computational Modeling and Simulation Center (SimCenter), and eight awards for earthquake and windstorm engineering experimental laboratory and field equipment facilities. These eleven cooperative agreements will expire on September 30, 2025, the end of FY 2025.

NSF-supported researchers have used these NHERI resources to advance fundamental knowledge and innovation on the performance of civil infrastructure under earthquake, tsunami, windstorm, storm surge, and climate change hazards. NHERI research has led to

(1) resilient and sustainable materials and new structural systems for building design and structural rehabilitation; (2) new methods to predict and improve the performance of soil, underground infrastructure, and on soil-structure-interactions; (3) strategies for safeguarding coastal infrastructure; (4) open source computational, simulation, and workflow research and educational tools; (5) new experimental simulation techniques and instrumentation; and (6) systematic field data collection procedures that capture civil infrastructure performance site response information during post-disaster field reconnaissance investigations. Laboratory, field, simulation, and post-disaster reconnaissance data from NHERI research have been published in the certified NHERI Data Depot for data management, community sharing, and data reuse. The NCO has supported the NHERI Summer Institute for early career scholars, a NHERI-wide Graduate Student Council, and a NHERI-wide Research Experiences for Undergraduates program. NHERI awardees have organized Natural Hazards Summits in 2022 and 2024, NHERI Computational Symposia, NHERI Computational Academies, and workshops and bootcamps for uses of NHERI resources.

FUTURE NSF SUPPORT

Providing research infrastructure that can support new knowledge advancements, innovations, and workforce development for the resilience and sustainability of the nation's civil infrastructure and communities under natural hazard events continues to be a high priority for NSF and the Directorate for Engineering. This DCL conveys the NSF plan for continued support of a visionary NHERI construct for FY 2026-FY 2035, with initial five-year cooperative agreements, starting on October 1, 2025, to be supported through the two funding mechanisms described below.

First, to provide continuity in NHERI operations to the natural hazards engineering community, this DCL conveys the NSF plan for potential cooperative agreement renewal of NHERI's Network Coordination Office, Cyberinfastructure (NHERI web portal), Computational Modeling and Simulation Center, and Natural Hazard and Disaster Reconnaissance (RAPID) facility originally supported under NSF 14-605 and NSF 15-598. NSF encourages the Recipients of these awards to discuss with the cognizant Program Officer the potential to submit an initial five-year renewal proposal for FY 2026-FY 2030. Renewal proposals are anticipated to be submitted by a target date of **February 1, 2025**. If renewed for FY 2026-FY 2030, and then based on the Recipient's satisfactory performance during that period and availability of funds, NSF would consider a second five-year proposal for FY 2031-FY 2035. NSF support will also be contingent upon the outcome of the external merit review of each five-year proposal.

Second, a forthcoming program solicitation is anticipated to be issued in 2024 by NSF's Directorate for Engineering, Division of Civil, Mechanical and Manufacturing Innovation. The new program solicitation is expected to be for a competition to establish a new NHERI portfolio for exemplary operations of experimental and field equipment/instrumentation

facilities to serve as national resources for NHERI research and education. These facilities will be expected to advance frontier science and engineering research focused on the impact of climate change, earthquake, tsunami, windstorm, storm surge, flooding, and fire/wildland-urban interface (WUI) hazards on the nation's civil infrastructure. Current NSF-supported NHERI facilities, as well as other existing facilities that can bring new national resources to NHERI, would be eligible for this competition. Through this new solicitation, it is anticipated that support will be provided, for "multi-user ready" facilities that can provide fully operational experimental laboratory and/or field equipment/instrumentation, with unique, benchmarked capabilities not elsewhere available in the U.S., coupled with fully operational data acquisition system(s).

The planned solicitation is not intended to support the construction of a new facility or upgrade of an existing facility. Funding opportunities for equipment, instrumentation, and facility development are available through NSF programs such as Major Research Instrumentation, Mid-scale Research Infrastructure-1, and Mid-scale Research Infrastructure-2.

NSF does not intend to provide additional information beyond this DCL until the program solicitation is issued, as that will be the official issuance for this competition and take precedence over the information in this DCL. The anticipated due date for proposals submitted in response to this new program solicitation will be at least 90 days following the publication date. NSF will host an information webinar after the solicitation is issued.

NHERI is classified by NSF as a mid-scale facility, and therefore the NHERI components for the NCO, CI, SimCenter, and experimental facilities will be required to operate in accordance with the NSF Research Infrastructure Guide (RIG), NSF 21-107, or its successor. The RIG is currently undergoing revision (draft available) to provide clarity of the guidance, with the updates to be finalized in spring 2025. More information about NSF-supported major and mid-scale facilities is available at the NSF Research Infrastructure Office website.

It is anticipated that all NHERI proposals for FY 2026-FY 2035 will be expected to build upon input gathered from the research community through workshop reports and community studies. These documents articulate the research needs and the consensus that continued support of a natural hazards engineering research infrastructure is critical for the research community to advance frontier engineering and science for understanding and mitigating the impacts of natural hazards on civil infrastructure and communities. These documents can include the NHERI Science Plan, U.S. National Science Foundation Natural Hazards Engineering Research Infrastructure (NHERI) Decadal Visioning Study 2026-2035, Frontiers in Built Environment NHERI Series, The Role of Engineering to Address Climate Change: A Visioning Report, Engineering Materials for a Sustainable Future: A Visioning Report, AI Engineering: A Strategic Research Framework to Benefit Society, Strategic Plan for the National Earthquake Hazards Reduction Program, Fiscal Years 2022-2029, and Strategic

Plan for the National Windstorm Impact Reduction Program.

FURTHER INFORMATION

Program Contact: Questions or comments should be directed to Joy Pauschke, NHERI Program Director, 703-292-7024, pauschk@nsf.gov.

Sincerely,

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