NSF 15-598 Program Solicitation
Natural Hazards Engineering Research Infrastructure (NHERI)

Informational Webinar
October 2, 2015

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Webinar Outline

- Introduction
- Eligibility Information
- Program Description
- Proposal Preparation
- Award and Budget Information
- NSF Merit Review Criteria and Process
- Award Administration Information
- Contact Information
- Q & A Session

Question & Answer Session at End of Webinar

Submit questions during webinar to:
jpauschk@nsf.gov

INTRODUCTION

NSF 15-598 NHERI Program Solicitation

http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503259

- NSF 15-598 Program Solicitation

- Frequently Asked Questions (FAQ)
  - First posting on/about mid-October
  - Check for updates prior to November 4, 2015 full proposal deadline

- October 2, 2015 webinar slides

  Note: This webinar highlights many items in NSF 15-598, but not all. NSF 15-598 is the authoritative source – not these slides. Please refer to NSF 15-598 for complete information.

NSF 15-598 Deadlines

- **Letter of Intent (LOI) Due Date (Required)**
  October 16, 2015, 5 p.m. *proposer's local time*

- **Full Proposal Deadline**
  November 4, 2015, 5 p.m. *proposer's local time*

Lead institution **must** submit an LOI by the Due Date in order to submit a full proposal. If the LOI is submitted after the LOI Due Date, then the lead institution may not submit a full proposal.

If a full proposal is submitted after the full proposal deadline, it will be **returned without review.** (See NSF GPG, Chapter 1.F.2, Deadline Dates)

Frequently Asked Questions (FAQ)

- Questions today will be answered at end of webinar, as time available.

- All questions and answers during webinar will be answered and posted in FAQ.

- Per NSF 15-598, all future questions received will be responded to in the FAQ.

- FAQ updated prior to November 4, 2015 full proposal deadline.

- Questions will not be individually answered.

- Questions submitted less than four weeks prior to the full proposal deadline will not be answered.

NSF 15-598 Solicitation

- Only receiving proposals for three NHERI components
  - Network Coordination Office (NCO)
  - Computational Modeling and Simulation Center (SimCenter)
  - Post-Disaster, Rapid Response Research (RAPID) Facility

- Information in NSF 15-598 on Cyberinfrastructure and Experimental Facilities other than a RAPID Facility is provided for information only

- Proposals submitted for other components (Cyberinfrastructure or Experimental Facilities other than a RAPID Facility) will be returned without review

- NSF 15-598 does not support research; do not submit research proposals to this solicitation; they will be returned without review

NSF 15-598 Competition – Anticipated Awards

- Outcome: Up to three <u>cooperative agreement awards</u> for up to five years.

- Total funding: Up to $19,100,000 estimated total for up to five years for up to three awards (Awardees).

Award Type	Number of Awards
Network Coordination Office (NCO)	One
Computational Modeling and Simulation Center (SimCenter)	One
Post-Disaster, Rapid Response Research (RAPID) Facility	One

NSF 14-605 NHERI Competition Awards

- Cyberinfrastructure
  - NSF Award CMMI-1520817: Cyberinfrastructure at University of Texas at Austin led by Ellen Rathje
  - **Website: http://www.designsafe-ci.org**
- Experimental Facilities (other than RAPID Facility)
  - NSF Award CMMI-1520843: Boundary Layer Wind Tunnel, Wind Load and Dynamic Flow Simulators, and Pressure Loading Actuators at the University of Florida led by Forrest J. Masters
  - NSF Award CMMI-1520853: Twelve Fan Wall of Wind at Florida International University led by Arindam Chowdhury
  - NSF Award CMMI-1519679: Large Wave Flume and Directional Wave Basin at Oregon State University led by Daniel Cox
  - NSF Award CMMI-1520904: Large, High-Performance Outdoor Shake Table at the University of California, San Diego, led by Joel Conte
  - NSF Award CMMI-1520765: Large-Scale, Multi-Directional, Hybrid Simulation Testing Capabilities at Lehigh University led by James Ricles
  - NSF Award CMMI-1520581: Geotechnical Centrifuges at the University of California, Davis, led by Ross Boulanger
  - NSF Award CMMI-1520808: Large, Mobile Dynamic Shakers for Field Testing at the University of Texas at Austin led by Kenneth Stokoe

What NHERI Awards are NOT

- NHERI Awardees do not conduct research under the NHERI award

- NHERI awards are not grants; they will be **cooperative agreements**
  - Per NSF GPG, cooperative agreements are used when there will be substantial agency involvement during the performance award period
  - Terms and conditions in cooperative agreement specify extent of NSF involvement (see NSF 15-598, Section VII.B) and basis for continued funding
  - Awardee has primary management responsibility for its project
  - As a part of an NSF multi-user operations facility, each Awardee operates under, e.g., strategic plan/goals, performance metrics, annual work plan, project and risk management, adherence to EH&S, and cybersecurity, and has required annual/quarterly reporting, site visits, and business systems review

Eligibility Information
NSF 15-598, Section IV

Eligibility Information (Section IV)

- ## Who May Submit Proposals

  Academic institutions (university and colleges) accredited in, and having a campus located in, the U.S. acting on behalf of their faculty members.

- ## Who May Serve as PI

  The PI must be a full-time employee of the lead institution by the start date of the NSF cooperative agreement award.

- ## Limit on Number of Proposals per Organization: 2

  An academic institution may submit up to two proposals as lead institution, but may not submit more than one proposal as lead institution in any of the following three proposal categories: NCO, SimCenter, and RAPID Facility.

- ## Limit on Number of Proposals per PI or co-PI: 1

  - Individual may be PI or Co-PI in no more than one proposal submitted to NSF 15-598
  - Individual may not be PI or co-PI on any award made under NSF 14-605

- Collaborative proposals – must be single administrative package from the lead institution with other organizations supported through subawards/subcontracts.
  - Lead institution is responsible for managing *entire project* - both own and subaward performance in compliance with the lead institution's cooperative agreement with NSF.

- National laboratories, private sector companies, and non-U.S. institutions may participate in NHERI award activities using their own resources and cannot receive NSF support from a NHERI award; however, this shall not be interpreted to prohibit purchases, services, or sales contracts/ agreements with these entities.

- RAPID Facility – must have all facility resources owned, operated, and maintained by the lead institution and located within the United States to facilitate access by NSF-supported users.

PROGRAM DESCRIPTION
NSF 15-598, Section II

NHERI

- Is a distributed, multi-user, national facility – part of NSF's large facility portfolio.

- Provides the natural hazards engineering community with access to research infrastructure (earthquake and wind engineering experimental facilities, cyberinfrastructure, computational modeling and simulation tools, and research data), coupled with education and community outreach activities.

- Enables research and educational advances that can contribute knowledge and innovation for the nation's civil infrastructure and communities to prevent natural hazard events from becoming societal disasters.

Vision for NHERI

- Understand, model, and predict the lifecycle performance of civil infrastructure, from component to holistic system levels, under different natural hazard events;

- Reduce the reliance on physical testing for modeling the performance of civil infrastructure under natural hazard events through advanced computational modeling and simulation capabilities;

- Build the basic science knowledge and computational modeling and simulation capabilities to evaluate multi-hazard resilient and sustainable civil infrastructure and communities;

- Translate research into innovative mitigation strategies and technologies to reduce the impact of natural hazards on existing and new sustainable civil infrastructure and communities; and

- Integrate research, education, and outreach to train a broad and inclusive STEM workforce to conduct and translate research into an innovation ecosystem for multi-hazard resilient and sustainable civil infrastructure and communities.

Operational Goals for NHERI

- Effective Council of Awardees (hereinafter referred to as the Council), which provides the collective and coordinated leadership for NHERI to operate as an integrated, cohesive, and transparent national facility in service to the natural hazards engineering community;

- Excellence in Awardee leadership, management, award administration, performance assessment, user support, and safe and secure operations of its resources, services, and data infrastructure;

- Active involvement of the natural hazards engineering community in Governance and Awardee activities;

- Open and equal access to NHERI, with NHERI used by an external and broadly inclusive user base of researchers and educators;

- Evidence-based development of the current and next generation workforce to conduct natural hazards engineering research, educational activities, and professional practice; and

- Value-added strategic partnerships that bring additional unique national and international resources and capabilities to NHERI.

NHERI Scope: Major Infrastructure Components (Notional Diagram)
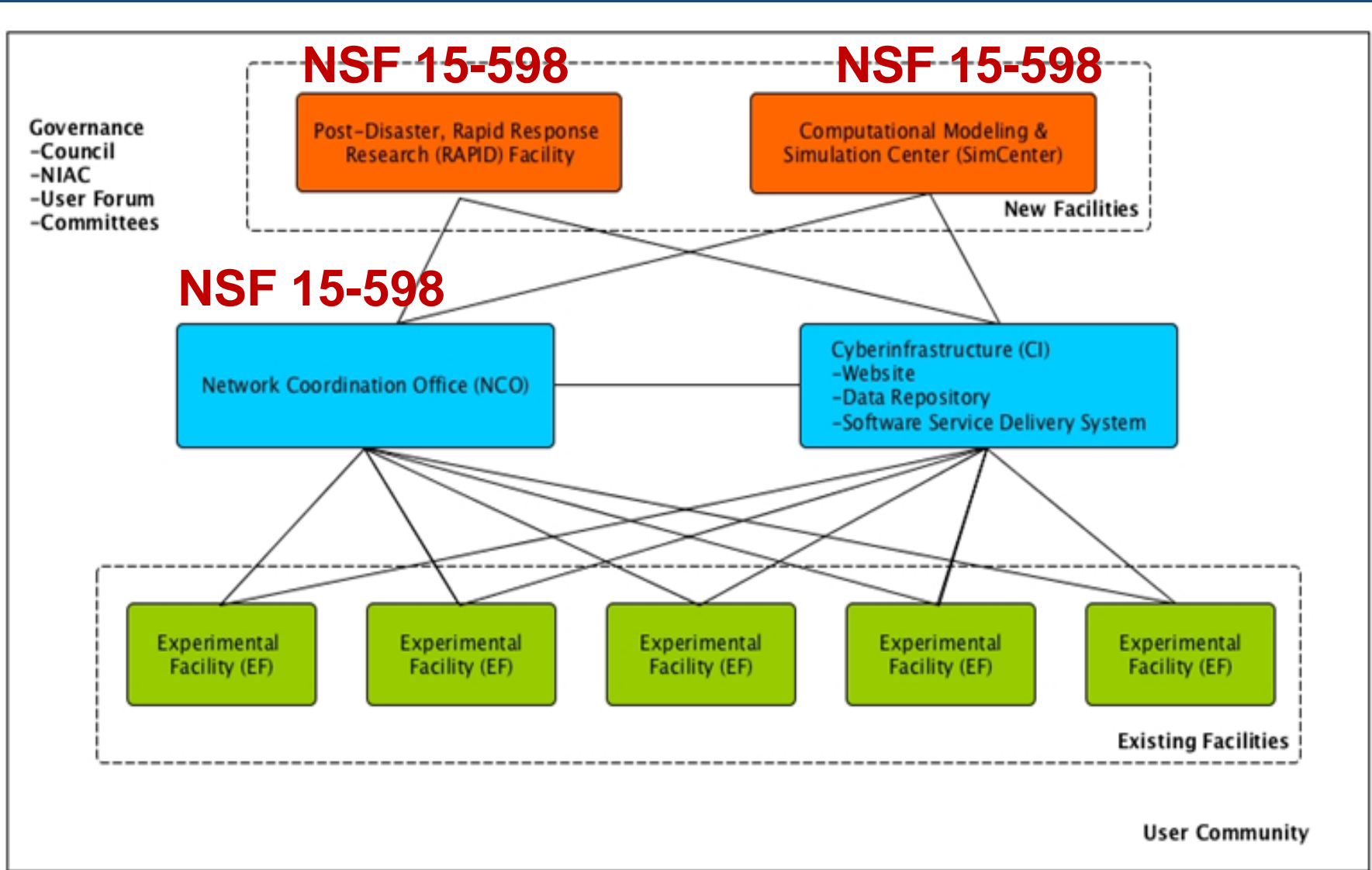
NHERI Construct

- **Awardees**

- **Governance**

- **Users**

NHERI Construct: Awardees

Component	Role
	Table 1. Awardees
Component	**Role**
NCO	The NCO will serve as the scientific national and international leader, community focal point, and network-wide coordinator for Governance, cross-Awardee, and community-building activities. Key activities will include convening the Governance groups, working with the Council to develop consensus-based policies and procedures for NHERI and the annual Council work plan, implementing the Facility Scheduling Protocol to provide users access to the EFs, leading development of the NHERI Science Plan, running NHERI-wide education and community outreach programs, and building strategic partnerships.
CI	The CI Awardee will serve as the integrator for enabling NHERI to be a virtual organization for the natural hazards engineering community, by providing an array of information, resources, and services, including the definitive NHERI website, NHERI data repository, software service delivery platform with computational modeling, simulation, and educational tools, collaboration tools, access to computing resources, and user training and support. The CI Awardee will establish and implement a NHERI-wide cybersecurity plan with all Awardees.
SimCenter	The SimCenter will develop and deliver to the CI Awardee for integration onto the CI Awardee's software service delivery platform, a portfolio of computational modeling and simulation software and educational modules that reflects a balance of community-prioritized, new capabilities for earthquake, wind, and multi-hazard engineering research and education. The Awardee will provide training and technical support to users of its software tools.
EF, including RAPID Facility	Each EF will provide resources, services, and staffing to enable earthquake engineering, wind engineering, or post-disaster, rapid response research. Each EF will provide a well-maintained and fully functioning facility and support users who are provided access through the NCO's Facility Scheduling Protocol. Data generated by EF resources and its users will be archived in the NHERI data repository.

NHERI Construct: Governance

	Table 2. Governance		
Group	**Role**	**Membership**	**Meeting Frequency**
Council	To provide collective and coordinated leadership for NHERI as a national facility.	All Awardee Principal Investigators (PIs).	At least quarterly.
Network Independent Advisory Committee (NIAC)	To provide independent guidance and advice to the Council on the following: (a) progress, plans, and performance of the Awardees and annual Council work plan, (b) an assessment of the level of community engagement and user satisfaction across NHERI, with input from the User Forum survey results, (c) an assessment of NHERI's continuing value added for and impact on research and educational advancements, and (d) assessment of the transparency and efficiency of the NCO's Facility Scheduling Protocol.	Diverse representation from the broad scientific and engineering communities served by NHERI. Members may not be from an Awardee institution. The NCO will appoint the NIAC members, with input from the Council.	At least semi-annually, with one in-person meeting annually.
User Forum	To provide the Council with independent advice on community user satisfaction, priorities, and needs relating to the use and capabilities of NHERI. Through financial and secretariat support provided by the NCO, the User Forum will conduct annual community user satisfaction surveys for NHERI. Representatives from the User Forum will participate as observers in the NCO's Facility Scheduling Protocol.	User representatives from the broad scientific and engineering communities served by NHERI, elected by the user community; members may not be from an Awardee institution.	At least semi-annually; with one in-person meeting annually.
Committees	To advise the Council on community priorities and needs for NHERI, serving and benefiting multiple Awardees and avoiding duplication of effort and costs among Awardees. The Committee structure will be established by the Council.	Dependent upon purpose; may consist of community/user representatives and/or cross-Awardee staff. The NCO will appoint the committee members, with input from the Council.	Dependent upon purpose of each committee.

NHERI Construct: Users

Table 3. Users	
Composition	**Role**
Users will come from the natural hazards engineering and related communities, including groups, regions, and institutions underrepresented in STEM, and may include both U.S. and international users.	Conduct research and education activities using NHERI's resources and services. An EF may require that users pay user fees/recharge rates to cover costs not supported by the NSF NHERI award; therefore, users should check with the EF before submitting an NSF proposal.
	Contribute computational modeling, simulation, and educational tools to NHERI.
	Participate in Awardees' activities.
	Provide input on the NHERI Science Plan for future research and education directions.
	Serve on Governance groups to represent the priorities, needs, requirements, and feedback from the user community.
	Provide feedback in user satisfaction surveys.

Section II.C: All Awardees – Common Requirements

- Project Headquarters – resources to support project

- Organizational structure and staffing

  - Staffing

    - PI is Director of NHERI Component and serves on Council
    - PI should be distinguished earthquake or wind engineering researcher
    - PI and co-PI team should collectively demonstrate multidisciplinary, senior-level expertise across breadth of natural hazards considered and project scope
    - Additional staff commensurate with breadth of natural hazards considered and project scope
      - Expertise in cybersecurity and its implementation
    - Demographics should strengthen NHERI's role in increasing participation by groups underrepresented in STEM

  - Structure

    - Lead institution oversight
    - Project personnel with defined roles and responsibilities
    - Interactions with Governance groups, other Awardees, users, and broader natural hazards engineering community

Section II.C: All Awardees – Common Responsibilities

- Participate in the Council (all Awardee PIs)

- Operate with a Science Plan (scientific vision; contributes to NHERI-wide Science Plan)

- Conduct Operations with

  - Strategic Plan for Operations - includes goals and performance metrics

  - Marketing and Broadening Participation Plan for Developing the User Base

  - Project Management and Performance Assessment

  - Work Breakdown Structure (WBS) and Dictionary

  - Annual Work Plan (justifies continued funding)

  - Cybersecurity Plan and Implementation (coordinated with CI Awardee)

  - Risk Management Strategy and Plan, with risk assessment matrix

- Conduct Education and Community Outreach (ECO)

  - NHERI-wide: Host at least two REU students, Summer Institute, information to CI awardee for NHERI website (CI Awardee maintains NHERI-wide website)

  - Awardee-specific activities

- Implement a Software Development and Lifecycle Management Plan

Section II.D: NCO – Role and Requirements

- Role - serves as scientific national and international leader, community focal point, and network-wide coordinator for Governance, cross-Awardee, and community-building activities

- Requirements - staffing (additional)
  - NCO PI qualifications also should have prior accomplishments in:
    - Leading and managing distributed resource projects
    - Leading a research community to advance knowledge frontiers
    - Implementing technology transfer and innovation for natural hazards mitigation
    - Broadening participation of groups, regions, and institutions underrepresented in engineering
  - Full-time Experienced Experimental Facility Scheduler
  - Secretariat support for the Governance groups
  - Scientific and educational expertise for ECO activities

Section II.D: NCO - Responsibilities

- Governance Support
- Facility Scheduling Protocol and Implementation
- Annual Council Work Plan
- Five-Year NHERI Science Plan
- Strategic Experimental Facility Partnerships
- Education and Community Outreach (ECO) Program
  - Annual NHERI-wide REU site program
  - Annual NHERI-wide Natural Hazards Engineering Research Summer Institute (early career faculty and graduate students)
  - Community engagement activities to broaden usage and participation
  - Facilitation of community to organize campaigns and teams for research and education
  - Information dissemination, e.g., highlights, community notification of activities, catalog of publications

Section II.D: NCO – Year One Milestones

- Within six months of award,
  - Governance groups established and all groups met at least once.
  - Facility Scheduling Protocol implemented, with the Facility Scheduling Dashboard posted on the NHERI website.
  - Consensus-based policies and procedures for NHERI completed and posted on the NHERI website.
  - Software Development and Lifecycle Management Plan updated.

- By end of year one,
  - Completion of the five-year *NHERI Science Plan* and posted on the NHERI website.
  - Completion of the User Forum community user satisfaction survey.
  - Organization of the REU site program and Summer Institute, for implementation in <u>year one or two</u>.
  - Evidence of several strategic key partnerships in process and/or implemented.

Section II.E: SimCenter - Role

- Advances new computational modeling and simulation software tools to advance NHERI vision and NHERI Science Plan.

- Provides compelling scientific case for need and scope within NHERI, and anticipated broader, societal impact on natural hazards engineering community.

- Community catalyst and manager for engaging and supporting multi-disciplinary teams for tool development.

- Develops and delivers to the CI Awardee for integration onto the CI Awardee's software service delivery platform, a portfolio of new computational modeling and simulation software and educational modules that reflects a balance of **community-prioritized, new capabilities** for earthquake, wind, and multi-hazard engineering research and education.

- Provides training and technical support to users of its software tools.

- Leverages existing cyberinfrastructure, software infrastructure, knowledge management and workflow productivity tools, and computing resources.

- Works closely with CI Awardee and computing resources made available by CI Awardee.

- Software tool development includes working group of core internal and core external domain experts, all financially supported by the SimCenter for at least one month annual support.

SimCenter award will not support the maintenance, further development, enhancement, and user support of existing software.

No unfunded collaborators named in proposal; selected post-award.

Section II.E: SimCenter - Requirements

- Staffing (additional):

  – SimCenter leadership, management, and core software staff should be located at the lead institution.

  – SimCenter Director (SimCenter PI) also should have prior accomplishments in software development.

  – The leadership, management, and core software staff, including the composition of the PI and co-PI team, should reflect a balance of senior-level expertise and prior accomplishments in the domain science (earthquake engineering and wind engineering); software development, project management, implementation, and sustainability; on-time software delivery; best practices; validation and verification; user manuals and software documentation; on-line educational software tools; usability; and user training and support. Staff should also demonstrate knowledge of recent advances and emerging technologies in cyberinfrastructure, software infrastructure, and computing resources.

  – Expertise in cybersecurity and implementation.

Section II.E: SimCenter - Responsibilities

- *Annual State-of-the-Art Analysis Report*
- *Requirements Traceability Matrix*
- *Process for the Selection of the Computational Modeling and Simulation Tools to be developed in the context of the Requirements Traceability Matrix*
- *Process for Selection of Each Computational Modeling and Simulation Tool Development Team (SimCenter core software staff and internal and external domain experts)*
- *Process for Selection and Application of Existing Knowledge Management and Workflow Productivity Tools*
- *Tool-Specific Software Development and Lifecycle Management Plan*
- *Process for Training Internal and External Domain Expert Team Members*
- *High Quality and User-Tested Open Source Computational Modeling and Simulation Tools*
- *Educational Modules*
- *Published Case Studies*
- *Plan for Sustaining the SimCenter Software Tools,* during and after the award period
- *User Training and Support*
- *Annual Usability Study of Delivered Software Tools*
- *ECO Program,* in addition to the responsibilities listed in Section II.C, to include:
  - Stakeholders and users actively involved in the SimCenter's activities
  - Virtual Communities of Practice that both contribute to and use the SimCenter's tools
  - Research Traineeship Program for graduate students
  - Monthly and Annual Community Reports

Section II.E: SimCenter – Key Year One Milestones

- By end of third month of award,
  - Software Development and Lifecycle Management Plan updated.

- By end of ninth month of award,
  - An updated Requirements Traceability Matrix, which informs the year-two work plan.
  - Graduate Student Research Traineeship Program implemented.
  - Virtual Communities of Practice organized and implemented.

- By end of year one,
  - Evidence of computational modeling and simulation tools, education modules, and case studies developed, with associated user documentation, and delivered to the CI Awardee's software service delivery platform, user-tested, and being used by an initial, identified cohort of users.
  - Usability study completed for all computational modeling and simulation tools and education modules implemented during year one.

Section II.F: RAPID Facility - Role

- Provides resources (such as equipment, instrumentation, and data management infrastructure) for quick field deployment globally to support perishable research data collection following an earthquake or windstorm event.

- The primary users of the RAPID Facility resources will be researchers supported through separate NSF awards for post-disaster investigations, with assistance in the field from RAPID Facility staff, as required.

- While the primary focus of this facility must be for perishable data collection following earthquake and windstorm events, this does not preclude facility resources being deployed for perishable data collection following other natural hazard events.

- All collected data must be curated and archived in the NHERI data repository.

- Schedule for development and commissioning
  - Develops facility concepts in year one
  - Procures and commissions equipment in year two
  - Operational by end of year two, including user training conducted

NSF 15-598 <u>does not support</u> the following – proposals that request the following will be <u>returned without review</u>:

- Post-fire perishable data collection

- Equipment and instrumentation that do not support perishable data collection following an earthquake or windstorm event

- Major equipment refurbishments and upgrades, capital improvements to existing laboratory buildings and space, and construction of new buildings

- A distributed facility, with resources owned, housed, and/or maintained by multiple organizations

- A facility with any resources that can only be accessed or used outside the United States

- A facility for long-term instrumented structures and/or field sites.

Section II.F: RAPID Facility – Requirements

- **Location**

  - All facility's resources and staff must be housed within the United States at the lead institution in order to efficiently manage, staff, and maintain the facility.

  - Facility resources may be operated outside the United States for short-term periods to support perishable data collection.

  - If the facility is part of a larger institutional laboratory complex and its associated budget and accounting, then its personnel effort, resources, and budget under the NHERI award are to be accounted for and tracked separately from the larger laboratory administration. *(Exception: Shared-use instrumentation acquired post-award as the result of an annual Council work plan may be housed and maintained by one EF Awardee on behalf of the network.)*

- **Staffing (additional)**

  - The RAPID Facility Director (PI) also should have demonstrated expertise in facility operations, earthquake and/or windstorm rapid response research investigations, and use of information technology, and should be the main point of contact for users.

  - Sufficient staff and technical expertise to support facility and users

    - Facility scheduler to work with NCO

    - A designated safety officer

    - An information technology (IT) specialist to support data management, telepresence, and cybersecurity

Section II.F: RAPID Facility – Requirements (cont'd)

- **Facility Resource Allocations for NSF-supported Awards**
  - The facility will proactively market its resources and capabilities to lead to significant annual facility resource use by NSF awards, to justify its role and continued NSF support as a national, multi-user RAPID Facility.
  - Sufficient time must be allocated annually for each facility resource to accommodate NSF-supported awards, user training, and participation in the NCO's REU site and Summer Institute programs. Priority for facility use must be given to separately supported NSF awards for post-disaster, perishable data collection.

- **Facility Resource Scheduling**
  - The facility will delegate scheduling of facility resources to the NCO Facility Scheduler, with the RAPID Facility scheduler providing input into the scheduling process.

- **User Fees/Recharge Rates**
  - The facility will maintain **institutionally-established user fees/recharge rates** during the entire award period for the resources and services that will be available to users.

- **Annual Institutional Laboratory Inspection for EH&S**, with corrective actions promptly taken.

- **External Steering Committee:**
  - The membership will be external to the institution(s) involved in the facility. The facility will budget for all costs to support this committee, including travel costs.
  - **Do NOT name committee chair and members in proposal.**

Section II.F: RAPID Facility - Responsibilities

- **Field Deployment Resources and Staff:** Provide fully functioning and calibrated equipment and instrumentation; data management infrastructure; telepresence; remote equipment operations (as applicable for the equipment); Internet and Internet2 connectivity; equipment for EH&S protection; transport equipment; software integral to data collection; services and tools necessary for field deployment; and user support and services
  - Sufficient resources for users to conduct their field work and training safely and efficiently
  - Facility resources configured for deployment either by facility staff or trained research teams
  - Facility is responsible for housing resources at lead institution
  - Awardee will be responsible for insurance and indemnification
- **Plan for Management, Maintenance and Calibration of all Facility Resources**
- **Facility Policies, Standard Procedure, and Protocols –** must clearly document, on the NHERI website the roles and responsibilities of staff and research team
  - Research teams will be responsible for their own travel logistics and costs
  - Users not supported by NSF are expected to pay institutionally-established user fees/recharge rates
- **Data Management Infrastructure**
  - Data management plan meets the CI Awardee requirements for data and metadata protocols, formats, archiving, curating, and retrieval
  - Has established tools, processes, and protocol to quickly upload field data to the NHERI data repository
  - Supported through compliant cyberinfrastructure and cybersecurity

- **Facility Financial Operating Plan**
  - Annual plan shows sufficiency of resources and staffing through costs assigned to NEHRI award and costs to be recovered from users through user fees/recharge rates
- **User support**
  - Identified staff for user support
  - User training and support, with at least semi-annual on-site and online training workshops. User training should include user and safety manuals and a best practices manual.
  - On-site user support during all phases, such as information needed for proposal writing, planning, deployment, and data collection and processing, and office and meeting space; and
  - Information to the CI Awardee for posting on the NHERI website, but not limited to: (a) institutionally-established user fees/recharge rates associated with the facility, (b) itemized inventory of all facility resources and their capabilities, (c) data management information and requirements, (d) list of facility personnel and safety officer contact information, (e) facility location and map, (f) policies, procedures, and protocols for facility access and use, (g) facility user, safety, and best practices manuals, (h) synopsis of field work conducted using facility resources, and (i) user training workshop dates and resources.
- **Education and Community Outreach (ECO) Program**

Section II.F: RAPID Facility - Key Milestones

- Within three months of award, External Steering Committee formed and held its first meeting.

- By end of fourth month of award,

  - Software Development and Lifecycle Management Plan updated.

- By end of sixth month of award,

  - Scheduling process implemented with the NCO.

  - Evidence of active two-way engagement with the community and the CI Awardee to refine the Science Plan and develop the data and resource requirements for this facility.

- By end of year one, completion of the following facility documents; these documents will undergo a merit review organized by NSF, and continued development of this facility in year two will be subject to NSF approval,

  - Updated Science Plan for this facility, which identifies key research questions that justifies the equipment procurement by the facility, with reference to resources that are currently available at other organizations or otherwise accessible through collaborations, partnerships, or cyberinfrastructure.

  - Requirements document for facility resources and data management infrastructure.

  - Updated plans for operations in accordance with Section II.C and this section of the solicitation, plus an acquisition, procurement, and commissioning plan for facility resources in year two.

  - Working with the CI Awardee, a data management plan to accommodate the facility's data archiving, storage and retrieval in the NHERI data repository.

Section II.F: RAPID Facility - Key Milestones (cont'd)

- By end of year two,

    - All facility resources procured, commissioned, and operational.

    - RAPID Facility data accommodated as part of the NHERI data repository.

    - User fees/recharge rates established by the Awardee and posted on the NHERI website.

    - Initial cohort of researchers/users trained and deployment-ready.

    - Submission to NSF, from the Awardee's Authorized Organizational Representative, certification that the RAPID Facility is fully operational and in compliance with institutional EH&S policies.

    - Compliance with All Awardee and Rapid Facility Awardee requirements and responsibilities outlined in Section II of this solicitation.

- Beginning in year two, and in all subsequent years, evidence of frequent opportunities provided for community training on use of the facility resources so that there are trained researchers who can quickly deploy facility resources.

PROPOSAL PREPARATION
NSF 15-598, Section V.A

This webinar does not cover all NSF 15-1 GPG, NSF Grants.gov Application Guide, and NSF 15-598 proposal preparation instructions.

Please read these documents for the full requirements to enable submission of a compliant proposal.

Letter of Intent (LOI) - REQUIRED

- Due date: October 16, 2015, 5 p.m. *local proposer's time*

- A full proposal can only be submitted by a lead institution that has submitted a complete LOI by the LOI Due Date

- Purpose: Used by NSF to prepare for the proposal merit review process

- Include the following information:

  a. Name of lead institution

  b. Names of participating organizations

  c. Names and organizational affiliations of the PI, co-PIs, Other Senior Project Personnel, Leadership and Management Team, and Additional Project Personnel

  d. Also include the following, as appropriate:

    - NCO: describe the network coordination strategy and major activities

    - SimCenter: describe planned types of research and educational software tools.

    - RAPID Facility: describe preliminary concepts for facility resources and capabilities.

Full Proposal Preparation

- Full Proposal Deadline: **November 4, 2015, 5 p.m. proposer's local time**

- Full proposals may be submitted only by lead institutions that have submitted a complete LOI by the LOI due date

- Full proposals from organizations that have not submitted a LOI by the due date will be *returned without review*

- Due to the complexity of the proposals being submitted, use of FastLane to prepare and submit full proposals is strongly encouraged

- Proposals submitted and accepted by FastLane **by full proposal deadline** will be permitted revisions, through Proposal File Updates, up until November 6, 2015, 5 p.m. proposer's local time

✓ **Important: READ NSF 15-1, Grant Proposal Guide (GPG)**
✓ **Full proposals must comply with both NSF 15-598 solicitation requirements and NSF15-1 GPG/Grants.gov Application Guide requirements.**
✓ **Full proposals not compliant with NSF 15-598 and/or NSF 15-1 GPG/Grants.gov Application Guide will be <u>returned without review.</u>**
✓ **See NSF 15-598, Section X, Appendix, for Proposal Compliance Checklist**

Deviations from NSF 15-1 GPG/NSF Grants.gov Application Guide

NSF 15-598 full proposal preparation instructions include <u>deviations</u> from the NSF 15-1 GPG/NSF Grants.gov Application Guide as follows:

- The Project Description must not exceed 55 pages, inclusive of Sections 1-17.

- Additional information is specified for inclusion in the Facilities, Equipment, and Other Resources section.

- Additional information is specified for inclusion in the Special Information and Supplementary Documentation section.

- Additional Single Copy Documents must be provided.

- Names of unfunded collaborators (individuals and organizations) must not be identified **anywhere** in the proposal. The accountability for the success of the proposed component resides with the team proposed who are requesting financial support, rather than in a list of unfunded collaborators who might contribute to the project, but have no formal accountability for completion of work or deliverables. The proposed and budgeted team must be able to demonstrate on its own merit that it is well-qualified to undertake the proposed activities. NSF assumes that after the award is made, the Awardee will be able to assemble a technically-qualified and interested team of unfunded collaborators, as needed, to serve in various capacities in support of its goals and activities.

This webinar primarily focuses on the sections above that have deviations.

Cover Sheet

- Start Date: March 1, 2016 (estimated)
- Title of Proposed Project:

  NHERI Network Coordination Office

  NHERI Computational Modeling and Simulation Center

  NHERI RAPID Facility

- NSF Organization Unit: CMMI - Natural Hazards Engineering Research Infrastructure (NHERI)
- Fund Code: 013Y

Project Description

Section 1. Summary Tables

- List of Participating Organizations

- List of Project Personnel (leadership and management positions named)

Section 2. Intellectual Merit and Broader Impacts of the Proposed Work

Section 3. Results from Prior NSF Support (follow the GPG!)

Section 4. Science Plan

Section 5. Strategic Plan for Operations, including Performance Metrics

Section 6. Marketing and Broadening Participation Plan for Developing the User Base

Section 7. Organizational Structure, Staffing, and Diversity

Section 8. Project Management and Performance Assessment

Project Description – (cont'd)

Section 9.   Work Breakdown Structure (WBS) and Budget Allocations

Section 10.   Governance Interactions

Section 11.   Component-Specific Implementation, i.e.,

- NCO,
- SimCenter, or
- RAPID Facility

Section 12.   Project Schedule (five-year, with major deliverables)

Section 13.   Year-One Work Plan

Section 14.   Cybersecurity Plan - Summary

Section 15.   Risk Management Strategy and Plan, including Risk Assessment Matrix

Section 16.   Software Development and Lifecycle Management Plan

Section 17.   Other Information (optional)

Facilities, Equipment, and Other Resources

Descriptions must not include any quantifiable financial information about resources that will be available as a NHERI resource

- All proposals

  - Description of the space and resources at the lead institution that will be made available for the project headquarters

  - Description of resources and services to be provided by the supported institution(s) that are not requesting support

- *For RAPID Facility proposals only*

  - One-page floor or site plan

  - Up to eight photos of proposed facility

  - Facility network diagram including Internet and Internet2 connectivity and capacity and data flow from source to NHERI data repository

  - Facility Financial Resources Operating Plan: Support for resources provided by NHERI award vs. Institutionally-Established User Fees/Recharge Rates

Special Information and Supplementary Documentation

Use headings and page limits shown in solicitation, include no additional information.

A. **Work Breakdown Structure (WBS) Dictionary**

B. **Roles and Responsibilities of all Project Positions Requesting Support**

C. **Biographical Sketches of Additional Project Personnel**

D. **Preliminary Requirements Traceability Matrix** *(SimCenter proposal only, up to 10 pages; all other proposals enter "Not Applicable")*

E. **Preliminary Facility Scheduling Protocol** *(NCO proposal only, up to 5 pages; all other proposals enter "Not Applicable")*

- **List of Participating Organizations**
  - Table 1 in the Project Description

- **List of Project Personnel**
  - Table 2 in the Project Description

Budgetary Information
NSF 15-598, Section V.B

Anticipated Annual Base Budgets
(NSF 15-598, Section III)

Proposals that include annual budgets that exceed these amounts will be returned without review and not receive further consideration

Anticipated Annual Support					
Awardee	**Year One**	**Year Two**	**Year Three**	**Year Four**	**Year Five**
Network Coordination Office award base budget	$700,000	$900,000	$900,000	$900,000	$700,000
Computational Modeling and Simulation Center award base budget	$2,000,000	$2,200,000	$2,300,000	$2,200,000	$2,200,000
Post-Disaster, Rapid Response Research Facility award base budget	$500,000	$1,800,000	$600,000	$600,000	$600,000

Budgetary Information

- **Cost Sharing**: Inclusion of voluntary committed cost-sharing is prohibited.

- **Subawards:**
  - $\geq$ $50,000 - include separate NSF budget form
  - < $50,000 – aggregate all together on the subaward line of the annual budget; budget justification includes list of all organizations and support amount

- **Other Budgetary Limitations** - *All proposals*
  - Each individual requesting financial support must be supported for at least one month annually during each year of planned participation on the project.
  - The year one budget includes all start-up costs.
  - Annual budgets should include travel for participation in Governance meetings, REU site program, Summer Institute, NSF-supported Large Facility Workshop, and NSF-supported Cybersecurity Summit.
  - Up to $10,000 for local staff support for the REU students at the project location.
  - Up to $10,000 for local staff support to participate in the NHERI Summer Institute.
  - Postdoctoral researchers supported only on the SimCenter award and must be U.S. citizens, U.S. nationals, or permanent residents of the United States.
  - Graduate students who are U.S. citizens, U.S. nationals, or permanent residents of the United States may be supported in three ways: (a) to assist with local campus implementation of the REU site program, (b) as participants in the SimCenter Research Traineeship program, or (c) to support other Awardee activities, if approved in the annual work plan by the cognizant NSF Program Officer. Other graduate students may not be supported.
  - Proposals may include participant support costs for specific activities identified in the proposal. Include a budget justification table showing the activity name, number of participants, and total participant support costs for each activity.
  - Annual budgets should not include budget allocations for annual Council <u>work plan</u> activities.

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Budgetary Information

- **Other Budgetary Limitations (cont'd)**

NCO proposals only

- Annual budgets must include costs to implement the REU Site and Summer Institute programs, including participant support costs for all REU students and Summer Institute attendees

- Annual budgets must include full travel support for the NIAC and User Forum membership to attend one in-person meeting annually

- Annual budgets must include full support for the User Forum to conduct and evaluate the annual NHERI user survey

RAPID Facility *proposals only*

- The year-two budget should include an increase of up to $1,200,000 for resource procurement and commissioning

NSF Proposal Processing and Review Procedures
NSF 15-598, Section VI

Merit Review and Selection Process

Proposals submitted in response to NSF 15-598 will be reviewed by Ad hoc Review and/or Panel Review, Internal NSF Review, Site Visit Review, or Reverse Site Review.

Proposals will be reviewed in accordance with standard NSF *external merit review* policy:

- May consist of a combination of panel and ad hoc mail review.
- Selected proposals may be further reviewed by a reverse site visit at NSF and/or a campus site visit to the lead institution.
  - Dates for site visits will be communicated by the Lead Cognizant Program Officer to selected PIs as early in the review process as practicable. These dates will be non-negotiable, and it is expected that the PI, co-PIs, and leadership and management team will be available on the scheduled date.
  - It is the responsibility of the PI to assure that contact information for the scheduling of these meetings is correct. Travel and other costs incurred by proposers for this review process will be the responsibility of the proposers.
- All PIs will receive documentation regarding the review process, including reviews and panel summaries, upon completion of the process.

NSF Merit Review Principles

- All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.

- NSF projects, in the aggregate, should contribute more broadly to achieving societal goals. These "Broader Impacts" may be accomplished through the research itself, through activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified.

- Meaningful assessment and evaluation of NSF funded projects should be based on appropriate metrics, keeping in mind the likely correlation between the effect of broader impacts and the resources provided to implement projects. If the size of the activity is limited, evaluation of that activity in isolation is not likely to be meaningful. Thus, assessing the effectiveness of these activities may best be done at a higher, more aggregated, level than the individual project.

NSF Merit Review Criteria

Intellectual Merit
- Encompasses the potential to advance knowledge

Broader Impacts
- Encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes

The following elements considered in review of both criteria:

1. What is the potential for the proposed activity to
   a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
   b. Benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or organization to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

Additional NSF 15-598 Solicitation Specific Review Criteria

Reviewers asked to evaluate strengths and weaknesses of the following:

A. **All Proposals**

- How the Science Plan conveys a compelling scientific vision, grand research challenges, and key research questions at the cusp of emerging discoveries in earthquake engineering, wind engineering, and/or multi-hazard engineering.

- How the proposed project provides unique and essential resources, services, user support, and activities that will enable the natural hazards engineering community to address the grand research challenges and key research questions.

- **Quality of the resources, services, user support, and activities provided to serve as an integral, integrated, and user-oriented component within NHERI.**

B. **Network Coordination Office (NCO) Proposals Only**

- Quality of the proposed project in responding to the requirements and responsibilities in Section II.C, All Awardees (NCO, CI, SimCenter, and EF, including RAPID Facility) - Common Awardee Requirements and Responsibilities.

- Quality of the proposed project in responding to the requirements and responsibilities in Section II.D, Network Coordination Office (NCO) Component - Additional Awardee Requirements, Responsibilities, and Key Year-One Milestones.

Additional NSF 15-598 Solicitation Specific Review Criteria (cont'd)

C. Computational Modeling and Simulation Center (SimCenter) Proposals Only

- Quality of the proposed project in responding to the requirements and responsibilities in Section II.C, All Awardees (NCO, CI, SimCenter, and EF, including RAPID Facility) - Common Awardee Requirements and Responsibilities.

- Quality of the proposed project in responding to the requirements and responsibilities in Section II.E, Computational Modeling and Simulation (SimCenter) Component - Additional Awardee Requirements, Responsibilities, and Key Year-One Milestones.

D. Post-Disaster, Rapid Response Research (RAPID) Facility Proposals Only

- Quality of the proposed project in responding to the requirements and responsibilities in Section II.C, All Awardees (NCO, CI, SimCenter, and EF, including RAPID Facility) - Common Awardee Requirements and Responsibilities.

- Quality of the proposed project in responding to the requirements and responsibilities in Section II.F, Experimental RAPID Facility Component - Additional Awardee Requirements, Responsibilities, and Key Milestones.

Award Administration Information
NSF 15-598, Section VII

Award Conditions

- Award will be a cooperative agreement between NSF and lead institution, with the following award/special award conditions
  - Cooperative agreement will be administered by the Division of Civil, Mechanical and Manufacturing Innovation in the Directorate for Engineering and the Division of Acquisition and Cooperative Support in the Office of Budget, Finance, and Award Management
  - Award-specific programmatic terms and conditions
  - Award-specific financial/administrative terms and conditions
  - Standard cooperative agreement terms and conditions, including supplements for managers of Large Facilities
  - Other programmatic and financial/administrative terms and conditions negotiated at time of award

NHERI cooperative agreements will be significantly different from an NSF individual investigator or small group research grant letter.

Special Award Conditions

Standard Cooperative Agreement Terms and Conditions, including supplements for managers of Large Facilities

Award-Specific Programmatic Terms and Conditions

- Review and/or approval of the following:
  - Review and approval of Annual and Final Progress Reports.
  - Review of Quarterly Interim Reports.
  - Review and approval of changes in Key Personnel (leadership and management) positions before a change is implemented.
  - Review and approval of the Strategic Plan for Operations, including Performance Metrics.
  - Review and approval of Annual Work Plans.
  - Review and approval of all plans for Conferences, Symposia, and Workshops included as part of the Annual Work Plan prior to implementation.
  - Review and approval of the Risk Management System.
  - Review and approval of the documents completed at the end of year one for the RAPID Facility.
  - Review and approval of requests to support graduate students who are U.S. citizens, U.S. nationals, or permanent residents of the United States to participate in awardee activities other than the NHERI-wide REU site activity and SimCenter Graduate Research Traineeships.
  - Review and, if required, approval of notifications of incidents related to cybersecurity.
  - Review and, if required, approval of notifications to NSF by the RAPID Facility Awardee about incidents related to EH&S requirements and equipment damage/failure.
  - Awardee-proposed national and international partnerships that require the Awardee's signature on a Memorandum of Understanding or similar documents.

Award-Specific Programmatic Terms and Conditions (cont'd)

- Site visit merit reviews, to justified continued funding; cross-Awardee merit reviews may be held jointly to evaluate and assess the extent of cross-Awardee coordination:

  – NCO and SimCenter Awardees: Annual site visits, organized by NSF, with external reviewers, with location to be either at NSF or the lead institution.

  – RAPID Facility Awardee: Year one site visit at the facility location, organized by NSF, with external reviewers. In years two through five, annual site visits, organized by NSF, with external reviewers, with the location to be either at NSF or the facility location.

- NSF Business Systems Review, typically scheduled once during the five-year award period, with the review to be conducted within the first two years of the award date.

- RAPID Facility Awardee: Submission to NSF of annual institutional laboratory inspection reports, with a summary of the corrective actions taken.

Special Award Conditions (cont'd)

Award-Specific Financial/Administrative Terms and Conditions

- National laboratories and private sector companies, as well as non-U.S. institutions, may participate in award activities using their own resources and cannot receive NSF support from an award made under this solicitation; however, this shall not be interpreted to prohibit purchases, services, or sales contracts/agreements with these entities.

- Review and/or approval of the following:
  - Rebudgeting of $50,000 or greater by the Awardee or a subaward.
  - Use of unobligated carryover funds from the prior budget year not intended to be applied to support the next year's annual budget.
  - RAPID Facility Awardee: In the case of major equipment damage, NSF support to restore functionality would be contingent upon the cause of damage, prior equipment utilization history, remaining useful life of the equipment if repaired, future planned use of the equipment by NSF-supported projects, total cost of repair or replacement, quality of maintenance based on historical records, date and nature of original acquisition of the equipment, appropriateness of NSF support, and annual NSF budgets.

- Program income must be certified by the Awardee Authorized Organizational Representative and reported annually. NSF may require the use of program income to offset the NSF support.

- NSF support will not be provided to repair/replace equipment that was damaged or not operational for its intended use prior to the effective start date of the award.

Programmatic and financial/administrative terms and conditions not listed above will be negotiated at the time of award.

NSF Reporting Requirements

- Comprehensive annual progress report containing a summary of the progress during the current year against the performance metrics and work plan and the work plan and budget for the next year funding increment.

- Quarterly interim reports to track progress during the current year.

- End of project
    - Final project report
    - Project outcomes

- Failure to provide the required annual project report and PI/co-PI overdue NSF reports will delay NSF review and processing of next funding increment.

Research.gov is NSF's electronic project-reporting system

Contacts

- **General inquiries regarding NSF 15-598 for incorporation into FAQ**
  - Joy M. Pauschke, Program Director, Division of Civil, Mechanical and Manufacturing Innovation (Lead Cognizant Program Officer), phone: (703) 292-7024, email: jpauschk@nsf.gov
    - Questions will not be individually answered.
    - Questions submitted less than four weeks prior to the full proposal deadline will not be answered.

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- **Questions about use of FastLane**
  - FastLane Help Desk, phone: 1-800-673-6188; email: fastlane@nsf.gov

- **Questions about use of Grants.gov**
  - Grants.gov Contact Center: If the Authorized Organizational Representatives (AOR) has not received a confirmation message from Grants.gov within 48 hours of submission of application, please contact via phone: 1-800-518-4726; email: support@grants.gov

NSF 15-598 Deadlines

- **Letter of Intent (LOI) Due Date (Required)**
  October 16, 2015, 5 p.m. proposer's local time
- **Full Proposal Deadline**
  November 4, 2015, 5 p.m. proposer's local time

Lead institution **must** submit an LOI by the Due Date in order to submit a full proposal. If the LOI is submitted after the LOI Due Date, then the lead institution may not submit a full proposal.

If a full proposal is submitted after the full proposal deadline, it will be **returned without review.** (See NSF GPG, Chapter 1.F.2, Deadline Dates)

Question & Answer Session

During webinar, submit questions via email to:

jpauschk@nsf.gov