



# Site Support Operations and Payload Opportunities

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Operations Manager

# Outline

- Opportunities for Utilization of NHERI Lehigh
- Site Support Operations for NHERI Lehigh
  - Project Process
    - Pre-proposal Stage
    - Proposal Writing Stage
    - Post-Award Stage
- Payload Opportunities



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# Opportunities for Utilization of NHERI Lehigh

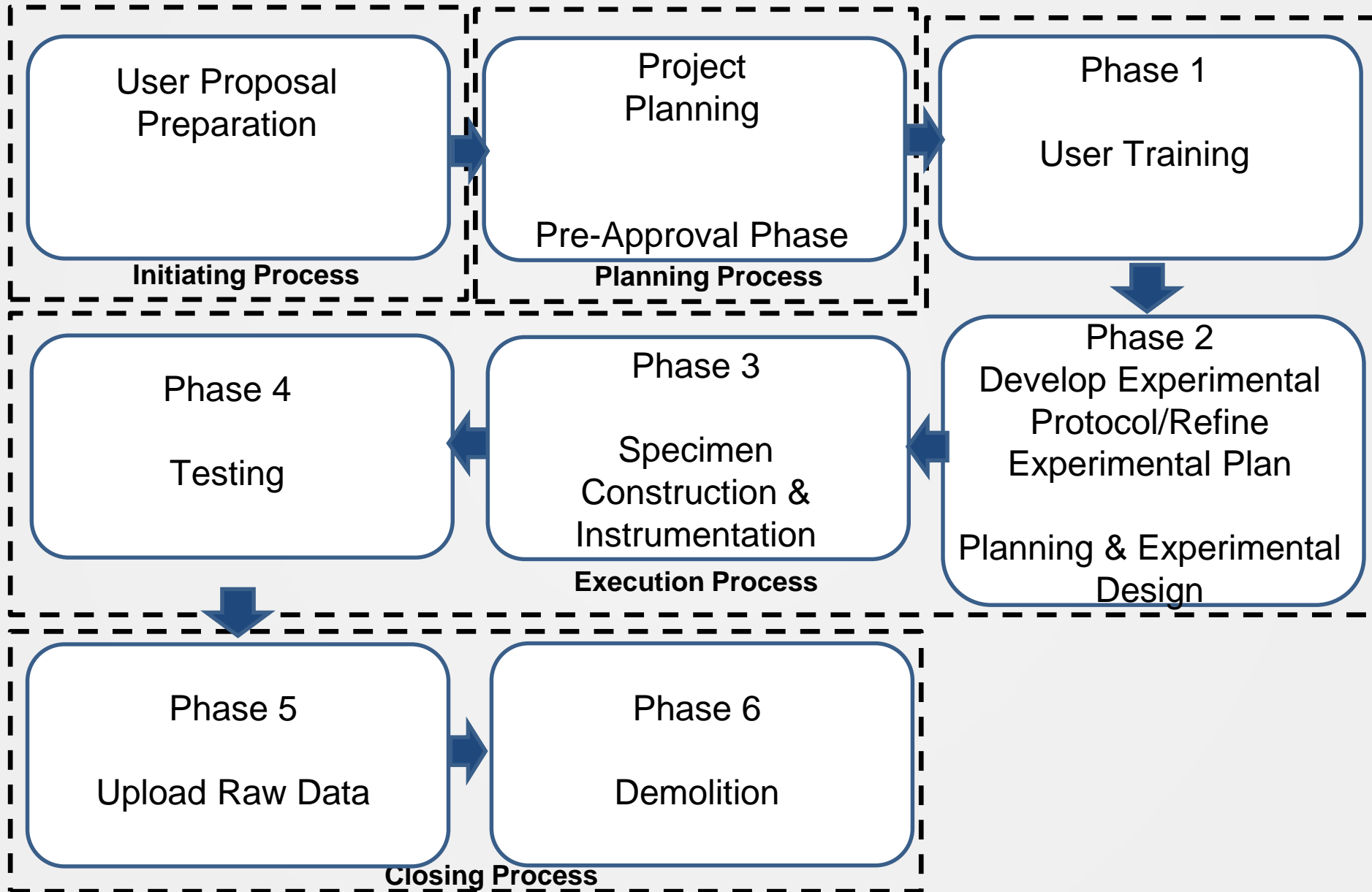
- NHERI Lehigh EF is available for utilization for projects funded through both public and private sources
  - NSF-funded projects that utilize NHERI Lehigh EF have specific costs that qualify for funding through one of the following sources:
    - NHERI Lehigh Operations and Maintenance budget
    - NSF-funded research project
  - Projects funded by all non-NSF sources are responsible for all costs associated with project budget



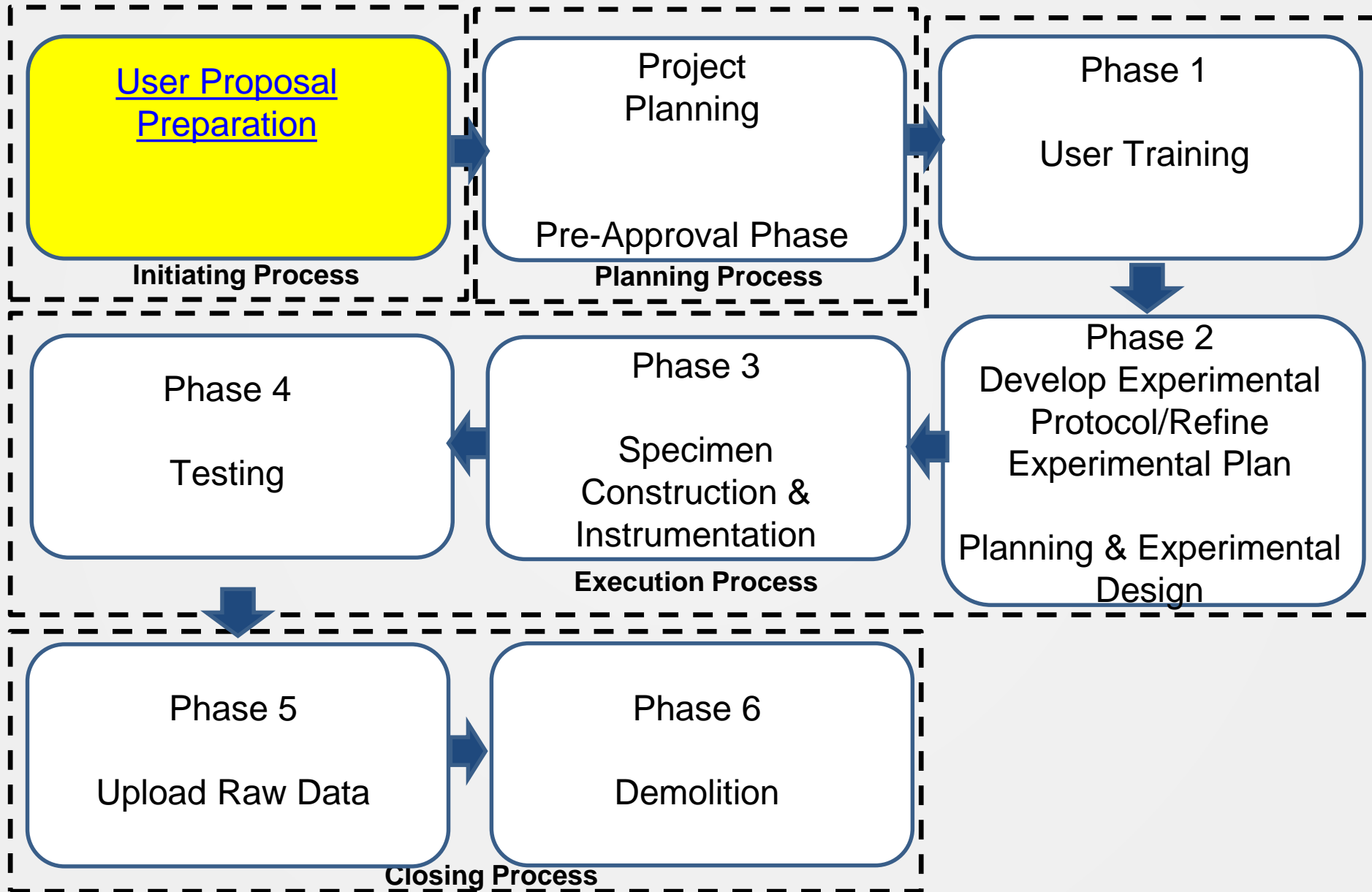
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# Site Support Operations for NHERI Lehigh



# Site Support Operations for NHERI Lehigh



# User Proposal Preparation

## Pre-Proposal Stage

(1.1) Interactions with NHERI Lehigh EF

## Proposal Writing Stage

(2.1) Research Plan  
(2.2) Facilities, Equipment, and Other Resources  
(2.3) Schedule  
(2.4) Budget  
(2.5) Data Management Plan



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# User Proposal Preparation

## Pre-Proposal Stage

- (1.1) Interactions with NHERI Lehigh EF
- (1.2) Review NHERI Lehigh EF website

## Proposal Writing Stage

- (2.1) Research Plan
- (2.2) Facilities, Equipment, and Other Resources
- (2.3) Schedule
- (2.4) Budget
- (2.5) Data Management Plan



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# Pre-proposal Stage

- (1.1) Interactions with NHERI Lehigh EF to establish how facility can accommodate researcher needs
  - Primary Contact:
    - Chad Kusko – Facility Operations Manager
      - Email: [chk205@lehigh.edu](mailto:chk205@lehigh.edu)
  - Important questions to consider at this stage:
    - *What is the proposed testing idea and does the proposed idea fit within the technical capabilities of the NHERI Lehigh EF?*
    - *Does NHERI Lehigh EF have the necessary equipment/instrumentation for the proposed idea?*
    - *To what solicitation (and for which deadline) will the proposal be developed?*
    - *What additional information is available for EF or is required from EF by researcher for proposal?*



# Pre-proposal Stage

- (1.2) Review NHERI Lehigh EF website
  - [Questions for Pre-Proposal Stage](#)
  - [Checklist for Proposal Preparation](#)



The following serves as a guide for questions/topics to consider and address during the proposal stage for utilization of the NHERI Lehigh RTMD Experimental Facility:

General questions to address:

- What is the proposed testing idea and does the proposed idea fit within the technical capabilities of the NHERI Lehigh EF?
- Does NHERI Lehigh EF have the necessary equipment/ instrumentation for the proposed idea?
- To what solicitation (and for which deadline) will the proposal be developed?
- Can a schematic of the proposed test setup be provided to NHERI Lehigh EF for review and feedback?
- What additional information is available for EF or is required from EF by researcher for proposal?

Specific areas to address:

- Research Plan
  - Identify the items to be provided by researcher (with respect to utilization of facility)
  - What is the general plan of work envisioned, including broad design of activities to be undertaken at NHERI Lehigh EF?
  - Describe the experimental methods and procedures required by NHERI Lehigh EF
  - Is there a specific risk mitigation or safety strategy that should be considered?
  - Can a schematic of the proposed test setup be provided?
- Facilities, Equipment, and Other Resources
  - Items to be discussed with NHERI Lehigh EF (with respect to utilization of facility)
    - What resources are required of NHERI Lehigh EF?
    - Equipment?
    - Instrumentation?
    - Personnel?
    - Does NHERI Lehigh EF have these resources?
    - Are the capabilities required of the NHERI Lehigh EF established or do they need to be developed?
    - Are there additional ATLSS resources required for this proposal?
- Schedule
  - What is the proposed time-frame envision for utilization of NHERI Lehigh EF resources?
  - Equipment
  - Instrumentation
  - Physical space requirements (footprint in laboratory)
  - Technical staff
- Budget
  - What are the projected costs to:
    - Project Budget, including equipment use fees
    - NHERI O&M Budget
- Data Management Plan
  - What are the proposer's plans for data management and sharing of the research products?
  - Types of data, samples, software, etc. to be used at NHERI Lehigh EF
  - The standards used for data and metadata format and content
  - Plans for archiving data, samples, and other research products

The following serves as a checklist to follow during the proposal stage for utilization of the NHERI Lehigh RTMD Experimental Facility:

- Review the NSF Proposal and Award Policies and Procedures Guide
- Attend a researcher training workshop at NHERI Lehigh EF to become familiar with resources and capabilities of NHERI Lehigh EF
- Review NHERI Lehigh DesignSafe website (<https://lehigh.designsafe-ci.org/resources/>) to become familiar with resources, capabilities, policies, etc. associated with NHERI Lehigh EF, including review of the following files:
  - ATLSS Usage Rates for NSF NHERI Projects
  - ATLSS Usage Rates for non-NHERI Projects
  - Responsibility of Costs
  - Data Management Plan
  - ATLSS Laboratory Safety Plan
  - NHERI Lehigh RTMD EF User's Guide
- On the NHERI Lehigh DesignSafe website, review the file entitled "Questions to Address at Pre-Proposal Stage" and develop answers for the identified questions/topics
- Communicate with NHERI Lehigh EF operational personnel to assess if facility accommodates researcher needs
  - Primary Contact: Dr. Chad Kusko, NHERI Lehigh Operations Manager, [chk205@lehigh.edu](mailto:chk205@lehigh.edu) or 610-758-5299

# User Proposal Preparation

## Pre-Proposal Stage

- (1.1) Interactions with NHERI Lehigh EF
- (1.2) Review NHERI Lehigh EF website

## Proposal Writing Stage

- (2.1) Research Plan
- (2.2) Facilities, Equipment, and Other Resources
- (2.3) Schedule
- (2.4) Budget
- (2.5) Data Management Plan



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# Proposal Writing Stage

- Recommended steps for the researcher developing proposal:
  - Review NSF Proposal and Award Policies and Procedures Guide (PAPPG NSF20001)
    - Chapter II: Proposal Preparation Instructions
  - Review NHERI Lehigh EF Facility User's Guide
  - Communicate with NHERI Lehigh EF
    - Chad Kusko – Facility Operations Manager
      - Email: [chk205@lehigh.edu](mailto:chk205@lehigh.edu)
- Important Information to be discussed with NHERI Lehigh EF:
  - (2.1) Research Plan
  - (2.2) Facilities, Equipment, and Other Resources
  - (2.3) Schedule
  - (2.4) Budget
  - (2.5) Data Management Plan

# Proposal Writing Stage

- (2.1) Research Plan
  - Items to be provided by researcher (with respect to utilization of facility)
    - General plan of work envisioned, including broad design of activities to be undertaken at NHERI Lehigh EF
    - Description of experimental methods and procedures required by NHERI Lehigh EF
- (2.2) Facilities, Equipment, and Other Resources
  - Items to be discussed with NHERI Lehigh EF (with respect to utilization of facility)
    - *What resources are required of NHERI Lehigh EF?*
      - Equipment?
      - Instrumentation?
      - Personnel?
    - *Does NHERI Lehigh EF have these resources?*
    - *Are the capabilities required of the NHERI Lehigh EF established or do they need to be developed?*
    - *Are there additional ATLSS resources required for this proposal?*
  - NHERI Lehigh EF can provide information on EF as requested

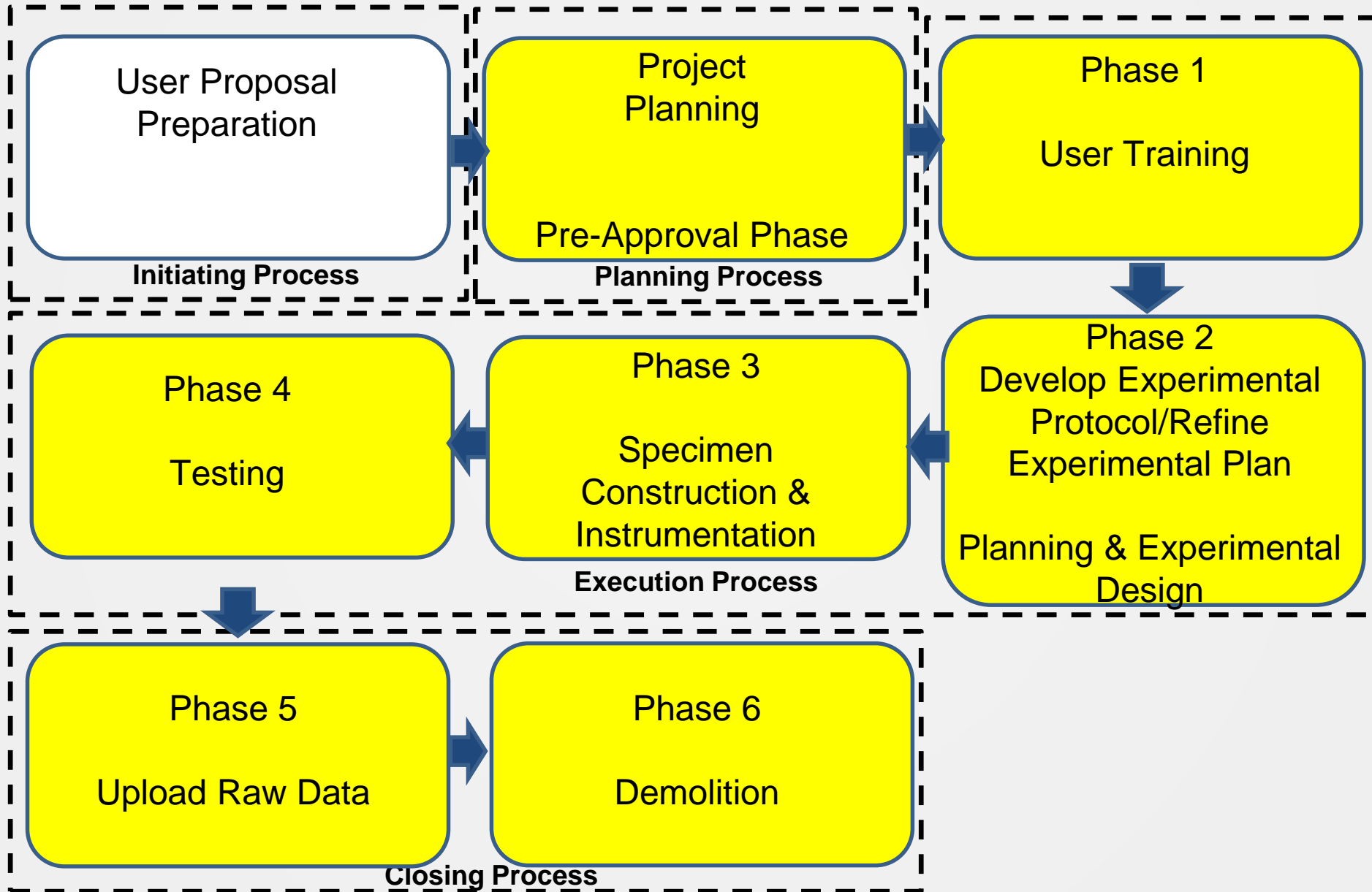
# Proposal Writing Stage

- (2.3) Schedule
  - *What is the proposed time-frame envision for utilization of NHERI Lehigh EF resources?*
    - Equipment
    - Instrumentation
    - Physical space requirements (footprint in laboratory)
    - Technical staff
- (2.4) Budget
  - NHERI Lehigh EF Operations and Maintenance budget could be used to support qualified costs
    - NSF-funded projects that utilize NHERI Lehigh EF have specific costs that qualify for funding through one of the following sources:
      - NHERI Lehigh Operations and Maintenance budget
      - NSF-funded research project
    - Projects funded by all non-NSF sources are responsible for all costs associated with project budget

# Proposal Writing Stage

- (2.4) Budget
  - Where can you find information on budgeting at NHERI Lehigh EF?
    - NHERI Lehigh EF Rate Schedules (for [NSF-funded](#) and [non-NSF funded projects](#))
      - Provides use fee rates to utilize NHERI Lehigh EF equipment and instrumentation and other ATLSS (non-NHERI) equipment and instrumentation
      - Provides NHERI Lehigh EF personnel rates
    - NHERI Lehigh EF [Responsibility of Costs](#)
      - Assigns costs for NSF funded projects to either the NHERI Lehigh EF or the NSF-funded research project
    - Contact NHERI Lehigh Operations Manager with questions or for additional information
      - Chad Kusko, [chk205@lehigh.edu](mailto:chk205@lehigh.edu)
        - Lehigh University audited indirect cost rate
- (2.5) [Data Management Plan](#)
  - What are the proposer's plans for data management and sharing of the research products?
    - Types of data, samples, software, etc. to be used at NHERI Lehigh EF
    - The standards used for data and metadata format and content
    - Plans for archiving data, samples, and other research products

# Site Support Operations for NHERI Lehigh



# Proposal Process

## Pre-Proposal Stage

(1.1) Interactions with NHERI Lehigh EF

## Proposal Writing Stage

(2.1) Research Plan  
(2.2) Facilities, Equipment, and Other Resources  
(2.3) Schedule  
(2.4) Budget  
(2.5) Data Management Plan

## Post-Award Stage

(3.1) Researcher Agreement & Site Utilization Forms  
(3.2) Researcher Training  
(3.3) Scheduling of Testing  
(3.4) Execution of Testing  
(3.5) Post-Test Data Archiving



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# Post-Award Stage

- (3.1) Compliance Documentation and Site Utilization Forms
  - NHERI specific requirements being developed and finalized
    - For NHERI, these are expected to include:
      - [Equipment Facilities Policy Compliance Check](#) (ESPCC)
        - To be completed by an equipment facility representative, with supporting information provided by the researcher. The ESPCC assures policy compliance with respect to:
          - experimental feasibility,
          - safety,
          - budget,
          - schedule, and
          - data.
      - [Site Utilization Request Form](#) (SURF)
        - Outlines key terms associated with the project
        - This form would be an agreement between equipment site(s), researcher, and NHERI



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# Post-Award Stage

- (3.1) Experimental Site Utilization Form:
  - Project information/Summary
  - Summary of Facility Requirements
    - Description of planned experiments
    - Description of experimental site resources needed
    - Scheduling for experimental site usage
    - Description and scope of special experimental site services needed
  - Project-specific risks and safety issues and associated mitigation plans
  - Roles and responsibilities for facility and researcher
  - Data Sharing and Archiving plan



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# Post-Award Stage

- (3.2) [Researcher Training](#)
- (3.3) Experimental Test Plan/Scheduling of Testing
  - Experimental Test Plan (ETP)
    - Detailed document that outlines specific testing to be done at EF
      - Project scope (details of specimens, fabrication location, erection, instrumentation, data acquisition, testing plans, and demolition)
      - Detailed list of equipment, # of days of equipment site use, for entire duration of experimental activities
      - Project-specific safety requirements
      - Anticipated project schedule (for specimen construction, installation, testing, raw data upload, and demolition)
  - NHERI Lehigh EF will work with ATLSS Center staff for coordinating the schedule of research project
    - Resources assigned based on critical milestones of respective projects in order to maximize efficiency of laboratory operations
    - NHERI Lehigh Operations Manager will report schedule to the NCO Facility Scheduling Group for integration into overall NHERI facilities schedule
- (3.4) Execution of Testing
  - NHERI Lehigh EF will provide support for experimental preparation within the laboratory and operate equipment in order to complete testing in collaboration with research team
- (3.5) Post-Test Data Archiving
  - NHERI Lehigh IT Manager will provide assistance to researchers with data management, including data backup on local repository and data upload to NHERI repository



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# Payload Opportunities

- Information on NHERI Lehigh website

## Establishing A Payload Project At The NHERI Lehigh EF

org/facility/overview/

olo... Concept2 Logbook... Demographic

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EXPERIMENTAL FACILITY

Facility ▾ Protocols ▾ Projects ▾ Resources Outreach ▾ Contact

### FACILITY OVERVIEW

To help meet the grand challenge of community resilience to natural hazards, the Natural Hazards Engineering Research Infrastructure (NHERI) Lehigh Experimental Facility (EF) was funded by the National Science Foundation (NSF) to be a world-class, open-access facility that enables researchers to address key research questions associated with the challenge of community resilience. The NHERI Lehigh EF has a unique portfolio of equipment, instrumentation, infrastructure, testbeds, experimental simulation control protocols, large-scale simulation and testing experience along with know-how that does not exist elsewhere in the United States. The unique strength of the NHERI Lehigh EF is accurate, large-scale, multi-degree-of-freedom and multi-directional simulations of the effects of natural hazard events on civil infrastructure systems (i.e., buildings, bridges, industrial facilities, etc.) with potential soil-foundation effects.

The types of laboratory simulations and tests enabled by the NHERI Lehigh EF include:

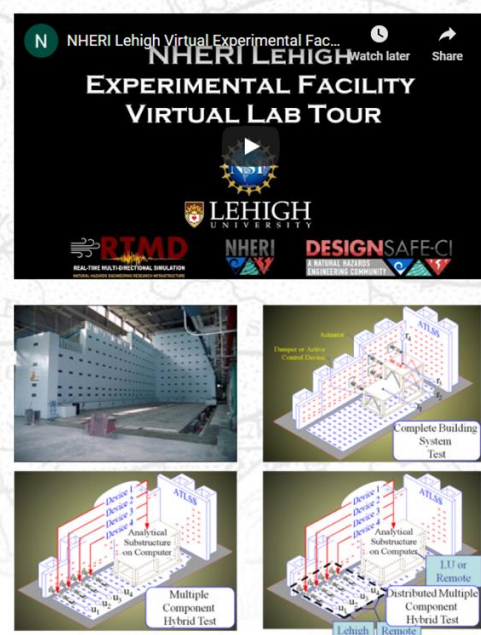
1. Hybrid simulation (HS) which combines large-scale physical models with computer-based numerical simulation models.
2. Geographically distributed hybrid simulation (DHS) which is a HS with physical models and/or numerical simulation models located at different sites.
3. Real-time hybrid earthquake simulation (RTHS) which is a HS conducted at the actual time scale of the physical models.
4. Geographically distributed real-time hybrid earthquake simulation which combines DHS and RTHS.
5. Dynamic testing (DT) which loads large-scale physical models at real-time scales through predefined load histories.
6. Quasi-static testing (QS) which loads large-scale physical models at slow rates through predefined load histories.

For a complete description of the EF, please review our [Equipment, Facilities and Other Resources](#) document.

### ESTABLISHING A PAYLOAD PROJECT AT THE NHERI LEHIGH EF

Researchers are encouraged to take advantage of the existing research projects that provide potential payload project testbeds. All ongoing and newly funded projects at the NHERI Lehigh Experimental Facility are posted on the site's website to enable researchers to identify potential payload project opportunities (see the list of project links under Projects tab). Interested payload researchers should review the posted information for the ongoing/new project scope, schedule, and additional relevant information to determine feasibility of proposing a payload project. If additional project detail is required, payload researchers are encouraged to contact the project's PI directly to foster collaboration towards the project. The PI for each project is included in their descriptions on the site's website. The staff of the NHERI Lehigh Experimental facility can also provide assistance with contacting a project PI.

To establish a payload project, interested payload project researchers will need to follow the payload project protocol that is posted on the site's website (see [Payload Project Protocol](#) under Protocols section). Payload projects funded by the NSF are classified as an NSF-sponsored project. Usage Rates for NSF sponsored projects can be found at [NSF Sponsored Projects User Fees](#). Usage Rates for non-NSF sponsored payload projects can be found at [non-NSF Sponsored Projects User Fees](#).



The screenshot shows the NHERI Lehigh Virtual Experimental Facility website. At the top, there's a navigation bar with links like Facility, Protocols, Projects, Resources, Outreach, and Contact. Below this is a 'FACILITY OVERVIEW' section with a paragraph about the facility's purpose and a list of simulation types. To the right of the text is a video player titled 'NHERI LEHIGH EXPERIMENTAL FACILITY VIRTUAL LAB TOUR'. Below the video player are four diagrams illustrating different simulation types: 'Complete Building System Test', 'Multiple Component Hybrid Test', and 'Distributed Multiple Component Hybrid Test'. The diagrams show various building models and simulation setups, with labels like 'ATLAS', 'Device 1', 'Device 2', 'Device 3', 'Analytical Substructure on Computer', 'Lehigh', and 'Remote'.

# Payload Opportunities

- NHERI Lehigh EF Payload Protocol

## NHERI Lehigh EF Payload Protocol

protocols/payload-project-protocol/

Concept2 Logbook... HAC Demographic

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Facility Protocols Projects Resources Outreach Contact

#### NHERI LEHIGH EF PAYLOAD PROTOCOL

Revision 0, 6/30/16.

1. All ongoing and newly funded projects at the NHERI Lehigh Experimental Facility are posted on the site's website to enable researchers to identify potential payload project opportunities.
2. Interested payload researchers should review the posted information for the ongoing/new project scope, schedule, and additional relevant data to determine feasibility of proposing a payload project.
3. If additional project detail is required, payload researchers are encouraged to contact project PI directly to foster collaboration towards the project.
4. Payload researcher must gain approval of existing project PI to payload onto the existing project. PI and payload researcher are both required to inform NHERI Lehigh EF Operations Manager of such approval and subsequent scope and available technical details of the proposed payload project to gain NHERI EF approval for reasons of technical feasibility and safety. Technical details should include the following:
  1. Scope of work
  2. Testing plan
  3. Schedule
  4. Required Equipment and Other Resources
  5. Instrumentation Plan
  6. Data Management Plan
  7. Payload demolition and/or removal plan

NHERI Lehigh EF reserves the right to decline the payload project if prior approval is not provided by project PI and communicated to NHERI Lehigh Operations Manager.

5. Funding source for payload project needs to be identified (to determine if funding is NSF or non-NSF funded) and communicated to NHERI Lehigh Operations Manager in order for payload project budget and impact on NHERI Lehigh Operations and Maintenance budget to be identified by NHERI Lehigh EF.
  - For budget planning, payload researcher is referred to the NHERI Lehigh EF website at <https://lehigh.designsafe-ci.org> under Resources in order to access key budget development information for operational services and equipment provided by NHERI Lehigh EF.
  - Payload researcher needs to also identify additional budget requirements that are necessary to achieve payload project deliverables through communication with project PI.
6. Once a payload project is awarded funding, a Research Participation Agreement, or similar agreement, will need to be developed between all parties involved, including existing project PI, payload project PI, and the NHERI Lehigh EF prior to any effort towards the payload project.
7. The Research Participation Agreement, or similar agreement, will include, but not be limited to:
  1. Identification of parties
  2. Scope of Work and Testing Plan
  3. Schedule with Milestones
  4. Budget
  5. Responsibility of Costs
  6. Intellectual Property Terms and Conditions
  7. Data Management Plan
  8. Risk Management Plan
8. The payload project schedule will be developed by the NHERI Lehigh EF in conjunction with the overall NCO scheduling function and the ongoing project schedule.



The Lehigh NHERI Experimental Facility is supported by a grant from the National Science Foundation (#1520765).



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