Inclusion Across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (NSF INCLUDES)

NSF INCLUDES Coordination Hub

PROGRAM SOLICITATION
NSF 17-591

National Science Foundation
Directorate for Biological Sciences
Directorate for Computer & Information Science & Engineering
Directorate for Education & Human Resources
Directorate for Engineering
Directorate for Geosciences
Directorate for Mathematical & Physical Sciences
Directorate for Social, Behavioral & Economic Sciences
Office of Integrative Activities

Full Proposal Deadline(s) (due by 5 p.m. submitter's local time):
November 27, 2017

IMPORTANT INFORMATION AND REVISION NOTES

This solicitation is for a NSF INCLUDES Coordination Hub only. In previous NSF INCLUDES solicitations, the NSF INCLUDES Coordination Hub was referred to as a national backbone organization. NSF anticipates releasing separate solicitations that will offer opportunities for additional NSF INCLUDES Design and Development Launch Pilots and NSF INCLUDES Alliances with due dates in FY2018.

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised NSF Proposal & Award Policies & Procedures Guide (PAPPG) (NSF 17-1), which is effective for proposals submitted, or due, on or after January 30, 2017.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:
Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (NSF INCLUDES)
NSF INCLUDES Coordination Hub

Synopsis of Program:
Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (NSF INCLUDES) is a comprehensive national initiative designed to enhance U.S. leadership in science, technology, engineering and mathematics (STEM) discoveries and innovations focused on NSF’s commitment to diversity, inclusion, and broadening participation in these fields. The initiative is developing a National Network composed of NSF INCLUDES Design and Development Launch Pilots, NSF INCLUDES Alliances, NSF-funded broadening participation projects, other relevant NSF-funded projects, scholars engaged in broadening participation research, and other organizations that support the development of talent from all sectors of society to build the STEM workforce.

To facilitate the Network’s operation, the program is soliciting proposals for a NSF INCLUDES Coordination Hub that will drive and support the work of the NSF INCLUDES National Network over the lifecycle of the initiative by: (a)
promoting the NSF INCLUDES guiding vision and strategy; (b) developing a collaborative infrastructure to support the activities of the various entities partnering in the NSF INCLUDES National Network; (c) fostering progress among Network partners toward shared models, measurement practices, and evaluation criteria; (d) communicating the discoveries of and generating enthusiasm for the NSF INCLUDES National Network; and (e) advancing the expansion and scale of the NSF INCLUDES National Network by connecting expertise from multiple sectors and other private and public funders.

The three critical functions of the NSF INCLUDES Coordination Hub are summarized below:

1. **Communication and Networking**: From the beginning the NSF INCLUDES Coordination Hub should direct efforts toward building the Network infrastructure by facilitating continuous communication and information updates, designing community activities, and fostering collaboration across all elements of the Network.

2. **Network Assistance and Reinforcement**: As NSF INCLUDES Alliances and other organizations join the NSF INCLUDES National Network, the NSF INCLUDES Coordination Hub should focus attention on assistance and reinforcement activities including technical assistance, conducting research, and facilitating shared measurement and data analysis across the Network.

3. **Visibility and Expansion**: The NSF INCLUDES Coordination Hub should provide resources for efforts to focus on expansion and sustainability within the National Network, increase NSF INCLUDES visibility and communicate impact, while also serving as a repository for funding opportunities, research and knowledge generated by the NSF INCLUDES National Network and stakeholders.

Cognizant Program Officer(s):

Please note that the following information is current at the time of publishing. See program website for any updates to the points of contact.

- General inquiries may be addressed to: telephone: (703) 292-7303, email: nsfincludes@nsf.gov

**Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):**

- 47.041 --- Engineering
- 47.049 --- Mathematical and Physical Sciences
- 47.050 --- Geosciences
- 47.070 --- Computer and Information Science and Engineering
- 47.074 --- Biological Sciences
- 47.075 --- Social Behavioral and Economic Sciences
- 47.076 --- Education and Human Resources
- 47.079 --- Office of International Science and Engineering
- 47.083 --- Office of Integrative Activities (OIA)

**Award Information**

**Anticipated Type of Award:** Cooperative Agreement

**Estimated Number of Awards:** 1

In FY 2018, one (1) NSF INCLUDES Coordination Hub award will be made pending the availability of funds.

**Anticipated Funding Amount:** $10,500,000

In FY 2018, approximately $2.5 million is available to fund the first year of a Cooperative Agreement that is expected to provide up to $10.5 million support for the NSF INCLUDES Coordination Hub over a five-year period of performance.

**Eligibility Information**

**Who May Submit Proposals:**

The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the NSF Proposal & Award Policies & Procedures Guide (PAPPG), Chapter I.E.

**Who May Serve as PI:**

There are no restrictions or limits.

**Limit on Number of Proposals per Organization:**

An organization may serve as the lead institution on only one NSF INCLUDES Coordination Hub proposal, although it may serve as a collaborating partner on other proposals.

**Limit on Number of Proposals per PI or Co-PI:**

An individual may serve as a PI or Co-PI on only two (2) NSF INCLUDES Coordination Hub proposals. Proposals that exceed the PI or Co-PI limit will be returned without review.

**Proposal Preparation and Submission Instructions**
A. Proposal Preparation Instructions

- **Letters of Intent:** Not required
- **Preliminary Proposal Submission:** Not required
- **Full Proposals:**

B. Budgetary Information

- **Cost Sharing Requirements:**
  Inclusion of voluntary committed cost sharing is prohibited.
- **Indirect Cost (F&A) Limitations:**
  Not Applicable
- **Other Budgetary Limitations:**
  Not Applicable

C. Due Dates

- **Full Proposal Deadline(s) (due by 5 p.m. submitter’s local time):**

  November 27, 2017

**Proposal Review Information Criteria**

**Merit Review Criteria:**

National Science Board approved criteria. Additional merit review considerations apply. Please see the full text of this solicitation for further information.

**Award Administration Information**

**Award Conditions:**

Additional award conditions apply. Please see the full text of this solicitation for further information.

**Reporting Requirements:**

Additional reporting requirements apply. Please see the full text of this solicitation for further information.

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I. INTRODUCTION

Diversity – of thought, perspective, and experience – is essential for excellence in research and innovation in science and engineering. Full participation of all America’s STEM talent is critical to the advancement of science and engineering for national security, health, and prosperity. America’s STEM talent pool has a competitive advantage when it is enriched by diversity of perspectives, backgrounds and approaches, which in turn enriches knowledge across STEM. Women, persons with disabilities, African Americans/Blacks, Hispanic Americans, American Indians, Alaska Natives, Native Hawaiians, Native Pacific Islanders, and persons from economically disadvantaged backgrounds have been historically underrepresented and underserved in various fields of science and engineering across all levels – from pre-K-12 to long-term workforce participation. Inclusion of talent from all sectors of American society is necessary for the health and vitality of the science and engineering community and its societal relevance.

NSF INCLUDES is a comprehensive initiative to enhance U.S. leadership in science and engineering discovery and innovation by seeking and effectively developing STEM talent from all sectors in our society. NSF INCLUDES three essential components are:

1. NSF INCLUDES Design and Development Launch Pilots: Two-year pilot projects that explore the feasibility of bold, innovative ways for solving a broadening participation challenge in STEM.
2. NSF INCLUDES Alliances: The NSF INCLUDES Alliances will leverage existing NSF INCLUDES Design and Development Launch Pilots, programs, people, organizations, technologies, and institutions to catalyze NSF’s broadening participation investments, with each NSF INCLUDES Alliance committed to collectively solving a specific set of objectives.
3. NSF INCLUDES Coordination Hub: The NSF INCLUDES Coordination Hub is envisioned as a diverse team of organizations with expertise across the various functions needed to support the Design and Development Launch Pilots, Alliances, NSF-funded broadening participation programs and other partners that comprise the NSF INCLUDES National Network.

NSF is supporting the development of the NSF INCLUDES National Network composed of NSF INCLUDES Design and Development Launch Pilots, NSF INCLUDES Alliances, the NSF INCLUDES Coordination Hub, NSF-funded broadening participation projects, other NSF-funded projects, scholars engaged in broadening participation research, and other organizations that support the goals of NSF INCLUDES. New networks, systems, and partnerships as well as approaches to using data for change will be hallmarks of NSF INCLUDES. The initiative will serve as a testbed over time for designing, implementing, studying, and refining change models that are based on collective impact-style approaches, and on networks that support adoption and adaptation at scale.

This initiative will leverage investments from NSF programs and projects focused on broadening participation and build on lessons learned, promising practices, and proven mechanisms for achieving success. Building on the strong knowledge base from the science of broadening participation, NSF INCLUDES Launch Pilot projects and Alliances will employ novel systems approaches and designs for achieving scale, including data management infrastructure for achieving greater impact to advance diversity and inclusion in STEM.

At the same time, this approach is a substantial shift away from current practice, which often involves highly successful but locally focused efforts. NSF INCLUDES aims to mobilize communities concerned with both broadening participation and STEM opportunities to bring renewed focus and effective collaboration to optimizing possibilities for diversity across and within STEM fields at scale. Success will be evident in the formation and enactment of new policies and practices in institutions, professional societies, and scientific culture that position inclusion and equity as core values for excellence in STEM.

With this solicitation, NSF invites proposals for an NSF INCLUDES Coordination Hub designed to manage and provide infrastructure for the NSF INCLUDES National Network. The NSF INCLUDES Coordination Hub will be for up to five years, for a maximum of $10.5 million. The NSF INCLUDES Coordination Hub will engage the community in a shared NSF INCLUDES vision; provide a platform for partnerships and collaborative action; support evidence-based decision making using shared goals and metrics across the NSF INCLUDES National Network; increase awareness of the Network and provide a platform for increased communication and visibility; and support the capacity for expansion, sustainability and scale of the NSF INCLUDES National Network and its component parts. The ultimate purpose of NSF INCLUDES is to build a Network, whose development is guided by the NSF INCLUDES Coordination Hub that will ultimately enable collective efforts aimed at increasing the active participation of those who have been traditionally underserved and underrepresented in particular STEM fields or across all fields of STEM.

II. PROGRAM DESCRIPTION

NSF envisions the Coordination Hub as a team working together and cooperatively with NSF to manage the larger NSF INCLUDES National Network of current and future NSF INCLUDES Design and Development Launch Pilots, NSF INCLUDES Alliances, NSF-funded broadening participation projects, other NSF-funded projects, scholars engaged in broadening participation research, and other organizations. A competitive Coordination Hub proposal will include diverse teams of organizations and individuals with complementary areas of expertise and with justified roles for each partner. Partnering organizations may include academic institutions, professional organizations, businesses, industry groups, government organizations, non-profit companies, community-based organizations, informal science education organizations, and science- or industry-focused organizations. Because NSF would like many voices at the table, rather than a single entity such as a center, the NSF INCLUDES Coordination Hub should bring together multiple partners with expertise in broadening participation, collaborative change, and complex organizational management to manage ideas and resources necessary to facilitate the broader NSF INCLUDES vision.

The NSF INCLUDES Coordination Hub is a team with expertise across the various functions needed to support the NSF INCLUDES National Network. These functions are outlined below in three categories:

Communication and Networking Functions: From the beginning the NSF INCLUDES Coordination Hub should direct efforts toward building the infrastructure for the NSF INCLUDES National Network. The Hub should plan to undertake the following activities:

- facilitate continuous communication and information updates for and with the NSF INCLUDES National Network and the broader STEM community, including technical and communication infrastructure;
- design and launch community-building and collaboration activities (virtual and face-to-face) by convening networks and stakeholders; and
- provide an administrative infrastructure, including staff, to coordinate the activities of the NSF INCLUDES Coordination Hub and the network.

Network Assistance and Reinforcement Functions: As NSF INCLUDES Alliances and other organizations join the NSF INCLUDES National Network, the NSF INCLUDES Coordination Hub should focus attention on assistance and reinforcement activities including the following:

- provide technical assistance for the NSF INCLUDES Alliances and other NSF INCLUDES National Network partners;
- conduct research and write reports in support of the NSF INCLUDES National Network; and
- facilitate shared measurement and data analysis across the NSF INCLUDES National Network.

Visibility and Expansion Functions: The NSF INCLUDES Coordination Hub should provide resources for efforts to:

- focus on expansion and create sustainability within the National Network;
- increase NSF INCLUDES visibility and communicate impact; and
- serve as a repository for funding opportunities, research and knowledge generated by the NSF INCLUDES National Network and stakeholders, evaluation, evaluation strategies and syntheses.

III. AWARD INFORMATION

NSF expects to provide up to $2.5 million in FY2018 to support the first year of a five-year award for the NSF INCLUDES Coordination Hub, and up to $2 million per year afterward. NSF expects to make one (1) Coordination Hub award, contingent on availability of funds and receipt of competitive proposals. Initial support for the Cooperative Agreement will be contingent upon a satisfactory pre-award assessment. The award will be made as a Cooperative Agreement, with an initial commitment for five years of support and the possibility of a competitive renewal. Ongoing support for the Cooperative Agreement will be contingent upon satisfactory performance as assessed through reviews of annual progress reports, annual site (or reverse site) visits, and annual reviews of the NSF INCLUDES Coordination Hub’s future plans. The total amount of NSF’s investment in the NSF INCLUDES Coordination Hub will depend upon the needs, plans, and opportunities offered by the Hub, as well as the availability of NSF funds.

In reviewing the NSF INCLUDES Coordination Hub’s progress and assessing future plans, NSF will emphasize the NSF INCLUDES Coordination Hub’s performance in coordinating the NSF INCLUDES National Network’s collaborative change activities and infrastructure; coordinating the Network’s shared broadening participation agenda; and effectively managing Hub activities. Oversight of
the NSF INCLUDES Coordination Hub is the responsibility of the NSF Directorate for Education and Human Resources (EHR) in consultation with the Directorates and Offices supporting NSF INCLUDES.

After the initial five years, the NSF INCLUDES program may initiate another competition to fund the Coordination Hub to which the incumbent may submit a proposal for additional years of NSF support pending the availability of funds.

Estimated program budget, number of awards and average award size/duration are subject to the availability of funds.

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the NSF Proposal & Award Policies & Procedures Guide (PAPPG), Chapter I.E.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization:

An organization may serve as the lead institution on only one NSF INCLUDES Coordination Hub proposal, although it may serve as a collaborating partner on other proposals.

Limit on Number of Proposals per PI or Co-PI:

An individual may serve as a PI or Co-PI on only two (2) NSF INCLUDES Coordination Hub proposals. Proposals that exceed the PI or Co-PI limit will be returned without review.

Additional Eligibility Info:

Competitive proposals will include diverse teams of organizations with complementary areas of expertise and with justified roles for each partner. Partnering organizations may include academic institutions, professional organizations, businesses, industry groups, government organizations, non-profit companies, community-based organizations, informal science education organizations, and science- or industry-focused organizations. Proposers should indicate support from the upper levels of organizational leadership by including letters of collaboration in the supplementary document section.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Preparation Instructions: Proposers may opt to submit proposals in response to this Program Solicitation via Grants.gov or via the NSF FastLane system.

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF Proposal & Award Policies & Procedures Guide (PAPPG). The complete text of the PAPPG is available electronically on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg. Paper copies of the PAPPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov. Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov. The complete text of the NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide. To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

In determining which method to utilize in the electronic preparation and submission of the proposal, please note the following:

Collaborative Proposals. All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via the NSF FastLane system. PAPPG Chapter II.D.3 provides additional information on collaborative proposals.

See PAPPG Chapter II.C.2 for guidance on the required sections of a full research proposal submitted to NSF. Please note that the
Cover Sheet: Entries on the Cover Sheet are described in the PAPPG and NSF Grants.gov Application Guide. For planning purposes, March 1, 2018 should be shown as the start date. Projects are limited to one Principal Investigator and a maximum of four co-Principal Investigators.

Title of Proposed Project: The title of the proposed project should begin with the term: "NSF INCLUDES Coordination Hub:"

Project Summary (1 page): Provide an overview of the proposed NSF INCLUDES Coordination Hub and separately address the Intellectual Merit and Broader Impacts. The summary should be written in the third person, informative to those working in the same or related field(s), and understandable to a scientifically or technically literate reader. Provide a clear and concise description of the NSF INCLUDES Coordination Hub's vision and its plans for partnerships; shared goals and metrics; leadership and communication; and expansion, sustainability, and scale. Note: Do not submit the Project Summary as a supplementary document unless first securing permission from the program officer. Proposals that include Project Summaries in the Supplementary Document Section without program officer permission will be returned without review.

Project Description. The project description should provide a clear statement of the work to be undertaken and must include the objectives for the period of the proposed work and expected significance. Proposals should discuss (1) objectives and significance of the proposed activity; (2) the suitability of the methods to be used; (3) the qualifications of the investigators and the participating organizations; and (4) the effect of the effort on collaborative infrastructure for broadening participation. Project descriptions are a maximum of 20 pages and must contain separate sections within the narrative labeled "IntellectualMerit" and "Broader Impacts." Discuss results of prior NSF support if applicable (see PAPPG for guidelines). The most competitive proposals will also address the following:

1. Vision: How will the NSF INCLUDES Coordination Hub provide support to the various broadening participation challenges addressed by the NSF INCLUDES National Network, and guidance for the more comprehensive vision of the network? What innovative strategies and activities will be used to build community across the network? How do these strategies build upon the proposing organizations' collective experience in prior community-building endeavors? Proposers should:
   - Provide a plan for achieving an NSF INCLUDES National Network common agenda that reflects a collective understanding of broadening participation challenges and links to existing research, promising practices and/or to the previous and ongoing activities across the NSF INCLUDES National Network.
   - Develop an integrated and coordinated strategic plan to support the NSF INCLUDES National Network and the various organizations in the Network to address their broadening participation challenges, including a plan to provide technical infrastructure to facilitate collaborative activities and targeted outcomes across the network.

2. Partnerships: Which institutions are the proposed partners in the NSF INCLUDES Coordination Hub? What expertise do the partnering organizations bring to the effort? How will the Coordination Hub demonstrate successful collaborative change strategies? Proposers should:
   - Describe the set of partners that will participate in the NSF INCLUDES Coordination Hub. Explain why this set of partners is the right set to undertake the NSF INCLUDES Coordination Hub activities.
   - Identify the demonstrated capacity and vision of the partners (organizations and leaders) to develop, manage, and lead the NSF INCLUDES Coordination Hub effort.
   - Present a management plan that includes the administrative infrastructure for the NSF INCLUDES Coordination Hub. A comprehensive list of organizations and personnel and a description of each organization's and staff position's roles and responsibilities should be included in the supplementary document section as specified below.

3. Goals and Metrics: What is the strategic plan for accomplishing the work of the NSF INCLUDES Coordination Hub, and how will progress be documented for the different groups of activities described above? What types of data will be collected and how will data be used? Proposers should:
   - Provide a well thought-out, reasonable, and actionable plan to assist the whole NSF INCLUDES National Network in the implementation of collaborative change approaches, including attention to goal setting, mutually reinforcing activities, and measurable objectives and progress indicators.
   - Outline a process to develop appropriate ways to collect and analyze data from multiple sites and multiple projects including the use of technology for data and information sharing. Proposals should address the complex data collection, data management, and data sharing necessary to build, grow, and scale the overall NSF INCLUDES National Network. Please review the section on Data Management Plans, below. Describe methods to coordinate and reach agreed-upon ways to measure and report success and review processes and outcomes of the NSF INCLUDES National Network. This will include plans for coordinating Hub metrics and feedback measures with the ongoing work of the (already appointed) external evaluators.
   - Include a plan for formative evaluation of the NSF INCLUDES Coordination Hub, using benchmarks, indicators, logic models, road maps, or other evaluative methods to document progress toward goals, objectives, and outcomes of the NSF INCLUDES Coordination Hub. This evaluation plan will be separate from, but align with (and, as needed, expand upon) the overall evaluation of the NSF INCLUDES National Network. It should focus on the evidence needed to improve the work of the Hub in real time. In addition it should describe metrics and feedback mechanisms for formative process and outcome assessments of the collaborative change strategies (vision, partnerships, goals and metrics, leadership and communication, and potential for expansion sustainability and scale) and broadening participation goals of the NSF INCLUDES Coordination Hub itself.

4. Leadership and Communication: How will the NSF INCLUDES Coordination Hub build capacity for leadership across the NSF INCLUDES National Network? How will the NSF INCLUDES Coordination Hub provide for collective leadership within the network? How will project activities and outcomes be broadly shared with the communities of interest? Proposers should:
   - Outline the NSF INCLUDES Coordination Hub's expertise in collaborative change and broadening participation in STEM and a plan for research and development as new opportunities and challenges emerge across both knowledge sectors.
   - Describe a strategy for engaging organizations in a larger network leading to a comprehensive movement for change, including a strategy to promote leadership development within the NSF INCLUDES National Network.
   - Outline a plan for providing new and creative ways to communicate the progress being made and how results will be shared with various research and practice communities.

5. Potential for Expansion, Sustainability and Scale: How will the Coordination Hub's activities contribute to next steps for a

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research agenda and development plan to expand the network of organizations and activities across the NSF INCLUDES National Network? What strategies will be used to support sustainability of the Network and the Coordination Hub and the scaling of promising practices? What will be the overall contribution to broadening participation in the nation’s scientific workforce? Proposers should:

- Describe a strategy for building and managing an ecosystem for sustainable change across the NSF INCLUDES National Network including communicating the discoveries of and generating enthusiasm for the NSF INCLUDES National Network as a movement; and advancing the expansion and scale of the NSF INCLUDES National Network by connecting expertise from multiple sectors and other private and public funders.
- Chart a vision for flexibility across the NSF INCLUDES Coordination Hub and the NSF INCLUDES National Network to respond to changes over time as the program evolves and new actors join at different times and levels of experience in collaborative change strategies and broadening participation in STEM.
- Develop a plan for sharing evaluation, evaluation strategies and knowledge synthesis to further NSF INCLUDES National Network progress.

References Cited: All references cited in the Project Summary and Project Description should be listed in this section.

Biosketches: Biosketches for the PI, Co-PI(s) and senior project personnel are required. Biosketches MUST follow the NSF guidelines outlined in the NSF PAPPG or NSF Grants.gov Application Guide and may not be longer than two pages.

Budget and Budget Justification: Budgets should be in NSF format and include up to three pages of budget justification. The budget justification should be in narrative form and include detailed explanations for each line item with budget resources listed in the budget. Information about what may or may not be included in the budget or budget justification is outlined in the NSF PAPPG or NSF Grants.gov Application Guide.

Current and Pending Support: Current and Pending Support documents are required for all PIs, Co-PIs and Senior Personnel listed in the Lead Organization Budget and all Subaward Budgets. Follow the Current and Pending Support format outlined in the NSF PAPPG or NSF Grants.gov Application Guide.

Facilities and Equipment: A list of current facilities and equipment to be used in the implementation of the project activities should be included in this section. Further information is available in the NSF PAPPG or NSF Grants.gov Application Guide. In this section, institutions may list other partnering organizations that are not receiving substantial funds in the project budget but will be contributing to project activities.

Supplementary Documents: Supplementary documents listed in the PAPPG or NSF Grants.gov Application Guide as required should be appended in the Supplementary Document section.

- The inclusion of Letters of Collaboration from participating organizations is strongly encouraged.
- In addition, Please provide the following:
  - A list of all project personnel who have a role in the Coordination Hub including their first and last names.
  - Biosketches (using NSF Format, no longer than two pages) for any personnel listed that did not include Biosketches in the Biosketch section.
  - A separate list of all institutions and organizations with which project personnel are affiliated. Outline the NSF INCLUDES Coordination Hub roles and functions addressed by each institution.
  - Letters of Support from the leadership of all partnering organizations indicating high-level support and commitment to the NSF INCLUDES Coordination Hub efforts.

Data Management Plan (required): Proposals must include a supplementary document of no more than two pages labeled "Data Management Plan." This supplementary document should describe how the proposal will conform to NSF policy on the dissemination and sharing of research results. See Chapter II.C.2.j of the GPG for full policy implementation. For additional information on the Dissemination and Sharing of Research Results, see: https://www.nsf.gov/bfa/dias/policy/dmp.jsp. For specific guidance for Data Management Plans submitted to the Directorate for Education and Human Resources (EHR) see: https://www.nsf.gov/bfa/dias/policy/dmpdocs/ehr.pdf.

Collaborators & Other Affiliations (COA) information specified in the PAPPG should be submitted using the instructions and spreadsheet template found at https://www.nsf.gov/bfa/dias/policy/coa.jsp.

B. Budgetary Information

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

C. Due Dates

- Full Proposal Deadline(s) (due by 5 p.m. submitter's local time):
  November 27, 2017

D. FastLane/Grants.gov Requirements

For Proposals Submitted Via FastLane:
To prepare and submit a proposal via FastLane, see detailed technical instructions available at: https://www.fastlane.nsf.gov/a1/newstan.htm. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

For Proposals Submitted Via Grants.gov:

Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. Comprehensive information about using Grants.gov is available on the Grants.gov Applicant Resources webpage: http://www.grants.gov/web/grants/applicants.html. In addition, the NSF Grants.gov Application Guide (see link in Section V.A) provides instructions regarding the technical preparation of proposals via Grants.gov. For Grants.gov user support, contact Grants.gov Contact Center at 1-800-518-4726 or by email: support@grants.gov. The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

**Submitting the Proposal:** Once all documents have been completed, the Authorized Organizational Representative (AOR) must submit the application to Grants.gov and verify the desired funding opportunity and agency to which the application is submitted. The AOR must then sign and submit the application to Grants.gov. The completed application will be transferred to the NSF FastLane system for further processing.

Proposers that submitted via Grants.gov, until an application has been received and validated by NSF, the Authorized Organizational Representative may check the status of an application on Grants.gov. After proposers have received an e-mail notification from NSF, Research.gov should be used to check the status of an application.

**VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES**

Proposals received by NSF are assigned to the appropriate NSF program for acknowledgement and, if they meet NSF requirements, for review. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF either as ad hoc reviewers, panelists, or both, who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that reviewers have no conflicts of interest with the proposal. In addition, Program Officers may obtain comments from site visits before recommending final action on proposals. Senior NSF staff further review recommendations for awards. A flowchart that depicts the entire NSF proposal and award process (and associated timeline) is included in PAPPG Exhibit III-1.

A comprehensive description of the Foundation's merit review process is available on the NSF website at: https://www.nsf.gov/bfa/dias/policy/merit_review/

Proposers should also be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in Investing in Science, Engineering, and Education for the Nation's Future: NSF Strategic Plan for 2014-2018. These strategies are integrated in the program planning and implementation process, of which proposal review is one part. NSF's mission is particularly well-implemented through the integration of research and education and broadening participation in NSF programs, projects, and activities.

One of the strategic objectives in support of NSF's mission is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions must recruit, train, and prepare a diverse STEM workforce to advance the frontiers of science and participate in the U.S. technology-based economy. NSF's contribution to the national innovation ecosystem is to provide cutting-edge research under the guidance of the Nation's most creative scientists and engineers. NSF also supports development of a strong science, technology, engineering, and mathematics (STEM) workforce by investing in building the knowledge that informs improvements in STEM teaching and learning.

NSF's mission calls for the broadening of opportunities and expanding participation of groups, institutions, and geographic regions that are underrepresented in STEM disciplines, which is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

**A. Merit Review Principles and Criteria**

The National Science Foundation strives to invest in a robust and diverse portfolio of projects that creates new knowledge and enables breakthroughs in understanding across all areas of science and engineering research and education. To identify which projects to support, NSF relies on a merit review process that incorporates consideration of both the technical aspects of a proposed project and its potential to contribute more broadly to advancing NSF's mission "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes." NSF makes every effort to conduct a fair, competitive, transparent merit review process for the selection of projects.

1. **Merit Review Principles**

These principles are to be given due diligence by PIs and organizations when preparing proposals and managing projects, by reviewers...
when reading and evaluating proposals, and by NSF program staff when determining whether or not to recommend proposals for funding and while overseeing awards. Given that NSF is the primary federal agency charged with nurturing and supporting excellence in basic research and education, the following three principles apply:

- 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, and 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.

With respect to the third principle, even if assessment of Broader Impacts outcomes for particular projects is done at an aggregated level, PIs are expected to be accountable for carrying out the activities described in the funded project. Thus, individual projects should include clearly stated goals, specific descriptions of the activities that the PI intends to do, and a plan in place to document the outputs of those activities.

These three merit review principles provide the basis for the merit review criteria, as well as a context within which the users of the criteria can better understand their intent.

2. Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board approved merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two merit review criteria are listed below. Both criteria are to be given full consideration during the review and decision-making processes; each criterion is necessary but neither, by itself, is sufficient. Therefore, proposers must fully address both criteria. (PAPPG Chapter II.C.2.d(1) contains additional information for use by proposers in development of the Project Description section of the proposal). Reviewers are strongly encouraged to review the criteria, including PAPPG Chapter II.C.2.d(1), prior to the review of a proposal.

When evaluating NSF proposals, reviewers will be asked to consider what the proposers want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful. These issues apply both to the technical aspects of the proposal and the way in which the project may make broader contributions. To that end, reviewers will be asked to evaluate all proposals against two criteria:

- **Intellectual Merit:** The Intellectual Merit criterion encompasses the potential to advance knowledge; and
- **Broader Impacts:** The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

The following elements should be considered in the review for 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?

Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. NSF values the advancement of scientific knowledge and activities that contribute to achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.

Proposers are reminded that reviewers will also be asked to review the Data Management Plan and the Postdoctoral Researcher Mentoring Plan, as appropriate.

Additional Solicitation Specific Review Criteria

In addition to the NSF Merit Review Criteria, reviewers will be asked to consider the ability of the proposed NSF INCLUDES Coordination Hub to provide the infrastructure necessary to support the NSF INCLUDES National Network. Questions to be considered include:

1. **Vision:** Is the vision for the NSF INCLUDES Coordination Hub sufficiently compelling, ambitious and comprehensive to justify the resources requested?
2. **Partnerships:** Is the team of partner organizations and personnel proposed for the NSF INCLUDES Coordination Hub appropriate? Does the partnership have the capacity to act as both a fiscal agent and a team to accomplish the proposed work? Do the partners have the expertise necessary both in broadening participation in STEM and collaborative change strategies? Are all members of the organizational and personnel team meaningfully integrated into an NSF INCLUDES
Coordination Hub that is more than just the sum of its parts?

3. Goals and Metrics: Is the strategic plan for shaping common agendas and shared measurement systems appropriate and convincing? Does the proposal include a robust evaluation plan appropriate for informing program management and establishing the NSF INCLUDES Coordination Hub's outcomes and/or impacts?

4. Leadership and Communication: Does the proposal include a promising plan to promote the development of leadership within the network, share knowledge and promising practices across the network, and increase NSF INCLUDES' visibility and impact throughout the nation?

5. Potential for Expansion, Sustainability and Scale: Does the proposal have a promising plan to support the expansion of the network, provide for long-term sustainability and impact, and manage initiative scaling?

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Ad hoc Review and/or Panel Review, or Reverse Site Review.

Proposals submitted in response to the NSF INCLUDES Coordination Hub program solicitation will be reviewed in two phases including 1) the review of proposals by ad hoc review and panel, and 2) upon invitation, a reverse site visit.

Reviewers will be asked to evaluate proposals using two National Science Board approved merit review criteria and, if applicable, additional program specific criteria. A summary rating and accompanying narrative will generally be completed and submitted by each reviewer and/or panel. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF strives to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. Large or particularly complex proposals or proposals from new awardees may require additional review and processing time. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director acts upon the Program Officer's recommendation.

After programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications. After an administrative review has occurred, Grants and Agreements Officers perform the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

Once an award or declination decision has been made, Principal Investigators are provided feedback about their proposals. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers or any reviewer-identifying information, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to the submitting organization by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See Section VI.B. for additional information on the review process.)

B. Award Conditions

An NSF award consists of: (1) the award notice, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award notice; (4) the applicable award conditions, such as Grant General Conditions (GC-1)*; or Research Terms and Conditions* and (5) any announcement or other NSF issuance that may be incorporated by reference in the award notice. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

*These documents may be accessed electronically on NSF’s Website at https://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

More comprehensive information on NSF Award Conditions and other important information on the administration of NSF awards is contained in the NSF Proposal & Award Policies & Procedures Guide (PAPPG) Chapter VII, available electronically on the NSF Website at https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg,
Special Award Conditions:

The NSF INCLUDES Coordination Hub award will be made in the form of a Cooperative Agreement. The Cooperative Agreement will have an extensive section of Special Conditions relating to the period of performance, detailed work description, awardee responsibilities, NSF responsibilities, joint NSF-awardee responsibilities, funding and funding schedule, reporting and evaluation requirements, key personnel, and other conditions. NSF will provide general oversight and monitoring of the NSF INCLUDES Coordination Hub, and external evaluation of the NSF INCLUDES National Network, to help assure effective performance and administration, as well as facilitating any coordination necessary to further the objectives of the NSF INCLUDES initiative. Within the first 60 days of the award, the lead organization of the partnership should submit a strategic plan for the NSF INCLUDES Coordination Hub for confirmation by NSF.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer no later than 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). No later than 120 days following expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report, will delay NSF review and processing of any future funding increments as well as any pending proposals for all identified PIs and co-Pis on a given award. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF’s electronic project-reporting system, available through Research.gov, for preparation and submission of annual and final project reports. Such reports provide information on accomplishments, project participants (individual and organizational), publications, and other specific products and impacts of the project. Submission of the report via Research.gov constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report also must be prepared and submitted using Research.gov. This report serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project. This report will be posted on the NSF website exactly as it is submitted by the PI.


The NSF INCLUDES Coordination Hub will be required to submit annual reports on progress and plans, which will be used as a basis for performance review and determining the obligation of continuing grant increments. The NSF INCLUDES Coordination Hub will also be required to develop a set of management and performance indicators for submission annually to NSF. Part of this reporting may take the form of a database that will be kept by the NSF INCLUDES Coordination Hub. This database will contain the selected monitoring and formative evaluation data identified as common measures for the Hub, Launch Pilots and Alliances. These data will capture the information required to demonstrate progress towards achieving the goals of the NSF INCLUDES National Network.

VIII. AGENCY CONTACTS

Please note that the program contact information is current at the time of publishing. See program website for any updates to the points of contact.

General inquiries regarding this program should be made to:

- General inquiries may be addressed to: telephone: (703)292-7303, email: nsfincludes@nsf.gov

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: fastlane@nsf.gov.

For questions relating to Grants.gov contact:

- 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 telephone: 1-800-518-4726; e-mail: support@grants.gov.

IX. OTHER INFORMATION

The NSF website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this website by potential proposers is strongly encouraged. In addition, "NSF Update" is an information-delivery system designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF Grants Conferences. Subscribers are informed through e-mail or the user's Web browser each time new publications are issued that match their identified interests. "NSF Update" also is available on NSF's website.

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding
opportunities may be accessed via this mechanism. Further information on Grants.gov may be obtained at http://www.grants.gov.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 55,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Arctic and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

Facilitation Awards for Scientists and Engineers with Disabilities (FASED) provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See the NSF Proposal & Award Policies & Procedures Guide Chapter II.E.6 for instructions regarding preparation of these types of proposals.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The National Science Foundation Information Center may be reached at (703) 292-5111.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at https://www.nsf.gov

- Location: 4201 Wilson Blvd. Arlington, VA 22230
- For General Information (NSF Information Center): (703) 292-5111
- TDD (for the hearing-impaired): (703) 292-5090
- To Order Publications or Forms: Send an e-mail to: nsfpubs@nsf.gov or telephone: (703) 292-7827
- To Locate NSF Employees: (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004), and NSF-51, "Reviewer/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid
Office of Management and Budget (OMB) control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

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Office of the General Counsel  
National Science Foundation  
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