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NSF 22-638: Build and Broaden (B2)

Enhancing Social, Behavioral and Economic Science Research and Capacity at Minority-Serving Institutions

Program Solicitation

Document Information

Document History

- **Posted:** October 4, 2022
- **Replaces:** [NSF 22-530](#)

Public comment: Please refer to [NSF 23-030](#) for Frequently Asked Questions (FAQs) related to this program solicitation.

[View the program page](#)



National Science Foundation

Directorate for Social, Behavioral and Economic Sciences
SBE Office of Multidisciplinary Activities

Full Proposal Target Date(s):

January 19, 2023

Third Thursday in January, Annually Thereafter



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Important Information And Revision Notes

1. Annual target dates have been set on the third Thursday in January.
2. Innovating and migrating proposal preparation and submission capabilities from FastLane to Research.gov is part of the ongoing NSF information technology modernization efforts, as described in Important Notice No. 147. In support of these efforts, research proposals submitted in response to this program solicitation must be prepared and submitted via Research.gov or via Grants.gov, and may not be prepared or submitted via FastLane.

Any proposal submitted in response to this solicitation should be submitted in accordance with the *NSF Proposal & Award Policies & Procedures Guide (PAPPG)* that is in effect for the relevant due date to which the proposal is being submitted. The NSF PAPPG is regularly revised and it is the responsibility of the proposer to ensure that the proposal meets the requirements specified in this solicitation and the applicable version of the PAPPG. Submitting a proposal prior to a specified deadline does not negate this requirement.

Summary Of Program Requirements

General Information

Program Title:

Build and Broaden: Enhancing Social, Behavioral and Economic Science Research and Capacity at Minority-Serving Institutions (B2)

Synopsis of Program:

Build and Broaden (B2) supports fundamental research and research capacity across disciplines at [minority-serving institutions](#) (MSIs) and encourages research collaborations with scholars at MSIs. Growing the science, technology, engineering and mathematics (STEM) workforce is a national priority. National forecasts of the impending shortage of workers with science and engineering skills and essential research workers underscore a need to expand opportunities to participate in STEM research ([President's Council of Advisors on Science and Technology, 2012](#)).

MSIs make considerable contributions to educating and training science leaders for U.S. economic growth and competitiveness. Yet NSF has received comparatively few grant submissions from, or involving, scholars at MSIs. Targeted outreach activities reveal that MSIs have varying degrees of familiarity with funding opportunities within NSF and particularly within the Social, Behavioral and Economic (SBE)

Sciences Directorate. As a result, NSF is limited in its ability to support research and training opportunities in the SBE sciences at these institutions. With its emphasis on broadening participation, Build and Broaden is designed to address this problem. SBE offers Build and Broaden in order to increase proposal submissions, advance research collaborations and networks involving MSI scholars, and support research activities in the SBE sciences at MSIs. Proposals that outline research projects in the SBE sciences that increase students' pursuit of graduate training, enhance PI productivity build research capacity, or cultivate partnerships are especially encouraged to apply.

Proposals are invited from single principal investigators based at MSIs and from multiple co-investigators from groups of MSIs. Principal investigators who are not affiliated with MSIs may submit proposals, but **must collaborate with PIs, co-PIs, or senior personnel from MSIs** and describe how their project will foster research partnerships or capacity-building with at least one MSI as a primary goal of the proposed work. Proposals may address any scientific and cross-disciplinary areas supported by SBE. These areas include anthropology, archaeology, cognitive neuroscience, decision science, ecological research, economics, geography, linguistics, law and science, organizational behavior, political science, public policy, security and preparedness, psychology, and sociology. To find research areas supported by SBE please visit the [SBE programs page](#) or visit the [NSF funding and awards page](#).

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.

- Jorge Valdes Kroff, Program Director, SBE/OAD, telephone: (703) 292-7902, email: jvaldesk@nsf.gov
- Bela Jang, Program Specialist, telephone: (703) 292-7902, email: bejang@nsf.gov

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

- 47.075 --- Social Behavioral and Economic Sciences

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 25 to 30

Pending the availability of funds and quality of proposals

Anticipated Funding Amount: \$8,000,000

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. Unaffiliated individuals are not eligible to submit proposals in response to this solicitation.

Who May Serve as PI:

The Principal Investigator for a Build and Broaden project must either be:

- A full-time scientist, educator or researcher at an accredited MSI. (For more information, consult the [U.S. Department of Education's list of MSIs](#) and contact a Build and Broaden program officer with any questions).
- A full-time scientist, educator, or researcher at any eligible non-MSI institution or organization who includes one or more MSI scholar(s) as senior personnel, co-PI or subawardee PI on the proposal.

In this case, the PI must clearly demonstrate how they will foster research partnerships or capacity-building at the MSI as a primary goal of the proposed work. Proposals from principal investigators not based at MSIs must clearly demonstrate genuine collaboration and enrichment of the research capacity of the MSI scholar(s). For these proposals, more than 50 percent of the overall project's direct costs must go to the MSI(s).

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

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

An individual may be the principal investigator (PI) or co-PI for only one proposal for this program; i.e., no investigator, PI or co-PI, can be listed on the NSF proposal cover sheet on more than one proposal to the Build and Broaden Program per year.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not required
- **Preliminary Proposal Submission:** Not required
- **Full Proposals:**
 - Full Proposals submitted via Research.gov: *NSF Proposal and Award Policies and Procedures Guide (PAPPG)* guidelines apply. 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.
 - Full Proposals submitted via Grants.gov: *NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov* guidelines apply (Note: 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).

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 Target Date(s):**

January 19, 2023

Third Thursday in January, Annually Thereafter

Proposal Review Information Criteria

Merit Review Criteria:

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

Award Administration Information

Award Conditions:

Standard NSF award conditions apply.

Reporting Requirements:

Standard NSF reporting requirements apply.

I. Introduction

The Directorate for Social, Behavioral and Economic Sciences (SBE) supports research in many areas associated with our evolving world, including fundamental research on human behavior and surrounding social, economic and natural environments. Research supported in SBE advances the understanding of people, social organizations and society in a changing world where there are increasing new opportunities for interconnectedness as well as challenges that affect the ability to live dignified, healthy and productive lives.

Minority-serving institutions (MSIs) play a critical role in educating millions of Americans. They provide a vehicle for educational attainment, social mobility, and promote higher education for both rural and urban communities. MSIs thus enable millions of students from a variety of backgrounds to participate in STEM fields. Whether an institution is designated by the federal government to be minority-serving is based on the original purpose of its establishment or its current enrollment thresholds. For more information, please see the [U.S. Department of Education's definitions and lists of eligible postsecondary institutions](#).

Unfortunately, MSIs are disproportionately underrepresented within NSF research award portfolios, suggesting lower research productivity and support among MSIs to conduct research activities across the spectrum of science and engineering fields supported by NSF. A focus on broadening participation of investments at MSIs is consistent with the approach recently outlined in the [May 2020 National Science Board report, Vision 2030](#). In identifying the challenges that exist to increasing STEM workforce participation, the report highlights the importance of investments in "strategically building research infrastructure and capacity in the nation's under-served areas and institutions," as well as making greater use of strategic partnerships. Additionally, [NSF's Strategic Plan for fiscal years 2022 to 2026](#) establishes inclusion as a core value of the foundation's mission "to support outstanding researchers and innovative thinkers from across our nation's diversity of regions, types of organizations and demographic groups." The NSF mission to support outstanding and innovative researchers necessitates including more of the nation's diversity in the science and engineering enterprise. MSIs can make considerable contributions to the nation's research community and further enhance U.S. economic growth and competitiveness.

Most recently, NSF supported more than \$16 million in its Build and Broaden Program, which focuses on supporting research, offering training opportunities and creating greater research infrastructure at more than 25 minority-serving institutions in 12 states and Washington, D.C. As part of NSF's support, these institutions will expand their research infrastructure by developing enhanced research capabilities and gaining greater access to scientific resources and tools. B2 aims to expand this effort by supporting research activities and capacity needs in the SBE sciences at MSIs. Many institutions have well-established research infrastructures that could be utilized to support research collaborations with MSIs.

II. Program Description

The goal of the SBE B2 funding opportunity is to encourage submission of proposals from MSIs, and partnerships with and among MSIs, in order to advance fundamental research and build capacity in the SBE sciences. NSF's SBE directorate welcomes submission of proposals from MSIs, and from partnerships that include MSIs, that address any of the research areas supported by the directorate.

B2 is designed to support research projects that:

- Contribute to stronger, more innovative science by diversifying research and widening the STEM pipeline.
- Furthers intellectual innovation in the social and behavioral sciences.
- Provide researchers with new ways to diversify and sustain collaborations.
- Build capacity and enhance research productivity in the SBE sciences at MSIs.
- Foster partnerships that strengthen career and research trajectories for faculty at MSIs.

Supported projects are expected to yield results that will promote scientific progress; advance national health, prosperity and welfare; strengthen collaborative research initiatives involving MSI scholars and MSI institutions; and establish more robust training and research networks among researchers in the SBE sciences and across other disciplines that have similar interests.

MSIs include historically Black colleges and universities (HBCUs), Hispanic-serving institutions (HSIs), Tribal Colleges or Universities (TCUs), and other institutions that enroll a significant percentage of underrepresented minority students as defined by the U.S. Department of Education. These other institutions include Alaska Native-serving institutions, Native Hawaiian-serving institutions, Predominantly Black Institutions, Asian American and Native American Pacific Islander-serving institutions, and Native American-serving non-tribal institutions. For more information, please see the [U.S. Department of Education's definitions and lists of eligible postsecondary institutions](#).

Proposals from Principal Investigators who are not affiliated with MSIs must partner with senior personnel, a co-PI or a subawardee PI who is based at an MSI. In these cases, PIs must describe how their project will foster partnerships or research capacity-building with at least one MSI.

In addition to standard research and collaborative research proposals that advance research and build capacity for investigators at MSIs, the B2 Program also invites conference proposals, Early-concept Grants for Exploratory Research (EAGER) proposals) and [Research Coordination Network \(RCN\) proposals](#) (for more information on conference proposals and EAGERS, [please consult the PAPPG](#)). EAGER and RCN proposals should describe exploratory and experimental activities involving projects that are theory-driven with outcomes that may be uncertain and involve risk. Proposals may address any of the scientific areas supported by SBE.

III. Award Information

Anticipated Type of Award: Continuing Grant or Standard Grant

Estimated Number of Awards: 25 to 30

Anticipated Funding Amount: \$8,000,000

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

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. Unaffiliated individuals are not eligible to submit proposals in response to this solicitation.

Who May Serve as PI:

The Principal Investigator for a Build and Broaden project must either be:

- A full-time scientist, educator or researcher at an accredited MSI. (For more information, consult the [U.S. Department of Education's list of MSIs](#) and contact a Build and Broaden program officer with any questions).
- A full-time scientist, educator, or researcher at any eligible non-MSI institution or organization who includes one or more MSI scholar(s) as senior personnel, co-PI or subawardee PI on the proposal. In this case, the PI must clearly demonstrate how they will foster research partnerships or capacity-building at the MSI as a primary goal of the proposed work. Proposals from principal investigators not based at MSIs must clearly demonstrate genuine collaboration and enrichment of the research capacity of the MSI scholar(s). For these proposals, more than 50 percent of the overall project's direct costs must go to the MSI(s).

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

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

An individual may be the principal investigator (PI) or co-PI for only one proposal for this program; i.e., no investigator, PI or co-PI, can be listed on the NSF proposal cover sheet on more than one proposal to the Build and Broaden Program per year.

Additional Eligibility Info:

The lead institution on a Build and Broaden proposal may be any minority-serving institution or any non-MSI. However, we **strongly encourage** proposals from institutions that have received fewer than \$25,000,000 total in NSF awards within the previous five years, or fewer than \$3,000,000 total in SBE awards within the previous five years. To determine how much funding your organization has received within the previous five years, please use the [NSF awards advanced search tool](#).

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 Research.gov or Grants.gov.

- Full Proposals submitted via Research.gov: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the *NSF Proposal and Award Policies and 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) 292-8134 or by e-mail from nsfpubs@nsf.gov. The Prepare New Proposal setup will prompt you for the program solicitation number.
- 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) 292-8134 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 Research.gov. 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 proposal preparation instructions provided in this program solicitation may deviate from the PAPPG instructions.

Project Summary

As described in the PAPPG, the project summary must include an overview of the project, a statement of intellectual merit and a statement on the broader impacts of the project. If a partnership including an MSI or among MSIs is proposed, the proposal must also list information about the participating organization(s) and research discipline(s), as well as a statement describing the proportion of requested support to be spent on the MSI(s). Please include the following information as a bulleted list in the overview section at the beginning of the project summary:

- Participating MSI(s).
- Description of the MSI(s) and MSI proportion of requested support.
- Research discipline(s) advanced by the project.

Project Description

Follow PAPPG guidelines when writing the Project Description. Under the section labeled "**Broader Impacts**", explain how the proposed research and associated activities will enhance career development, research trajectories, collaborative research networks or professional training for faculty and students at the participating MSI(s).

Please also include the following additional separate sections in the project description:

- A section labeled "**Nature of Partnership and Investigator Roles.**" If the proposal does not include a partnership and is submitted by a single PI at an MSI, the PI should state "does not apply" in this section. If the proposal includes a partnership, this section should detail the nature of the research partnership between all participating institutions. Please describe the role of each PI, co-PI, senior personnel and collaborator in the research project. For proposals submitted by PIs who are not based at an MSI, proposers should describe clearly the nature of the partnership with the participating MSI(s), including efforts to ensure true collaborations among MSI and non-MSI principal investigators, co-principal investigators and senior personnel. Proposals involving MSIs in peripheral roles will be returned without review.
- A section labeled "**Intellectual Merit.**" This section should discuss how the proposed work advances our understanding and/or basic science in one or more core SBE science areas. It should detail the potential to advance knowledge and address the following types of questions:
 - What is the potential for the proposed activity to advance knowledge and understanding within its own field or across different fields (intellectual merit)?
 - To what extent do the proposed activities suggest and explore creative, original or potentially transformative concepts?
 - 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?
 - How well qualified is the individual, team or organization to conduct the proposed activities?
 - Are there adequate resources available to the principal investigator (PI) either at the home organization or through collaborations to carry out the proposed activities?

Budget

NSF recognizes the unique context of MSIs and the greater volume of teaching responsibilities often required. Proposals may include limited requests for resources to enable researchers at MSIs to be full and equal partners in any research activity supported by B2. Salary compensation could enable a reduction in teaching responsibilities. Please refer to the PAPPG for full guidelines on senior personnel salaries and wages.

Supplementary Documents

Letters of collaboration are not required.

Data Management Plan: In addition to the information provided in the PAPPG, please follow the [guidance issued by SBE for writing a data management plan](#). The data management plan must include a statement of how the data will be made publicly available.

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

C. Due Dates

- **Full Proposal Target Date(s):**

January 19, 2023

Third Thursday in January, Annually Thereafter

D. Research.gov/Grants.gov Requirements

For Proposals Submitted Via Research.gov:

To prepare and submit a proposal via Research.gov, see detailed technical instructions available at:

https://www.research.gov/research-portal/appmanager/base/desktop?_nfpb=true&_pageLabel=research_node_display&_nodePath=/researchGov/Service/Desktop/ProposalPreparation

For Research.gov user support, call the Research.gov Help Desk at 1-800-673-6188 or e-mail rgov@nsf.gov.

The Research.gov Help Desk answers general technical questions related to the use of the Research.gov 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: <https://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 the 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 Research.gov may use Research.gov to verify the status of their submission to NSF. For 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 *Leading the World in Discovery and Innovation, STEM Talent Development and the Delivery of Benefits from Research - NSF Strategic Plan for Fiscal Years (FY) 2022 - 2026*. 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.
- 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(i). 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(i), 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 other underrepresented groups 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

B2 proposals will also be evaluated on the following:

- Intellectual quality of the proposed research and associated activities in research areas supported by SBE.
- Potential of the proposed project to increase the quantity, quality and capacity of research at the participating MSI(s).
- Impacts of the project upon the professional development of faculty and students at the participating MSI(s).
- If a partnership is proposed and the proposal is being submitted by more than a single PI at an MSI, the nature of the partnership among the participating institutions and investigators.

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 Internal NSF Review.

Proposals will be reviewed either through panel reviews, ad hoc reviews, or internal reviews.

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 or the Division of Acquisition and Cooperative Support 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 an NSF Grants and Agreements Officer. 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) 292-8134 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.

Administrative and National Policy Requirements

Build America, Buy America

As expressed in Executive Order 14005, [Ensuring the Future is Made in All of America by All of America's Workers](#) (86 FR 7475), it is the policy of the executive branch to use terms and conditions of Federal financial assistance awards to maximize, consistent with law, the use of goods, products, and materials produced in, and services offered in, the United States.

Consistent with the requirements of the Build America, Buy America Act (Pub. L. 117-58, Division G, Title IX, Subtitle A, November 15, 2021), no funding made available through this funding opportunity may be obligated for an award unless all iron, steel, manufactured products, and construction materials used in the project are produced in the United States. For additional information, visit NSF's [Build America, Buy America](#) webpage.

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.

More comprehensive information on NSF Reporting Requirements 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.

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:

- Jorge Valdes Kroff, Program Director, SBE/OAD, telephone: (703) 292-7902, email: jvaldesk@nsf.gov
- Bela Jang, Program Specialist, telephone: (703) 292-7902, email: bejang@nsf.gov

For questions related to the use of FastLane or Research.gov, contact:

- FastLane and Research.gov Help Desk: 1-800-673-6188
- FastLane Help Desk e-mail: fastlane@nsf.gov
- Research.gov Help Desk e-mail: rgov@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.

Contact the program officer with any questions about the mission of the program or the proposal preparation and submission process.

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 <https://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:** 2415 Eisenhower Avenue, Alexandria, VA 22314
- **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) 292-8134
- **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 [System of Record Notices, NSF-50](#), "Principal Investigator/Proposal File and Associated Records," and [NSF-51](#), "Reviewer/Proposal File and Associated Records." 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:

Suzanne H. Plimpton
Reports Clearance Officer
Policy Office, Division of Institution and Award Support
Office of Budget, Finance, and Award Management
National Science Foundation
Alexandria, VA 22314

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National Science Foundation, 2415 Eisenhower Ave Alexandria, VA 22314
Tel: [\(703\) 292-5111](tel:(703)292-5111),