Centers of Research Excellence in Science and Technology (CREST) and HBCU Research Infrastructure for Science and Engineering (RISE)

PROGRAM SOLICITATION
NSF 16-525

REPLACES DOCUMENT(S):
NSF 14-565

National Science Foundation

Directorate for Education & Human Resources
Division of Human Resource Development

Directorate for Engineering

Letter of Intent Due Date(s) ***(required)*** (due by 5 p.m. proposer's local time)***:***

March 04, 2016

Letters of Intent are due for preliminary CREST Center proposals.

April 07, 2016

Letters of Intent are due for HBCU-RISE projects.

December 02, 2016

Letters of Intent are due for HBCU-RISE projects.

Preliminary Proposal Due Date(s) ***(required)*** (due by 5 p.m. proposer's local time) ***:***

June 10, 2016

Preliminary proposals are due for CREST Centers.

Supplement Due Date(s) (due by 5 p.m. proposer's local time)**:**

Proposals Accepted Anytime

SBIR/STTR Diversity Collaborative Supplements

June 13, 2016

Proposals are due for CREST Partnership Supplements.

February 13, 2017

Proposals are due for CREST Partnership Supplements.

Full Proposal Deadline(s) (due by 5 p.m. proposer's local time):

June 10, 2016

Proposals are due for HBCU-RISE.

December 02, 2016

First Friday in December, Annually Thereafter

Proposals are due for CREST Postdoctoral Research Fellowships.

February 10, 2017

Full proposals are due for CREST Centers and HBCU-RISE.

IMPORTANT INFORMATION AND REVISION NOTES

A new track, **CREST Postdoctoral Research Fellowships (CREST-PRF)**, is being introduced in this solicitation. The CREST-PRF is designed to provide opportunities for CREST Center doctoral recipients early in their careers with research experiences that will broaden perspectives, facilitate interdisciplinary interactions and establish them in positions of leadership within the scientific community.

CREST Center awards under this solicitation. CREST Center awards will be made in alternate years. It is anticipated that CREST

Center awards under this solicitation will be made in the summer of 2017.

Institutional collaborations are required of all CREST Centers. CREST Center institutions are expected to develop partnerships with other universities/colleges, research centers funded by NSF or other federal agencies or state governments, national laboratories, private sector research laboratories, and K-12 entities including museums and science centers or schools, as appropriate to enable the CREST Centers to advance knowledge and education on a research theme of national significance.

Preliminary proposals and full proposals. Submission of a brief preliminary proposal is required for CREST Centers. Full CREST Center proposals may be submitted by invitation only after the review of the preliminary proposal is completed.

Data science. The CREST program encourages the submission of proposals that lead towards the further development of the interdisciplinary field of data science through novel approaches in computer science, statistics, computational science, and mathematics, along with innovative applications in domain science, including social and behavioral sciences, geosciences, education, biology, the physical sciences, and engineering.

Webinar. The CREST program team will host a webinar after the release of this solicitation. In the webinar, key features and expectations of CREST Centers, Crest Postdoctoral Research Fellowships, and HBCU-RISE awards will be discussed. Information pertaining to the webinar will be posted to CRESTWeb (www.crestweb.org).

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) (NSF 16-1), which is effective for proposals submitted, or due, on or after January 25, 2016. Please be advised that proposers who opt to submit prior to January 25, 2016, must also follow the guidelines contained in NSF 16-1.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Centers of Research Excellence in Science and Technology (CREST) and HBCU Research Infrastructure for Science and Engineering (HBCU-RISE)

Synopsis of Program:

The Centers of Research Excellence in Science and Technology (CREST) program provides support to enhance the research capabilities of minority-serving institutions (MSI) through the establishment of centers that effectively integrate education and research. MSIs of higher education denote institutions that have undergraduate enrollments of 50% or more (based on total student enrollment) of members of minority groups underrepresented among those holding advanced degrees in science and engineering fields: African Americans, Alaska Natives, American Indians, Hispanic Americans, Native Hawaiians, and Native Pacific Islanders. CREST promotes the development of new knowledge, enhancements of the research productivity of individual faculty, and an expanded presence of students historically underrepresented in science, technology, engineering, and mathematics (STEM) disciplines. CREST Postdoctoral Research Fellowship (PRF) awards provide research experience and training for early career scientists to work at active CREST Centers to meet the CREST Program goal of building the research capacity of MSIs and advancing the nation's STEM workforce and leadership. HBCU-RISE awards specifically target HBCUs to support the expansion of institutional research capacity as well as the production of doctoral students, especially those from groups underrepresented in STEM, at those institutions.

The CREST program supports the following types of projects:

CREST Center awards provide multi-year support (typically 5-years) for eligible minority-serving institutions that demonstrate a strong research and education base, a compelling vision for research infrastructure improvement, and a comprehensive plan with the necessary elements to achieve and sustain national competitiveness in a clearly defined area of national significance in science or engineering research. Successful Center proposals will demonstrate a clear vision and synergy with the broad goals of the CREST Program and the Human Resource Development Division with respect to development of a diverse STEM workforce. CREST Centers are expected to provide leadership in the involvement of groups traditionally underrepresented in STEM at all levels (faculty, students, and postdoctoral researchers) within the Center. Centers are required to use either proven or innovative mechanisms to address issues such as recruitment, retention and mentorship of participants from underrepresented groups.

CREST Partnership Supplements support the establishment or strengthening of partnerships and collaborations between active CREST Centers and nationally or internationally recognized research centers including NSF-supported research centers, and private sector research laboratories, K-12 entities including museums and science centers or schools, as appropriate to enable the CREST Centers to advance knowledge and education on a research theme of national significance.

CREST Postdoctoral Research Fellowship (PRF) awards recognize beginning CREST Center investigators with significant potential and provide them with research experiences that broaden perspectives, facilitate interdisciplinary interactions and establish them in positions of leadership within the scientific community. Fellows conduct research on topics aligned with the research focus of the host CREST Center. The fellowships are also designed to provide active mentoring to the Fellows by the sponsoring CREST Center scientists who, in turn, will benefit from the incorporation of these talented scientists into their research groups.

HBCU Research Infrastructure for Science and Engineering (RISE) awards support the development of research capability at Historically Black Colleges and Universities that offer doctoral degrees in science and engineering disciplines. Supported projects must have a unifying research focus in one of the research areas supported by NSF, a direct connection to the long-term plans of the host department(s), institutional strategic plan and mission, and plans for expanding institutional research capacity as well as increasing the production of

doctoral students, especially those underrepresented in STEM.

SBIR/STTR Phase IIa Diversity Collaboration Supplements provide an opportunity for existing SBIR/STTR Phase II projects to initiate collaborations with minority-serving institutions that have active CREST Center or HBCU-RISE awards. These supplemental proposals are administered by and co-funded with the NSF Directorate for Engineering Division of Industrial Innovation and Partnerships (ENG/IIP).

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.

- Victor A. Santiago, Program Director, telephone: (703) 292-4673, email: vsantiag@nsf.gov
- Andrea Johnson, Program Director, telephone: (703) 292-5164, email: andjohns@nsf.gov
- Claudia Rankins, Program Director, telephone: (703) 292-8109, email: crankins@nsf.gov
- Glenn H. Larsen, Program Director, ENG/IIP, SBIR/STTR, telephone: (703) 292-4607, fax: (703) 292-9057, email: glarsen@nsf.gov
- Nicole E. Gass, Program Specialist, telephone: (703) 292-8378, fax: (703) 292-9018, email: ngass@nsf.gov

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

- 47.041 --- Engineering
- 47.076 --- Education and Human Resources

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 46

In fiscal year 2016, up to 4 SBIR/STTR Diversity Collaborative Supplements, up to 7 CREST Partnership Supplements and up to 4 HBCU-RISE awards will be made. In fiscal year 2017, up to 6 CREST Center awards (new Centers and Phase II competitive renewals), up to 10 CREST-PRFs, up to 4 SBIR/STTR Diversity Collaborative Supplements, up to 7 CREST Partnership Supplements and up to 4 HBCU-RISE awards will be made.

Anticipated Funding Amount: $17,800,000

Across fiscal years 2016 and 2017, up to $6,000,000 to support the first year for six newly funded CREST Centers, up to $1,200,000 for CREST-PRF standard grants, up to $600,000 from CREST and $600,000 from ENG/IIP for co-funded SBIR/STTR Diversity Collaborative Supplements, up to $1,400,000 for CREST partnership supplements and up to $8,000,000 for HBCU-RISE standard grants, pending the availability of funds.

Eligibility Information

Who May Submit Proposals:

- **Preliminary and invited full CREST Center** proposals may be submitted by minority-serving institutions of higher education in the United States. This denotes institutions that have undergraduate enrollments of 50% or more (based on total student enrollment) of members of minority groups underrepresented among those holding advanced degrees in science and engineering fields: African Americans, Alaska Natives, American Indians, Hispanic Americans, Native Hawaiians, and Native Pacific Islanders. Eligibility as a minority-serving institution may be determined by reference to the Integrated Postsecondary Education Data System (IPEDS) of the US Department of Education National Center for Education Statistics (http://nces.ed.gov/ipeds/). Proposals are also invited from institutions of higher education that primarily serve populations of students with disabilities (http://www.nsf.gov/od/broadeningparticipation/nsf_frameworkforaction_0808.pdf). Support may be provided to partner institutions through subawards.

  CREST partnership supplement proposals are invited from current CREST Center awardees.

  CREST Postdoctoral Research Fellowship proposals are invited from individuals from active CREST Centers (www.crestweb.org). Only **two** (2) individuals per active CREST Center can submit a CREST-PRF application. Individuals can only submit one proposal per year (maximum 2 proposals per individual). Each candidate must identify one or more CREST Center sponsoring scientist(s) and the host CREST Center institution in the proposal. CREST Center applicants are required to inform the CREST Center Director and/or PIs of their intent to submit a CREST-PRF proposal. CREST Centers should ensure that they do not endorse more than 2 CREST-PRF proposals for each competition.

  CREST Postdoctoral Research Fellowships are awards to individuals, and applications are submitted directly by applicants to NSF. To be eligible to submit a proposal to the CREST-PRF Program, an individual must, as of the full proposal target date:

  - Be a U.S. citizen, national, or permanent resident;
  - Have earned the doctoral degree, or expect to have earned the doctoral degree prior to the required start date of the fellowship;
  - Show proof of CREST Center funding as a graduate student for at least one year;
  - Not have worked for more than a total of 24 full-time-equivalent months in positions that require the doctoral degree;
  - May not have previously been a principal investigator or co-principal investigator of an NSF award (other than a NSF Graduate Research Fellowship);
  - Submit a project plan that falls within the purview of the NSF's CREST Center host institution's research priorities; and
  - Not have submitted concurrently the same project to another NSF program.

  The proposal must include the following:

1. A sponsoring CREST scientist(s) statement
2. A letter(s) from the host institution (Department Chair and/or Dean)
3. A letter of support from the CREST Center Director or CREST PI at the applicant's institution. Certification of eligibility must be included in the letter of support.
4. A letter of support from the non-CREST Center sponsor (secondary mentor) **only** if additional funds are requested to conduct research at a non-CREST Center institution.

HBCU-RISE proposals are invited from Historically Black Colleges and Universities that offer doctoral degrees in science (including social, behavioral, and economic science), technology, engineering and mathematics disciplines.

SBIR /STTR diversity collaborative supplement proposals are invited from current SBIR/STTR Phase II grantees and their CREST Center or HBCU-RISE institution partners.

Who May Serve as PI:

Principal Investigators for CREST Center, HBCU-RISE or SBIR/STTR awards must be employed by an institution eligible for a CREST Center, HBCU-RISE or SBIR/STTR, respectively.

CREST-PRF. Only doctoral recipients affiliated with a CREST Center may serve as Principal Investigator. Individuals must show proof of CREST Center funding as a graduate student for at least one year. Certification of eligibility must be included in the letter of support from the PI's CREST Center Director or CREST PI.

Limit on Number of Proposals per Organization:

Only **one** preliminary CREST Center proposal may be submitted per eligible institution. Full CREST Center proposals are to be submitted only when invited by NSF. An institution may have only one active CREST Center award, irrespective of focus area. Centers that have completed two prior, consecutive 5-year CREST Center awards may recompete in disciplinary areas that are significantly different from those of the previous award(s).

Only **two** (2) individuals per active CREST Center may submit a CREST-PRF application per competition. Only **one individual** can be awarded a CREST-PRF at an active CREST Center per year.

Only **one** HBCU-RISE proposal may be submitted per eligible institution. An institution may have only one active HBCU-RISE award.

For each active SBIR/STTR Phase II grant, only **one** SBIR/STTR collaboration with a CREST Center may be submitted. For each CREST center, only **one** SBIR/STTR collaboration can be active at any given time.

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

Eligible individuals may be listed as the principal investigator or co-principal investigator on only one CREST Center or HBCU-RISE proposal. CREST-PRF applicants may submit only **one** fellowship application to the CREST program per year and may apply in no more than two successive years for CREST-PRF.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Submission of Letters of Intent is required for CREST Centers & HBCU-RISE. Please see the full text of this solicitation for further information.
- **Preliminary Proposals:** Submission of Preliminary Proposals is required. Please see the full text of this solicitation for further information.
- **Full Proposals:**
  - Full Proposals submitted via FastLane: NSF Proposal and Award Policies and Procedures Guide, Part I: Grant Proposal Guide (GPG) Guidelines apply. The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg.
  - 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: http://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

- **Letter of Intent Due Date(s)** ***(required)*** (due by 5 p.m. proposer's local time)***:***

  March 04, 2016

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  April 07, 2016

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June 10, 2016

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- **Supplement Due Date(s)** (due by 5 p.m. proposer's local time)**:**

Proposals Accepted Anytime

SBIR/STTR Diversity Collaborative Supplements

June 13, 2016

Proposals are due for CREST Partnership Supplements.

February 13, 2017

Proposals are due for CREST Partnership Supplements.

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June 10, 2016

Proposals are due for HBCU-RISE.

December 02, 2016

First Friday in December, Annually Thereafter

Proposals are due for CREST Postdoctoral Research Fellowships.

February 10, 2017

Full proposals are due for CREST Centers and HBCU-RISE.

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

Centers of Research Excellence in Science and Technology (CREST) is a program in the Division of Human Resource Development (HRD), which is part of the Directorate for Education and Human Resources (EHR) of the National Science Foundation.

CREST Centers, CREST-PRF and HBCU-RISE projects support efforts to strengthen the science and engineering research and education capacity at institutions with strong track records of producing STEM graduates from underrepresented populations. In doing so, these programs help to fulfill a core value of the NSF Strategic Plan: *inclusiveness* - seeking and embracing contributions from all sources, including underrepresented groups, regions and institutions (http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf14043). CREST Centers, CREST-PRF and HBCU-RISE projects also further the NSF goal of preparing tomorrow's innovation workforce that is enriched by the assets of diverse participants from a range of groups and communities. This STEM workforce will engage diverse teams that can offer new ways to solve problems and provide unique perspectives to improve performance and outcomes.

CREST Centers, CREST-PRF and HBCU-RISE projects promote faculty engagement in research activities at the highest level. An educational environment based on discovery will be vibrant, with both undergraduate and graduate students engaged in the process of discovery and innovation through modern and relevant curricula, courses, and research experiences. Students will have opportunities to become significant participants in the broader community of scholarship in their respective fields. Minority-serving institutions offer an opportunity to engage student and faculty populations from underrepresented groups in numbers that can have a significant impact, consistent with the NSF goal to broaden participation and with the NSF mission: to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense and to ensure that research is fully integrated with education so that today's revolutionary work will also be training tomorrow's top scientists and engineers. In addition to bolstering the research infrastructure and research competitiveness of MSIs of higher education, the CREST program seeks to increase the workforce presence of individuals from groups underrepresented in STEM fields. Attentiveness to career development of the women and men working with senior faculty researchers in all CREST Centers can play an important role in diversifying the national STEM workforce. To meet this challenge of creating an inclusive workforce that is representative of the nation's diversity, the CREST program is partnering with the CREST community to support postdoctoral research fellows at CREST Centers. To do so, the CREST program will promote training of postdoctoral fellows in science and engineering and foster collaboration among CREST Centers while meeting its goal of building the research capacity of MSIs and advancing the nation's STEM workforce and leadership.

NSF expects that awards made under the CREST program will catalyze institutional transformation in terms of the development of research capabilities, commensurate with the institution's mission and long term goals, and that the institutions will evaluate the impact of the award in effecting this transformation. Demonstrated leadership in the involvement of groups traditionally underrepresented in STEM is expected at all levels - students, postdoctoral researchers and faculty. The research activities supported by CREST are expected to enable full participation of faculty, graduate students and undergraduates in a nationally competitive research enterprise. Outcomes and activities - such as publications, involvement in regional, national and international research forums, patents and commercial dissemination of research results, professional development of postdoctoral research associates, training of doctoral and master's students, and involvement of undergraduates in research activities - should all occur in ways that establish the potential for national leadership. The ability of CREST Centers and HBCU-RISE awards to leverage funding from federal, state and local agencies, as well as to foster industrial and academic collaborations, as part of a sustainable research enterprise, is an important outcome. At the same time, the projects will promote synergy between education and research; develop outreach activities for pre-college students, K-12 educators, and the general public; and serve as a model for research scholarship throughout the institution. A key feature of projects will be a program strategy and plan for recruitment, mentoring, retention, and graduation of students (U.S. citizens, nationals, and permanent residents) in NSF-supported STEM fields, with specific efforts aimed at members of groups underrepresented in science and engineering.

II. PROGRAM DESCRIPTION

This solicitation requests proposals for: (1) CREST Center awards; (2) partnership supplements applied to existing CREST awards; (3) CREST Postdoctoral Research Fellowship (CREST-PRF) awards; (4) HBCU Research Infrastructure for Science & Engineering (HBCU-RISE) awards; and (5) supplements to existing Small Business Innovation Research and Small Business Technology Transfer (SBIR/STTR) Phase IIA awards (administered by the NSF Directorate for Engineering).

1. CREST Centers. CREST Centers integrate education and research. CREST promotes the development of new knowledge, enhances faculty research productivity, and increases diversity in STEM disciplines. CREST provides multi-year support for eligible minority-serving institutions that demonstrate a strong research and education base, a compelling vision for research infrastructure improvement, and a comprehensive plan with the necessary elements to achieve and sustain national competitiveness in a clearly defined and focused area of science or engineering research. The Center Director must provide the leadership to develop and lead a diverse team, inclusive of women and men, underrepresented minorities, and persons with disabilities, to fulfill the vision of the Center. CREST Centers will engage students, postdoctoral researchers, and faculty from underrepresented groups in numbers that can have a significant impact on an increasingly diverse advanced STEM workforce. CREST Center awards are typically 60-month Continuing Grants of up to $5 million. These funds are used to support science and technology infrastructure improvements identified by the institution as being critical to its future research and development competitiveness.

Full CREST Center Proposal Structure: Full CREST Center proposals consist of the Center proposal (the Project Description) and its associated research Subproject Narratives. The Center proposal includes discussion of the applicant's overall plan for improving the status of science and engineering research and training and for broadening the participation of a diverse student population in science and engineering, as codified by the Center's unifying theme or focus. This Center overview should present a clear explanation of the proposed improvement plan from a scientific, educational and administrative or fiscal point of view. The proposal Project Summary will provide an overview of the proposed activities and will clearly delineate the National Science Foundation criteria of Intellectual Merit and Broader Impacts. More detailed information is provided in Section V of this solicitation. The Project Summary also describes the synergy anticipated by the choice of up to 3 Subprojects that are consistent with the unifying theme of the Center.

CREST Center Research Subprojects: Each proposed subproject may involve a subset of Center investigators, but should have a single subproject leader. The Subproject Narratives, prepared separately from the Project Description and limited to 9 pages, will contain the elements of an abbreviated NSF research proposal, but will also contain a copy of the Center Project Summary described above. In addition, each Subproject Narrative will contain a one-page Subproject Relevancy Statement summarizing the subproject's importance to the overall proposal plan, including synergy with the other subprojects, and a discussion of how it

supports the overall goals and objectives of the Center proposal. The Subproject Narratives will be independently evaluated following the standard NSF merit review process. The Subproject Narratives are submitted as supplementary documents. Prospective PIs should refer to Section V of this solicitation for more detailed proposal preparation instructions, including specific instructions for preparing and submitting the Subproject Narratives.

Expectations for CREST Proposals and Awardees: The Project Description should include an Evaluation Plan to track progress and strengthen cooperative efforts. General information on project evaluation is provided at the end of Section II of this solicitation. In addition to progress reports required annually via the NSF FastLane system, awardees will be expected to submit reports on project participants, publications, outreach efforts, patents, proposals, leveraged funding efforts and similar data to the CREST data collection system. Awardees may also expect site visits and reverse site visits by NSF-appointed evaluators per the particular terms and conditions established in the award documentation. CREST personnel will be expected to participate in convocations of HRD activities and principal investigators meetings.

Consistent with the CREST objectives to broaden the participation of populations that are underrepresented in STEM fields, who are U.S. citizens, nationals, or permanent residents, the proposal should clearly describe the diversity objectives of the Center and outline strategies for achieving them. The contribution/role of partner institutions in the diversity plans should also be described. Proposed activities should be presented in sufficient detail to allow assessment of their intrinsic merit and potential effectiveness. The Evaluation Plan should explain how progress will be measured and how strategies will be adapted. Proposers should demonstrate specifically how the project will integrate the research, education and outreach activities of the Center with measurable outcomes of increasing participation at the post-baccalaureate level, of U.S. citizens, nationals, or permanent residents, especially those from underrepresented student populations that they serve. CREST Centers are expected to prepare students to compete successfully for graduate research fellowships such as the National Science Foundation Graduate Research Fellowship (GRF) and therefore should include a description of appropriate strategies that will be utilized.

Each Center shall convene, at least annually, an external advisory group or committee (EAC). The advisors should include representatives from those served by the Center (e.g., academic institutions, industry, state and local agencies, national laboratories) and reflect the diversity of participants inherent in the citizenry of the United States. The function of the EAC is to provide guidance and advice to the Center as well as to ensure that the Center's activities are consistent with its vision, goals and objectives. Persons with a financial, institutional, or collaborative connection to the Center may not serve as members of the EAC. Each Center shall also have an Internal Steering Committee to include the PI, co-PIs and other applicable stakeholders.

Collaborations (Required): CREST Centers may be organized around the development of individual scientists or engineers, one or more science or engineering departments or equivalent units, or interdisciplinary and multidisciplinary research areas. Multiple-investigator projects are encouraged. Collaborative efforts involving industry, other research universities, federally funded laboratories, K-12 entities including museums and science centers, or other national, state, or regional research and development institutions are required. Sub-awards to such collaborating institutions are permitted, subject to restrictions outlined in the Grant Proposal Guide. It is expected that CREST funding will add substantial, measurable value to the existing science and technology research capability in areas of high institutional priority. The research team will develop a strong potential to achieve national research competitiveness and to generate sustained non-CREST funding from federal, state, or private-sector sources.

Support may be requested for activities that positively impact the quality of research training and the research preparedness of graduate students, particularly women, persons with disabilities, and underrepresented minorities that are U.S. citizens, nationals, or permanent residents. Projects should be designed to enable awardee institutions to enhance the integration of education and research. The proposal should include a component that outlines a strategy for the creative integration of NSF-funded awards at the institution that are related to the proposed project's goals and scope. In identifying the members of the research team, the proposing institution should strongly encourage participation by underrepresented minorities, women, and persons with disabilities in all organizational levels of Center activities. Whether the proposed activity is considered competitive will be determined by merit review of the appropriateness and relevance of the improvement strategies to CREST program goals, as articulated in Section I of this solicitation.

Special Considerations for CREST Phase II Proposals: A CREST Center nearing the completion of its initial five years of funding may submit a preliminary competing renewal proposal for an additional five years of support. If invited by NSF, a full renewal proposal will undergo merit review alongside proposals for new CREST Centers. Accordingly, the achievements and future plans of existing centers will be evaluated comprehensively relative to progress and direction and weighed against the competition for available program funds. The results from the Phase I broadening participation strategy consistent with the CREST goal to develop a diverse, advanced STEM workforce should be articulated clearly in parallel with the institutional transformation arising from the research accomplishments of the first 5 years. The Project Description for a Phase II award should demonstrate a clear vision for a synergistic team of investigators that should be positioned within the second five years of support to achieve a major national recognition for their accomplishments, including research that has the potential to be transformative. The Project Description as well as the Subproject Narratives should provide a systematic articulation of the research, educational, and outreach accomplishments of the Phase I project and how these will drive the future activities of the Center, especially in terms of a new vision and organization. The Phase II Center should be well positioned to demonstrate a transformation of the institutional capacity for engaging students from populations of women, persons with disabilities and underrepresented minorities, in the advanced STEM workforce. A simple continuation of the Phase I CREST Center, even if the scientific merits of the various research activities are strong, will not yield a competitive proposal.

A recommendation for a Phase II CREST Center award will be subject to availability of funds, as well as the demonstrated potential that funding as a CREST Phase II Center will lead to institutional, programmatic, and STEM workforce transformation that the CREST Program is trying to achieve. Renewed Centers will continue to be monitored by NSF. Centers that are not meeting the exceptional expectations of a Phase II Center may have their level of funding reduced or may be terminated.

2. CREST Partnership Supplements. CREST partnership supplements support the establishment or strengthening of partnerships and collaborations between CREST Centers and nationally or internationally recognized research centers including NSF supported research centers, and K-12 entities including museums and science centers. As with CREST Center proposals, CREST partnership supplements are designed to facilitate self-improvement. Support may be requested for activities that have a direct positive influence on the competitiveness of participating scientists and engineers and the quality of the institution's research and training. Supportable activities may include, but are not limited to: exploratory research projects; acquisition of materials, supplies, research equipment and instrumentation; hiring nationally competitive scientists and/or engineers; visiting scientists and engineers as short- or long-term consultants; faculty attendance at professional meetings and seminars; faculty sabbaticals and exchange programs; education activities directed toward development of a diverse, internationally competitive and globally engaged workforce of scientists, engineers, and citizens well-prepared for a broad set of career paths; undergraduate and graduate research activities; development of outreach and other enhancement programs with neighboring institutions; and strengthening technical support personnel. The benefits to all parties in the proposed collaboration must be clearly articulated.

3. CREST Postdoctoral Research Fellowship (CREST-PRF). The CREST program offers 2-year Postdoctoral Research

Fellowships (PRF) to provide opportunities for CREST Center scientists early in their careers to obtain training beyond their graduate education. The CREST-PRF is intended to recognize beginning CREST Center investigators with significant potential and provide them with research experiences that will broaden perspectives, facilitate interdisciplinary interactions and establish them in positions of leadership within the scientific community. During the tenure of the fellowships, participants must conduct research on topics aligned with the research focus of the host CREST Center. The research and training plan of each fellowship must address important scientific questions within the scope of the CREST Center and the specific guidelines in the CREST program solicitation. The fellowships are also designed to provide active mentoring of the Fellows by the sponsoring CREST Center scientist(s) who will benefit from having these talented scientists in their research groups. Because the fellowships are offered only to postdoctoral scientists early in their careers, NSF encourages doctoral advisors at CREST Centers to discuss the availability of these postdoctoral fellowships with their graduate students early in their doctoral programs to ensure that potential applicants may take advantage of this funding opportunity. Fellows must affiliate with appropriate CREST Center institutions and are expected to devote themselves full time to the fellowship activities during its term. The research and training activities must fall within the purview of the CREST Center and show strong alignment with the CREST program goal of strengthening the institution's capacity. Fellowships are awards to individuals, not institutions.

The Sponsoring Scientist(s). The Fellow must affiliate with a CREST Center institution(s) at all times during the entire tenure of the fellowship and select a sponsoring scientist(s) at the CREST Center who will provide mentoring and guidance for both the research and training proposed by the applicant. The applicant is responsible for making prior arrangements with the host CREST Center institution and sponsoring scientist(s). Regardless of the number of CREST Center sponsors, the fellowship application requires a single CREST Center sponsoring scientist statement. When more than one sponsor is proposed, one must be named **lead sponsor** and information from all sponsors must be integrated into a single statement. An important basis for judging the suitability of the host CREST Center institution is the degree to which the sponsoring scientist statement describes and offers a research environment and mentoring plan that could not be provided without fellowship support. Fulfillment of the Center's research needs by the Fellow should be clearly articulated in the sponsoring scientist's statement. If a fellowship is offered, the applicant may be requested to provide documentation from the CREST Center institution that the terms and conditions of the fellowship are acceptable and that the Fellow will be provided adequate mentoring, space, basic services, needed resources and supplies. Once an application is submitted, any changes in location or sponsorship for the fellowship must be approved in advance by NSF.

4. Historically Black Colleges and Universities Research Infrastructure for Science and Engineering (HBCU-RISE). HBCU-RISE awards support the development of research capability at HBCUs that offer doctoral degrees in science and engineering disciplines. Activities supported by RISE include, but are not limited to: faculty release time, technical support for research, faculty professional development, acquisition or upgrading of research equipment, development of new advanced level curricula or courses, and collaborative research efforts with partner universities and national laboratories. Career development opportunities, provision for developing professional skills, fostering an international perspective, instruction in ethics and the responsible conduct of research, and training in communication of the substance and importance of research to nonscientist audiences may be part of the proposed activities. Supported projects must have a unifying research focus in one of the research areas supported by NSF, a direct connection to the long-term plans of the host department(s) and the institutional mission, and plans for expanding institutional research capacity as well as increasing the production of doctoral students, especially those from underrepresented groups who are U.S. citizens, nationals, or permanent residents. The proposal should include a component that outlines a strategy for the creative integration of NSF-funded awards at the institution, which are related to the proposed project's goals and scope. HBCU-RISE funding may, for example, be used to support competitive levels of start-up funding for outstanding new faculty hires with research interests related to the project or to acquire key equipment and instruments, including high-performance computing and networking capabilities.

HBCU-RISE projects must offer considerably more to an institution's capacity to carry out doctoral level research than is afforded by traditional single- or multi-investigator research proposals. In this way, HBCU-RISE support should not replace other available federal, state, or institutional resources and should add significant value to the existing institutional strategic plan. Reviewers will be asked to consider the unique goals of the HBCU-RISE program in developing doctoral program capacity, in addition to supporting research activities. Each HBCU-RISE project should describe an evaluation plan to track progress and strengthen cooperative efforts. In addition, each project will be required to participate in a program-level evaluation to assess outcomes and the program's contributions to advancing the science and engineering research and education capabilities of minority-serving institutions, with special attention to increasing doctoral degree attainment among U.S. citizens, nationals, and permanent residents at those institutions.

It is not necessary for each HBCU-RISE project to convene meetings of an external advisory group or committee. However, each project shall identify an Internal Steering Committee to include the PI, co-PIs and other applicable stakeholders to review the results of the evaluation process and to ensure that the progress is consistent with departmental and institutional goals. HBCU-RISE personnel will be expected to participate in convocations of HRD activities and principal investigator meetings.

5. Small Business Innovation Research and Small Business Technology Transfer (SBIR/STTR) supplemental funding for diversity collaborations. SBIR/STTR supplements seek to promote partnerships between academe and the small-business community. In particular, SBIR/STTR Phase II grantees may partner with CREST/HBCU-RISE institutions with the intent of developing the scientific or engineering underpinnings of the SBIR Phase II technology. As such, it is not important that the SBIR/STTR supplemental project be related to the research areas for which the institution is receiving CREST/HBCU-RISE support. Inquiries and proposals to this track are not submitted to CREST but directly to SBIR/STTR in the Directorate for Engineering. See, for example, **Dear Colleague Letter NSF 12-069: Supplemental Opportunity for SBIR/STTR for CREST/HBCU-RISE Collaborations - Phase IIA.**) Information on SBIR/STTR may be obtained from the following link: SBIR/STTR.

6. Other Funding Opportunities. CREST also funds Conferences; EAGER and RAPID grants; and Grant Supplements for existing awards. Such proposals may be submitted as described in the Grant Proposal Guide (GPG), which is available at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg.

For Conference Proposals, see GPG, II.D.9.

For Early-concept Grants for Exploratory Research (EAGER), see GPG II.D.2

For Grants for Rapid Response Research (RAPID), see GPG, II.D.1.

For funding opportunities in CyberLearning and Future Learning Technologies, see the following link: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf14526.

For funding opportunities under the Dear Colleague Letter: Introducing Science Across Virtual Institutes (SAVI), see the following link: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf13073.

Project Evaluation: All full proposals should include an evaluation section that describes how the project evaluator /evaluation team will determine the accomplishment of project goals and the impact of the project. Evaluation should be based on benchmarks,

indicators, or expected outcomes related to project goals and activities. The following information serves as a general guide for developing evaluation processes. However, each project should develop an appropriate plan for the proposed activities. Not every element of an evaluation may be needed for each proposed project.

Evaluation plans should be based on a Logic Model or other tool that relates project goals to activities and to outputs, outcomes, and impact (immediate, short-term, and intermediate-term expected changes). Most evaluations are based on evaluation questions that relate to program and project goals. Evaluation plans should be appropriate to the scope of the project; this usually includes both formative and summative evaluations. Formative evaluation plans outline methods for documenting progress toward project goals and should include a feedback feature that allows for continuous improvement of the project activities. In some cases, formative evaluation may be internal to the project. Summative evaluation focuses on the influence of the project on the targeted expected outputs and outcomes, and overall impact of the project. Some projects will utilize experimental or quasi-experimental designs as the basis for their summative evaluation plans.

Evaluations are expected to include both qualitative and quantitative methodology. Expected project outputs, outcomes and impact should be included in the evaluation plan and should, when possible, rely on measures that are valid and reliable with the targeted participants. Outputs are the numbers related to project activities such as the number of faculty in pedagogical workshops, the number of students who completed Ph.D. programs in STEM, or the number of peer-reviewed publications attributed to the project. Outcomes are defined as the results of participation in project activities. Strategic impacts are lasting outcomes attributable to the project. The demonstration of project impact is the result of the overall influence of the project on the goal of the program. An example of impact is increased graduation rates of students who participated in a specific model compared to baseline or a control/comparison group.

Evaluation plans for research projects could include activities related to project integrity and usefulness / utilization / and dissemination of findings. Evaluation activities could include such activities as documenting and describing the operation of the project through all phases and oversight related to appropriate selection of participants, fidelity, and integrity of research design and measures (formative); and assessing the extent to which findings contribute to the knowledge base in the field and are disseminated to those researchers and practitioners who will utilize the findings (summative).

The budget MUST include adequate resources for project evaluation. Project evaluation should be led by an expert independent evaluation team. Evaluators are expected to adhere to the Guiding Principles for Evaluators (http://www.eval.org/p/cm/ld/fid=51) and project evaluations are expected to be consistent with standards established by the Joint Committee on Standards for Educational Evaluation (http://www.jcsee.org/program-evauation-standards-statements).

The following references may be helpful in designing an evaluation plan:

- AAAS Measuring Diversity Report: http://www.nsfagep.org/files/2011/04/MeasuringDiversity-EvalGuide.pdf
- Common Guidelines for Education Research and Development: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf13126
- User-Friendly Handbook for Mixed Method Evaluations: http://www.westat.com/Westat/pdf/news/UFHB.pdf
- Evidence: An Essential Tool Report: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf0531
- AIHEC Indigenous Evaluation Framework Report: http://indigeval.aihec.org/Shared%20Documents/0-Intro_Contents.pdf
- Evaluation e-library of the American Evaluation Association Resource Library http://www.eval.org/

III. AWARD INFORMATION

CREST award instruments, duration, and amounts vary among the CREST program components.

- **CREST Center** awards will be made in alternate years. Up to 6 CREST Center awards (new Centers and Phase II competitive renewals) are anticipated in fiscal year 2017. CREST Center awards are for 60 months at up to $1,000,000 annually (i.e., a maximum of $5,000,000). Center awards are made as Continuing Grants. The progress and plans of each Center will be reviewed by NSF annually, prior to approving continued NSF support. Centers that are not meeting the expectations of the CREST program may have their level of funding reduced or may be terminated. Individual Centers may not receive more than 10 years of CREST support. An institution may have only one active CREST Center award.
- Up to 7 **CREST partnership supplements** will be made in the fiscal year 2016 competition and up to 7 for the fiscal year 2017 competition. Partnership supplements will be made for a maximum amount of $100,000 per supplement, in amounts that vary with need and are subject to the availability of funds. A supplement will be an amendment to an existing award.
- Up to 10 **CREST-PRFs** will be made during the fiscal year 2017. Awards will not exceed $200,000 per Fellow during a two-year period.

A. **Duration and Tenure**

Fellowships are awarded for up to 2 years. Fellowship tenures must begin on the first of the month between June 1 and December 1 in the year following the submission target date. Interruptions in tenure or extensions without additional cost to NSF are permitted only for extenuating circumstances beyond the control of the Fellow and require NSF approval.

Within the fellowship period, one month per year of fellowship duration may be used for paid leave, including parental or family leave. The paid leave cannot be used to increase the level of NSF support beyond the duration of the fellowship. NSF enables career-life balance through a variety of mechanisms. For more information, please see http://www.nsf.gov/career-life-balance/.

Candidates selected to receive fellowships will be contacted by NSF and asked to provide additional information, such as acceptance forms and starting certificates. Successful candidates who have not completed the Ph.D. at the time of proposal submission must provide certification of the completion of all Ph.D. degree requirements before receiving their fellowship award. Normally fellowships will be held at organizations specified in the proposal, but under certain circumstances and with suitable justification, Fellows may transfer during the tenure of the fellowship to a new organization upon approval by NSF. If a fellow chooses to accept employment (e.g. a tenure-track position) during a fellowship year, the fellowship stipend and allowance will be terminated upon the start of the new position and remaining lump sum funds must be returned to NSF.

Fellowships are not renewable.

B. **Stipend and Allowances**

The annual fellowship amount of $100,000 consists of two types of payments:

1. An annual stipend of $70,000/yr. Award not to exceed $140,000 per recipient over a two-year period and paid directly to the Fellow as an electronic funds transfer into a personal account at a financial institution; and
2. An **annual fellowship allowance** of $30,000/yr. Allowance not to exceed $60,000 per recipient over a two-year period and typically paid as a lump sum directly to the Fellow in the same manner, and intended to cover costs such as:
    - Expenses directly related to the conduct of the proposed research including, but not limited to, materials and supplies, equipment, computing resources, access to databases, travel, attendance at scientific meetings and CREST PI meeting, field work, training, short-term visits to other institutions or laboratories, publication charges, subscription fees; and other research-related expenses.
    - Expenses in support of fringe benefits, which may include, but are not limited to, individual or family health insurance provided through a group or individual plan, dental and/or vision insurance, disability insurance, retirement savings, dependent care, and moving expenses.

There are no allowances for dependents or travel separate from these two allowances.

Fellowships may be supplemented by host scientists and CREST Center institutions with non-Federal funds, but only if the additional funds do not carry additional responsibilities beyond the research and training supported by the fellowship.

Additional funding (up to $50,000) for research and travel expenses at a non-CREST Center institution.

Because the objectives of the fellowships include broadening the perspectives and experiences of the Fellows and facilitating interdisciplinary interactions, Fellows may request additional funding (up to $50,000) for travel and expenses related to conducting research at a non-CREST Center institution during the two years. Applicants are strongly encouraged to discuss the research plans at the non-CREST Center institution and the importance of the non-CREST Center sponsor (secondary mentor) with the CREST Program Director and the CREST Center sponsoring scientist (lead). Approval of the plans to conduct research at the non-CREST Center is required in the sponsoring scientist's statement. A letter of support is required from the non-CREST Center sponsor. **This does not count towards the $200,000 cap.**

*Applicants are **required** to contact the CREST program officer to discuss the appropriateness of the research and training at a non-CREST Center institution. The secondary mentor should be working in a field funded by NSF.*

- Up to 4 **HBCU-RISE awards** will be made during the fiscal year 2016 award cycle and up to 4 for the fiscal year 2017 competition. Awards will not exceed $1,000,000 during a three-year period. HBCU-RISE awards will be managed through standard grants. An institution may only have one active HBCU-RISE award.
- Up to 4 **CREST SBIR/STTR diversity collaborative supplements** will be made during the fiscal year 2016 award cycle and up to 4 for the fiscal year 2017 cycle. These supplemental awards will be made to eligible SBIR/STTR Phase II awardees in partnership with CREST and HBCU-RISE institutions, as described in Section II.4. These supplemental awards will not exceed $150,000 in NSF support.

The estimated CREST Center, CREST partnership supplement, CREST-PRF, HBCU-RISE, and SBIR/STTR budgets, number of awards and award size and duration are subject to the availability of funds.

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

- **Preliminary and invited full CREST Center** proposals may be submitted by minority-serving institutions of higher education in the United States. This denotes institutions that have undergraduate enrollments of 50% or more (based on total student enrollment) of members of minority groups underrepresented among those holding advanced degrees in science and engineering fields: African Americans, Alaska Natives, American Indians, Hispanic Americans, Native Hawaiians, and Native Pacific Islanders. Eligibility as a minority-serving institution may be determined by reference to the Integrated Postsecondary Education Data System (IPEDS) of the US Department of Education National Center for Education Statistics (http://nces.ed.gov/ipeds/). Proposals are also invited from institutions of higher education that primarily serve populations of students with disabilities (http://www.nsf.gov/od/broadeningparticipation/nsf_frameworkforaction_0808.pdf). Support may be provided to partner institutions through subawards.

  CREST partnership supplement proposals are invited from current CREST Center awardees.

  CREST Postdoctoral Research Fellowship proposals are invited from individuals from active CREST Centers (www.crestweb.org). Only **two** (2) individuals per active CREST Center can submit a CREST-PRF application. Individuals can only submit one proposal per year (maximum 2 proposals per individual). Each candidate must identify one or more CREST Center sponsoring scientist(s) and the host CREST Center institution in the proposal. CREST Center applicants are required to inform the CREST Center Director and/or PIs of their intent to submit a CREST-PRF proposal. CREST Centers should ensure that they do not endorse more than 2 CREST-PRF proposals for each competition.

  CREST Postdoctoral Research Fellowships are awards to individuals, and applications are submitted directly by applicants to NSF. To be eligible to submit a proposal to the CREST-PRF Program, an individual must, as of the full proposal target date:

  - Be a U.S. citizen, national, or permanent resident;
  - Have earned the doctoral degree, or expect to have earned the doctoral degree prior to the required start date of the fellowship;
  - Show proof of CREST Center funding as a graduate student for at least one year;
  - Not have worked for more than a total of 24 full-time-equivalent months in positions that require the doctoral degree;
  - May not have previously been a principal investigator or co-principal investigator of an NSF award (other than a NSF Graduate Research Fellowship);
  - Submit a project plan that falls within the purview of the NSF's CREST Center host institution's research priorities; and

- Not have submitted concurrently the same project to another NSF program.

The proposal must include the following:

1. A sponsoring CREST scientist(s) statement
2. A letter(s) from the host institution (Department Chair and/or Dean)
3. A letter of support from the CREST Center Director or CREST PI at the applicant's institution. Certification of eligibility must be included in the letter of support.
4. A letter of support from the non-CREST Center sponsor (secondary mentor) **only** if additional funds are requested to conduct research at a non-CREST Center institution.

HBCU-RISE proposals are invited from Historically Black Colleges and Universities that offer doctoral degrees in science (including social, behavioral, and economic science), technology, engineering and mathematics disciplines.

SBIR /STTR diversity collaborative supplement proposals are invited from current SBIR/STTR Phase II grantees and their CREST Center or HBCU-RISE institution partners.

Who May Serve as PI:

Principal Investigators for CREST Center, HBCU-RISE or SBIR/STTR awards must be employed by an institution eligible for a CREST Center, HBCU-RISE or SBIR/STTR, respectively.

CREST-PRF. Only doctoral recipients affiliated with a CREST Center may serve as Principal Investigator. Individuals must show proof of CREST Center funding as a graduate student for at least one year. Certification of eligibility must be included in the letter of support from the PI's CREST Center Director or CREST PI.

Limit on Number of Proposals per Organization:

Only **one** preliminary CREST Center proposal may be submitted per eligible institution. Full CREST Center proposals are to be submitted only when invited by NSF. An institution may have only one active CREST Center award, irrespective of focus area. Centers that have completed two prior, consecutive 5-year CREST Center awards may recompete in disciplinary areas that are significantly different from those of the previous award(s).

Only **two** (2) individuals per active CREST Center may submit a CREST-PRF application per competition. Only **one individual** can be awarded a CREST-PRF at an active CREST Center per year.

Only **one** HBCU-RISE proposal may be submitted per eligible institution. An institution may have only one active HBCU-RISE award.

For each active SBIR/STTR Phase II grant, only **one** SBIR/STTR collaboration with a CREST Center may be submitted. For each CREST center, only **one** SBIR/STTR collaboration can be active at any given time.

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

Eligible individuals may be listed as the principal investigator or co-principal investigator on only one CREST Center or HBCU-RISE proposal. CREST-PRF applicants may submit only **one** fellowship application to the CREST program per year and may apply in no more than two successive years for CREST-PRF.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Letters of Intent *(required):*

Letters of intent are **required for preliminary CREST Center proposals and HBCU-RISE proposals** but not for CREST partnership supplement proposals or for CREST-PRF proposals. CREST partnership supplements are expected to abide fully with the information required by FastLane for supplemental proposals. SBIR/STTR diversity collaboration supplement proposals are submitted directly to the SBIR/STTR program following the guidelines of DCL NSF 12-069.

Letters of Intent must include a statement certifying that the submitting institution is in compliance with the organizational limits stipulated in this solicitation (Section IV: *Eligibility Information*).

CREST Center and HBCU-RISE letters of intent should not be considered draft proposals or pre-proposals. CREST program staff will not provide feedback on the appropriateness or quality of proposals or encourage full proposals on the basis of the letter of intent. The letter of intent should be submitted via the Letters of Intent Module in FastLane. It should specify clearly whether the proposal will be for a CREST Center or HBCU-RISE award and contain as much of the content of the FastLane letter of intent template as applicable. Further, the letter of intent should indicate the lead institution and principals of the proposed work, anticipated partner institutions, and a self certification that the lead institution complies with the program's conditions for PI and institutional eligibility detailed in the Eligibility Information section of this solicitation. The letter of intent should contain sufficient details for each research subproject (discipline, subdiscipline, specialty or focus area) to permit identification of appropriate technical reviewers, but it should not be a lengthy description of the research, education and operational plans of the proposed project. The letter of intent may also include two suggested reviewers and contact information for each research sub-project or thrust.

Eligible parties intending to submit a preliminary CREST Center proposal, a CREST-PRF proposal or a full HBCU-RISE proposal are encouraged to participate in Webinars that will be webcast after the release of this solicitation. Contact the CREST staff listed in this solicitation to register for a Webinar.

Letter of Intent Preparation Instructions:

When submitting a Letter of Intent through FastLane in response to this Program Solicitation please note the conditions outlined below:

- Sponsored Projects Office (SPO) Submission is required when submitting Letters of Intent
- A Minimum of 0 and Maximum of 4 Other Senior Project Personnel are allowed
- A Minimum of 0 and Maximum of 4 Other Participating Organizations are allowed
- CREST Center Research Subprojects: 3 is required when submitting Letters of Intent
- Submission of multiple Letters of Intent is not allowed

Preliminary Proposals *(required):* Preliminary proposals are required and must be submitted via the NSF FastLane system, even if full proposals will be submitted via Grants.gov.

A **preliminary proposal is required only for CREST Center applications** to provide peer-review feedback to the proposing team and to avoid additional full proposal preparation burden, if the proposed project is not meritorious according to the goals of the CREST program.

Submission of a Preliminary Proposal is required to be eligible for invitation for a full CREST Center proposal. Preliminary proposals that are not compliant with the guidelines may be returned without review, thus making the proposing team automatically ineligible for submitting a full CREST Center proposal. It is the submitting organization's responsibility to ensure that the preliminary proposal is compliant with all applicable guidelines.

Preliminary CREST Center proposals must contain the items listed below and adhere strictly to the specified page limitations. No additional information may be provided as an appendix or by links to Web pages. Figures and tables must be included within the applicable page limit.

Preliminary CREST Center proposals will contain an overview of the proposed vision, strategic plan, research, partnerships, education and broadening participation activites with sufficient detail to allow assessment of the intellectual merit and broader impacts of the proposed CREST Center.

Preliminary Proposal Contents

Cover Sheet: Entries on the Cover Sheet are limited to the Principal Investigator (PI) and a maximum of four co-principal investigators. Check the box indicated for the preliminary proposal. The sum of $2 should be entered on the budget line to allow correct FastLane processing.

Title of Proposed Project: The title should begin with "CREST Center for (insert the rest of the title)."

Project Summary (1 page): Provide an overview of the proposed CREST Center, addressing separately 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. Additional instructions for preparation of the Project Summary are available in NSF GPG.

Project Description (8-pages maximum): The Project Description should articulate a vision for the proposed CREST Center that clearly outlines the research thrusts being addressed. The proposed research should be sufficiently complex, large-scale, and long-term to justify a center and flexible enough to permit change as the research proceeds. The proposed approaches must be innovative, and it must be clear how they will transform or significantly impact the research area. The Project Description must describe how the integration of research and education will advance the proposed research. A justification for the focus of the education programs and activities should be included and described in the context of current knowledge of teaching and learning. Include a description of the team members and why each is essential to the project plan (must not be more than 2 pages). In addition to an outline of research themes, some illustrative examples of specific research directions with sufficient detail to be evaluated by reviewers should be included. Results from Prior NSF Support should not be included. Links to URLs may not be used.

References Cited (2-page limit): See NSF GPG for format guidelines.

Biographical Sketches (2-page limit per person): Biographical Sketches are required for the CREST Center Director and other key personnel. See GPG for details.

No budget should be submitted. No budget or budget justification should be submitted, however, please enter $2 in the Requested Amount box on the Fastlane cover sheet (this entry allows correct Fastlane processing).

Supplementary Documents: (to be entered in the Supplementary Documents section of FastLane). A letter from the provost or equivalent university official indicating a commitment to the Center should it be invited for a full proposal submission and subsequently funded. The university official should NOT include any financial commitments. Instead, the university official should make a statement as to how the proposed Center will align with the strategic directions of the university.

Identification of Partner Institution(s) and Project Personnel is required. This information provides NSF and reviewers with a comprehensive list of personnel and institutions involved in the CREST Center.

(a) List all project personnel who have a role in the management, research, education and evaluation components of the Center. Use the following format:

Project Personnel:

last name, first name, institution/organization

(b) Additionally, identify partner institution(s) and organization(s) for which there are corresponding project personnel.

Optional Information to be submitted to NSF via the FastLane Single Copy Documents Section. List of suggested reviewers or reviewers not to include (with a brief explanation or justification for why the reviewer should be excluded).

No other items or appendices are to be included. Information pertaining to "Current and Pending Support", and "Facilities, Equipment and Other Resources" is not required for preliminary proposals and should not be included. Preliminary proposals containing items other than those required above will be returned without review.

DO NOT SEND other documents, including Letters of Commitment from partner organizations; Current and Pending Support Statements; Facilities, Equipment and Other Resources; Budget and Budget Justification; Data Management Plan; Postdoctoral Mentoring Plan for preliminary CREST Center proposals.

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 Grant Proposal Guide (GPG). The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg. Paper copies of the GPG 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: (http://www.nsf.gov/bfa/dias/policy/docs/grantsgovguide.pdf). 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. Chapter II, Section D.3 of the Grant Proposal Guide provides additional information on collaborative proposals.

Important Proposal Preparation Information: FastLane will check for required sections of the proposal, in accordance with *Grant Proposal Guide* (GPG) instructions described in Chapter II.C.2. The GPG requires submission of: Project Summary; Project Description; References Cited; Biographical Sketch(es); Budget; Budget Justification; Current and Pending Support; Facilities, Equipment & Other Resources; Data Management Plan; and Postdoctoral Mentoring Plan, if applicable. If a required section is missing, **FastLane will not accept the proposal.**

Please note that the proposal preparation instructions provided in this program solicitation may deviate from the GPG instructions. If the solicitation instructions do not require a GPG-required section to be included in the proposal, insert text or upload a document in that section of the proposal that states, "Not Applicable for this Program Solicitation." Doing so will enable FastLane to accept your proposal.

Please note that per guidance in the GPG, the Project Description must contain, as a separate section within the narrative, a discussion of the broader impacts of the proposed activities. Unless otherwise specified in this solicitation, you can decide where to include this section within the Project Description.

Proper Institutional Review Board (IRB) documentation or certification on the use of human subjects, or Institutional Animal Care and Use Committee (IACUC) documentation or certification on the use of vertebrate animals, and outcomes of prior NSF support, as applicable, by the principals of the proposed center should be included with the full CREST Center proposal at the time of submission, or the absence of such documentation explained. Failure to self-declare in this manner my result in the proposal's decline or return without review.

It may be helpful to proposers to note that research protocols involving human subjects are subject to review (Internal Review Board) to minimize risks and to ensure appropriate informed consent by the subject. However, there are a number of research activities involving human subjects that may be exempt from IRB review including research conducted in established or commonly accepted educational settings, involving normal educational practices such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of, or the comparison among instructional techniques, curricula, or classroom management methods. Whether the research involving human subjects is designated as exempt from IRB review should be determined by the appropriate institutional official who in a number of cases is the chair of the IRB.

For Full CREST Center Proposals:

The narrative of the Center Project Description is limited to 15 pages and should include the following:

1. **Rationale for Center Approach** that explains the unique opportunities that an integrated center will provide that could not be achieved with group or individual support and a description of the potential legacy and national and global impact of the proposed Center;
2. **Description of the Research Objectives of the Center** that includes: the overall vision and long-range research goals of the integrated center, a description of the proposed research areas/themes and how they integrate with each other to realize the Center's research vision;
3. **Description of how the project is aligned with the mission of the institution,** and the long-term strategic goals of an integrated center in building the institution's research capacity;
4. Comprehensive plan to **achieve and sustain national competitiveness** in a clearly defined area of **national significance** in science or engineering research;
5. **Education Plan** that describes the Human Resource Development objectives and includes a component that describes how the Center will promote synergy between research and education, and describe plans for attracting and retaining high quality students, and those from underrepresented groups (including, as appropriate, women, persons with disabilities, and underrepresented minorities), in the Center research and education activities.
6. **Professional Development Plan** that addresses how the Center will provide professional development and other appropriate opportunities to young faculty members affiliated with the Center to assist them in setting up an independent research agenda, and include mentoring and professional development plans for students. Plans for preparing graduate students for the NSF GRF should be included;
7. Section describing all **collaborations**(See Section II);
8. **Management Plan** for the integrated Center including a diagram to explain the organizational relationships and reporting structure among the key areas of responsibility. Identify key members of the Center Management Team and explain their specific roles and areas of responsibility.
9. **Evaluation plan** (see Project Evaluation under Section II);
10. **Project timeline** for all activities;
11. **Discussion of the broader impacts** of the proposed activities as a separate section within the narrative; and
12. **Results from Prior NSF Support.**

Individual Subproject Narratives are limited to a total of 9 pages, as follows: The first page should be the Center Project Summary; the second page will be the Subproject Relevancy Statement; the remainder of the Subproject Narrative is limited to 7 pages. A list of applicable references may be appended to each Subproject Narrative. The Subproject Narratives and their reference lists are to be inserted, successively, at the beginning of the Special Information and Supplementary Documents section of the proposal. (For Grants.gov users, supplementary documents should be attached in Field 12 of the R&R Other Project Information Form.) Other supporting documents, such as letters of commitment from collaborators or from the institutional administration, should be inserted after the Subproject Narratives. **The full Center proposal cover sheet, budgets, biographical information, and other supporting documentation should be provided for the proposal as a whole and not for each individual Subproject Narrative.**

Full CREST Center Proposal Checklist

1. **Center Project Summary** (1 page) with an overview and separate sections for both Intellectual Merit and Broader Impacts. The Project Summary should describe the synergy anticipated by the Subprojects that are consistent with the unifying theme of the Center. The overview should describe the research focus, goals for education and broadening participation, the integrative nature of the Center, and articulate the potential legacy and national impact of the Center if funded.
2. **Project Description** (15 pages maximum) should include the following sections:
    a. Rationale for Center
    b. Center Objectives
    c. Alignment with Institution's mission and long-term strategic goals of an integrated center
    d. Plan to achieve and sustain national competitiveness
    e. Education Plan
    f. Professional Development Plan
    g. Collaborations
    h. Management Plan
    i. Evaluation plan (see Project Evaluation under Section II)
    j. Project timeline
    k. Discussion of the broader impacts
    l. Results from Prior NSF Support
3. **References Cited** (no page limit; see NSF GPG for format guidelines): Bibliography for Project Description only. If the referenced document is available electronically, the website address should also be identified.
4. **Biographical Sketches** (2 page limit per person; NSF formatted)
5. **Budgets and Budget Justification** (see Section V. B. Budgetary Information).
6. **Current and Pending Support (use NSF format).** See the GPG Chapter II.C.2.h for further guidance.
7. **Facilities, Equipment and Other resources (use NSF format).** Note that inclusion of voluntary committed cost sharing is prohibited. The description should be narrative in nature and must not include any quantifiable financial information. See the GPG Chapter II.C.2.i for further guidance.
8. **Special Information/Supplementary Documents:** Documents should include:
    a. Subproject Narratives (9 pages each)
        i. Center Project Summary (1 page)
        ii. Subproject Relevancy Statement (1 page): summarizes the subproject's importance to the overall proposal plan, including synergy with the other subprojects, and a discussion of how it supports the overall goals and objectives of the Center proposal.
        iii. Project Description (7 pages)
        iv. References
    b. Postdoctoral Mentoring Plan and/or Undergraduate Student Mentoring Plan
    c. Data Management Plan
    d. Letters of Support
    e. Quotes for Equipment

For CREST-PRF Proposals: Preparing a fellowship application is different in several ways from preparing a research proposal.

Registration for Fellowship Candidates: Do not submit your proposal through a sponsored projects office at your home or host institution; you are submitting the proposal as an individual. You must first register as an individual researcher before you can gain access to the application. To use FastLane, go to the NSF Web site http://www.nsf.gov/ and select "FastLane" or directly to the FastLane home page http://www.fastlane.nsf.gov/. Click on the *Postdoctoral Fellowships and Other Programs* tab. Click on "Applicant", then select CREST Postdoctoral Research Fellowships. Complete step-by-step instructions on "How to apply" may be found on the program webpage.

A complete postdoctoral fellowship application consists of the following (Note: *The entire application must be submitted by the fellowship applicant in FastLane)*:

1. **NSF Cover Page**;
2. **FastLane application form** (this form is unique to fellowships and can only be accessed in FastLane by following the directions as described herein. Applications in which the form is incomplete will be returned without review. Write in None or N/A if you have no information to provide for some of the items);
3. **Project Summary** (Abstract of all fellowship activities) (limited to one page). The Project Summary must include an overview and separate statements on intellectual merit and broader impacts. The fellowship consists of the research and training goals for the Fellow as well as career development activities; therefore, all must be presented in the overview. The research plans and goals should be described in the section on **Intellectual Merit**; training, career development, and educational or public outreach should be described in the section on **Broader Impacts**. See Section VI. A. below for guidance from the National Science Board on additional broader impacts which you may wish to include. If the project summary fails to clearly address in separate statements the intellectual merit and broader impacts of the fellowship, the application will be returned without review.
4. **Project Description** (Research and Training Plan) (limited to 10 pages, including all figures, tables, etc.) including a timetable with yearly goals with benchmarks for major anticipated outcomes and a description of future research and career directions. The applicant must identify and present goals for both the research and training components of the fellowship. The applicant must also address the broader impacts of the fellowship beyond their own training in this section; it is not adequate to address broader impacts only in the project summary. The application will be reviewed by an interdisciplinary panel and the research portion should not contain jargon and acronyms that are not understandable to a wide range of scientists. The project summary must not be cut and pasted into the project description.
5. **References Cited**: Bibliography for Project Description (no page limit);
6. **Biographical Sketch**: Applicant's Curriculum Vitae (CV) limited to 2 pages (NSF formatted);
7. **Current and Pending Support**: Include current and planned applications to other fellowship programs (NSF formatted).

8. **Supplementary Documentation** consisting of:

    - An abstract of dissertation research (limited to one page);
    - The sponsoring CREST Center scientist(s) statement (limited to 3 pages) and 2-page CV(s) (detailed below);
    - A letter of support from the host institution (Department Chair or Dean)
    - A letter of support from the CREST Center Director or CREST PI at the applicant's institution;
    - A letter of support (1-page) and 2 page CV from the non-CREST Center sponsor (secondary mentor), if applicable.
    - A Data Management plan. *All* applications *must* include a supplementary document of no more than 2 pages labeled "Data Management Plan" that describes plans for data management and sharing of the products of research, or asserts the absence of the need for such plans.

Guidance on the Project Description (Research and Training Plan): The research and training plan presents the research that will be conducted and the training that will be received during the fellowship period and how they relate to the Fellow's career goals. Include in the research and training plan: 1) a very brief (one paragraph) introduction or background section; 2) a statement of research objectives, methods, and significance; 3) training objectives and plan for achieving them (these may include scientific as well as other career preparation activities); 4) an explanation of how the fellowship activities will enhance career development and future research directions as well as describing how this research differs from dissertation research; 5) a justification of the choice of sponsoring scientist(s) and host institution(s); and 6) a timetable with yearly goals with benchmarks for major anticipated outcomes. As with all NSF proposals, broader impacts must also be addressed in this section.

Guidance on the Sponsoring Scientist(s) Statement: The sponsoring scientist(s) statement is meant to show how the proposed host(s) and host institution(s) provide the best environment for the Fellow's proposed research and training plan and form the basis for a future independent research career. Therefore, it should include a specific mentoring plan, a description of how the Fellow's independence will be nurtured, and what aspects of the project, if any, must remain at the institution when the Fellow leaves. Regardless of the number of sponsors, one integrated statement must be developed and submitted. If the Fellow plans to teach as part of career development activities, the Fellow is limited to teaching in a course taught by the sponsoring scientist(s) or as part of a course directly related to the Fellow's doctoral or fellowship research project. The sponsoring scientist(s) statement must detail the mentoring that the Fellow will receive on teaching if applicable. Sponsors are not expected to provide all the mentoring themselves and may call on all resources available on campus or through other organizations, *e.g.*, professional societies, postdoctoral offices, etc.

Reminder: A sponsoring scientist(s) statement consists of two parts; a CV of no more than two pages for each sponsor and a single discussion (no more than 3 pages) of the following items:

1. A brief description of the research projects in the host research group(s), including a statement of current and pending research support, both private and public, for each sponsor. If any sponsor has submitted similar research for funding, the degree of overlap must be addressed.
2. A description of how the research and training plan for the applicant would fit into and complement ongoing research of the sponsor(s) as well as an indication of the personnel with whom the Fellow would work.
3. An explanation of how the sponsor(s) will determine what mentoring the applicant needs in research, teaching, and career development skills and how these would be translated into a specific plan that fosters the development of the applicant's future independent research career.
4. A description of the role the sponsor(s) will play in the proposed research and training and the other resources that will be available to the Fellow to complete his or her training during the fellowship.
5. A description of the limitations, if any, that will be placed on the Fellow regarding the research following the fellowship.

The sponsoring scientist statement should be uploaded into the application as a "Supplementary Document" in FastLane.

Proposal-submission Check List

This checklist is provided to aid in the preparation of the proposal. The burden to ensure that the proposal is complete and meets all of the solicitation requirements remains with the applicant.

1. **FastLane Application Form**
2. **Project Summary** with an overview and separate sections for both Intellectual Merit and Broader Impacts (1 page)
3. **Project Description** (10 single-spaced pages)
4. **References cited**. See guidance contained in the Grant Proposal Guide.
5. **Biographical sketch** (2 pages). The Biographical Sketch must include identification of U.S. citizenship or permanent resident status, and the month and year when the Ph.D. was (or is expected to be) received. If more than 24 months have elapsed between the date that the doctoral degree was conferred and the CREST PRF proposal target date, the Biographical sketch must include the following statement: "I affirm that I have not worked for more than 24 full-time-equivalent months in positions for which the doctoral degree was a requirement." Do not include personal information such as birth date or place of birth. Only the applicant's Biographical Sketch should be uploaded in this section. Biographical Sketches for sponsoring scientists must be included in the Supplementary Documentation section, together with their sponsoring scientist(s) statement.
6. **NSF Budget and Budget Justification**. The stipend and fellowship allowance should be entered in Participant Support Costs *only* (Section F on the FastLane budget and Field E on the Grants.gov budget).

    a. Enter the $70,000 per year stipend in F.1 (FastLane) or E.2 (Grants.gov)
    b. Enter the $30,000 per year fellowship allowance in F.4 (FastLane) or E.5 (Grants.gov)
    c. Enter (1) as the Total Number of Participants.
    d. An annual budget page must be submitted for each 12-month period.
    e. A budget justification of no more than two pages must list and justify estimated expenditures under the annual fellowship allowance.

    FastLane users: Since no person months and no salary are being requested for senior personnel, the PI (fellow) must be removed from section A of the budget. This is done by clicking "Add\Delete Senior Personnel", then "Check to remove" by the name, on the budget form. Additional information is available on the FastLane website at: https://www.fastlane.nsf.gov/fastlane.jsp.

7. **Applicant's Current and Pending Support**. Include this proposal, as well as pending and planned applications to other fellowship or research programs. The project submitted to this solicitation should not be concurrently under review by another postdoctoral program. This information is to be submitted only for the applicant; not for the sponsoring scientist(s).
8. **Facilities, Equipment and Other Resources, as applicable**. Insert text or upload a document that states: "See Letter(s) of Commitment from the prospective host organization."

The following must be submitted as Supplementary Documentation:

- Abstract of Dissertation Research (1 page);
- Sponsoring Scientist statement (3 pages max) and 2-page CV. Letter should certify that the fellowship proposal has been read and approved, and include discussion of: The role the proposed scientific mentor(s) will play in the professional development of the fellow; the opportunities for research and training, and for broadening participation and collaboration at the CREST Center institution that will be of particular benefit to the fellow;
- Letter(s) of support from the prospective host institution, signed by the Department Chair (or Dean). The letter should certify that adequate facilities and support will be provided for the fellow to accommodate the proposed activities;
- Letter of support from the CREST Center Director or CREST PI at the applicant's institution. For individuals who have not completed the Ph.D. at the time of proposal submission, certification of eligibility that the candidate will receive the degree prior to the start date of the fellowship must be included in the letter;
- Letter of support (1-page) and 2-page CV from the non-CREST Center sponsor (if applicable); and
- Data Management Plan (2 pages) that describes plans for data management and sharing of the products of research, or asserts the absence of the need for such plans.
- Letters of recommendation will not be considered. Letters from the proposed host institution(s), sponsoring scientist(s) and the CREST Center Director (or CREST PI) at the applicant's institution should not reflect a letter of recommendation and should make *no subjective statements* regarding either the candidate or their proposed activities. Signed letters should be scanned into Portable Document Format (PDF) and uploaded as supplementary documentation.

For HBCU-RISE Proposals:

1. **Project Summary (1 page):** Provide an overview of the HBCU-RISE project and address the two merit review criteria: Intellectual Merit and Broader Impacts.
2. **Project Description (15 pages):** The project narrative should include a section on how the project is aligned with the mission of the institution and long-term goals of the department(s) in building the research capacity and increasing the number of doctoral students in STEM. The goals and objectives of the project must be clearly stated, measurable, aligned with the strategic plans of the institution and achievable within the proposed timeframe. The project narrative **must** include: 1) a discussion of the broader impacts of the proposed activities as a separate section within the narrative; 2) baseline data; 3) project timeline; 4) evaluation plan (see Project Evaluation under Section II); and 5) dissemination plan. The proposal must address institutional support for and sustainability of the project. The proposal should include a component that outlines a strategy for the creative integration of NSF-funded awards at the institution as well as the integration of the research and educational activities. Members of the Internal Steering Committee and the external evaluator (external to the project) should be identified (see Project Evaluation under Section II.).
3. **References Cited:** (no page limit; see NSF GPG for format guidelines): Bibliography for Project Description only. If the referenced document is available electronically, the website address should also be identified.
4. **Biographical Sketches:** Limited to two pages using NSF format. The evaluator's CV should be included.
5. **Budgets and Budget Justification (see Section V. B. Budgetary Information).**
6. **Current and Pending Support (use NSF format).**
7. **Facilities, Equipment and Other resources (use NSF format).**
8. **Special Information/Supplementary Documents:** Documents should include: Postdoctoral Mentoring Plan and/or Undergraduate Student Mentoring Plan; Data Management Plan; Letters of Support; and Quotes for Equipment.
9. **Results from Prior NSF Support:**

   If any PI or co-PI identified on the project has received NSF funding (including any current funding) in the past five years, information on the award(s) is required, irrespective of whether the support was directly related to the proposal or not. In cases where the PI or co-PI has received *more than one award* (excluding amendments), they need only report on the one award most closely related to the proposal. Funding includes not just salary support, but any funding awarded by NSF. The following information must be provided: (a) the NSF award number, amount and period of support; (b) the title of the project; (c) a summary of the results of the completed work, including accomplishments, supported by the award. The results must be separately described under two distinct headings, Intellectual Merit and Broader Impacts; (d) the publications resulting from the NSF award; (e) evidence of research products and their availability, including, but not limited to: data, publications, samples, physical collections, software, and models, as described in any Data Management Plan; and (f) if the proposal is for renewed support, a description of the relation of the completed work to the proposed work.

   Reviewers will be asked to comment on the quality of the prior work described in this section of the proposal. Please note that the proposal may contain up to five pages to describe the results. Results may be summarized in fewer than five pages, which would give the balance of the 15 pages for the Project Description.

It may be helpful to proposers to note that research protocols involving human subjects are subject to review (Internal Review Board) to minimize risks and to ensure appropriate informed consent by the subject. However, there are a number of research activities involving human subjects that may be exempt from IRB review including research conducted in established or commonly accepted educational settings, involving normal educational practices such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of, or the comparison among instructional techniques, curricula, or classroom management methods. Whether the research involving human subjects is designated as exempt from IRB review should be determined by the appropriate institutional official who in a number of cases is the chair of the IRB.

Proposers are reminded to identify the CREST 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.

B. Budgetary Information

Cost Sharing: Inclusion of voluntary committed cost sharing is prohibited

Budget Preparation Instructions:

Financial support may be provided to student participants under CREST Center and HBCU-RISE projects. However, financial support may only be provided to students that are U.S. citizens, nationals, or permanent residents. Student support should be included on the "stipends" line under the "Participant Support Costs" section of the budget. Stipends to students should not replace other need based grants and scholarships already awarded to the students.

C. Due Dates

- **Letter of Intent Due Date(s)** ***(required)*** (due by 5 p.m. proposer's local time)***:***

  March 04, 2016

  Letters of Intent are due for preliminary CREST Center proposals.

  April 07, 2016

  Letters of Intent are due for HBCU-RISE projects.

  December 02, 2016

  Letters of Intent are due for HBCU-RISE projects.

- **Preliminary Proposal Due Date(s)** ***(required)***(due by 5 p.m. proposer's local time)***:***

  June 10, 2016

  Preliminary proposals are due for CREST Centers.

- **Supplement Due Date(s)** (due by 5 p.m. proposer's local time)**:**

  Proposals Accepted Anytime

  SBIR/STTR Diversity Collaborative Supplements

  June 13, 2016

  Proposals are due for CREST Partnership Supplements.

  February 13, 2017

  Proposals are due for CREST Partnership Supplements.

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

  June 10, 2016

  Proposals are due for HBCU-RISE.

  December 02, 2016

  First Friday in December, Annually Thereafter

  Proposals are due for CREST Postdoctoral Research Fellowships.

  February 10, 2017

  Full proposals are due for CREST Centers and HBCU-RISE.

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 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 FastLane are strongly encouraged to use FastLane 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 the GPG as Exhibit III-1.

A comprehensive description of the Foundation's merit review process is available on the NSF website at: http://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.
- 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. (GPG 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 GPG 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 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

For CREST Centers, reviewers will be asked to consider the integrative nature of the proposed center. Questions to be considered include:

- How are the research, education, outreach and diversity efforts strategically embedded and integrated in the proposed Center?
- How are the subprojects and participants meaningfully integrated into a diverse Center that is more than just the sum of the parts?
- To what extent does the proposal include a vision and plan for leadership in broadening participation of underrepresented groups and how does it articulate a credible commitment to diversity as a means of achieving its overall goals?
- To what extent are the educational activities innovative and how do they contribute to the unifying mission of the proposed Center?
- To what extent does the proposed Center management have the vision, experience, and capacity to manage a complex and innovative enterprise that integrates research, education, and diversity?
- To what extent are the institutional and other commitments appropriate to carry out the proposed research?
- To what extent are the research activities in STEM fields that are supported by the National Science Foundation?

For HBCU-RISE, reviewers will be asked to consider the following:

- Quality of the prior NSF work described in the proposal;
- The unique goals of the HBCU-RISE program in developing doctoral program capacity;
- Alignment of proposed research to the long-term plans of the host department(s) and the institutional mission;
- Plans for expanding institutional research capacity as well as increasing the production of doctoral students, especially those from underrepresented groups who are U.S. citizens, nationals, or permanent residents;
- Strategy for the creative integration of NSF-funded awards at the institution;
- Institutional support for and sustainability of the project.

For CREST-PRF: Applicants are evaluated based on their ability, accomplishments, and potential as evidenced by the submitted CV. The research and training plan is evaluated based on its scientific merit, its feasibility, its significance in generating new knowledge, and its impact on the career development of the applicant.

Other important evaluative factors include:

- Qualifications of the applicant and his/her potential for continued professional growth and leadership in the field;
- Prospective benefits to the applicant, the scientific discipline, and the activities of the host CREST Center institution;
- Interactions between the fellow and host mentor(s) are clearly defined and designed to promote the professional development of the fellow.

B. Review and Selection Process

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

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 be completed and submitted by each reviewer. 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 http://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 *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

Special Award Conditions:

For CREST Centers:

Awardees may expect site visits and reverse site visits by NSF-appointed evaluators per the particular terms and conditions established in the award documentation.

Each Center shall convene, at least annually, an external advisory group or committee (EAC). The advisors should include representatives from those served by the Center (e.g., academic institutions, industry, state and local agencies, national laboratories) and reflect the diversity of participants inherent in the citizenry of the United States. Persons with a financial, institutional, or collaborative connection to the Center may not serve as members of the EAC.

Each Center shall have an Internal Steering Committee to include the PI, co-PIs and other applicable stakeholders.

CREST personnel will be expected to participate in convocations of HRD activities and principal investigators meetings.

For CREST-PRF:

The fellowship award is made to the individual, not the institution. Payments are made to the individual. Awards cannot be extended without prior NSF approval. Pre-award costs are not permitted.

Candidates selected to receive fellowships will be contacted by NSF and asked to provide additional information, such as acceptance forms and starting certificates, before starting their fellowships. Successful candidates who have not completed their doctoral degrees at the time of application must provide certifications of the receipt of the Ph.D. before receiving a fellowship award.

Normally, fellowships will be held at an active CREST Center institution specified in the proposal; however, under certain circumstances and with suitable justification, fellowships may be transferred to a new active CREST Center upon approval by NSF.

No additional appointment or fellowship may be held during the period of the CREST fellowship. No other remuneration from any source may be accepted during the period of the fellowship without permission of the program officer.

Candidates are encouraged to discuss institutional policies on intellectual property rights with the scientific mentor(s) before submitting the proposal. Candidates should also discuss the policies of the scientific mentor(s) regarding which materials will remain with the host organization(s) and which can be released to the Fellow at the conclusion of the fellowship.

PI Meeting/Workshop for Fellows and Mentors: All current Fellows and mentors (sponsoring scientists) are expected to attend the

NSF CREST PI meetings. The workshop will include scientific presentations by Fellows and mentors in the program. Participation in the workshop is considered an important part of the fellowship program and new Fellows are expected to attend absent exigent circumstances. Fellows must budget for the PI meeting.

For HBCU-RISE:

HBCU-RISE personnel will be expected to participate in convocations of HRD activities and principal investigator meetings.

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 *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

Additional Reporting Requirements:

CREST Centers: In addition to progress reports required annually via the NSF FastLane system, awardees will be expected to submit reports on project participants, publications, outreach efforts, patents, proposals, leveraged funding efforts and similar data to the CREST data collection system.

CREST-PRFs: In addition to the annual and final reports, CREST Postdoctoral Research Fellows must file:

1. An interim report 90 days after the start of the fellowship. This report must include a letter signed by the postdoctoral fellow and the host mentor on the expectations for the fellowship and the deliverables that must be produced at the end of the fellowship.
2. A termination certificate (this form will be provided by the NSF program office) within 90 days after termination of the fellowship.

Fellows are expected to maintain contact with the CREST Postdoctoral Research Fellowship Program Officer after completing fellowship activities to permit evaluation of the success of the program in advancing their scientific careers. The final report is due within 90 days after completion of the fellowship.

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:

- Victor A. Santiago, Program Director, telephone: (703) 292-4673, email: vsantiag@nsf.gov
- Andrea Johnson, Program Director, telephone: (703) 292-5164, email: andjohns@nsf.gov
- Claudia Rankins, Program Director, telephone: (703) 292-8109,email: crankins@nsf.gov
- Glenn H. Larsen, Program Director, ENG/IIP, SBIR/STTR,telephone: (703) 292-4607, fax: (703) 292-9057, email: glarsen@nsf.gov
- Nicole E. Gass, Program Specialist, telephone: (703) 292-8378, fax: (703) 292-9018, email: ngass@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 provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 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 http://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:

Suzanne H. Plimpton
Reports Clearance Officer
Office of the General Counsel
National Science Foundation
Arlington, VA 22230

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