Industry/University Cooperative Research Centers Program (I/UCRC)

PROGRAM SOLICITATION
NSF 16-504

REPLACES DOCUMENT(S):
NSF 13-594

National Science Foundation

Directorate for Engineering
    Industrial Innovation and Partnerships

Directorate for Computer & Information Science & Engineering

Directorate for Geosciences

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

November 16, 2015

May 09, 2016

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

January 11, 2016

July 11, 2016

IMPORTANT INFORMATION AND REVISION NOTES

REVISION NOTES

Major changes have been made to the solicitation in order to simplify funding models for new I/UCRC Centers.

Deadlines have been changed.

Anyone intending to submit a proposal in response to this solicitation must submit a Letter of Intent. Any proposal submitted without a prior Letter of Intent will be returned without review.

Cost-sharing is no longer a requirement. Membership fees received by the Center are considered program income. At least 90% of the I/UCRC program income must be used to support direct costs of the research, and up to 10% may be used to support indirect costs. Any unexpended program income remaining at the end of the grant must be remitted to NSF by crediting costs otherwise chargeable against the grant or if that is not possible returned to the NSF. Membership fees cannot be transferred from Phase to Phase but can be spent if a no cost extension is requested while NSF funds are still available.

Minimum membership requirements have been changed. In any year of any Phase, minimum membership requirements can only be met with in-cash memberships (no in-kind cash equivalent). Centers/Sites may continue to receive in-kind memberships with the approval of their Industrial Advisory Board (IAB).

The NSF level of funding for Phase I, Phase II and Phase III has been increased, and depends on the in-cash membership fees collected from IAB members. Phase I and Phase II Sites exceeding minimum membership requirements over the five years of their current operating Phase are eligible to receive half of the in-cash membership fees received in excess of the minimum at their renewal, not to exceed $250,000 per Site and equally distributed over the five year duration of the renewal award.

Example: If a Phase I Site receives $1,200,000 in cash membership fees over a five year period ($450,000 over the minimum membership fees), the Site will then be eligible to receive an additional $225,000 at the time of the Phase II renewal ($45,000 per year). Similarly, if a Phase II Site receives $1,200,000 in cash membership fees over a five year period ($200,000 over the minimum membership fees), the Site will be eligible to receive an additional $100,000 at the time of the Phase III renewal ($20,000 per year).

In order to provide Sites and Centers more flexibility and to facilitate NSF proposal administration, proposals for multi-institution I/UCRCs are no longer submitted as collaborative proposals. This is a pilot to assess the impact of the revised submission process on NSF proposal administration and Center organizational flexibility. Each aspiring Site in a Center must submit a separate proposal clearly indicating how it augments the center as well as identifying the strengths of the team that qualifies it to become a Site of an I/UCRC (see Section V. Proposal Preparation). Center leadership is elected and can be changed at any time (with prior notification to NSF) if Center growth and success are in jeopardy.

The start date of a Center is the original date of the first award associated with that Center and dictates the possible 15 years funding of the Center. Adding new Sites, and/or transferring the Center leadership to a newly established Site does not extend the life of a Center. New Site awards are limited to the remaining duration of the Phase of the Center (for example, if the founding Sites/Center were (was) awarded three years prior to a new Site coming onboard, the new Site will receive funds for only the two years that remain in the duration of the Phase).

Because of the increase in the NSF base funding to all Sites forming an I/UCRC, additional Supplemental Funding including the support for the Lead Institution (i.e., "Multi-University Center Coordination" and "Center Operation and Communications") and the

Innovation Managing Director have been removed. It is incumbent on the Sites constituting a Center to coordinate the organization and support of Center leadership, general management and operations responsibilities including marketing, communications, dissemination and evaluation of a multi-university Center, and the eventual hiring of a Center Managing Director who can help Center leadership ensure effective Center operations consistent with established program requirements.

The number of minimum industry letters required for a planning grant proposal has been increased from 6 to 9 per institution in a multi-institution Center, and to 16 letters in a single institution Center.

IMPORTANT INFORMATION

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.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Industry/University Cooperative Research Centers Program (I/UCRC)

Synopsis of Program:

The Industry/University Cooperative Research Centers (I/UCRC) program develops long-term partnerships among industry, academe, and government. The Centers are catalyzed by an investment from the National Science Foundation (NSF) and are primarily supported by industry Center members, with NSF taking a supporting role in the development and evolution of the Center. Each Center is established to conduct research that is of interest to both the industry members and the Center faculty. An I/UCRC contributes to the nation's research infrastructure base and enhances the intellectual capacity of the engineering and science workforce through the integration of research and education. As appropriate, an I/UCRC uses international collaborations to advance these goals within the global context.

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.

- Raffaella Montelli, ENG Lead I/UCRC Program Director, Directorate for Engineering, telephone: (703)292-2421, email: rmontell@nsf.gov

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- Thyaga Nandagopal, I/UCRC Program Director, Directorate for Computer & Information Science & Engineering, telephone: (703)292-8950, email: tnandago@nsf.gov

- Dmitri Perkins, I/UCRC Program Director, Directorate for Computer & Information Science & Engineering, 1175, telephone: (703)292-7096, email: dperkins@nsf.gov

- Kandace Binkley, Program Director, Directorate for Geosciences, telephone: (703)292-7577, email: kbinkley@nsf.gov

- Barbara Ransom, Program Director, Directorate for Geosciences, telephone: (703) 292-7792, email: bransom@nsf.gov

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

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

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 2 to 8

full center awards and 4 to 6 planning grant awards annually.

Anticipated Funding Amount: $20,500,000

- - Funding is dependent on the availability of funds. Anticipated funding includes continued annual support and supplemental requests for existing I/UCRCs.

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Only U.S. academic institutions with graduate research programs may apply.

    For U.S. universities with overseas campuses, this solicitation restricts eligibility to research activities using the facilities, equipment, and other resources of the U.S. campus(es) only.

Who May Serve as PI:

The PI at any institution participating in an I/UCRC proposal must be a tenured faculty member. Waivers for non-tenured personnel or non-faculty personnel may be requested when petitioned by the PI's supervisor (Chairman of the Department or the Dean) in advance of the Letter of Intent. The PI must act as the initial Site director. A PI can only have one active I/UCRC Site award at any given time.

Awardees of planning grants to establish new I/UCRCs must complete their planning grant workshops (with NSF Program Director representation) before submitting Phase I proposals.

Eligibility to submit a Phase I Site proposal to establish a new I/UCRC is dependent upon the PI of that Site in the Center completing the following activities:

- Participation/attendance at the NSF sponsored boot camp (see Section III. Award Information) - NSF will reimburse the Site director for travel expenses. This does not apply to Sites joining established Centers.

- Successful fulfillment of the planning grant requirements of a planning grant award (see Section V. Proposal Preparation and Submission Instructions). Exception applies; please see subsection 2 "Guide to Submission of a Site proposal to join/form an Industry/University Cooperative Research Center" for details.

Limit on Number of Proposals per Organization:

There is no limit to the number of proposals an eligible Institution may submit to this program, as long as each proposed Site belongs to a different I/UCRC.

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

PIs and Co-PIs can only submit one proposal per submission period.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Submission of Letters of Intent is required. Please see the full text of this solicitation for further information.

- **Preliminary Proposal Submission:** Not required

- **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:**

    Membership fees received by the Center are considered program income. At least 90% of the I/UCRC program income must be used to support direct costs of the research, and up to 10% may be used to support indirect costs. See Special Award Conditions.

- **Other Budgetary Limitations:**

    Other budgetary limitations apply. Please see the full text of this solicitation for further information.

C. Due Dates

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

    November 16, 2015

    May 09, 2016

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

    January 11, 2016

    July 11, 2016

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

The Industry/University Cooperative Research Centers (I/UCRC) Program was initiated in 1973 to develop long-term partnerships among industry, academe and government. The National Science Foundation (NSF) invests in these partnerships to promote research programs of mutual interest, contribute to the nation's research infrastructure base, enhance the intellectual capacity of the engineering or science workforce through the integration of research and education, and facilitate technology transfer. As appropriate, NSF encourages international collaborations that advance these goals within the global context:

The I/UCRC program seeks to achieve these goals by:

- Contributing to the nation's research enterprise by developing long-term partnerships among industry, academe, and government;
- Leveraging NSF funds with industry to support graduate students performing industrially relevant pre-competitive research;
- Expanding the innovation capacity of our nation's competitive workforce through partnerships between industries and universities; and
- Encouraging the nation's research enterprise to remain competitive through active engagement with academic and industrial leaders throughout the world.

Proposals for I/UCRCs addressing any precompetitive research areas identified among the science and technology priorities for the nation are welcome and will be fully considered. The I/UCRC Program may periodically highlight specific areas of interest via a Dear Colleague Letter (DCL).

To meet national needs, multi-university I/UCRCs are preferred to single-university I/UCRCs because multi-university Centers contribute to an increased research base as well as to increased interaction among Center participants. The Centers are catalyzed by an investment from NSF with primary support derived from the private and public sector. The NSF takes a supporting role in the development and evolution of the I/UCRC, providing a framework for membership and operations as well as requirements derived

from extensive Center experience and evaluation.

The NSF invests in nationwide Centers that do not overlap in research foci with existing I/UCRCs. PIs should review the I/UCRC Center Directory found on the Program's webpage http://www.nsf.gov/eng/iip/iucrc/ of potential overlaps prior to proposing a new Center. In the event of a potential overlap, the PIs should consider joining the already existing I/UCRC.

II. PROGRAM DESCRIPTION

A comprehensive range of disciplines and skills is often necessary to address research issues of interest to industry, and thus it is often necessary to form a consortium of universities to achieve a critical mass of interdisciplinary research capabilities for the formation of an I/UCRC. The NSF encourages multiple universities to come together to form an I/UCRC, with each university constituting a Site of the Center. The Center is a logical entity, with a defined leadership spanning the Center's constituent Sites.

An Institution that wants to be part of a Center applies to become an NSF I/UCRC Site. Upon award, this Site will become part of the Center. If this is the only Site within the Center, then it will be a single Site I/UCRC with the corresponding membership obligations. If there are additional sites that are or can be part of the Center, then the new Site will be part of a multi-Site I/UCRC.

The first stage in forming an I/UCRC involves the successful completion of an I/UCRC planning grant. Planning grants for Site additions to existing I/UCRCs may be waived by NSF, provided the proposed research Site meets the minimum membership and financial requirements and has the approval of the leadership of the existing I/UCRC.

Upon successful completion of the Planning Grant, the proposed Site of the Center submits an application to join the Center in its current Phase. New I/UCRCs start at Phase I that lasts five-years. This initial five-year period of support allows for the development of a strong partnership between the academic researchers and interested industrial and government parties. A significant proportion of the Center's support is expected to come from industrial, state, and other funds. As a Center progresses, it is likely to have increased opportunities for funding from additional firms, other federal agencies and laboratories, and state and local governments; thus, increasing the leverage of NSF funds. After five years, Sites within Centers that continue to meet the I/UCRC Program requirements may request support for a second five-year (Phase II) period. Phase II grants allow Centers to continue to grow, and to leverage and diversify their memberships and research portfolio during their Phase II period. After ten years, Sites within Centers may apply for a third five-year (Phase III) period. Phase III awards are provided for Centers that demonstrate significant impact on industry research as measured through robust and sustained membership, student impact, annual reports, Site visits, and adherence to I/UCRC requirements. Centers are expected to be fully supported by private and public partners after fifteen years as an I/UCRC.

All Sites within a Center may apply for a Phase II (years 6 through 10 of the Center) grant if each Site meets the Phase II minimum requirements specified in the solicitation as well as having satisfactorily completed the Phase I grant.

All Sites within a Center may apply for a Phase III (years 11 through 15 of the Center) grant if each Site meets the minimum Phase III requirements specified in the solicitation as well as having satisfactorily completed the Phase II grant.

A Site joining an existing Center will apply for the current Phase of the Center. For example, if a Center is in Phase II, the Site can only apply to join that Center provided it meets the minimum Phase II requirements specified in the solicitation. Similarly, if a Center is in Phase III, the Site can only apply to join that Center provided it meets the minimum Phase III requirements. New Site awards are limited to the remaining duration of the Phase of the Center (for example, if founding Sites of the Center were awarded three years prior to a new Site coming onboard, the new Site will receive funds for only the two years that remain in the duration of that Phase).

Requirements of an I/UCRC

An I/UCRC has the following characteristics:

- A strong partnership within and among the universities, industry, and other organizations participating in the I/UCRC;
- A research scope unique among I/UCRCs and that represents the shared interests of the Center and the industry sector that it serves;
- Center goals and objectives and a research roadmap for achieving them defined in collaboration with the Center membership;
- A membership of private and public sector organizations that direct and fund the shared pre-competitive research portfolio of the Center;
- A leadership team consisting of the Site directors, the Chair of the Industry Advisory Board (IAB), and a Center director;
- An organization formed by the leadership team, a diverse team of faculty and students and the IAB;
- A cooperative operational model for the Center that is consistent with I/UCRC complete list of requirements found on the NSF I/UCRC webpage http://www.nsf.gov/eng/iip/iucrc/;
- A process based on I/UCRC Requirements for the engagement of members in the cultivation, selection, funding, and guidance of research projects. This includes twice yearly meetings at which projects are reviewed and research findings are presented, and at least one meeting at which new projects are selected;
- Graduate student involvement in high-quality pre-competitive research projects, thus developing students who are knowledgeable in industrially relevant research;
- A single membership agreement, for all members across all Sites forming the Center, through which intellectual property developed by the I/UCRC is shared (see the Membership Agreement Template at http://www.nsf.gov/eng/iip/iucrc/sample_agreement_form2014.jsp; including the Addendum for Associations and Institutes)
- An effective plan that outlines how the Center will grow, recruit new members, retain existing members, and build relationships that attract companies to invest in the Center's research; and
- Formal evaluation of the industry and university interaction conducted by an independent evaluator assigned and funded by NSF.

Note: Members of an I/UCRC are non-academic eligible members as specified below under Industrial Support, who have signed the membership agreement for the I/UCRC, have paid their dues, and attend the the bi-annual meetings of the Centers. Academic institutions that want to join the I/UCRC can become Sites of the Center, but not members.

An I/UCRC has the following structure/requirements:

Center Management and Operation:

- A director for each Site, who is the PI associated with the NSF Site award. If the Site director changes, a PI-change

request must be filed by the institution and approved by the NSF, to ensure continued compliance with NSF award requirements.

- An academic leadership team comprised of the Site directors and a Center director. The Center director will be appointed by the academic leadership team and will either be chosen from among the Site directors or be an experienced faculty member from one of the Sites. The academic leadership team is responsible for the growth and success of the Center. The designated Center director oversees all operating and management aspects of Center operations. Site-directors manage their respective university researchers and research projects and collaborate with the other Sites within the Center.
- An Industrial Advisory Board (IAB) comprised of representatives of public and private paying members, with an elected Chair, that reviews and decides all research activities funded totally or in part by membership fees and approves Center bylaws;
- A University Policy Committee for each Site comprised of individuals from the Institution Administration, that facilitates the operation of the Site/Center while ensuring compliance with the policies of their respective universities. This Committee shall not have any overlap with the members of the Center Academic leadership team;
- A uniform and consistent policy for handling memberships and member privileges across all Sites of the I/UCRC;
- A collaborative and participative research environment;
- Graduate and other student involvement;
- An effective strategy for broadening participation of underrepresented groups in science and engineering.

Note: If any member of the academic leadership team is found ineffective in the management of his/her Site and/or the overall Center, the IAB in consultation with the University Policy Committee, members of the leadership team and NSF can recommend a change in leadership to ensure Center success.

Industrial Support:

- Members of the IAB may be industrial firms, organizations including non-profits, and non-NSF Federal agencies.

  Note: Organizations that are part of the same corporation, company or Federal agency count as individual members as long as they are on separate financial accounting within their umbrella organization (for example: Army CERDEC and Army Research Lab; or division within a company focusing on chemicals and another division within the same company focusing on information technology).

- Members can be:

  Full members - with full membership rights who financially support the Center.

  Associate members - memberships with reduced rights commensurate with their financial support for the Center.

  Note: Members can buy multiple memberships and contribute membership fees to more than one Site in any given I/UCRC. However, no member shall have more than the equivalent of two memberships worth of voting rights, no matter how many Sites they support or membership fees they contribute across the Center.

- Membership fees must be in cash and are paid directly to the institutions, unless they are transferred through Interagency Agreements (IAA) or Military Interdepartmental Purchase Requests (MIPR). In-kind membership fees are acceptable if approved by the IAB; however, to remain in good standing, any Site in an I/UCRC must meet minimum membership requirements with in-cash memberships only (no in-kind cash equivalent).

- Membership fee requirement levels (per Site) are:

  Sites in a multi-university Center:

  Phase I: a minimum of $150,000 in cash (no in-kind cash equivalent) annually and 3 distinct full members

  Phase II: a minimum of $200,000 in-cash (no in-kind cash equivalent) annually and 4 distinct full members

  Phase III: a minimum of $250,000 in-cash (no in-kind cash equivalent) annually and 5 distinct full members

  Single University Center in any Phase: a minimum of $400,000 in-cash (no in-kind cash equivalent) annually with a minimum of eight distinct *full* members.

  Note: The minimum membership requirement by a Site is met with in-cash memberships only (no in-kind cash equivalent can be applied towards the minimum). To assure potential economic as well as scientific impact, I/UCRCs are encouraged to have companies comprise the majority of the Center members.

  Note: A Company for which any faculty involved in the Center is the founder, president, a key officer or a majority shareholder can be a member but its membership does not count towards meeting the minimum membership requirement for that Site. It is incumbent on the faculty involved in this company to ensure compliance with the conflict of interest policies of his/her respective Institution, and to ensure that the IAB is aware of such conflicts as well.

  Note: University Foundations can be paying members of an I/UCRC but their membership fee does not count towards the minimum membership requirement for the Site/Center.

- Membership fee collection can be achieved in one of two ways:

  Individually, by each Site, with annual certification of the collected membership fees and their sources provided by that Site's Sponsored Research Office (SRO) to NSF in the Site's annual report for that reporting period of the award, or

  Centrally, as determined by the Center's Leadership Team, by one of the I/UCRC's Sites, with annual certification of the collected membership fees and their sources at each Site provided by the collecting's Site Sponsored Research Office (SRO) to NSF in each Site's annual report, consistent with a Memorandum of Understanding (MOU) among all the Center's Sites.

- Center policies should meet NSF requirements for the Membership Agreement with respect to membership fees and rights, intellectual property and publications (Membership agreement Template http://www.nsf.gov/eng/iip/iucrc/sample_agreement_form2014.jsp).

  An example of how memberships count for a Center Site (that has a $50,000 full membership fee) and how these memberships translate to votes for project selection during an IAB meeting is as follows: *Company A* paying

$50,000 in membership fees counts as *one full* member and has *one* vote; *Company B* paying $100,000 in membership fees counts as one *full member* and has *two* votes; Company C paying $150,000 in membership fees counts as one *full member* and has *two* votes per signed membership agreement; and, Company D paying $25,000 counts as *half* member and has *half* a vote. Thus, in this particular example, the Center Site has *3.5 members* and *membership fees totaling $325,000 in cash.*

Other requirements of an I/UCRC include reporting and evaluation:

- I/UCRC Sites are required to submit reports as specified in Section VII. Award Administration Information, Subsection C. Reporting Requirements.
- I/UCRCs have an independent evaluator assigned by NSF, whose role is to work with the Centers, help them adhere to I/UCRC Requirements, provide NSF with an external independent assessment of Center activities and progress, and collect NSF-required Center data. Centers are required to provide all necessary data and materials to the Center evaluator in a timely fashion, in order to enable the evaluator to fulfill his/her responsibilities.

All Centers and their associated Sites must comply with I/UCRC Requirements found on the NSF I/UCRC Program's webpage http://www.nsf.gov/eng/iip/iucrc/.

International Partnerships

Collaboration with international research entities can advance I/UCRC objectives. An established I/UCRC may submit a supplement request for collaborative work with an international research entity constituting the formation of an international Site of the I/UCRC. These supplements are only supported for one year at a time. In order to continue the international collaborative partnerships, the I/UCRC must submit a supplement request each year that outlines the outcomes and benefits realized by the international partnership in the prior award period. In addition, the supplement request must articulate clearly the plans for the coming year, and must contain evidence of the continue interest by the IAB in such international partnership.

Any request to establish an I/UCRC international collaboration should seek guidance and pre-approval from the Cognizant I/UCRC Program Officer prior to submission of the supplement request.

Each I/UCRC is limited to one supplement per year per country to support an international Site.

Supplement to enhance I/UCRC goals in training and education

To advance I/UCRC goals within the education mission, an I/UCRC may request individual supplements to support research experience for undergraduate students (REU), veterans (VRS), and teachers (RET) involved in Center research activities. Additional information is found under Section III: "Award Information".

III. AWARD INFORMATION

Planning Grant Proposals for New Centers and Sites

The award amount for a planning grant seeking to establish a new I/UCRC is $15,000 per academic institution with a 12 -month duration. The $15,000 is for all applicable planning expenses including travel to the I/UCRC "boot camp" and is inclusive of applicable Indirect Costs. The I/UCRC "boot camp" informs planning grant awardees about the planning process, the IUCRC model, member recruitment strategies and Center operations that are consistent with I/UCRC requirements.

The NSF-appointed evaluator guides the Sites and Center directors in preparing and conducting a successful planning grant meeting. Evaluator support will be handled separately by the NSF.

Full Center Awards - Continuing or Standard Grant

Multi-Site I/UCRC proposals are given preference over single Site I/UCRC proposals. For successful I/UCRC proposals, NSF provides up to 15 years of funding, in three Phases. Each Phase has a duration of five years (or less for Site additions to an existing Center). NSF support is intended to augment the support that a Center receives from industry and other sponsors. I/UCRC support is available for Centers and their affiliated Sites that fully meet the I/UCRC operational and membership requirements.

NSF uses the following funding formula:

Phase I - First Five Year Center Award
Site meeting minimum membership requirement receives $150,000 annually from NSF.

Phase II - Second Five Year Center Award
Site meeting minimum membership requirement receives $100,000 annually from NSF.

Phase III - Third Five Year Center Award
Site meeting minimum membership requirement receives $50,000 annually from NSF.

Phase I and Phase II Sites that exceeded minimum membership requirements at any given year during their five years of operations (or less for any Sites added to existing I/UCRCs) are eligible for an augmentation of the cumulative budget of the subsequent Phase. The augmentation amount is equivalent to half the total in-cash only (not in-kind cash equivalent) membership fees collected in excess of the required minimum during the current operating Phase, not to exceed $250,000 per Site, and distributed equally over the five years award budget of the Site in its new Phase.

Example: If a Phase I Site receives $1,200,000 in cash membership fees over a five year period ($450,000 over the minimum membership fees), the Site will then be eligible to receive an additional $225,000 at the time of the Phase II renewal ($45,000 per year) Similarly, if a Phase II Site receives $1,200,000 in cash membership fees over a five year period ($200,000 over the minimum membership fees), the Site will be eligible to receive an additional $100,000 at the time of the Phase III renewal ($20,000 per year).

NSF funds should be used towards management and operations of the I/UCRC. If any NSF funds are used to conduct research, they must be in line with the goals of the Center and directed only towards pre-competitive research projects approved by the IAB.

Membership fees received by the Center are considered program income. At least 90% of the I/UCRC program income must be used to support direct costs of the research, and up to 10% may be used to support indirect costs.

Maintaining an NSF I/UCRC award is contingent upon fulfilling both operational and membership requirements of an I/UCRC as spelled out in the Special Award Conditions. An NSF award to any Site failing to meet these requirements in the first year of Phase II or Phase III, or during two years within any award period will be terminated.

International I/UCRC Support

To advance I/UCRC goals within the global context, an I/UCRC may receive a $25,000 supplement annually for an international Site or collaboration. These funds are to be used for expenses related to the international activity including Site director(s) and evaluator international travel, and support for research visits by U. S. students and junior researchers. No NSF funds are to be used by non-U.S. participants.

International supplemental funding is allowed in all years, including Year 1.

Additional Supplemental opportunities

To advance its training and education mission, an I/UCRC in good standing may request supplements for research experiences for undergraduate Students (REU, up to a maximum of $8,000 per student), veterans (VRS, up to a maximum of $10,000 per student), and teachers (RET, up to a maximum of $10,000 per teacher). No supplement should be submitted without prior approval of the cognizant I/UCRC program officer. Requests should be received by March 31st each year and are subject to budget availability. No REU, VRS or RET supplement requests will be accepted between May 1st and September 30th of each year.

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Only U.S. academic institutions with graduate research programs may apply.

  For U.S. universities with overseas campuses, this solicitation restricts eligibility to research activities using the facilities, equipment, and other resources of the U.S. campus(es) only.

Who May Serve as PI:

The PI at any institution participating in an I/UCRC proposal must be a tenured faculty member. Waivers for non-tenured personnel or non-faculty personnel may be requested when petitioned by the PI's supervisor (Chairman of the Department or the Dean) in advance of the Letter of Intent. The PI must act as the initial Site director. A PI can only have one active I/UCRC Site award at any given time.

Awardees of planning grants to establish new I/UCRCs must complete their planning grant workshops (with NSF Program Director representation) before submitting Phase I proposals.

Eligibility to submit a Phase I Site proposal to establish a new I/UCRC is dependent upon the PI of that Site in the Center completing the following activities:

- Participation/attendance at the NSF sponsored boot camp (see Section III. Award Information) - NSF will reimburse the Site director for travel expenses. This does not apply to Sites joining established Centers.

- Successful fulfillment of the planning grant requirements of a planning grant award (see Section V. Proposal Preparation and Submission Instructions). Exception applies; please see subsection 2 "Guide to Submission of a Site proposal to join/form an Industry/University Cooperative Research Center" for details.

Limit on Number of Proposals per Organization:

There is no limit to the number of proposals an eligible Institution may submit to this program, as long as each proposed Site belongs to a different I/UCRC.

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

PIs and Co-PIs can only submit one proposal per submission period.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Letters of Intent *(required)*:

All Letters of Intent for Site planning grants or full proposals must be submitted by the proposing organization's Sponsored Projects Office via FastLane (http://www.fastlane.nsf.gov/fastlane.jsp). Each Institution must submit its own Letter of Intent.

Format:

Letter of Intent must address the following (there should be no attachments or supplemental documents), maximum length 2 pages. Use the "Synopsis" and "Other Comments" boxes (each with a 2,500 character limit) to provide this information.

Planning for a new I/UCRC	1. Mission and vision of the proposed Center 2. Fit of the Center within the industry and university collaborative scope 3. Economic relevance of the research area 4. Analysis of possible overlap/synergy with other I/UCRCs, and description of Center uniqueness 5. Description of the already formed academic partnership (unless single Site) 6. List of potential research thrust areas 7. List of prospective members identified with number of members already contacted, of letters of interest received and anticipated 8. Brief description of proposing Institution capabilities and resources contributed to the Center with number of faculty supporting the research efforts **Note: Items 1-6 above are common in the letters of intent submitted by Sites that are part of the same I/UCRC.**
Planning for Site addition to an existing I/UCRC	1. Fit with the mission and vision of the existing Center 2. Analysis of the value the Site and its members add to the existing I/UCRC and its research scope< 3. Economic relevance of the research area of the Site 4. List of proposed new research thrust areas 5. List of prospective members identified with number of members already contacted, of letters of interest received and anticipated 6. Brief description of Site capabilities and resources including faculty supporting the research efforts complementing existing Center strengths
Phase I I/UCRC	1. Brief description of Institution capabilities, facilities and resources contributed to the Center by the Site with number of faculty supporting the research efforts 2. List of members that have provided financial commitment letters to date and those anticipated to arrive by the deadline. 3. Brief summary of planning meeting outcome with a description of what changed and why with respect to the mission and vision of the Center, composition of the Center in terms of Sites, personnel, research thrust areas, etc **Note: Item 3 above is common in the letters of intent submitted by Sites that are part of the same I/UCRC.**
Phase II and Phase III I/UCRC renewal	Communicate financial status of the overall Center in the current operating year with a breakdown showing data for of each Site in the Center. Renewing Sites should preferably exceed the membership threshold for the phase for which the renewal is being requested.
Phase I/II or III Site Addition to an existing I/UCRC	1. Brief summary of planning meeting outcome with a description of what changed and why with respect to the mission and vision of the Site, composition of the Site in terms of personnel, research thrust areas, etc 2. If NSF waived the planning meeting, provide a description of what mechanism/process was used in lieu of the planning meeting to align the new Site to needs of new and existing IAB members 3. List of members that have provided financial commitment letters to date and anticipated ones by the deadline 4. Brief description of Institution capabilities, facilities and resources including faculty supporting the research efforts, complementing existing Center strengths.

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:

- Submission by an Authorized Organizational Representative (AOR) is required when submitting Letters of Intent.
- A Minimum of 0 and Maximum of 2 Other Senior Project Personnel are allowed
- A Minimum of 0 and Maximum of 10 Other Participating Organizations are allowed
- Submission of multiple Letters of Intent is allowed

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/publications/pub_summ.jsp?ods_key=grantsgovguide). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions

link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

See Chapter II.C.2 of the GPG for guidance on the required sections of a full research proposal submitted to NSF. Please note that the proposal preparation instructions provided in this program solicitation may deviate from the GPG instructions.

When multiple universities (i.e. Sites) apply to form a new I/UCRC, each Site intending to be part of this new Center submits a full individual proposal.

See Chapter II.C.2 of the GPG for guidance on the required sections of a full research proposal submitted to NSF. Please note that the proposal preparation instructions in this program solicitation may deviate from the GPG instructions. PIs should strictly adhere to the guidelines of this solicitation when preparing their proposals.

(1) Guide to Submission of a Planning Proposal for an Industry/University Cooperative Research Center

Planning grants are used to plan the joint industry and university research agenda and to determine the feasibility and viability of developing a Center or for adding a Site to an existing Center

Proposal Format

A planning grant proposal is submitted as a full proposal. The title for the proposal must be headed as "[Site Name] Planning Grant: I/UCRC for [AREA]" where [Site Name] is the name of the Institution, and [AREA] is the research area for which the Center is being proposed. PLANNING GRANTS THAT ARE SUBMITTED AS PRELIMINARY PROPOSALS, NOT FULL PROPOSALS, WILL BE RETURNED WITHOUT REVIEW

Project Summary

As specified in Chapter II, Section C.2.b of the NSF Grant Proposal Guide, the Planning Grant proposal must contain a one-page summary of the proposed project. The Project Summary consists of (1) overview, (2) a statement on the intellectual merit of the proposed activity, and (3) a statement on the broader impacts of the proposed activity. Proposals that do not contain the Project Summary, including an overview and separate statements on intellectual merit and broader impacts will not be accepted by FastLane or will be returned without review.

Project Description (limited to 15 pages) should include:

A. Planning Grant Objective (one page limit)
   - Objective - brief statement of the planning grant's objective
   - Strategy - how the stated objective will be met
   - Potential members - list of members who have expressed interest or are likely to join the proposed Site and description of the recruitment plan
   - Planning meeting arrangements including:
     - Proposed location;
     - Meeting format and organization;
     - Responsibilities of staff and presenters; and
     - Draft agenda following the NSF suggested one found on the I/UCRC Website http://www.nsf.gov/eng/iip/iucrc/
B. Proposed Center/Site Description

   Provide a full description for the envisioned Center/Site that serves as a blueprint for action. This section should include:

   - A general analysis of the industry on which the proposed Center/Site plans to focus; how that industry affects the nation's economic health; and its research interests and needs, especially in those areas of research that could be considered appropriate for the proposed Center
   - A description of the Site's capabilities to conduct research addressing the industrial needs within the overall framework for the I/UCRC
   - A description of the proposed Center's expected policies, guidelines, organizational structure, and operational procedures within the I/UCRC framework
   - A plan for addressing broadening participation of underrepresented groups in science and engineering
   - A discussion of the pre-competitive research projects the Site proposes to address with a one-page description for each envisioned research project covering:
     - experimental plan and a discussion of its industrial relevance and appropriateness for the Center;
     - project objectives;
     - proposed first year and end of project deliverables;
     - proposed experimental plan;
     - determination of milestones and time to completion; and
     - determination of annual and total cost to completion including involved personnel.
C. Proposed Planning Grant Outcomes:

   Expectations from the conclusion of a planning grant meeting:

   - PIs send executive summaries of all potential pre-competitive research projects to all prospective Center members.
   - Each prospective member is asked to rank the list of research projects showing what came out of the planning meeting based on each member's priorities.
   - Each prospective company sends back the prioritized list of research projects to the PIs.
   - PIs sort through and identify the top research projects with the most interest among the members.
   - PIs report back the titles of these research projects and the Sites proposing the projects to all potential members and to NSF in the annual report
   - Site PIs lists the top 3 projects for their Site in the full Site proposal and include the project evaluation reports (LIFE meeting summary) from the planning meeting
   - If awarded, these industry-vetted research projects effectively form the foundation of the proposed project set presented at the first Industrial Advisory Board (IAB) meeting.

Planning grant proposals should clearly articulate how the above expectations are going to be achieved through the planning meeting.

Please note that per guidance in the GPG, the Project Description must contain, as a separate section within the narrative,

a section labeled "Broader Impacts of the Proposed Work". This section should provide a discussion of the broader impacts of the proposed activities. Place this section at the end of the Project Description but within its 15 page limit.

Supplementary Documents:

Include these required planning grant documents in the "Supplementary Documents" section of FastLane (For Grants.gov users, supplementary documents should be attached in Field 12 of the R&R Other Attachments.):

A. **Proposed Center(Sites) marketing plan** showing target industry or market segmentation, proposed marketing activities (including promotion and advertising), pricing structure, and membership variations
B. **Staffing plan with a responsibility matrix** showing the roles that the proposed Center director, Site directors, and other researchers will have in performing this planning study
C. **Membership agreement for industry partners** in accordance with the I/UCRC sample agreement at http://www.nsf.gov/eng/iip/iucrc/sample_agreement_form.jsp) and an appropriate sample Membership Agreement for Associations and Institutes (if any) at http://www.nsf.gov/eng/iip/iucrc/. Universities submitting planning grant proposals seeking to join existing Centers must have their membership agreement forms aligned with the one in use at the Center
D. **Draft agenda** for the meeting consistent with I/UCRC Requirements (http://www.nsf.gov/eng/iip/iucrc/plan_implement_center.jsp);
E. **Potential Center member letters** (9 letters minimum per institution in a multi-institution Site, 16 letters for a single institution Center) from potential organization members noting that the Center's concept and proposed research agenda have the potential for receiving support from that organization and that they would consider joining if the Center were formed. Care should be taken to identify the Site associated with each member letter.
F. **Letter of evidence that the proposed research thrusts do not overlap with those of existing I/UCRCs, if addressed in NSFs response to the precursor LOI**. Evidence is usually a letter from the Center Director of a Center that appears to have an overlap, in full or in part, with the new Center being proposed. A new Center is considered viable if there is less than a 10% overlap with an existing Center. This evidence is not required when a Site is joining an existing Center;

Site addition to an existing Center:

G. **Letter of support of Center Director and IAB Chair** of the existing Center. Letter should clearly articulate the value of the new Site and the vetting process the new Site underwent to determine this value.
H. **H. Office of Sponsored Research (SRO) signed membership certification that provides evidence of the financial status of the existing Center, with breakdown by existing member Sites**

Data Management Plan must describe plans for data management and sharing of the products of research consistent with I/UCRC operation, or assert the absence of the need for such plans in compliance with NSF GPG requirements.

Planning Grant proposals missing any of the required supplementary documents with the specified content described above will be considered not responsive and will be returned without review.

Budget

Support is generally for travel, an industry planning meeting, associated meeting publications, and faculty time. No funding can be used to expense the participation of prospective members. All line items in the proposed budget must be justified.

(2) Guide to Submission of a Site Proposal to join/form an Industry/University Cooperative Research Center

To be eligible to submit a full Site Phase I proposal, either to form a new Center or to join an existing Center, a Site must have been awarded a planning grant (unless planning requirement was waived by the NSF). In addition, the Site must submit a Letter of Intent indicating its interest in submitting a Site Phase I proposal.

Note: The requirement for a planning grant proposal for Site addition to an existing Center, may be waived by NSF provided the proposed research Site meets the minimum membership requirements and has the approval from the academic leadership team and the IAB to join an existing Center. In instances where planning meetings have been waived by NSF, proposals must clearly spell out the mechanism/process used to align the proposed Site(s) to the needs of new and existing IAB members, and the process used to identify industry-vetted research projects.

Site proposals to transition to the next Phase of the I/UCRC require the successful completion of prior Phase awards.

Proposal Format - Center Proposals

A Phase I proposal should reflect how the Site will bring value to the unique combination of the proposed Center's research interests, capabilities, and potential for working with industry. A Phase II or Phase III proposal should show the Site outcomes and continuing plans for the realization of this potential through application of I/UCRC Requirements and achievement of Center goals and objectives. These features should be discussed in sufficient detail to facilitate review in accordance with the I/UCRC Program requirements.

Project Summary

As specified in Chapter II, Section C.2.b of the NSF Grant Proposal Guide, the proposal must contain a summary of the proposed project not more than one page in length. The Project Summary consists of an overview, a statement on the intellectual merit of the proposed activity, and a statement on the broader impacts of the proposed activity. Proposals that do not contain the Project Summary, including an overview and separate statements on intellectual merit and broader impacts will not be accepted by FastLane or will be returned without review.

For Sites proposals to create or join an I/UCRC, the overview section of the project summary should include a brief description of the proposed Site addition to the Center, other Sites involved, and scope of the research program.

Project Description

The following narrative outline is recommended for the project description. This narrative shall not be longer than 30 pages.

A. *Project Overview (three-page limit)*

In no more than three pages, describe the technical focus of and need for the new I/UCRC. Describe the technical area, the targeted industry, the industrially relevant research required, the expertise and resources that will be used to address this need and the fit of the proposed Site within the I/UCRC. For Phase II and Phase III renewals, describe how these have evolved over the life of the Site, to date, and have been impacted by the Center.

B. *Site Structure and Operations within the overall I/UCRC framework*

Proposers must discuss the following in their proposals:

- Available facilities and infrastructure;
- Center leadership, including Site Director's background, qualifications, and management capability;
- The Center membership agreement including (one agreement per Center):
  - Intellectual property policies in accordance with the Bayh-Dole Act that permit non-exclusive, royalty-free licenses for industrial Center members and the possibility of exclusive, royalty-bearing licenses
  - Publication delay policies; and
  - The membership structure of the Center, as well as the role of members in the Center and the specific benefits of membership categories
- Potential issues that might hinder the Site and Center and what steps could be taken to minimize those risks;
- I/UCRC policies and operations including process for project proposal cultivation, project selection, and project monitoring, and plans for the Site and for the Center to meet I/UCRC evaluation criteria; and
- The composition of the University Policy Committee for the Site.

C. *Research Plan*

Envisioned Projects - describe each envisioned pre-competitive research project that was vetted during the planning meeting in up to three pages each that includes:

- Project objectives;
- Proposed team (management and staff) with plans to address broadening participation;
- Proposed deliverables;
- Project duration, milestones, and annual proposed deliverables;
- Determined business or industry need;
- Description of the available research facilities; and Determination of the time to completion and cost.

Please note that per guidance in the GPG, the Project Description must contain, as a separate section within the narrative, a section labeled "Broader Impacts of the Proposed Work". This section should provide a discussion of the broader impacts of the proposed activities. Place this section at the end of the Project Description but within its 30 page limit.

Budget Sheet

The proposal should include:

- A proposed budget expenditure for NSF funds for each of the five years of Site operation and a five-year summary budget with budget justifications included for all line items

Supplementary Documents

The following information should be added to the "Supplementary Documents" section of FastLane (For Grants.gov users, supplementary documents should be attached in Field 12 of the R&R Other Attachments).

A. **Membership agreement for industry partners** in accordance with the I/UCRC sample agreement at http://www.nsf.gov/eng/iip/iucrc/sample_agreement_form.jsp) and an appropriate sample Membership Agreement for Associations and Institutes (if any) at http://www.nsf.gov/eng/iip/iucrc/. Universities submitting planning grant proposals seeking to join existing Centers must have their membership agreement forms aligned with the one in use at the Center

B. **A list of participating members at the Site and their letters of financial commitment**. It is imperative to include commitment letters from potential members that meet the requirements of Section III. Award Information for Center Awards. Each letter of commitment should contain the following language Should {Center Name} be selected by NSF for funding, {Company Name} commits to joining {Center Name} as a full/associate member at the membership level of ${amount}, pending clarification of intellectual property implications and availability of funds on an annual basis. Other language in the commitment letters are left to the discretion of the potential member. Proposals failing to meet the minimum cash level and memberships level as outlined in Section II. Program Description under Requirements of an I/UCRC will be returned without review. For the submission of a new Center, care should be taken to identify the Site associated with each member letter, and to demonstrate that each Site fulfills minimum financial and memberships requirements.

C. **List of collaborations with additional institutions** (if applicable)

D. **List of key participants to the Site** and other participating individuals, noting diversity. The list should identify institutional and departmental affiliation or discipline, and should include biographical information on the Site director and all key faculty members or other individuals from participating institutions who will be directly involved in the development, operation, and evaluation of the Site. The list of publications for these individuals should be limited to the five most relevant to the proposed research.

E. **Letter of evidence that the proposed research thrusts do not overlap with those in existing Centers, if this was addressed in their LOI** response. Evidence is usually a letter from the other Center director that their research thrust does not significantly duplicate (less than 10%) other I/UCRC efforts. This evidence is not required when joining an existing Center as a research Site;

F. **Site's contribution to Center marketing plan** showing target industry or market segmentation, proposed marketing activities (including promotion and advertising), pricing structure, and membership variations

G. **Site's contribution to Center budget outlook** with anticipated growth and cash-flow for the five years, with a break down by Sites in the Center

Site addition to an existing Center:

H. **Letter of support from Center Director and IAB Chair** of existing Center clearly articulating the value proposition of the new Site and the vetting process the new Site underwent for addition to the center

I. **Office of Sponsored Research (SRO) signed membership certification** as evidence of financial status of existing Center, with breakdown by existing member Sites

Phase II/III Sites:

H. SRO signed membership certification compiled for the five years of current operating Phase

I. List of Sites key accomplishments (key structural data provided annually to evaluator by Center) during its prior phase(s) including but not limited to:
  - Number of publications per year
  - Number of students (trained in the Center) graduated each year and hired by the members
  - Number of patents generated per year
  - Spin-offs and technology transferred to member companies (e.g. increased R&D efficiencies, improved or new

processes, improved or new products, and spillover benefits to technology adopters)
- o Outcomes of REU, RET and VRS supplements (if any) received by the Center in its current Phase
- J. Evaluator's report (for final year of current operating Phase)

Phase III Sites:

K. Strategy to bring Center to self-sustainability within 5 years.

Data Management Plan must describe plans for data management and sharing of the products of research consistent with I/UCRC operation, or assert the absence of the need for such plans in compliance with NSF GPG requirements.

Proposals missing any of the required items listed above will be considered not responsive and will be returned without review.

International I/UCRC Supplement

International Site supplemental requests must include a:

- Plan to interact with the international research Site;
- Description of the proposed research projects;
- Description of the infrastructure that is in place to enable collaboration;
- Evidence that the international research entity has adequate partner funding in place to support the proposed projects;
- Formal agreement between the foreign and U.S.-based Site that replicates the provisions for IP, copyrights, publication delays, and similar issues identified in the I/UCRC membership agreement; and
- Letter from the I/UCRC IAB that endorses the international collaboration and proposed research projects.

Additional supplemental opportunities

Supplement requests for REU, RET, and VRS must follow the guidelines for supplement requests spelled out in the respective calls:

REU http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5517&from=fund

RET https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505170

VRS http://www.nsf.gov/pubs/2014/nsf14124/nsf14124.jsp

Supplements must clearly articulate the involvement of students, veterans and teachers in Center activities.

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

Other Budgetary Limitations:

Membership fees received by the Center are considered program income. At least 90% of the I/UCRC program income must be used to support direct costs of the research, and up to 10% may be used to support indirect costs. See Special Award Conditions.

C. Due Dates

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

    November 16, 2015

    May 09, 2016

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

    January 11, 2016

    July 11, 2016

Planning Grant and Full Center Proposal

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

Evaluation

Letters of intent will be considered by NSF staff based on the economic importance of the research area, the depth and breadth of the proposed Center's research, and whether the proposed research overlaps other I/UCRCs.

Site Planning grant proposals and full proposals will be competitively reviewed by Ad hoc Review and/or Panel Review, and/or Internal NSF Review. The proposals will be subject to the NSF merit review criteria and the additional criteria given below.

- The envisioned Site and the overall Center are consistent with the defining characteristics and operational requirements of an I/UCRC.
- There is enough potential university support, faculty, and facilities involved to build a viable Site within the framework of the Center.
- The planning study will effectively focus on the research interests of an industry that is in a position to support the Site and therefore the Center, so that it could meet the requirements to submit a Site proposal.
- The planning study will effectively use I/UCRC operational requirements for structuring and operating the envisioned Site and Center.
- The Site and the Center have an effective marketing plan to develop a strong contingent of firms and sufficient member support to be successful and meet the I/UCRC criteria.
- The Site and the Center overall propose to develop a research program that does not duplicate that of an existing I/UCRC Center and/or Site (see http://www.nsf.gov/eng/iip/iucrc/directory/index.jsp for potential overlaps).
- The proposal requires cross-disciplinary and cross-departmental participation where appropriate to the research envisioned.
- The NSF reviewers will consider the extent to which there is evidence that the Site will meet the "Requirements of an I/UCRC" as described in Section II. Program Description.
- For I/UCRCs involving international collaborations, reviewers will consider: mutual benefits, true intellectual collaboration with the foreign partner(s), benefits to be realized from the expertise and specialized skills, facilities, Sites, and/or resources of the international counterpart, and active research engagement of U. S. students and early-career researchers, where such individuals are engaged in the research.
- Phase II and Phase III Site proposals will be reviewed as to their previous achievement of NSF's broader impacts, significance and impact of previous research, and efforts of the Site and overall Center in communicating with the public and all Center members.

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 generally be completed and submitted by each reviewer and/or panel. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

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

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

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

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

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

B. Award Conditions

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

*These documents may be accessed electronically on NSF's Website at 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:

It is anticipated that resulting awards will be subject to the Grant General Conditions that will become effective on January 25, 2016. As such, this special award term supersedes in its entirety Article 27, Program Income, of the Grant General Conditions, dated January 25, 2016.

Program income is defined at 2 CFR 200.80. Program income received or accruing to the grantee during the period of the grant is to be retained by the grantee, added to the funds committed to the project by NSF, and thus used to further project objectives. The grantee has no obligation to NSF with respect to program income received beyond the period of the grant. The grantee also shall have no obligation to NSF with respect to program income earned from license fees and royalties for copyrighted material, patents, patent applications, trademarks, and inventions produced under a grant (see AAG Chapter III.D.4). However, Patent and Trademark Amendments (35 USC 18) shall apply to inventions made under a grant. See also FAQ 200.307.1 of the Frequently Asked Questions for The Office of Management and Budget's Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards at 2 CFR § 200 regarding Fees and Royalties and Bayh-Dole.

Membership fees received by the Center are considered program income. At least 90% of the I/UCRC program income must be used to support direct costs of the research, and up to 10% may be used to support indirect costs.

Efforts should be made to avoid having unexpended program income remaining at the end of the grant. In the event a grantee has unexpended program income remaining at the end of the grant, it must be remitted to NSF by crediting costs otherwise chargeable against the grant. If it is not possible to record the credit via ACM$, the excess program income must be remitted to NSF electronically or by check payable to the National Science Foundation.

The amount of indirect costs for NSF funds should be calculated by applying the current negotiated indirect cost rate(s) to the approved base(s).

Prior to the start of each funding period, the Program will review each Site on a number of renewal criteria including the following:

1. Attendance of all stakeholders at the bi-annual IAB meetings
2. Meeting membership requirements noted below
3. Timely submission of comprehensive annual reports to the NSF
4. The degree of collaboration amongst Center Sites;
5. The extent to which the marketing plan is being pursued;
6. The extent to which the industry/university collaborations are growing;
7. The extent to which the industrial research program is developing; and
8. The extent to which technology transfer is occurring from the Center to one or more members of the Center.

Membership fee requirement levels (per Site):

Sites in a multi-university Center:
Phase I: a minimum of $150,000 in cash (no in-kind cash equivalent) annually and 3 distinct full members
Phase II: a minimum of $200,000 in-cash (no in-kind cash equivalent) annually and 4 distinct full members
Phase III: a minimum of $250,000 in-cash (no in-kind cash equivalent) annually and 5 distinct full members

Single University Center in any Phase: a minimum of $400,000 in-cash (no in-kind cash equivalent) annually with a minimum of eight distinct full members.

Note: Minimum membership requirement by a Site is met with in-cash memberships only (no in-kind cash equivalent can be applied towards minimum). To assure potential economic as well as scientific impact, I/UCRCs are encouraged to have companies comprise the majority of Center members.

Note: A Company for which any faculty involved in the Center is the founder, president, a key officer or a majority shareholder can be a member but its membership does not count towards the minimum membership requirement. It is incumbent on the faculty involved in this company to ensure compliance with the conflict of interest policies of his/her respective Institution, and to ensure that the IAB is aware of such conflicts as well.

Note: University Foundations can be paying members of an I/UCRC but their membership fee does not count towards the minimum membership requirement for the Site/Center.

Maintaining an NSF I/UCRC award is contingent upon fulfilling both operational and membership requirements of an I/UCRC as spelled out above. Any Site failing to meet these requirements in the first year of any Phase, or twice within any award period will result in the termination of the award.

If the review is satisfactory, the Program Director may recommend support for the next period of the continuing award.

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.

The Site annual report is used as a basis for assessing annual performance and determining continued funding. Incomplete reports are not accepted by NSF.

The complete annual report contains information on the I/UCRC Site's research goals met and anticipated for next year, collaborations with other universities (if applicable), major accomplishments, communications and decision making (how does the Center interact and communicate with Center members, how are the research programs planned and selected, periodic updates of the IUCRC Directory at http://www.nsf.gov/eng/iip/iucrc, etc.)

The Annual Report contains information on the I/UCRC Site and of the overall Center:

1. Activities and Findings
2. Products
3. Participants
4. Impacts
5. Special requirements:
    1. Evaluator report
    2. Center Director report
    3. Membership certification.

Please follow reporting instructions found on research.gov or on the I/UCRC Wepage: http://www.nsf.gov/eng/iip/iucrc/.

Please make sure to enter content of your report in the various sections. You may upload PDF files with images, tables, charts, specific research project updates, etc., in support of each section. The SRO-signed membership certification for the reporting period compiled using the SRO Membership Certification Template and the Evaluator Report must be uploaded under "Special Requirements". "Participants" must list all individuals who contributed to the Center activities for the performing period, including

students, postdocs, companies, etc. Outcomes should describe impacts generated by the Center including but not limited to students graduated and hired by the member companies, technology transferred to member companies, etc.

Evaluator's Report
Evaluators are expected to produce an annual report that incorporates information obtained via participant observation, surveys of faculty and industry, and exit interviews. Additional information about the evaluator's role, responsibility and data gathering instruments can be found at www.ncsu.edu/iucrc/. Awardees are required to provide NSF requested necessary information to their evaluator. Complete list of the information is found on the I/UCRC webpage http://www.nsf.gov/eng/iip/iucrc/.

Center Director's Report
The Center Director is expected to provide a brief (5 pages maximum) annual report on the state of the overall Center, assessing the current health and targeted growth of the Sites, faculty participation rates and overall satisfaction with Center activities amongst the students and faculty as well as the impact within the institutions. Director's report must be uploaded with each Site annual report

Certification of Membership
The certification is the form SRO Membership Certification Template compiled by the University Sponsored Research Office (SRO) handling the I/UCRC Site that affirms the execution of membership agreements and details the receipts of annual cash and in-kind membership fees or other program income. Membership fees reported are the ones for which the membership agreement was fully executed and paid during the NSF reporting period.

I/UCRC Directory Reporting
I/UCRCs are required to provide accurate and up -to-date information that NSF can use for the online I/UCRC directory at http://www.nsf.gov/eng/iip/iucrc/directory/index.jsp. Instructions for updating and reporting web Site information can be found at http://www.nsf.gov/eng/iip/iucrc/directory/instructions.jsp.

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:

- Raffaella Montelli, ENG Lead I/UCRC Program Director, Directorate for Engineering, telephone: (703)292-2421, email: rmontell@nsf.gov

- Debasis Majumdar, I/UCRC Program Director, Directorate for Engineering, telephone: (703)292-4709, email: dmajumda@nsf.gov

- Thyaga Nandagopal, I/UCRC Program Director, Directorate for Computer & Information Science & Engineering, telephone: (703)292-8950, email: tnandago@nsf.gov

- Dmitri Perkins, I/UCRC Program Director, Directorate for Computer & Information Science & Engineering, 1175, telephone: (703)292-7096, email: dperkins@nsf.gov

- Kandace Binkley, Program Director, Directorate for Geosciences, telephone: (703)292-7577, email: kbinkley@nsf.gov

- Barbara Ransom, Program Director, Directorate for Geosciences, telephone: (703) 292-7792, email: bransom@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.

Sources for additional information:

- Visit http://www.nsf.gov/eng/iip/iucrc/ for information on unsolicited proposal submissions, interagency transfers, MIPRs, and for all forms and other general information about the I/UCRC program.

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