

Sustainability Research Networks Competition (SRN) 2014 Focus: Urban Sustainability

PROGRAM SOLICITATION

NSF 14-534

REPLACES DOCUMENT(S):
NSF 11-574



National Science Foundation

Directorate for Biological Sciences

Directorate for Engineering

Directorate for Geosciences

Directorate for Social, Behavioral & Economic Sciences

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

April 29, 2014

IMPORTANT INFORMATION AND REVISION NOTES

For 2014, the Sustainability Research Networks (SRN) solicitation includes the following revisions:

1. Proposed networks must address a frontier research theme in urban sustainability.
2. Preliminary Proposals are not required or accepted.

NOTE: This is the second and final SRN competition. No further SRN solicitations are planned.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Sustainability Research Networks Competition (SRN)
2014 Focus: Urban Sustainability

Synopsis of Program:

The goal of the Sustainability Research Networks (SRN) competition is to bring together multidisciplinary teams of researchers, educators, managers, policymakers and other stakeholders to conduct collaborative research that addresses fundamental challenges in sustainability. The 2014 SRN competition will fund research networks with a focus on urban sustainability.

Proposals should identify an ambitious and nationally important theme in urban sustainability, present a creative and innovative research agenda that builds upon existing work in this area, and describe how a network of researchers and other stakeholders will be supported that integrates a variety of disciplines, sectors and backgrounds in order to create new perspectives and yield significant new understanding and knowledge.

The Sustainability Research Networks competition is part of the growing NSF investment in its Science, Engineering and Education for Sustainability (SEES) portfolio (www.nsf.gov/sees/). Challenges associated with broadly based SEES goals will be met by supporting fundamental science and engineering research and education needed to understand and overcome the barriers to sustainable human and environmental wellbeing and to forge reasoned pathways to a sustainable future. NSF aims to support members of the academic research community for projects which produce discoveries and knowledge that will inform decisions leading to environmental, energy, social and cultural sustainability. NSF support will advance the frontiers of conceptual, empirical and computational research in science, engineering and education so that the nation has the knowledge base to inform policies on sustainability.

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.

- Sarah L. Ruth, Directorate for Geosciences, telephone: (703) 292-8521, email: sruth@nsf.gov
- Bruce K. Hamilton, Directorate for Engineering, telephone: (703) 292-8320, email: bhamilto@nsf.gov

- Jonathan Wynn, Directorate for Geosciences, telephone: (703) 292-4742, email: jwynn@nsf.gov
- Anna M. Kerttula de Echave, Directorate for Geosciences, telephone: (703) 292-7432, email: akerttul@nsf.gov
- Sophie B. George, Directorate for Biological Sciences, telephone: (703) 292-2299, email: sgeorge@nsf.gov
- Peter H. McCartney, Directorate for Biological Sciences, telephone: (703) 292-8470, email: pmccartn@nsf.gov
- Georgia Kosmopoulou, Directorate for Social, Behavioral and Economic Sciences, telephone: (703) 292-7466, email: gkosmopo@nsf.gov
- Richard Boone, Directorate for Education & Human Resources, telephone: (703) 292-8696, email: rboone@nsf.gov
- Sian Mooney, Experimental Program to Stimulate Competitive Research (EPSCoR), telephone: (703) 292-2257, email: smooney@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 --- International and Integrative Activities (IIA)
- 47.081 --- Office of Experimental Program to Stimulate Competitive Research

Award Information

Anticipated Type of Award: Cooperative Agreement

Estimated Number of Awards: 2 to 4

Anticipated Funding Amount: \$36,000,000

Pending availability of funds.

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Universities and Colleges - Universities and two- and four-year colleges (including community colleges) accredited in, and having a campus located in, the US acting on behalf of their faculty members. Such organizations also are referred to as academic institutions.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization: 3

A single organization may submit a maximum of three proposals as the lead institution. There is no limit to participation as a partner institution. It is not likely that the SRN program will provide support for more than one SRN from any one lead institution in this competition.

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

An individual may appear as a Principal Investigator (PI) or Co-PI in only one SRN proposal submitted in response to this program solicitation.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- Letters of Intent: Not Applicable
- Preliminary Proposal Submission: Not Applicable
- Full Proposals:
 - Full Proposals submitted via FastLane: NSF Proposal and Award Policies and Procedures Guide, Part I: Grant Proposal Guide (GPG) Guidelines apply. The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg.
 - Full Proposals submitted via Grants.gov: NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov Guidelines apply (Note: The NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide)

B. Budgetary Information

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

- Indirect Cost (F&A) Limitations: Not Applicable
- Other Budgetary Limitations: Not Applicable

C. Due Dates

- Full Proposal Deadline(s) (due by 5 p.m. proposer's local time):
April 29, 2014

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: Standard NSF award conditions apply.

Reporting Requirements: Standard NSF reporting requirements apply.

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I. INTRODUCTION

A sustainable world is one in which human needs are met without harm to the natural environment and without sacrificing the ability of future generations to meet their needs. Meeting this formidable challenge requires a substantial increase in our understanding of the integrated system of society, the natural world, and the alterations humans bring to Earth. NSF's Science, Engineering, and Education for Sustainability (SEES) activities aim to address this need through support for interdisciplinary research and education.

Fundamental to all sustainability research is the simultaneous consideration of closely coupled social, economic, engineered and environmental systems and their long-term viability. Concepts that underlie the science of sustainability include complex adaptive systems theory, emergent behavior and multi-scale processes, as well as the vulnerability, adaptive capacity, and resilience of coupled human-environment systems. An important goal of this research is to understand how patterns and processes at the local and regional scales are shaped by, and feed into, processes and patterns that manifest at the global scale over the long term. These topics guide research that explores alternate ways of managing the natural and built environment, migrating from non-renewable to renewable resources, sustaining essential ecosystem services and applying technology to improve human well-being. Improved conceptual frameworks for sustainability, including general theories and models, are critically needed for such informed decision-making.

SEES activities span all of NSF's scientific domains and aim to: 1) support interdisciplinary research and education that can facilitate the move towards global sustainability; 2) build linkages among existing projects and partners and add new participants to the sustainability research enterprise; and 3) develop a workforce trained in the interdisciplinary scholarship needed to understand and address the complex issues of sustainability.

Urban Sustainability Research Networks (SRN) is a multi-directorate program that is part of the SEES portfolio. The purpose of the

2014 SRN competition is to develop and support interdisciplinary teams of investigators and stakeholders working together to conduct cutting-edge research, education and outreach that addresses grand challenges in urban sustainability. The ultimate goal of this research is to inform societal actions for future environmental, economic, social and cultural sustainability.

SRNs will conduct innovative and pioneering fundamental research in urban sustainability science, engineering and education that may be conceptual, empirical, synthetic and/or computational in nature, and of a scale and complexity that would not be possible within a single institution, center, or even through the normal collaborative modes of NSF research support. The SRN program offers an avenue for collaborations within the academic research and education communities, as well as with international and private sector partners. Collaborations through SRNs will cross traditional disciplinary boundaries of the natural sciences, engineering, computing, mathematics, statistics, and computation, the social and behavioral sciences, and education. SRNs may link existing programs and create others to advance fundamental understanding and create actionable outcomes such as improving predictions, technologies, policies and practices related to sustainability, harnessing renewable energy resources, supporting healthy environments and conserving biodiversity, while enhancing human well-being and economic vigor.

II. PROGRAM DESCRIPTION

The goal of the Sustainability Research Networks (SRN) competition is to bring together multidisciplinary teams of researchers, educators, managers, policymakers and other stakeholders to conduct collaborative research that addresses fundamental challenges in urban sustainability. SRNs may link existing centers and networks and will develop new partnerships and collaborations. Networks will be multi-institutional and may include international partnerships.

A. CHARACTERISTICS OF URBAN SRNS

1. Frontier urban sustainability research theme

An SRN should be designed to identify and address an ambitious and nationally important theme in urban sustainability research (described below) that requires the scale, breadth, facilities and integration across disciplines and sectors made possible by a large and diverse network.

2. Interdisciplinary research

Sustainability research transcends traditional disciplinary boundaries. The network will bring together social and natural scientists, engineers, educators, managers and other stakeholders from a range of disciplines and backgrounds, which could also include researchers in the humanities. Together, through closely integrated research activities, they will foster new theoretical advances, knowledge and tools that forge the integrated science and engineering disciplines of the future.

3. A network involving multiple institutions and sectors

SRNs will also be expected to provide pathways for translating research into practice through, for example, policy, management and public outreach. An SRN will link scientists, engineers and educators in multiple institutions and be geographically dispersed. Humanities researchers may be included in the team if appropriate to the project scope. The SRN may build upon but not duplicate existing activities. Funding and other resources will be shared among the network partners. The network should promote collaboration with resource managers, policymakers, end-users and other stakeholders in the private and public sectors through the direct involvement - from the outset - of participants from federal, state and local agencies and tribal communities, non-governmental and international bodies and industry as appropriate. It should be designed to adapt and grow as new opportunities arise and should be sustainable after the period of NSF funding has ended.

4. Support for education, outreach and diversity

The network should include a strong program of linked education and outreach activities that support the goals of the SRN itself, increase stakeholder engagement and train the next generation of researchers to meet the interdisciplinary research needs of the future. An SRN is expected to include a range of research and education training opportunities, promoting the development of a diverse, internationally-competitive and globally-engaged workforce of scientists, engineers, humanities scholars, educators and citizens who are well-prepared for a variety of career paths related to sustainability. Outreach activities may include collaborations of professionals in the sciences, engineering, arts and the humanities.

5. Management and organization

The lead organization will submit the SRN proposal and, if funded, will be responsible for the financial and administrative management of the network. The Principal Investigator will be the SRN Director, with overall responsibility for developing and maintaining the shared research, education, and goals of the network. The Director will be supported by a Management Team comprising up to two further members from the lead organization and up to three members from each partner organization. In addition, an independent External Advisory Committee (EAC) must be appointed to provide ongoing guidance and advice to the Management Team throughout the lifetime of the network.

6. Award size and duration

SRN awards are expected to be 4 to 5 years in duration. The total budget for an SRN may not exceed \$12,000,000.

B. Focus on Urban Sustainability

More than half of the world's people now live in cities, and in the U.S., the figure is 80% (U.S. National Academies, "Pathways to Urban Sustainability: Research and Development on Urban Systems-Summary of a Workshop," The National Academies Press, Washington, D.C., 2010). Globally, urban environments spur economic development and can promote efficient resource use, but their high population density can create increased pressure on supporting ecosystems and reduced resilience to external threats such as extreme weather events. The long and short-term effects of urbanization on coupled environmental, engineered, social and economic systems are poorly understood.

With this solicitation, we are seeking proposals to create research networks focused on urban sustainability. The overarching question is how can we develop sustainable, resilient urban systems that provide healthy, safe, and affordable environments for the growing number of people living in cities and their surrounding metropolitan areas across the globe?

There is no universally accepted definition of "urban" and its usage varies based on discipline, institution, agency and context. For the purpose of this solicitation an urban center has:

- an economy that is primarily non-agrarian, where a significant majority of the population is not primarily engaged in agriculture;
- multiple services, such as water, sewage, energy, etc. through engineered systems;
- social, cultural and economic diversity;
- pluralistic governance structures.

Integrated research on urban sustainability will improve our fundamental understanding of the interconnected processes and feedbacks that operate within the urban system at multiple temporal and spatial scales. This will support the assessment of efficiencies, co-benefits, threshold effects and trade-offs, creating opportunities to design more efficient infrastructure and improving the resilience of urban systems to internal and external stressors.

Proposers may frame their networks around particular issues or topics important to urban sustainability, e.g. coastal urbanization, urban heat islands, food systems, energy, biodiversity, essential ecosystem services, transport or governance. Research must focus on identified urban systems, but may also include closely coupled regions beyond urban boundaries where this is essential to the study of the urban system. For example, issues of urban water quantity and quality might also include an examination of the hydrology, land use change and ecosystem services associated with a watershed.

An international perspective is encouraged if appropriate, but is not required. Where studies will center on specific cities or geographic regions, proposers must explain the broader relevance and applicability of their findings.

III. AWARD INFORMATION

Award amount: The maximum SRN award amount is \$12,000,000.

Award duration: It is expected that SRN awards will be 4 - 5 years in duration.

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Universities and Colleges - Universities and two- and four-year colleges (including community colleges) accredited in, and having a campus located in, the US acting on behalf of their faculty members. Such organizations also are referred to as academic institutions.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization: 3

A single organization may submit a maximum of three proposals as the lead institution. There is no limit to participation as a partner institution. It is not likely that the SRN program will provide support for more than one SRN from any one lead institution in this competition.

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

An individual may appear as a Principal Investigator (PI) or Co-PI in only one SRN proposal submitted in response to this program solicitation.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

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

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF 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

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

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

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

Virtual Reverse Site Visits

Proposals will be reviewed against the evaluation criteria set out in section VI of this solicitation. Based on the findings of the proposal reviews, a small number of SRN proposing teams will be invited to attend virtual reverse site visits, conducted via videoconference. Further details of the format and requirements for virtual reverse site visits will be provided to those teams invited to participate.

Proposal Contents

Required Sections of the Proposal

The proposal must include only the main documents and supplementary documents described in Sections 1-15, below.

1. Cover Sheet. For planning purposes, use September 15th, 2014 as the award start date. The proposal must show the proposed SRN Director as the Principal Investigator. Up to two further individuals from the submitting organization may serve on the SRN Management Team and may be named as co-PIs. No other co-PIs from the submitting organization may be named. Co-PIs from partner organizations who are also members of the Management Team may be named on the cover sheet.

Note: The SRN Management Team will comprise up to three people from each participating organization. For the submitting organization, the SRN Director (the PI) is included as one of the up to three Management Team members. All Management Team members are considered to be senior personnel (see the GPG for definitions). Management Team members do not need to be identified as co-PIs, but any co-PI must be a member of the Management Team. There are no other senior personnel.

2. Project Summary. Both NSF merit review criteria (intellectual merit and broader impacts) must be addressed in separate statements (see NSF Grant Proposal Guide for additional instructions). The summary should be written in the third person, and be informative to persons working in the same or related fields, and understandable to a scientifically or technically literate lay reader. Provide a clear and concise description of the SRN including the rationale, vision and goals, expected impact, and research, education and outreach plans.

3. Table of Contents. A Table of Contents is automatically generated for the proposal by the system. The proposer cannot edit this form.

4. Project Description. The Project Description must contain only Sections (4.a) through (4.e) described below and may not exceed 25 pages including tables and illustrations. The broader impacts resulting from the proposed project must be addressed and described as an integral part of the narrative.

4a. Statement of sustainability theme and overarching vision and goals for the network

State the overall vision and research goals of the integrated Urban SRN. Discuss the SRN's strategic goals. Describe the expected legacy and national and/or global impact of the proposed Urban SRN for sustaining human well-being in a healthy Earth System. Explain why the SRN is needed. Describe the unique opportunities that it will provide and what will be achieved through the integrated network activities that could not be achieved with group or individual support. Indicate the potential impact or expected significance that the SRN's research and network activities will have on the Nation's scientific and educational efforts toward achieving a sustainable future.

Discuss how the network would be sustained once the period of NSF funding has ended.

4b. Outline research program.

Describe disciplinary contributions and the links and synergies between the different activities. Provide a research plan for the SRN with sufficient detail (including example projects) to allow assessment of the scientific merit and to justify the need for the work to be carried out within a network. The research focus and network scope should be sufficiently ambitious to require the resources of an SRN and flexible enough to permit change as the research proceeds. How will individual projects be integrated to realize the SRN's vision and goals? Describe the capabilities and contributions of each network member and partner. How will the SRN complement and leverage, but not duplicate, existing capabilities? Explain how the proposed research relates to other state, national and international research programs.

4c. Management, organization and network evaluation (maximum 4 pages).

Present an initial SRN management plan. Include an organizational chart. Identify the members of the SRN Management Team and explain their specific roles, areas of responsibility and lines of accountability. Describe the management experience and qualifications of the SRN Director and Management Team members to perform their respective roles. Describe the responsibilities of the lead and partner organizations. Explain the role of each key network member and partner and how they will be integrated within the network. Describe the processes to be used to prioritize SRN activities consistent with the goals of the network, to allocate funds and equipment among network members, and to maintain the cohesion of the network.

Describe the role of the External Advisory Committee (EAC) but do not name prospective members (this information will be requested if the proposal is selected for a reverse site visit).

Provide an initial network evaluation plan. Include examples of milestones and metrics that would support the periodic independent assessment of the network performance, including progress towards meeting the SRN's goals and its impacts and achievements. Describe how such an independent assessment would be conducted and how the results and recommendations would be used.

Note that the overall network evaluation need not be conducted by an external evaluator, but that the proposal MUST also include plans for the external evaluation of education, outreach and diversity activities (see next section).

4d. Education, outreach, broadening participation and evaluation.

Present an innovative education plan that describes how the SRN will integrate research, education, and activities that involve public participation and engagement such as citizen science activities and public deliberation and dialogue.

The education goals of an SRN may address the needs of students participating in SRN research activities or students in broader fields of research represented by the SRN activities as appropriate. SRNs are encouraged to focus their education efforts on specific programs that are appropriately integrated into the research activities of the SRN rather than attempting to be comprehensive. Describe plans for the mentoring and professional development of participants at all levels, including undergraduate and graduate students, postdoctoral researchers, and early career faculty. Name the lead organizations and key individuals involved with individual projects, and explain the potential contributions and role of each in the education activity.

Networks should include an external evaluator to evaluate Education and Outreach activities and to provide the Management Team with formative and summative assessments. Proposals must position their Education and Outreach plans with respect to the literature of what is currently known about effective Education and Outreach in sustainability and related fields. Proposals should identify desired outcomes, a minimum set of indicators, and data collection mechanisms, feedback to the Management Team, and how programmatic changes in response to the EAC and evaluator will be assessed.

Describe plans for attracting and retaining a diverse group of students, postdocs, faculty and administrative staff, including U.S. citizens, nationals and permanent residents, and those from underrepresented groups, in the SRN research and education activities. Underrepresented groups include women, minorities (African Americans, Hispanics, Native Americans and Native Pacific Islanders) and people with disabilities. Describe the proposed activities in sufficient detail to allow assessment of their intrinsic merit, potential effectiveness, and their anticipated contribution toward a highly competent and globally engaged technical and instructional workforce and educated citizenry. Demonstrate that the SRN leadership has critically considered broadening participation for groups underrepresented in the sciences, mathematics and engineering and describe the diversity objectives and outline strategies for achieving them at all organizational levels of the SRN activities. Include the contribution/role of partner organizations and how they will be fully integrated into the SRN diversity plans.

4e. Results from Prior NSF Support.

The PI, co-PIs, and Senior Personnel who received NSF funding in the past five years must provide information on the prior award(s), major achievements and relevance to the proposed SRN project. Individuals who have received more than one prior award (excluding amendments) must report on the award most closely related to this proposal. Required information is described in the Grant Proposal Guide.

5. References Cited. Not to exceed five pages.

6. Biographical Sketches (two page limit per person). Biographical Sketches must be provided only for the SRN Director and the other members of the Management Team, which comprises a maximum of three senior personnel (who may be co-PIs) per participating organization. For the lead organization, the PI, as the SRN Director, is considered to be one of the up to three Management Team members. Copies of publications should not be included or sent to NSF.

7. Budget and Budget Justification.

Provide a budget for each year of support requested. FastLane or Grants.gov will automatically provide a cumulative budget. The proposed budget should be consistent with the needs and complexity of the proposed activity. The budget and budget justification should reflect start-up activities at the commencement of the SRN activities. Funds allocated for research, education, broadening participation, and outreach activities must be discernible. Identify items of equipment costing more than \$10,000. Full justification for the latter is required. Individual graduate students may not be supported for a period in excess of five years.

Attach subaward budgets and budget justifications for each participating organization. Since SRN does not accept separately submitted collaborative proposals, the submitting organization will manage funds allocated to other participating organizations as subawards.

For projects involving other federal agencies' laboratories:

Please refer to the GPG, at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg for guidance. NSF is unable to support infrastructure costs in federal laboratories or non-NSF Federally Funded Research and Development Centers or the salaries of federal employees.

For projects involving international collaborations:

- Other Direct Costs: May include, for example, research and education communication linkages between organizations, language training, non-travel costs associated with coordination meetings, and preparation/orientation of students for living abroad. Collaborative research-related activities at foreign sites by U.S. undergraduate students, graduate students, and/or early career researchers also can be funded through direct costs.
- Participant Support Costs: Stipends, travel, subsistence and other costs of participation for undergraduate students or K-12 teachers should be included under Participant Support Costs. Stipends for undergraduate students should be budgeted at rates comparable to those in the Research Experiences for Undergraduates (REU) program (see the current REU program solicitation for details), in addition to any travel and subsistence costs incurred while abroad. Travel, subsistence and other costs of participation in project meetings and workshops for faculty, researchers and students from non-grantee organizations (who are not included in subawards) also should be included under Participant Support Costs.
- Travel: Research-related travel support (i.e., airfare, lodging, meals, and incidental expenses). For living expenses abroad, applicants are encouraged to work with international counterparts to develop realistic budget requests. For example, access to university guest housing or similar facilities should be explored. Cost-effective arrangements should be made for individuals residing at the international site for extended periods and for projects involving on-going exchanges of short-term visitors. Costs for lodging, meals and incidental expenses (MI&E) should not exceed the [authorized U.S. Government per diem rates](#), calculated at the daily rate for the first 30 days of a project visit, and 50 percent of that rate for all time after that.
- Visas and Permits: PIs are responsible for obtaining any required visas for foreign travel and through the U.S. research organization, for providing documentation in support of U.S. visas for foreign counterpart investigators. PIs are also responsible for obtaining research permits and import/export documents, where necessary.
- NSF awards normally support the U.S. portion of the collaboration. International partners are expected to seek support from their respective funding organizations. The NSF budget may be used to support: (1) travel expenses for US scientists and students participating in exchange visits integral to the project; and (2) Project-related expenses to US participants to

engage in research activities while abroad. However, when collaborators are scientists and engineers from a developing country or from a country whose currency is not convertible, limited funds may be requested to support their participation in the project.

- Although reciprocal visits by international researchers and students to U.S. organizations are encouraged, NSF will not usually pay for the expenses of foreign scientists or students undertaking such visits. However, when projects involve exchanges of researchers and/or students, reciprocal arrangements for provision of housing and subsistence are encouraged, with adherence to the overall principle that each side supports equivalent services.

8. Current and Pending Support. Provide current and pending support information for the PI and all members of the Management Team for whom biographical sketches have been provided.

9. Facilities, Equipment and Other Resources.

Provide a synopsis of institutional resources that will be available to the SRN (dedicated space, access to facilities and instrumentation, faculty and staff positions, access to programs that assist with curriculum development or broadening participation of groups underrepresented in the sciences mathematics and engineering, or other institutional programs that could provide support to the SRN). In order for NSF, and its reviewers, to assess the scope of a proposed project, all resources (including those from partner organizations) available to the project, must be described in this section. Note that inclusion of voluntary committed cost sharing is prohibited. The description should be narrative in nature and must not include any quantifiable financial information. See [GPG Chapter II.C.2.i](#) for further guidance.

10 - 13. Required Supplementary Documents and Special Information (to be entered in the Supplementary Documents section of Fastlane):

10. Data Management Plan. This document should describe how the proposal conforms to NSF policy on the dissemination and sharing of research results, which provides that investigators are expected to share with other researchers, at no more than incremental cost and within a reasonable amount of time, the primary data, samples, physical collections, software, curriculum materials, and other supporting materials created or gathered in the course of work under NSF grants. The following items should be included in this subsection:

- the types of data, samples, physical collections, software, curriculum materials, and other materials to be produced in the course of the project;
- the standards to be used for data and metadata format and content (where existing standards are absent or deemed inadequate, this should be documented along with any proposed solutions or remedies);
- policies for access and sharing including provisions for appropriate protection of privacy, confidentiality, security, intellectual property, or other rights or requirements;
- policies and provisions for re-use, re-distribution, and the production of derivatives; and
- plans for archiving data, samples, and other research products, and for preservation of access.

Links to data management requirements and plans relevant to specific Directorates, Offices, Divisions, Programs or other NSF units are available on the NSF website at <http://www.nsf.gov/bfa/dias/policy/dmp.jsp>. See Chapter II.C.2.j of the GPG for further information about the implementation of this requirement.

11. Postdoctoral Researcher Mentoring Plan. Each proposal that requests funding to support postdoctoral researchers must include, as a supplementary document, a description of the mentoring activities that will be provided for such individuals. The mentoring plan must describe the mentoring that will be provided to all postdoctoral researchers supported by the project, irrespective of whether they reside at the submitting organization. Proposers are advised that the mentoring plan may not be used to circumvent the Project Description page limitation.

12. Lists of Partner Organizations and SRN Personnel. This information provides NSF and reviewers with a comprehensive list of the personnel (including, but not limited to, members of the SRN Management Team) and organizations involved in the SRN.

12a. List all personnel who have a role in the management, research, education, and outreach components of the SRN. The list should be sorted alphabetically by last name. Use the following format:

Last name, First name, Organization

12b. Additionally, provide a separate list of all organizations for which there are corresponding SRN personnel grouped in the following categories and sorted alphabetically: Academic organizations; Federal Agencies (including FFRDCs and National Laboratories); Research Museums; Federal Government; State, Local, and Tribal Government; Industry; Non-Governmental Organizations; International Organizations and Other Organizations.

13. Letters of Collaboration. This section should include any letters of collaboration from individuals or organizations that are integral parts of the proposed network, such as collaborating organizations not supported by sub-awards, organizations granting permission to access sites, materials, or data for research. The purpose of letters of collaboration is solely to affirm the willingness of the individual or organization to collaborate in the network as specified in the project description of the proposal. It is not to provide an endorsement of the merits of the proposal, to seek to influence reviewers, or to provide information that should properly have been included within the 25-page limit of the project description.

Letters of collaboration must follow the template below and no additional text may be included. Letters deviating from this template are not accepted and inclusion of non-compliant letters of collaboration may be grounds for returning the proposal without review. Each statement must be signed by the designated collaborator. Requests to collaborators for letters of collaboration should be made by the PI well in advance of the proposal submission deadline, because they must be submitted as part of the proposal.

Letters of collaboration are not required for any individual designated as a principal investigator or co-principal investigator, or member of the Management Team, nor are letters of collaboration required for any organization that will be a sub-awardee in the proposal budget because inclusion of biographical sketches and other information for senior personnel, and subaward budgets for organizations, are considered to be implicit affirmation of their involvement in the network.

Template to be used for letters of collaboration

To: NSF Urban SRN Program

From: _____

(Printed name of the individual collaborator or name of the organization and name and position of the official submitting this memo)

By signing below (or transmitting electronically), I acknowledge that I am listed as a collaborator on this SRN proposal, entitled

"_____(proposal title)_____" with _____(PI name)_____ as the Principal Investigator. I agree to undertake the tasks assigned to me, as described in the proposal, and I commit to provide or make available the resources designated in the proposal.

Signed: _____

Organization: _____

Date: _____

14 - 15. Information to be submitted to NSF via the FastLane Single Copy Documents Section. If submitting via Grants.gov, complete the information and attach as a PDF file (see Field 6, Additional Single Copy Documents, on the NSF Grant Application Cover Page):

14. Conflicts of Interest. Proposals must include a table containing a single alphabetized list of the full names (last name, first name) and institutional affiliations of all people with conflicts of interest for all senior personnel and any named personnel whose salary is requested in the project budget. The table must be organized in three columns: person, institution, and nature of conflict. Conflicts to be identified are (1) Ph.D. thesis advisors or advisees, post-doctoral mentors and mentees; (2) collaborators or co-authors during the past 48 months; and (3) any other individuals with whom, or institutions with which the senior personnel and any named personnel have financial ties, including advisory committees (please specify type). One entry per line. For institutional conflicts, begin with column 2. The Conflicts of Interest table must be submitted in the Single Copy Documents section of the proposal (submitting as a Supplementary Document would make the table accessible to reviewers).

15. Optional Single Copy Documents

- List of suggested reviewers or reviewers not to include (with a brief explanation or justification for why the reviewer should be excluded);
- Proprietary or privileged information (if applicable).

Proposals containing items other than those described above will be returned without review.

Proposals Involving Multiple Organizations

One organization must be identified as the lead, and that organization must submit a single proposal describing the entire project. Funds may be distributed among partner organizations via subawards from the lead organization. **Separately submitted collaborative proposal components will not be accepted.** A budget on the standard NSF budget form should be submitted for each subawardee. See the GPG for additional requirements regarding subawardees.

The requirement for a single organization to submit the sole proposal for a project is designed to facilitate effective coordination among participating organizations and to avoid difficulties that ensue in funded projects when individuals change organizations and/or cease to fulfill project responsibilities.

Proposers are reminded of their responsibilities with regard to subawardees. Should an award be made, the lead organization will be responsible for managing and overseeing all subawardees and ensuring the flow-down of the applicable NSF terms and conditions. Proposers are strongly advised to discuss these requirements with prospective subawardees BEFORE including them in the proposal.

Proposals Involving Collaborators at Foreign Organizations

Proposers are reminded they must provide biographical sketches of all senior project personnel, including those associated with foreign organizations on the Management Team. Letters of collaboration should be provided as supplementary documents.

B. Budgetary Information

Cost Sharing: Inclusion of voluntary committed cost sharing is prohibited

C. Due Dates

- Full Proposal Deadline(s) (due by 5 p.m. proposer's local time):
April 29, 2014

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://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 *Empowering the Nation Through Discovery and Innovation: NSF Strategic Plan for Fiscal Years (FY) 2011-2016*. 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 core strategies 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 provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students, and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the variety of learning perspectives.

Another core strategy in support of NSF's mission is broadening 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

1. Overarching Goals

Does the proposed SRN identify and address an ambitious and nationally important theme, in urban sustainability science that requires the scale, scope, facilities and integration of a large and diverse network?

Will the proposed SRN advance fundamental scientific and engineering knowledge, as well as addressing the overarching goal of overcoming barriers to sustainable human well-being and to forging reasoned pathways to a sustainable future?

2. Interdisciplinarity

How well do the proposed SRN activities integrate across NSF-supported disciplines to create new interdisciplinary networks and/or collaborations?

3. Network Structure

Will the proposed SRN link scientists, engineers and educators in multiple institutions and be geographically dispersed? Will the network promote the direct involvement - from the outset - of participants from a variety of different sectors and perspectives?

To what extent will the proposed SRN build upon but not duplicate existing activities, including those of the federal agencies described in this solicitation?

Does the proposal explain clearly how each of the network partners contributes to the goals and objectives of the network?

Does the proposal describe pathways for translating research into practice through, for example, policy, management and public outreach?

4. Education Outreach and Diversity

Are the proposed educational activities innovative and do they contribute to the unifying mission of the proposed SRN?

How will the proposed activities advance the development of a workforce skilled in the interdisciplinary scholarship needed to understand and address the complex issues of sustainability?

Does the proposal include a vision and plan for leadership in broadening participation of underrepresented groups and does it articulate a credible commitment to diversity as a means of achieving its overall goals?

5. Management, Organization and Evaluation

Are the structure, roles and responsibilities, and management for the proposed SRN appropriate and clear?

Does the proposed SRN Management Team have the vision, experience, and capacity to manage a complex, multi-faceted, and innovative enterprise that integrates research, education, diversity and outreach at the network level?

Will funding and other resources be shared among the network partners?

Are appropriate mechanisms in place to allow the network to adapt and grow as new opportunities arise?

Will the network be sustainable after the period of NSF funding has ended?

Does the proposal include adequate plans for evaluating the overall performance and the external evaluation of the education, outreach and broadening participation activities?

Virtual Reverse Site Visits

For proposals selected for reverse site visits, the site visit team will consider the proposal evaluation and any outstanding issues that were raised during the review process. Details of specific site visit requirements will be provided in advance to those SRN teams invited to participate.

B. Review and Selection Process

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

Proposals will be evaluated by one or more multidisciplinary panels with appropriate domain expertise in science, engineering and education. External ad hoc reviews may be sought from relevant experts if deemed necessary by NSF.

The panel recommendations will be considered by NSF in selecting the most promising proposals for virtual reverse site visit review (RSV). This review will focus on the management and budget of the proposed SRN, and outstanding issues that were raised during the review process. The PIs of the participating SRN teams will be informed in advance of the RSV format and requirements.

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

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

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

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

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

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

B. Award Conditions

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

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

More comprehensive information on NSF Award Conditions and other important information on the administration of NSF awards is contained in the *NSF Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

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 at least 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). Within 90 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.

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:

- Sarah L. Ruth, Directorate for Geosciences, telephone: (703) 292-8521, email: sruth@nsf.gov
- Bruce K. Hamilton, Directorate for Engineering, telephone: (703) 292-8320, email: bhamilto@nsf.gov
- Jonathan Wynn, Directorate for Geosciences, telephone: (703) 292-4742, email: jwynn@nsf.gov
- Anna M. Kerttula de Echave, Directorate for Geosciences, telephone: (703) 292-7432, email: akerttul@nsf.gov
- Sophie B. George, Directorate for Biological Sciences, telephone: (703) 292-2299, email: sgeorge@nsf.gov
- Peter H. McCartney, Directorate for Biological Sciences, telephone: (703) 292-8470, email: pmccartrn@nsf.gov
- Georgia Kosmopoulou, Directorate for Social, Behavioral and Economic Sciences, telephone: (703) 292-7466, email: gkosmopo@nsf.gov
- Richard Boone, Directorate for Education & Human Resources, telephone: (703) 292-8696, email: rboone@nsf.gov
- Sian Mooney, Experimental Program to Stimulate Competitive Research (EPSCoR), telephone: (703) 292-2257, email: smooney@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 at https://public.govdelivery.com/accounts/USNSF/subscriber/new?topic_id=USNSF_179.

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

ABOUT THE NATIONAL SCIENCE FOUNDATION

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

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

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

Facilitation Awards for Scientists and Engineers with Disabilities provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

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

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

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

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

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

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

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

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

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

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