# Geography and Spatial Sciences Program - Doctoral Dissertation Research Improvement Awards (GSS-DDRI)

## **PROGRAM SOLICITATION**

NSF 14-538

## REPLACES DOCUMENT(S): NSF 12-570



#### **National Science Foundation**

Directorate for Social, Behavioral & Economic Sciences Division of Behavioral and Cognitive Sciences

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

August 14, 2014

Second Thursday in August, Annually Thereafter

DDRI Proposal-Submission Deadline

February 12, 2015

Second Thursday in February, Annually Thereafter

DDRI Proposal-Submission Deadline

#### **IMPORTANT INFORMATION AND REVISION NOTES**

This solicitation provides instructions for preparation of proposals for Doctoral Dissertation Research Improvement (DDRI) awards to the Geography and Spatial Sciences (GSS) Program. It replaces instructions that had been included in both the general GSS solicitation (previously NSF 12-570) and in the Social, Behavioral, and Economic Sciences (SBE) Doctoral Dissertation Research Improvement Grant (SBE-DDRIG) announcement (NSF 11-547).

A different solicitation now includes instructions for preparation of proposals of other kinds of proposals for submission to GSS (http://www.nsf.gov/publications/pub\_summ.jsp?ods\_key=nsf14537). Note that the deadlines for submission of other kinds of proposals to GSS are different than the deadlines specified for DDRI proposals in this solicitation.

This solicitation outlines new eligibility criteria for doctoral students submitting DDRI proposals to GSS. Effective in March 2014, an individual will be able to submit only two (2) DDRI proposals to GSS while they are graduate students.

The timing for submission of DDRI proposals to GSS has changed. Two competitions are planned to be held each year. While the first DDRI proposal-submission deadline during a calendar year will remain the second Thursday in February, the second DDRI proposal-submission deadline will be the second Thursday in August. (The second deadline previously had been the second Thursday in October.)

The advisor or another faculty member serving as the principal investigator (PI) of the proposal now is required to submit a signed statement affirming that the student will be able to undertake the proposed research soon after a DDRI award is made. In addition, the PI must affirm that she/he has read the proposal and believes that it makes a strong case for support of the dissertation research project.

The solicitation notes **special review criteria** that GSS will ask reviewers and panel members to address regarding the expected larger-scale, longer-term significance of a project as well as its likelihood of success. Although the wording of these criteria is slightly different than in the previous GSS solicitation, their substance remains the same.

This solicitation provides new clarification regarding certain aspects of DDRI proposal preparation for submission to the Geography and Spatial Sciences Program.

#### 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 17-1), which is effective for proposals submitted, or due, on or after January 30, 2017.

#### **SUMMARY OF PROGRAM REQUIREMENTS**

## **General Information**

**Program Title:** 

Geography and Spatial Sciences Program - Doctoral Dissertation Research Improvement Awards (GSS-DDRI)

#### Synopsis of Program:

As specified in the Geography and Spatial Sciences Program strategic plan, the goals of the NSF Geography and Spatial Sciences (GSS) Program are the following:

- To promote scientific research in geography and the spatial sciences that advances theory and basic understanding and that addresses the challenges facing society.
- To promote the integration of geographers and spatial scientists in interdisciplinary research.
- To promote education and training of geographers and spatial scientists in order to enhance the capabilities of current and future generations of researchers.
- To promote the development and use of scientific methods and tools for geographic research.

The Geography and Spatial Sciences Program sponsors research on the geographic distributions and interactions of human, physical, and biotic systems on Earth. Investigators are encouraged to propose plans for research about the nature, causes, and consequences of human activity and natural environmental processes across a range of scales. Projects on a variety of topics qualify for support if they offer promise of contributing to scholarship by enhancing geographical knowledge, concepts, theories, methods, and their application to societal problems and concerns.

As part of its effort to encourage and support projects that explicitly integrate education and basic research, GSS provides support to improve the conduct of doctoral dissertation projects undertaken by doctoral students enrolled in U.S. universities when the dissertation research is conducted in a scientifically sound manner and it offers strong potential for enhancing more general scientific knowledge.

This solicitation addresses the preparation and evaluation of proposals for Doctoral Dissertation Research Improvement (DDRI) awards.

Instructions for submission of proposals for regular research awards; proposals for awards for conferences, workshops, group-travel support, and community-development or community-serving activities; proposals for research coordination network (RCN) awards; and proposals for rapid-response research (RAPID) awards appear in another GSS solicitation (http://www.nsf.gov/publications/pub\_summ.jsp?ods\_key=nsf14537).

#### 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.

- Antoinette Winklerprins Program Director, 995.41, telephone: (703) 292-7266, email: anwinkle@nsf.gov
- Thomas J. Baerwald Program Director, 995N, telephone: (703) 292-7301, email: tbaerwal@nsf.gov
- Holly Hapke Program Director, 995.39N, telephone: (703) 292-8457, email: hhapke@nsf.gov
- Sunil Narumalani Program Director, 995.03N, telephone: (703) 292-4995, email: snarumal@nsf.gov
- Raquel J. Robinson Program Assistant, 995N, telephone: (703) 292-4626, email: rarobins@nsf.gov

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

• 47.075 --- Social Behavioral and Economic Sciences

## **Award Information**

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 30 to 40

During a fiscal year, GSS expects to recommend (either on its own or jointly with one or more other NSF programs) a total of 30 to 40 doctoral dissertation research improvement (DDRI) awards. (Another GSS solicitation includes instructions for preparation of other kinds of proposals to the GSS program.)

#### **Anticipated Funding Amount:**

\$400,000 to \$600,000 pending availability of funds. Project budgets should be developed at scales appropriate for the work to be conducted. Doctoral dissertation research improvement (DDRI) awards may not exceed \$16,000. This amount includes both direct and indirect costs for the entire duration of the award.

## **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:

DDRI proposals must be submitted with a principal investigator (PI) and a co-principal investigator (co-PI).

The PI must be the advisor of the doctoral student or another faculty member at the U.S. university where the doctoral student is enrolled. There is no limitation on the number of times that an individual may be the principal investigator on a DDRI proposal submitted to GSS, either during a specific competition or over the course of

her/his career.

A doctoral student may submit a DDRI proposal to GSS to support her/his dissertation research only twice during her/his lifetime. A student and her/his advisor therefore should carefully consider what times during the student's graduate program are most appropriate for submission of a DDRI proposal.

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

There are no restrictions or limits.

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

As noted above, there are no limitations on the number of DDRI proposals submitted to GSS by an advisor or other faculty member functioning as the PI during a specific competition or over the course of her/his career.

A doctoral student may submit only two DDRI proposals to GSS to support their dissertation research during her/his lifetime. (This limitation will be implemented starting with DDRI proposals submitted after March 1, 2014. Proposals to support a student's dissertation research prior to that date will not count against this limitation.)

## **Proposal Preparation and Submission Instructions**

#### A. Proposal Preparation Instructions

· Letters of Intent: Not required

· Preliminary Proposal Submission: Not required

- · Full Proposals:
  - Full Proposals submitted via FastLane: NSF Proposal and Award Policies and Procedures Guide (PAPPG) guidelines apply. The complete text of the PAPPG is available electronically on the NSF website at: https://www.nsf.gov/publications/pub\_summ.jsp?ods\_key=papp.
  - 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:

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

#### C. Due Dates

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

August 14, 2014

Second Thursday in August, Annually Thereafter

DDRI Proposal-Submission Deadline

February 12, 2015

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## **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

As specified in the Geography and Spatial Sciences Program strategic plan, the goals of the NSF Geography and Spatial Sciences (GSS) Program are the following:

- To promote scientific research in geography and the spatial sciences that advances theory and basic understanding and that addresses the challenges facing society.
- To promote the integration of geographers and spatial scientists in interdisciplinary research.
- To promote education and training of geographers and spatial scientists in order to enhance the capabilities of current and future generations of researchers.
- To promote the development and use of scientific methods and tools for geographic research.

The Geography and Spatial Sciences Program sponsors research on the geographic distributions and interactions of human, physical, and biotic systems on Earth. Investigators are encouraged to propose plans for research about the nature, causes, and consequences of human activity and natural environmental processes across a range of scales. Projects on a variety of topics qualify for support if they offer promise of contributing to scholarship by enhancing geographical knowledge, concepts, theories, methods, and their application to societal problems and concerns.

As part of its effort to encourage and support projects that explicitly integrate education and basic research, GSS provides support to enhance and improve the conduct of doctoral dissertation projects conducted by doctoral students enrolled in U.S. universities in geography, other spatial sciences, and related fields.

This solicitation provides instructions for preparation of proposals for Doctoral Dissertation Research Improvement (DDRI) awards to the Geography and Spatial Sciences (GSS) Program. It replaces instructions that had been included in both the general GSS solicitation (previously NSF 12-570) and in the Social, Behavioral, and Economic Sciences (SBE) Doctoral Dissertation Research Improvement Grant (SBE-DDRIG) announcement (NSF 11-547).

#### II. PROGRAM DESCRIPTION

Through its competitive grants competitions, the Geography and Spatial Sciences (GSS) Program of the U.S. National Science Foundation seeks to advance basic understanding and methods in geography, other spatial sciences, and related fields to enhance fundamental knowledge and address societal problems. GSS is committed to supporting basic geographic and spatial scientific research as well as wider-ranging interdisciplinary research in which geographers and spatial scientists may play critical roles. In alignment with the NSF strategic plan for Fiscal Years 2012 through 2016, *Empowering the Nation Through Discovery and Innovation* and with the strategic plan for the Division of Behavioral and Cognitive Sciences (BCS) of which it is a part, GSS expects that the research it supports will draw upon and enhance fundamental theory in geography and/or other spatial sciences, and it will encourage and support potentially transformative research that has potential larger-scale, longer-term significance for both basic understanding and for societal benefit. As noted in the GSS strategic plan, GSS will seek to identify and support research projects that may potentially transform geography, other spatial sciences, and related fields by trying to assess the longer-term potential as well as the more immediate significance of research projects.

A proposal submitted for consideration by the Geography and Spatial Sciences Program at NSF will be most competitive if the

research is grounded in relevant geographical and/or spatial scientific theory, if it focuses on one or a few core questions grounded in the theoretical framework that has been established, if it articulates how scientifically sound methods will be used to explore the validity of answers to the core questions, and if the results are likely to contribute not only specific answers to those specific questions but also to the enhancement of broader geographic and/or spatial scientific theory. The project also can draw on and contribute to theory in other fields, but in order to justify support from GSS, a project must show promise of contributing generalizable information and insights that will enhance fundamental geographic and/or spatial scientific theory and thinking. The investigators should plan to disseminate their results through presentations and publications for geographers and spatial scientists as well as other relevant communities.

GSS supports research that involves development of methods and techniques to advance geographic and spatial scientific research. Proposals to develop and advance methods generally are most competitive when they also address substantive questions that are grounded in broader theoretical contexts, because the development of new methods is most compelling when their wider-ranging utility is complemented with convincing demonstrations of their practical utility to address substantive problems.

Although GSS frequently engages in co-review of regular research proposals with other NSF programs, it does so far less frequently with DDRI proposals. Co-review entails multiple programs coordinating the review of a single project proposal. Doctoral students and their advisors who believe that their work might be appropriate for joint review are encouraged to contact program officers for all programs they think might have interest in their work well in advance of proposal-submission deadlines in order to assess whether co-review may be a viable option. Be aware that GSS will not co-review a DDRI proposal submitted to another program if the doctoral student already has had two DDRI proposals evaluated by GSS.

Doctoral dissertation research improvement (DDRI) awards provide support to enhance and improve the conduct of doctoral dissertation projects conducted by doctoral students enrolled in U.S. universities who are conducting scientific research that enhances basic scientific knowledge. As noted in the title of the awards, DDRI awards are meant to improve the conduct of the dissertation research. All DDRI proposals recommended for funding by GSS must clearly demonstrate how the proposed research will contribute to the advancement of basic geographic and/or spatial scientific theory and knowledge. The most competitive proposals will be those that also demonstrate how already significant research will be improved with DDRI funding.

DDRI awards are not intended to provide the full costs of a student's doctoral dissertation research. DDRI awards recommended by GSS will not exceed \$16,000, a total that includes both allowable direct costs and appropriate indirect costs over the duration of the award. Project budgets should be developed at scales appropriate for the work to be conducted and may only include costs directly associated with the conduct of dissertation research.

DDRI awards provide funding for research costs not normally covered by the student's university. Examples of the kinds of expenses that may be included in a DDRI proposal budget are the following:

- Costs associated with travel and related expenses to conduct research at field sites, archives, specialized collections, and/or facilities away from the student's campus
- Costs for data-collection activities, including the conduct of surveys, questionnaires, and/or focus groups or the purchase of extant data, including remotely sensed imagery
- Costs for equipment necessary for the conduct of the project that will be devoted to the project over the duration of the award. (Note that any equipment purchased with NSF funds becomes property of the awardee organization.)
- Costs for payments to research subjects and/or informants
- Costs for materials and supplies required for the conduct of the project
- · Costs for analysis and research services not otherwise available
- Costs for travel to one or two professional meetings to present preliminary research results and obtain feedback to further
  improve the project (Note budgetary limitations specified below in that section of this solicitation. Note also that GSS will not
  recommend a DDRI award solely to provide support to share research results at conferences.)

Costs that cannot be reimbursed by DDRI awards include the following:

- A stipend or salary for the doctoral student or advisor (Note that salaries or payments for work by other individuals whose
  assistance may be essential conduct of the project may be permitted when there is sound justification for such expenses.)
- Costs for tuition, textbooks, or other items not directly related to the conduct of dissertation research.
- Publication costs for articles based on the dissertation, except when the university's degree requirements permit the substitution of published research results for a free-standing dissertation
- Costs for travel of the advisor to the field site and/or professional meetings

DDRI awards may be for one or two years in duration. The dissertation does not have be completed during that time period, but costs associated with research activities to be reimbursed with DDRI funds must be incurred when the award is active.

## III. AWARD INFORMATION

Anticipated Type of Award: Continuing Grant or Standard Grant

Estimated Number of Awards: 30 to 40

During a fiscal year, GSS expects to recommend (either on its own or jointly with one or more other NSF programs) a total of 30 to 40 doctoral dissertation research improvement (DDRI) awards.

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## IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

Proposals may only be submitted by the following:

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#### Who May Serve as PI:

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The PI must be the advisor of the doctoral student or another faculty member at the U.S. university where the doctoral student is enrolled. There is no limitation on the number of times that an individual may be the principal investigator on a DDRI proposal submitted to GSS, either during a specific competition or over the course of her/his career.

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A doctoral student may submit only two DDRI proposals to GSS to support their dissertation research during her/his lifetime. (This limitation will be implemented starting with DDRI proposals submitted after March 1, 2014. Proposals to support a student's dissertation research prior to that date will not count against this limitation.)

#### **Additional Eligibility Info:**

None

#### 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: <a href="http://www.nsf.gov/publications/pub\_summ.jsp?cds\_key=gpg">http://www.nsf.gov/publications/pub\_summ.jsp?cds\_key=gpg</a>. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by email 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.

## **Proposal Format**

Proposals not in conformance with the proposal-preparation requirements of the GPG or NSF Grants.gov Application Guide may be returned without review.

Proposers should be sure to note explicit formatting requirements regarding proposal pagination, fonts, margins, line spacing, and page formatting. Proposers must adhere to these requirements in order to ensure the readability of proposals and to ensure that the proposers are not seen as trying to gain an unfair advantage over other proposers in the same competition.

For some sections of the GSS DDRI proposal, guidance provided below takes precedent over the requirements specified in the *GPG* and *NSF Grants.gov Application Guide*. Proposers should carefully review this section to ensure that their DDRI proposal is prepared properly before the proposal is submitted to GSS. **Failure to comply with GSS DDRI solicitation-specific instructions may also result in a proposal being returned without review.** 

Proposal Sections to Be Prepared as Directed in the Grant Proposal Guide or the NSF Grants.gov Application Guide

The following sections of the proposal are mandatory and should be prepared in accordance with instructions regarding those sections in the *Grant Proposal Guide* or the *NSF Grants.gov Application Guide*:

- Project Summary (Note the requirements regarding explicit discussion of the intellectual merit and broader impacts in separate subsections)
- References Cited (Note that this is a separate section of the proposal and that it immediately follows the Project Description)
- Biographical Sketches (Note that biographical sketches for the advisor (PI), doctoral student (co-PI), additional co-PIs, and other senior personnel should include all required sections.)
- Collaborators and Other Affiliations Information (Note that a Single-Copy Document is required for all PIs, co-PIs, and other senior personnel. Each document should have the individual's name at the top and should consist of a list of collaborators and other affiliations in accordance with GPG Chapter II.C.1.e.)
- Budgets (Note that a narrative with budget justification should follow the budget forms, with explanations for all costs being as detailed as possible.)
- Current and Pending Support (Note that this proposal is considered a pending activity and should be listed on the form for the advisor, doctoral student, and any other Pls.)
- Facilities, Equipment, and Other Resources (Note that descriptions of other resources that may assist in the conduct of the project may be identified, but these descriptions should be narrative in nature and must not include any quantifiable financial information. Note also that if there are no facilities, equipment, or other resources to describe, a statement to that effect must be included in the proposal.)

#### Proposal Sections with Special Instructions for Proposals Submitted in Response to This Solicitation

The following sections of the proposal are mandatory and should be prepared in accordance to the following supplementary instructions as well as to guidance in the *Grant Proposal Guide* or the *NSF Grants.gov Application Guide*.

#### Proposal Cover Sheet

The solicitation number for this solicitation should be specified as the program solicitation number. Proposers should not use the number for the solicitation for other kinds of awards made by the GSS Program, the number of the SBE Doctoral Dissertation Research Improvement

Grants solicitation, or the number of the NSF Grant Proposal Guide.

For the NSF organizational unit to consider the proposal, select BCS-Geography and Spatial Sciences. You may select additional programs if you would like those programs to consider co-review of your proposal with GSS. (Note that GSS normally does not engage in co-review of DDRI proposals with other programs because of the extra work involved relative to the size of the awards, so a request for co-review should be made only when Pls believe the proposed work makes a strong case for advancing theory and basic knowledge in multiple communities served by multiple programs.)

"Doctoral Dissertation Research:" should be the prefix before the substantive title of the DDRI proposal. The substantive title of the proposal should follow. This substantive portion of the title should describe the project in concise, informative language so that a scientifically or technically literate reader could understand what the project is about. The title should emphasize the scientific work to be undertaken. Proposers should not use "cute" or "attention-grabbing" subtitles, because such phrases will lead reviewers to question the intellectual significance of the project.

## Personnel Listed on the Cover Sheet

DDRI awards focus on providing support for the dissertation research of a doctoral student. The student's advisor or another faculty member at the university where the student is enrolled must serve as the principal investigator (PI) of the proposal, however. The student must be listed as a co-principal investigator (co-PI). In cases when a student is working closely with multiple faculty members, an additional faculty member may be added as another co-PI. (Note that identification of an individual as a PI or co-PI means that they will have administrative responsibility for an award based on the proposal.)

## **Project Description**

As specified in Chapter II, Section C.2.d of the NSF *Grant Proposal Guide* and in the comparable section of the *NSF Grants.gov Application Guide*, the project description should be a clear statement of the work to be undertaken. Proposers should note that the project description must contain a separate section within the narrative that discusses the broader impacts of the proposed activities.

To be competitive for GSS funding, the project description should provide clear descriptions of relevant literature and theoretical frameworks within which the project is set, a complete description of the research methods that will be used, and discussion of the expected intellectual merit and broader impacts that may result from the project.

Proposers should note the special review criteria that are used to complement consideration of the standard NSF merit review criteria and to explicitly identify the expected larger-scale, longer-term significance of their project as well as its likelihood of success

Letters of support from other individuals and/or organizations that are not permitted as supplementary documents may be included in the project description.

Although a discussion of the results from prior NSF support are required for most proposals, if the PI and/or any co-PIs have had NSF funding within the last five years, results from prior support do not need to be provided for the PI or any other senior personnel.

The project description of a GSS-DDRI proposal may not be more than ten (10) pages in length. Up to two (2) additional pages in the project description may be used to present graphics that illustrate any portion(s) of the project description. These graphics may be maps, photos, satellite imagery, flow charts, or any other format that is predominantly graphic rather than textual. Captions on the graphics pages must be short and cannot incorporate lengthy explanatory statements. Tables or other predominantly textual material are not considered to be graphics and cannot be included on these additional two pages. Each graphic must be referenced from the text in the project description. Graphics may also be included along with text in the first ten (10) pages of the project description, but Pages 11 and 12 of the project description cannot have any content other than graphics and brief captions.

## Special Information and Supplementary Documentation

Following are supplementary documents for which special instructions are provided for proposals submitted in response to this solicitation that supplement guidance in the *Grant Proposal Guide* and the NSF *Grants.gov Application Guide*:

#### Data-Management Plan

All proposals must include as a supplementary document a plan for data management and sharing the products of research. The

data-management plan to be submitted with a proposal must be no longer than two (2) pages in length and must be included as a supplementary document.

In preparing their data-management plans, proposers should address all five of the points specified in Chapter II, Section C.2.j of the *Grant Proposal Guide* and the comparable section of the *NSF Grants.gov Application Guide*. Proposers are especially encouraged to specify how they intend to make data, software, and other products of the research readily available to potential users through institutionally based archives, repositories, and/or distribution networks so that the products may be easily accessed by others over long time periods.

#### Signed Statement from the Principal Investigator

The advisor or other faculty member serving as the principal investigator (PI) of the proposal now is required to submit a signed statement affirming that the student will be able to undertake the proposed research soon after a DDRI award is made. In addition, the PI must affirm that she/he has read the proposal and believes that it makes a strong case for support of the dissertation research project.

The following template must be used to prepare this statement, with changes permitted only to provide information where there are blank lines in the template. Additional text is not permitted. The statement must be signed by the PI. (In very unusual cases, an electronic signature or equivalent may be permitted, but replacement of a real signature with a Pl's real equivalent is permitted only with prior written approval from a GSS program officer.)

#### Required template for a statement signed by the PI:

To: NSF Geography and Spatial Sciences (GSS) Program

	From:	[Insert name of the PI]	
	By signing below, I affirm that, to the best of my knowledge, the proposal titled  "		
	[remove the inappro the NSF Geography student].	priate word and the slash] of a doctoral dissertation research improvement (DDRI) proposal to and Spatial Sciences (GSS) Program by [insert name of doctoral	
	I affirm that the doctoral student is at a stage in her/his graduate program that makes it very likely that the student will be able to undertake the dissertation research described in this proposal soon after a DDRI award is made.		
		read this proposal, and I believe that this proposal makes a strong case for NSF oject. [Print this paragraph in bold text]	
	Signed:	[Insert PI's signature]	
	University:	[Insert university name]	
	Date:	[Insert date that the statement is signed by the PI]	
Letter	s of Collaboration or	Letters of Commitment	
with th	e doctoral student and	tten as letters or as free-standing e-mail messages) from individuals and/or organizations that will work for provide in-kind support for the proposed project may be included as supplementary documents. From other individuals at the student's university or from that university.	
suppor	t for the project in way	ers of commitment should focus on the willingness of the letter's author to collaborate or provide in-kind is that have been outlined in the project description. Such letters should not argue for support of the	
project		ter detail what activities the collaborator will undertake and/or by elaborating reasons for supporting the nay be included in the first ten pages of the project description of the proposal, but such supportive text entary document.	
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organization ar	d name and position of the official submitting this letter]
By signing or tr [Insert doctoral	ansmitting this message electronically, I acknowledge that I will assist " [Insert proposal title].
I commit to pro seeks support	vide or make available the resources designated in the project description of the proposal that for this project.
Signed:	[Insert the signature or name of the author of this letter]
Organization: [Insert the name of the orga representing or with which the author is associated]	[Insert the name of the organization the letter's author is with which the author is associated]
Date:	[Insert the date when the letter is signed or transmitted]
IRB and/or IACUC Cer	tifications
Institutional Animal Care be included on appropri	ation's Institutional Review Board (IRB) has approved plans for research involving human subjects or the and Use Committee (IACUC) has approved research involving vertebrate animals, certification of that mate sections of the cover sheet. Documentation of the certification may be included as a supplementary trequired if sufficient information is provided by the sponsored projects office on the cover sheet of the
	have not approved the research plans when the proposal is submitted, the appropriate box(es) should be neet and "Pending" should be listed on the line that follows. If IRB or IACUC approval is granted while the

may

If t d be ch the proposal is under review at NSF, certification of the approval should be sent to the managing GSS program director. If the IRB or IACUC asks that plans be forwarded to it for approval, have the application ready to go, because notification from the program director that she/he would like to recommend the proposal for an award may come with a very brief time period during which necessary materials (including the IRB or IACUC certification) must be obtained. If the required certifications cannot be supplied quickly, GSS program directors may have to recommend other meritorious projects that can be funded right away.

Most IRB or IACUC approvals are valid for specific time periods. If the expiration of the current approval will occur before or soon after the possible start date for an award, be prepared to seek renewal of the approval so that you have an active certification if you are informed the proposal will be recommended for funding. Once you receive written certification that your renewal has been approved, forward it to the managing program officer of your proposal.

#### Other Supplementary Documents

Unless authorized here or in the NSF Grant Proposal Guide or the NSF Grants.gov Application Guide, no other materials should be included in this section. Survey or interview protocols are not permitted in this section, nor are reprints of articles previously published by the investigators. Proposals that include materials in this section that belong in the project description may be returned without review.

Letters of recommendation, letters of support, transcripts, and other such materials should not be included as supplementary documents.

## **Appendices**

No appendices are permitted.

## **B. Budgetary Information**

#### Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

#### Other Budgetary Limitations:

Project budgets should be developed at scales appropriate for the work to be conducted.

DDRI awards supported by GSS may not exceed \$16,000, a total that must include both allowable direct costs and appropriate indirect costs for the entire duration of the award.

The direct costs requested in a DDRI proposal must be allowable costs that will improve the conduct of dissertation research. Student stipends, tuition expenses, assistantships, and the doctoral advisor's travel expenses are NOT eligible for support. Travel to conferences to disseminate the results of research and obtain constructive feedback prior to completion of the dissertation may be included in the proposal, but DDRI awards recommended by GSS should not have direct conference travel costs that exceed \$1,000 for one conference or a total of \$1,500 for two conferences. DDRI awards will not be recommended by GSS solely to support travel to conferences to disseminate research results.

## C. Due Dates

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

August 14, 2014

Second Thursday in August, Annually Thereafter

DDRI Proposal-Submission Deadline

February 12, 2015

Second Thursday in February, Annually Thereafter

Starting in 2014, the deadlines for submission of full Doctoral Dissertation Research Improvement (DDRI) proposals to the Geography and Spatial Sciences (GSS) Program are the second Thursday in February and the second Thursday in August each year. Note that this is a change from previous GSS-DDRI deadlines, which had been in February and October.

There is one annual deadline for submission to GSS of proposals for regular research project awards; for awards for conferences, workshops, group-travel support, and community-development or community-serving activities; and for research coordination network (RCN) awards. That deadline is the first Thursday of September. Information about submission of these proposals to GSS is accessible at http://www.nsf.gov/funding/pgm\_summ.jsp?pims\_id=505034.

## D. FastLane/Grants.gov Requirements

#### For Proposals Submitted Via FastLane:

To prepare and submit a proposal via FastLane, see detailed technical instructions available at: <a href="https://www.fastlane.nsf.gov/a1/newstan.htm">https://www.fastlane.nsf.gov/a1/newstan.htm</a>. 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: <a href="http://www.grants.gov/web/grants/applicants.html">http://www.grants.gov/web/grants/applicants.html</a>. 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: <a href="mailto:support@grants.gov">support@grants.gov</a>. 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 PAPPG 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, Pls 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 decisionmaking processes; each criterion is necessary but neither, by itself, is sufficient. Therefore, proposers must fully address both criteria. (PAPPG Chapter II.C.2.d(i). contains additional information for use by proposers in development of the Project Description section of the proposal). Reviewers are strongly encouraged to review the criteria, including PAPPG Chapter II.C.2.d(i), prior to the review of a proposal.

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

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

The following elements should be considered in the review for both criteria:

- 1. What is the potential for the proposed activity to
  - a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
  - b. Benefit society or advance desired societal outcomes (Broader Impacts)?
- 2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
- 3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
- 4. How well qualified is the individual, team, or organization to conduct the proposed activities?

  5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. NSF values the advancement of scientific knowledge and activities that contribute to achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and 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**

As noted in the GSS strategic plan, GSS encourages and supports potentially transformative research that has potential largerscale, longer-term significance for both basic understanding and for societal benefit. To help identify research projects that may potentially transform geography, other spatial sciences, and related fields, GSS seeks to assess the longer-term potential as well as the more immediate significance of research projects. As a complement to assessing the intellectual merit and the potential broader impacts of a proposed project, members of GSS advisory panels and other reviewers will be asked to provide responses to two questions:

As described in the proposal, what is the expected larger-scale, longer-term significance of the project if the project is conducted successfully?

#### As described in the proposal, what is the likelihood that the project will be conducted successfully?

Reviewers and GSS advisory panel members will be asked to assign scores in response to each of these questions using a 7-point scale:

As described in the proposal, what is the expected larger-scale, longer-term significance of the project if the project is conducted successfully?

- 7 Extremely significant
- 6 Very significant
- 5 Significant
- 4 Moderately significant
- 3 Somewhat significant
- 2 Very mildly significant
- 1 Not significant

As described in the proposal, what is the likelihood that the project will be conducted successfully?

- 7 Very, very likely to succeed
- 6 Very likely to succeed
- 5 Reasonably likely to succeed
- 4 Moderate chances of success
- 3 Minor chances of success
- 2 Minimal chances of success
- 1 Very unlikely to succeed

Proposals generally will be most competitive if both scores assessing potential significance and likelihood of success are high.

#### **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 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 *Proposal & Award Policies & Procedures Guide* (PAPPG) Chapter VII, available electronically on the NSF Website at https://www.nsf.gov/publications/pub\_summ.jsp?ods\_key=papp.

## 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 Pls and co-Pls on a given award. Pls should examine the formats of the required reports in advance to assure availability of required data.

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

More comprehensive information on NSF Reporting Requirements and other important information on the administration of NSF awards is contained in the NSF Proposal & Award Policies & Procedures Guide (PAPPG) Chapter VII, available electronically on the NSF Website at https://www.nsf.gov/publications/pub\_summ.jsp?ods\_key=papp.

## **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:

- Antoinette Winklerprins Program Director, 995.41, telephone: (703) 292-7266, email: anwinkle@nsf.gov
- Thomas J. Baerwald Program Director, 995N, telephone: (703) 292-7301, email: tbaerwal@nsf.gov
- Holly Hapke Program Director, 995.39N, telephone: (703) 292-8457, email: hhapke@nsf.gov
- Sunil Narumalani Program Director, 995.03N, telephone: (703) 292-4995, email: snarumal@nsf.gov
- Raquel J. Robinson Program Assistant, 995N, telephone: (703) 292-4626, email: rarobins@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.

For all general inquiries to the GSS program, please email gss-info@nsf.gov. This email will reach all current GSS program officers and one of them will reply to you.

#### IX. OTHER INFORMATION

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

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

#### ABOUT THE NATIONAL SCIENCE FOUNDATION

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