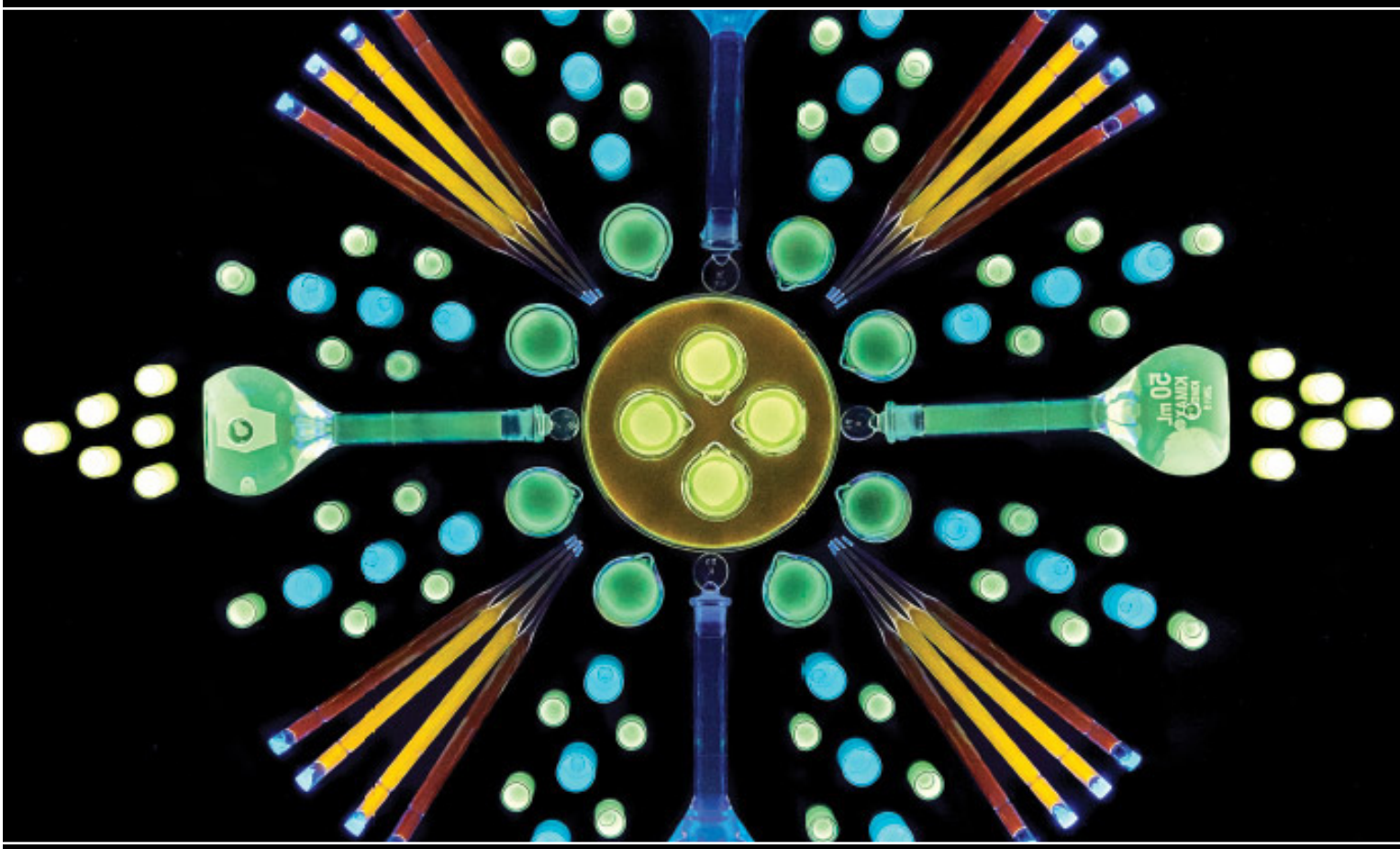
THE NATIONAL SCIENCE FOUNDATION

PROPOSAL AND AWARD POLICIES AND PROCEDURES GUIDE



National Science Foundation
WHERE DISCOVERIES BEGIN

Effective June 1, 2020
NSF 20-1
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Significant Changes and Clarifications to the *Proposal & Award Policies & Procedures Guide* (PAPPG) (NSF 20-1)

Effective Date June 1, 2020

Overall Document

Editorial changes have been made throughout to either clarify or enhance the intended meaning of a sentence or section. References to the Large Facilities Manual have been updated to the new title of Major Facilities Guide.

Significant Changes

- **Chapters I.G, How to Submit Proposals, II.C.1.d, Proposal Certifications and XI.A, Non-Discrimination Statutes and Regulations** have been updated to implement Office of Management and Budget Memorandum M-18-24, "*Strategies to Reduce Grant Recipient Reporting Burden*". Proposing organizations must submit government-wide representations and certifications in the System for Award Management (SAM). These certifications must be re-certified annually. NSF-specific proposal certifications must still be provided via the Authorized Organizational Representative function in NSF's electronic systems. Prior exhibits in Chapter II on the Drug Free Workplace Certification, Debarment and Suspension, Lobbying and Nondiscrimination have been deleted. Reference to the Certification of Compliance/Civil Rights Certifications in Chapter XI.A.2 has been removed as Nondiscrimination Certifications will now be provided in SAM.

- **Chapter II.C.2.f, Biographical Sketches,** has been modified to require use of an NSF-approved format in submission of the biographical sketch. NSF will only accept PDFs that are generated through use of an NSF-approved format.

  Note: The requirement to use an NSF-approved format for preparation of the biographical sketch will go into effect for new proposals submitted or due on or after October 5, 2020. In the interim, proposers must continue to prepare this document in accordance with the guidance specified in the PAPPG (NSF 20-1). NSF, however, encourages the community to use the NSF-approved formats and provide valuable feedback as we enhance them for the October implementation.

- **Chapter II.C.2.h, Current and Pending Support,** has been modified to require use of an NSF-approved format in submission of current and pending support information. NSF will only accept PDFs that are generated through use of an NSF-approved format.

  Note: The requirement to use an NSF-approved format for preparation of current and pending support will go into effect for new proposals submitted or due on or after October 5, 2020. In the interim, proposers must continue to prepare this document in accordance with the guidance specified in the PAPPG (NSF 20-1). NSF, however, encourages the community to use the NSF-approved formats and provide valuable feedback as we enhance them for the October implementation.

- **Chapter II.E.1 and 2, Rapid Response Research (RAPID) Proposal and EArly-concept Grants for Exploratory Research (EAGER) Proposal,** have been supplemented with language which clarifies how RAPID and EAGER proposals may not be used. A new requirement that email documentation from a cognizant NSF Program Officer approving submission of a RAPID or EAGER be uploaded to the proposal also has been added.

Clarifications and Other Changes

- **Introduction Section A, About the National Science Foundation,** has been supplemented with expanded language on NSF support of small businesses, industrial partnerships and product innovations.

- **Chapter I.A, NSF Proposal Preparation and Submission,** has been updated to specify that Research.gov is being incrementally enhanced to support additional proposal and submission types. Proposers should check the Research.gov website for the latest list of capabilities.

- **Chapter II.C.1.b, List of Suggested Reviewers or Reviewers Not to Include,** has been updated to remove the requirement to indicate why the proposer prefers someone not review their proposal.

- **Chapter II.C.1.e, Collaborators & Other Affiliations Information,** has been updated to remove language requiring the user to save the format in .xlsx, as well as deletion of coverage on the conversion of the file by FastLane to PDF. Guidance has been added to clarify that the instructions at the top of the template may be deleted and rows may be inserted as needed to provide additional names.

- **Chapter II.C.2.a(4)(e)(ii), Cover Sheet,** provides clarification on the project/performance site instructions for research infrastructure projects.

- **Chapter II.C.2.d(i), Project Description,** has been revised to remove the requirement for the Project Description to contain, as a separate section within the narrative, a section labeled "Intellectual Merit". In addition, another example has been added to the list of societally relevant outcomes in the broader impacts paragraph. The list is not meant to be either comprehensive or prescriptive; proposers may include appropriate outcomes not covered by the examples.

- **Chapter II.C.2.f, Biographical Sketches,** has been supplemented with additional language to the Appointments section, to increase clarity regarding the information that must be provided. Appointments should include any titled academic, professional, or institutional position, whether or not remuneration is received.

- **Chapter II.C.2.f(i)(d), Synergistic Activities,** has been updated to clarify that synergistic activities should be specific and must not include multiple examples to further describe the activity.

- **Chapter II.C.2.g, Budget and Budget Justification,** has been supplemented with a reminder that proposers should check solicitations for additional budgetary preparation requirements for mid-scale and major facilities proposals. In section II.C.2.g.(v) on Participant Support, language on costs related to service agreements/contracts has been revised to improve clarity. A similar change has been made to section II.E.7, Meals and Coffee Breaks. In addition, section II.C.2.g.(vi)(b) has been supplemented with additional types of costs that may appear under "Publication/Documentation/Dissemination" on Line G.2 of the NSF budget. Definitions for each of the categories are provided via footnote.

- **Chapter II.C.2.h, Current and Pending Support,** has been revised to clarify NSF's longstanding requirements regarding submission of current and pending support information.

- **Chapter II.D.3.b, Submission of a collaborative proposal from multiple organizations,** has been updated to reflect that for these proposals, the project title must begin with the words "Collaborative Research:"

- **Chapters II.D.5, Proposals Involving Human Subjects and XI.B.1.a, Human Subjects,** have been updated to improve clarity and for consistency with current practice.

- **Chapter II.D.7, Projects Requiring High-Performance Computing Resources, Data Infrastructure, or Advanced Visualization Resources,** incorporates updated information on this topic.

- **Chapter II.E.7, Conference Proposal,** requires that information on the complaint submission and resolution process be included in the policy or code-of-conduct proposers disseminate to conference participants. It also requires that a plan for recruitment of, and support for, speakers and other attendees, that includes participation of groups underrepresented in science and engineering must be included in the proposal. In addition, a description of plans to identify resources for child care and other types of family care at the conference site must be included as well.

- **Chapter II.E.11, Research Infrastructure Proposal,** has been supplemented with a definition of research infrastructure.

- **Chapter V, Renewal Proposals,** incorporates a reaffirmation of the National Science Board principle on recompetition.

- **Chapter VII.B.2.b and d, Changes in Person-Months Devoted to the Project and Withdrawal of PI/PD or co-PI/co-PD,** have been updated to reflect that such requests must be submitted at least 30 days before the proposed change, or as soon as practicable after the prospective change/withdrawal is known.

- **Chapter IX.B, Responsible and Ethical Conduct of Research (RECR),** has been supplemented with explanatory text regarding organization's RECR responsibilities. In addition, new language has been added that references several National Academies of Sciences, Engineering and Medicine reports, which NSF encourages organizations to consider in meeting RECR requirements.

- **Chapter IX.D, Property Management Standards**, has been revised to specify that for IHEs or other non-profit organizations, small businesses or other for-profit organizations, and foreign public entities or foreign organizations, title to equipment purchased with NSF funds will normally vest in the grantee organization upon acquisition. Use of updated terminology (e.g., Federally-owned property) is incorporated to align with the Uniform Guidance. A new section on Property Management Requirements for Federally-Owned Property has been included and the due date for submission of the required annual inventory report for Federally-owned property has been updated to reflect October 15 each year.

- **Chapter XI.A, Non-Discrimination Statutes and Regulations**, incorporates an email address that should be used to communicate an allegation of discrimination to NSF. The website address where information on the compliant process can be found has been updated.

- **Chapter XII.C.3, Reporting Possible Misconduct,** has been supplemented with a website address where possible misconduct in activities funded by NSF can be reported.

PROPOSAL & AWARD POLICIES & PROCEDURES GUIDE (PAPPG)
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Introduction:

Introduction:

A. About the National Science Foundation

The National Science Foundation (NSF) is an independent Federal agency created by Congress in 1950 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.

From those first days, NSF has had a unique place in the Federal Government: it is responsible for the overall health of science and engineering across all disciplines. In contrast, other Federal agencies support research focused on specific missions such as health or defense. The Foundation also is committed to ensuring the nation's supply of scientists, engineers, and science and engineering educators.

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to approximately 3,000 institutions of higher education, K-12 school systems, businesses, informal science organizations and other research organizations throughout the U.S. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

The Foundation considers proposals[1] submitted by organizations on behalf of individuals or groups for support in most fields of research. Interdisciplinary proposals also are eligible for consideration.

NSF does not normally support technical assistance, pilot plant efforts, research requiring security classification, the development of products for commercial marketing, or market research for a particular project or invention. Research with disease-related goals, including work on the etiology, diagnosis or treatment of physical or mental disease, abnormality, or malfunction in human beings or animals, is normally not supported. Animal models of such conditions or the development or testing of drugs or other procedures for their treatment also are not eligible for support. However, research in bioengineering or information technology, with diagnosis- or treatment-related goals, that applies engineering or computer science principles to problems in biology and medicine while advancing engineering or computer science knowledge is eligible for support. Bioengineering and assistive information technology research to aid persons with disabilities also is eligible.

NSF does not have any programs involving the construction of public works in metropolitan areas, no development assistance programs, no programs requiring State plans as a condition of assistance, none involving coordination of planning in multi-jurisdictional areas and no programs of grants to State and local governments as defined in Section 6501(4) of Title 31 of the United States Code (USC).

NSF receives more than 50,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives more than 15,000 applications for graduate and postdoctoral fellowships. One of NSF's flagship programs, the NSF Graduate Research Fellowship Program (GRFP) helps ensure the vitality and diversity of the scientific and engineering workforce; the program awards about 2,000 fellowships each year. Guidance regarding the GRFP program may be found in the program solicitation, as well as in the GRFP Administrative Guide. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Antarctic research stations.

The Foundation also supports cooperative research between institutions of higher education (IHEs) and industry, technical research and development on innovations from the small business community, U.S. participation in international scientific and engineering efforts, and educational activities at every academic level. America's Seed Fund powered by NSF - the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs – annually provides approximately 400 startups and small businesses with research and development (R&D) funding to create and develop a prototype or conduct proof-of-concept work, as the foundation for the introduction of innovative new products or services, getting research, much of it NSF-funded, out of the lab and into the market. NSF's Innovation Corps (I-Corps™) program supports NSF-funded researchers in the form of entrepreneurial education, mentoring and funding to accelerate the translation of knowledge derived from fundamental research into emerging products and services. Scientists and engineers can also increase the impact

[1] For purposes of this Guide, the term "proposal" is interchangeable with the term "application."

of their NSF-funded research discoveries by developing their technology into a prototype or proof-of-concept through the Partnerships for Innovation (PFI) program, one of the National Science Foundation's technology translation programs. Guidance regarding the NSF's SBIR, STTR, I-Corps™ and PFI programs may be found in their respective program solicitations.

NSF is structured much like a university, with divisions/offices for the various disciplines and fields of science and engineering and for science, technology, engineering and mathematics education. NSF also uses a variety of management mechanisms to coordinate research in areas that cross traditional disciplinary boundaries. The Foundation is assisted by advisors from the scientific and engineering communities who serve on formal committees or as *ad hoc* reviewers of proposals. This advisory system, which focuses on both program directions and specific proposals, involves approximately 50,000 scientists and engineers each year. NSF staff members who are experts in a certain field or area make award recommendations; Principal Investigators (PIs) receive unattributed verbatim copies of peer reviews.

Grantees are wholly responsible for conducting their project activities and preparing the results for publication. Thus, the Foundation does not assume responsibility for such findings or their interpretation.

NSF has Text Telephone (TTY) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing or speech impairments to communicate with the Foundation about NSF programs, employment or general information. TTY may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The NSF Information Center may be reached at (703) 292-5111.

B. Foreword

The *Proposal & Award Policies & Procedures Guide (PAPPG)* is comprised of documents relating to the Foundation's proposal and award process for the assistance programs of NSF. The PAPPG, in conjunction with the applicable standard award conditions incorporated by reference in the award[2], serve as the Foundation's implementation of 2 CFR § 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards*. If the PAPPG and the award conditions are silent on a specific area covered by 2 CFR § 200, the requirements specified in 2 CFR § 200 must be followed.

It has been designed for use by both our customer community and NSF staff and consists of two parts:

- Part I sets forth NSF's proposal preparation and submission guidelines. The coverage provides guidance for the preparation and submission of proposals to NSF. Some NSF programs have program solicitations that modify the general provisions of the PAPPG, and, in such cases, the guidelines provided in the solicitation must be followed.

  The policy and procedural guidance contained in the *NSF Grants.gov Application Guide* should be followed when preparing and submitting proposals to NSF via Grants.gov.

- Part II of the NSF PAPPG sets forth NSF policies and procedures regarding the award, administration, and monitoring of grants and cooperative agreements. Coverage includes the NSF award process, from issuance and administration of an NSF award through closeout. Guidance is provided regarding other grant requirements or considerations that either are not universally applicable or do not follow the award cycle. Part II also implements other Public Laws, Executive Orders (E.O.) and other directives insofar as they apply to grants, and is issued pursuant to the authority of Section 11(a) of the NSF Act (42 USC § 1870). When NSF Grant General Conditions or an award notice reference a particular section of the PAPPG, then that section becomes part of the award requirements through incorporation by reference.

The PAPPG does not apply to NSF contracts. For information relating to NSF contracts, consult the Guide to the NSF Contracting Process.

General information about NSF programs may be found on the NSF website at: https://www.nsf.gov/funding/. Additional information about special requirements of individual NSF programs may be obtained from the appropriate Foundation program office. Information about most program deadlines and target dates for proposals are available on the NSF website at: http://www.nsf.gov/funding/pgm_list.jsp?org=NSF&ord=date. Program deadline and target date information also appears in individual program announcements and solicitations and on relevant NSF Divisional/Office websites.

Assistance Listings

The System for Award Management (SAM) provides detailed, public descriptions of all Federal assistance listings. SAM replaces the Catalog of Federal Domestic Assistance (CFDA), and all CFDA.gov functionality and data can now be found on beta.SAM.gov. Each assistance listing, however, continues to be associated with a unique five-digit CFDA number.

NSF programs fall under the following listings on the beta.SAM.gov site:

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
47.078 -- Polar Programs

[2] See Chapter VI.C. for additional information on NSF award conditions.

47.079 -- Office of International Science & Engineering
47.083 -- Office of Integrative Activities

Any questions or comments regarding the NSF PAPPG should be addressed to the Policy Office, Division of Institution & Award Support, at policy@nsf.gov.

C. Acronym List

ABR	Accomplishment-Based Renewal
ACH	Automated Clearing House (U.S. Treasury)
ACM$	Award Cash Management Service
AD	Assistant Director
ADPE	Automatic Data Processing Equipment
APHIS	Animal and Plant Health Inspection Service
AOR	Authorized Organizational Representative
BFA	Budget, Finance & Award Management
CA	Cooperative Agreement
CAFATC	Cooperative Agreement Financial/Administrative Terms and Conditions
CAP	Cost Analysis and Pre-award Branch
CAPTC	Cooperative Agreement Programmatic Terms and Conditions
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CGI	Continuing Grant Increment
CMIA	Cash Management Improvement Act
COA	Collaborators and Other Affiliations
COI	Conflict of Interest
co-PD	co-Project Director
co-PI	co-Principal Investigator
CSA	Cooperative Support Agreement
CSB	CSB Cooperative Support Branch
DACS	Division of Acquisition and Cooperative Support
DAS	Division of Administrative Services
DCL	Dear Colleague Letter
DD	Division Director
DFM	Division of Financial Management
DGA	Division of Grants and Agreements
DHHS	Department of Health and Human Services
DIAS	Division of Institution and Award Support
DOC	Department of Commerce
DUNS	Data Universal Numbering System
DURC	Dual Use Research of Concern
EAGER	EArly-Concept Grants for Exploratory Research
EFT	Electronic Funds Transfer
EEO	Equal Employment Opportunity
E.O.	Executive Order
F&A	Facilities & Administrative Costs
FAPIIS	Federal Awardee Performance and Integrity Information System
FAQs	Frequently Asked Questions
FAR	Federal Acquisition Regulation
FASED	Facilitation Awards for Scientists and Engineers with Disabilities
FDP	Federal Demonstration Partnership
FEMA	Federal Emergency Management Agency
FFRDC	Federally Funded Research and Development Centers
FIRS	Federal Information Relay Service
FOIA	Freedom of Information Act
FOP	Federally-Owned Property
FWA	Federal-Wide Assurance
GC-1	Grant General Conditions
GOALI	Grant Opportunities for Academic Liaison with Industry
GPO	Government Publishing Office
GSA	General Services Administration
IACUC	Institutional Animal Care and Use Committee
IBC	Institutional Biosafety Committee
IHE	Institution of Higher Education
IPA	Intergovernmental Personnel Act
IRB	Institutional Review Board
IRS	Internal Revenue Service
ISE	International Science & Engineering
LEP	Limited English Proficiency
LFO	Large Facilities Office
LOI	Letters of Intent
MFG	Major Facilities Guide
MREFC	Major Research Equipment and Facilities Construction Account
NASEM	National Academies of Science, Engineering and Medicine
NDAA	National Defense Authorization Act
NEPA	National Environmental Policy Act
NIH	National Institutes of Health
NSB	National Science Board
NSF	National Science Foundation
ODI	Office of Diversity and Inclusion
OGC	Office of the General Counsel
OHRP	Office for Human Research Protections
OIA	Office of Integrative Activities
OIG	Office of Inspector General
OLAW	Office for Laboratory Animal Welfare
OMB	Office of Management and Budget
ONR	Office of Naval Research
PAPPG	Proposal & Award Policies & Procedures Guide
PD	Project Director
PHS	Public Health Service
PI	Principal Investigator
PNAG	Prospective New Awardee Guide
PO	Program Officer
POR	Project Outcomes Report for the General Public
R&D	**Research & Development**
RAISE	Research Advanced by Interdisciplinary Science and Engineering
RAM	Resolution and Advanced Monitoring Branch
RAPID	Rapid Response Research

RECR	Responsible and Ethical Conduct of Research
REU	Research Experiences for Undergraduates
ROA	Research Opportunity Awards
RTC	Research Terms and Conditions
RUI	Research in Undergraduate Institutions
SAM	System for Award Management
SBA	Small Business Administration
SBIR	Small Business Innovation Research
SF	Standard Form
SPO	Sponsored Projects Office
SSN	Social Security Number
STEM	Science, Technology, Engineering and Mathematics
STTR	Small Business Technology Transfer
TDD	Telephonic Device for the Deaf
TTY	Text Telephone
URL	Uniform Resource Locator
USC	United States Code
USDA	U.S. Department of Agriculture
VSEE	Visiting Scientist, Engineer or Educator

D. Definitions & NSF-Grantee Relationships

1. Definitions

a. An AUTHORIZED ORGANIZATIONAL REPRESENTATIVE (AOR)/AUTHORIZED REPRESENTATIVE means the administrative official who, on behalf of the proposing organization is empowered to make certifications and representations and can commit the organization to the conduct of a project that NSF is being asked to support as well as adhere to various NSF policies and grant requirements.

b. A GRANT AGREEMENT[3] means a legal instrument of financial assistance between NSF and a grantee that, consistent with 31 USC 6302, 6304:

(1) Is used to enter into a relationship the principal purpose of which is to transfer anything of value from NSF to the grantee to carry out a public purpose authorized by a law of the United States (see 31 USC 6101(3)); and not to acquire property or services for NSF's direct benefit or use;

(2) Is distinguished from a cooperative agreement in that it does not provide for substantial involvement between NSF and the grantee in carrying out the activity contemplated by the NSF award.

NSF awards the following two types of grants:

(a) A STANDARD GRANT means a type of grant in which NSF agrees to provide a specific level of support for a specified period of time with no statement of NSF intent to provide additional future support without submission of another proposal.

(b) A CONTINUING GRANT means a type of grant in which NSF agrees to provide a specific level of support for an initial specified period of time, usually a year, with a statement of intent to provide additional support for the project for additional periods, provided funds are available and the results achieved warrant further support.

c. A COST REIMBURSEMENT AWARD means a type of grant under which NSF agrees to reimburse the grantee for work performed and/or costs incurred by the grantee up to the total amount specified in the grant. Such costs must be allowable in accordance with the applicable cost principles. Accountability is based primarily on technical progress, financial accounting and fiscal reporting. Except under certain programs and under special circumstances, NSF grants and cooperative agreements are normally cost reimbursement type awards.

d. A FIXED AMOUNT AWARD means a type of award in which NSF provides a specific level of support without regard to actual costs incurred under the award. This type of NSF award reduces some of the administrative burden and recordkeeping requirements for both the grantee and NSF. Accountability is based primarily on performance and results.

e. A COOPERATIVE AGREEMENT means a legal instrument of financial assistance between NSF and an awardee that, consistent with 31 USC 6302–6305:

(1) Is used to enter into a relationship the principal purpose of which is to transfer anything of value from NSF to the grantee to carry out a public purpose authorized by a law of the United States (see 31 USC 6101(3)); and not to acquire property or services for NSF's direct benefit or use;

[3] For purposes of this Guide, except where explicitly noted, the term "grant" is interchangeable with the terms "cooperative agreement or award", and the term "grantee" is interchangeable with the "awardee" of a cooperative agreement.

(2) Is distinguished from a grant in that it provides for substantial involvement between NSF and the grantee in carrying out the activity contemplated by the NSF award.

In the case of NSF, assistance awards involve the support or stimulation of scientific and engineering research, science and engineering education or other related activities. NSF is authorized to use grants or cooperative agreements for this purpose. Grants, however, are the primary mechanism of NSF support.

f. A GRANTEE means the organization or other entity that receives a grant and assumes legal and financial responsibility and accountability both for the awarded funds and for the performance of the grant-supported activity. NSF grants are normally made to organizations rather than to individual Principal Investigator/Project Director(s). Categories of eligible proposers may be found in Chapter I.E.

g. PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR (PI/PD) – see PAPPG Exhibit II-3, Definitions of Categories of Personnel.

2. NSF-Grantee Relationships

a. Grants will be used by NSF when the accomplishment of the project objectives requires minimal NSF involvement during performance of the activities. Grants establish a relationship between NSF and the grantee in which:

(1) NSF agrees to provide up to a specified amount of financial support for the project to be performed under the conditions and requirements of the grant. NSF will monitor grant progress and assure compliance with applicable standards.

(2) The grantee agrees to: perform the project as proposed; the prudent management of the funds provided; and carry out the supported activities in accordance with the provisions of the grant. (See Chapter VI.B for the documents that comprise an NSF grant.)

b. Cooperative agreements will be used by NSF when the accomplishment of the project objectives requires substantial ongoing Foundation involvement during the project performance period. Substantial agency involvement may be necessary when an activity is technically and/or managerially complex and would require extensive or close coordination between NSF and the awardee. This, however, does not affect NSF's right to unilaterally suspend or terminate support for cause or consider termination in accordance with Chapter XII, if it is in the best interest of NSF or the Government. The doctrine of substantial involvement is set forth in the Federal Grant and Cooperative Agreement Act of 1977 (31 USC 6301-6308).

NSF utilizes two types of cooperative agreements:

- **Standalone Cooperative Agreement (CA)**, which consists of a cooperative agreement for a single, unified award where there is no need to provide separate, discrete funding and oversight for the projects or programs under that award.

- **Master Cooperative Agreement/Cooperative Support Agreement (CA/CSA),** which consists of a master or overall agreement having separate and specific awards (CSAs) that are funded individually under the umbrella of the master agreement. CSAs have their own terms and conditions in addition to those of the master agreement. The scope of CSAs falls within the scope of the master agreement, but each CSA has its own distinct award number and funding based on its approved budget; no funding is attached to the master CA.

Examples of projects suitable for cooperative agreements include: management of research centers, large curriculum projects, multi-user facilities, projects which involve complex subcontracting, construction or operations of major in-house university facilities and major instrumentation development, and projects in which NSF participates with other stakeholder agencies or organizations that have influence over project direction and/or development.

Under a cooperative agreement, the awardee has primary responsibility for the conduct of the project. To the extent that NSF does not reserve responsibility for coordinating or integrating the project activities with other related activities or does not assume a degree of shared responsibility for certain aspects of the project, all such responsibilities remain with the awardee. While NSF will monitor the cooperative agreement in accordance with the terms and conditions of the award, the Foundation will not assume overall control of a project or unilaterally change or direct the project activities.

The cooperative agreement will specify the extent to which NSF will advise, review, approve or otherwise be involved with project activities, as well as NSF's right to require more clearly defined deliverables. NSF may provide advice, guidance or assistance of a technical, management, or coordinating nature and may require that the awardee obtain NSF prior approval of specific decisions, milestones, or project activities. Substantial involvement is incorporated in key areas of accountability in both financial and programmatic award terms; examples include prior agency approval requirements, type and frequency of project plans, special reporting requirements, and project and awardee reviews that NSF will conduct during the term of the award.

Cooperative agreements for construction are generally funded through a separate appropriation from Congress for Major Research Equipment and Facilities Construction (MREFC). NSF maintains the MREFC appropriations in a separate budget account, for major construction projects that successfully undergo a rigorous selection process. MREFC funds cannot be co-mingled with funds for activities other than construction; therefore, NSF issues a separate award for operations and other activities related to commissioning and management of the facility or major instrument. The awardee is required to maintain an accounting system capable of segregating MREFC and operating costs, and to ensure that such costs are applied accordingly.

Many major facility awards, including those for NSF-supported Federally Funded Research and Development Centers (FFRDCs), consist of a cooperative agreement as an umbrella award, establishing the overall basic provisions of the award, and separate cooperative support agreements. The cooperative support agreements contain specific terms and conditions for construction activities, management and operations, research activities that are co-sponsored by other agencies, and any other focused activities that NSF needs to monitor separately from the overall objectives of the cooperative agreement.

E. NSF Organizations

The NSF organizations/offices described below are normally of most direct interest to the NSF proposer and awardee community. Consult the NSF website at: http://www.nsf.gov/staff/orglist.jsp for the most current listing of NSF offices/directorates and an organizational chart.

1. National Science Board (NSB)

The NSB was established by Congress in 1950, and along with the Director, constitutes the National Science Foundation. The Board provides oversight for, and establishes the policies of, the agency within the framework of applicable national policies set forth by the President and Congress. In this capacity, the Board identifies issues that are critical to NSF's future, approves NSF's strategic budget directions, approves annual budget submissions to the Office of Management and Budget (OMB), approves major awards and consults on certain programs, analyzes NSF's budget to ensure progress and consistency along the strategic direction set for NSF, and ensures balance between initiatives and core programs. In addition, the Board serves as an independent body of advisors to both the President and Congress on broad national policy issues and, together with the Director, recommends and encourages the pursuit of national policies related to science and engineering research and education. The Board is comprised of 24 members appointed by the President. The NSF Director also serves as an *ex officio* voting member of the Board. Members are selected on the basis of their distinguished service in science and engineering research and education, and are representative of scientific, engineering, and educational leadership throughout the Nation.

2. Program Divisions/Offices

Program Divisions/Offices are responsible for the scientific, technical and programmatic review and evaluation of proposals and for recommending that proposals be declined or awarded. The scientific, engineering and/or educational aspects of an award will be monitored by the NSF Program Officer identified in the award notice. (See Chapter III for a detailed description of the NSF Merit Review Process.) Integral staff in the program division/office relative to the NSF proposal and award process are:

a. NSF Program Officers. Program Officers are considered subject matter experts in both technical and programmatic areas. They conduct merit review of proposals and recommend which projects should be funded by the Foundation.

b. NSF Division Directors. Division Directors are NSF executives whose responsibilities include long-range planning, contributing to the achievement of the Foundation's strategic goals and objectives, and providing stewardship for budgetary and other resources. They are responsible for ensuring the integrity of the merit review and award process.

3. Division of Grants & Agreements (DGA)

DGA is responsible for the award and administration of the majority of NSF's assistance awards – i.e., grants, cooperative agreements, and fellowship awards, recommended for support by NSF program offices. From pre-award through closeout, DGA conducts a variety of business, financial, and administrative reviews to ensure compliance with award terms and conditions and consistency with applicable NSF policies and Federal rules and regulations. DGA provides stewardship and support to a diverse set of stakeholders including awardees, NSF Directorates/Offices, and others within the scientific research and education communities. DGA also maintains a leadership role in the Federal grants arena. In carrying out NSF's primary mission of promoting the progress of science, DGA continually interacts with academic and non-academic institutions, private industry, State and local governments, and other Federal agencies.

Grants & Agreements Officers (Grants Officers) have delegated warrant authority to issue awards on behalf of the Foundation and their approval constitutes a legal obligation of Federal funds for awardees to expend to fulfill the scope of the approved proposal. In addition, Grants Officers are responsible for issuing all award amendments and certain post-award prior approvals, for monitoring awardee compliance with award terms and conditions, and for the administration and closeout of these awards.

4. Division of Institution & Award Support (DIAS)

DIAS is responsible for the development and implementation of proposal and award policies and procedures, clearance of NSF funding opportunities, advanced monitoring activities, cost analysis and award support, audit resolution, electronic award systems administration, and outreach to the external community. DIAS also advocates for the needs of the research community in NSF electronic research administration activities, including the modernization of NSF's externally-facing FastLane system via Research.gov. DIAS organizational units are as follows:

a. The Policy Office is responsible for the development, coordination, and issuance of NSF pre- and post-award policies for the assistance programs of NSF. The Policy Office provides guidance on the interpretation of NSF policies and procedures within NSF's electronic proposal and award systems, as well as official clearance for NSF funding opportunities.

The Policy Office coordinates outreach programs for external stakeholders across the broad research community and NSF staff. Through a variety of mechanisms, it releases timely information regarding NSF policies and procedures, proposal preparation, and award management. In addition to working closely with professional research administration associations, the Policy Office coordinates two major grants conferences held at various locations throughout the U.S., typically in the spring and fall of each year.

b. The Cost Analysis and Pre-award (CAP) Branch specializes in determinations with regard to the allowability, allocability and reasonableness of costs either budgeted or claimed under NSF awards. CAP evaluates accounting systems, internal controls, and policies and procedures of prospective and current NSF grantees. Its major functions include: pre-award reviews of new grantees, Phase II research projects involving small businesses; budgets of large-scale awards; and indirect cost rate negotiation. CAP provides guidance to NSF Program and Grants Officers, as well as grantees for questions related to its areas of responsibility.

c. The Resolution and Advanced Monitoring (RAM) Branch specializes in determining the allowability, allocability and reasonableness of costs claimed under NSF awards. RAM also evaluates the accounting systems, internal controls and policies and procedures of current NSF grantees. RAM's primary responsibilities include: audit resolution, advanced monitoring to assess grantees' administrative capability, performance, and compliance with award terms and conditions; and review of certain post-award adjustments to expenditures. RAM provides guidance to NSF program staff and grantees for questions related to its areas of responsibility.

d. The Systems Office plays a major role in the design, implementation, administration, and oversight of business rules for assistance awards across NSF electronic corporate systems. It is also responsible for systems analysis and requirements development necessary for the implementation of award business rules.

5. Division of Acquisition and Cooperative Support (DACS)

DACS provides acquisition and cooperative agreement award support for the Foundation. The Contracts Branch is responsible for planning, solicitation, negotiation, award and administration of professional, administrative, and research support contracts for NSF. The Cooperative Support Branch (CSB) is responsible for planning, solicitation, negotiation, award and administration of cooperative agreements for FFRDCs and major research facilities in various stages of construction and operations, including multi-institutional and international programs. This includes participation and input on NSF project advisory

teams, business process reviews and redesign, risk assessments, and administrative assistance. The CSB Grants & Agreements Officers (Grants Officers) have delegated warrant authority to issue awards on behalf of the Foundation and their approval constitutes a legal obligation of Federal funds for awardees to expend to fulfill the scope of the approved proposal. In addition, Grants Officers are responsible for issuing all award amendments and certain post-award prior approvals, for monitoring awardee compliance with award terms and conditions, and for the administration and closeout of these awards.

6. Division of Financial Management (DFM)

DFM is responsible for the financial policy and financial management of NSF. The Division is responsible for NSF's financial reporting, grantee business office relationships and payment of vendors. The Cash Management Branch of DFM is available to assist grantee financial and business officials in matters of payment and financial reporting discussed in Chapter VIII of the PAPPG.

7. Large Facilities Office (LFO)

LFO is the Foundation's primary resource for all oversight practices related to mid-scale and major facility projects and is the NSF-wide resource on project management best practices. LFO has the institutional authority and resources to effectively develop mandatory policies, practices and procedures, which are approved by senior management, for all stages of the facility life-cycle. The Office provides: (1) expert assistance on non-scientific and non-technical aspects of project planning, budgeting, and implementation for mid-scale and major facilities; (2) assurance that all applicable requirements are followed in order to give credence to NSF's oversight capabilities; and (3) facilitates the use of best practices by fostering coordination and collaboration throughout NSF to share application of lessons learned from prior major facility projects.

8. Office of the General Counsel (OGC)

OGC is the legal advisor and advocate for the Foundation, providing legal advice and counsel on all aspects of the Foundation's programs, policies, and operations, as well as areas affecting science and technology more broadly. Advice is provided in a wide variety of areas, such as: grants and contracts; ethics and conflicts of interest; Freedom of Information Act; Privacy Act; labor and personnel law; environmental law; Federal fiscal and administrative law and procedure; and international law and agreements.

9. Office of Diversity & Inclusion (ODI)

ODI is responsible for administering the Foundation's policies, practices and procedures related to internal and external equal opportunity and civil rights. Its mission is to ensure the agency is in compliance with the laws and regulations that govern Federal-sector EEO and civil rights; as well as, to foster a diverse and inclusive work environment that ensures equal opportunity through policy development, workforce analyses, outreach and education to best serve the Foundation's employees and its stakeholders. ODI is also responsible for responding to all civil rights matters pertaining to NSF programs or activities receiving Federal financial assistance, including Title IX Compliance activities. In addition, ODI serves as the Foundation's authority for resolving and responding to all notifications required by NSF's term and condition regarding sexual harassment, other forms of harassment, or sexual assault. (See Chapter XI.A for additional information.)

10. Office of Inspector General (OIG)

OIG is an independent oversight office that reports directly to the NSB and Congress. It is responsible for conducting audits, reviews, and investigations of NSF programs, and of organizations and individuals that apply for or receive NSF funding. OIG also investigates allegations of research misconduct, such as plagiarism, falsification, or fabrication, involving researchers who request or receive NSF funding (see Chapter XII.C.1). The OIG staff includes scientists, attorneys, auditors, law enforcement personnel,

evaluators, and information technology specialists. OIG audits focus on NSF's internal agency programs, as well as grants, cooperative agreements and contracts funded by NSF. Their purpose is to ensure that the financial, administrative, and program activities of NSF are conducted efficiently and effectively, and that the NSF awardee organization's claimed costs are allowable, reasonable and properly allocated.

OIG investigations focus on program integrity and financial or nonfinancial wrongdoing by organizations and individuals who submit proposals to, receive awards from, conduct business with, or work for NSF, and can result in criminal, civil, or administrative sanctions. Statutory law enforcement authority was granted to OIG by the U.S. Attorney General.

Anyone, including grantees, administrators, and NSF personnel, should contact the OIG, as specified at: https://www.nsf.gov/oig/report-fraud/ to report instances of possible misconduct, fraud, waste, or abuse.

PART I: PROPOSAL PREPARATION AND SUBMISSION GUIDELINES

Part I sets forth NSF's proposal preparation and submission guidelines. The coverage provides guidance for the preparation and submission of proposals to NSF. Some NSF programs have program solicitations that modify the general provisions of the PAPPG, and, in such cases, the guidelines provided in the solicitation must be followed.

Chapter I: Pre-Submission Information

A. NSF Proposal Preparation and Submission

Unless specified in an NSF program solicitation, proposals submitted to NSF must be submitted via use of either the NSF FastLane System, Research.gov or Grants.gov. Further information on each system is provided below.

Proposal Preparation and Submission via the NSF FastLane System. The policy and procedural guidance contained in Part I of the PAPPG pertains to proposals submitted via the NSF FastLane System and Research.gov (see below). FastLane may be used for proposal preparation, submission, proposal file updates, and select postaward administrative activities. Detailed information about the FastLane System is available from the FastLane website.

Proposal Preparation and Submission via the NSF Research.gov System. Proposal Preparation and Submission in Research.gov is an alternative to the NSF FastLane System for proposal preparation, submission, and proposal file updates. The policy and procedural guidance contained in Part I of the PAPPG pertains to proposals submitted via the NSF FastLane System and Research.gov. On-screen instructions in Research.gov may vary from what is stated in the PAPPG; however, the content requirements of the proposal remain the same. The on-screen instructions in Research.gov must be followed. The Research.gov Proposal Preparation and Submission site is being incrementally enhanced to increase the number of proposal and submission types supported. Proposers are reminded to check the Research.gov website for the latest list of capabilities.

Proposal Preparation and Submission via Grants.gov. The policy and procedural guidance contained in the NSF *Grants.gov Application Guide* pertains specifically to proposals submitted via Grants.gov. Detailed information about Grants.gov is available from the Grants.gov website.

B. NSF Programs and Funding Opportunities

The NSF website provides the most comprehensive source of information on NSF Directorates/Offices (including contact information), programs, funding opportunities and Dear Colleague Letters. 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 each time new publications are issued that match their identified interests. "NSF Update" is available on NSF's website at: https://public.govdelivery.com/accounts/USNSF/subscriber/new?qsp=823.

C. Categories of Funding Opportunities

NSF utilizes a variety of mechanisms to communicate opportunities for research and education support, as well as to generate proposals. A brief description of each category of funding opportunity follows.

1. Program Descriptions

The term "program description" includes broad, general descriptions of programs and activities in NSF Directorates/Offices and Divisions. Program descriptions are posted on Directorate/Division websites to encourage the submission of proposals in specific program areas of interest to NSF.

Program descriptions utilize the generic eligibility and proposal preparation instructions specified in Part I of the PAPPG, as well as the NSB-approved merit review criteria. See Chapter III for additional information.

2. Program Announcements

The term "program announcement" refers to formal NSF publications that announce NSF programs. Program announcements utilize the generic eligibility and proposal preparation guidelines specified in Part I of the PAPPG and incorporate the NSB-approved merit review criteria.

3. Program Solicitations

The term "program solicitation" refers to formal NSF publications that encourage the submission of proposals in specific program areas of interest to NSF. They generally are more focused than program announcements, and normally apply for a limited period of time. Competition among proposals is more precisely defined than with program announcements, and proposals received compete directly with each other for NSF funding. Program solicitations are issued when the funding opportunity has one or more of the following features:

- provides supplemental proposal preparation guidance or deviates from the guidelines established in Part I of the PAPPG;
- contains additional review criteria relevant to the program;
- requires submission of a letter of intent (see Chapter I.D.1) or preliminary proposal (see Chapter I.D.2);
- deviates from (or restricts) the standard categories of proposers specified in Section E. below;
- limits the number of proposals that may be submitted by an organization and/or Principal Investigator (PI) or co-Principal Investigator (co-PI);[4]
- requires cost sharing;
- requires a limitation in indirect (Facilities & Administrative (F&A)) costs;
- specifies additional award conditions and/or reporting requirements;
- anticipates use of a cooperative agreement.

[4]Unless otherwise specified, the term “organization” refers to all categories of proposers.

4. Dear Colleague Letters (DCLs)

DCLs are intended to provide general information to the community, clarify or amend an existing policy or document, or inform the NSF proposer community about upcoming opportunities or special competitions for supplements to existing awards. They also may be used to announce NSF's interest in receiving proposals in specified topical areas for the following proposal types contained in Chapter II.E: Rapid Response Research (RAPID); Early-concept Grants for Exploratory Research (EAGER); Research Advanced by Interdisciplinary Science and Engineering (RAISE); and Conference.

D. Types of Submissions

1. Letters of Intent (LOI)

Some NSF program solicitations require or request submission of an LOI in advance of submission of a full proposal. An LOI is not a binding document. The predominant reason for its use is to help NSF program staff gauge the size and range of the competition, enabling earlier selection and better management of reviewers and panelists. In addition, the information contained in an LOI is used to help avoid potential conflicts of interest in the review process.

An LOI normally contains the Principal Investigator's (PI's) and co-PI's names, a proposed title, a list of possible participating organizations (if applicable), and a synopsis that describes the work in sufficient detail to permit an appropriate selection of reviewers. Proposers that plan to submit a collaborative proposal from multiple organizations should submit a single LOI for the entire project, given that NSF considers a collaborative proposal to be a unified research project. An LOI is not externally evaluated or used to decide on funding. The requirement to submit an LOI will be identified in the program solicitation, and such letters are submitted electronically to NSF. Failure to submit a required LOI identified in a program solicitation will result in a full proposal not being accepted or returned without review.

2. Preliminary Proposals

Some NSF program solicitations require or request submission of a preliminary proposal in advance of submission of a full proposal. The three predominant reasons for requiring submission of a preliminary proposal are to:

- reduce the proposers' unnecessary effort in proposal preparation when the chance of success is very small. This is particularly true of exploratory initiatives when the community senses that a major new direction is being identified, or competitions that will result in a small number of awards;
- increase the overall quality of the full submission; and
- assist NSF program staff in managing the review process and in the selection of reviewers.

The NSF program solicitation will specify content and submission requirements when preliminary proposals are to be used. Preliminary proposals are prepared by the PI using the Proposal Preparation Module in FastLane. On the Cover Sheet, the PI clicks on the "Preliminary Proposal" check box. The PI completes only the sections appropriate to the preliminary proposal. The PI then forwards the proposal to the appropriate office at his/her organization, and the Authorized Organizational Representative (AOR) signs and submits the preliminary proposal via use of NSF's electronic systems.

One of the following two types of decisions may be received from NSF upon submission of a preliminary proposal. The program solicitation will specify the type of decision to be rendered for a particular program.

a. Invite/Not Invite Decisions

This type of mechanism is used when the NSF decision made on the preliminary proposal is final, affecting the organization's eligibility to submit a full proposal. Only submitters of favorably reviewed preliminary proposals are invited and eligible to submit full proposals. The PI and the organization's Sponsored Projects Office (SPO) (or equivalent) will be electronically notified of NSF's decision to either invite submission of a full proposal or decline NSF support.

b. Encourage/Discourage Decisions

This type of mechanism is used when the NSF decision made on the preliminary proposal is advisory only. This means that submitters of both favorably and unfavorably reviewed preliminary proposals are eligible to submit full proposals. The PI and the organization's SPO will be notified of NSF's decision to either encourage or discourage submission of a full proposal.

3. Full Proposals

The full proposal should present the (1) objectives and scientific, engineering, or educational significance of the proposed work; (2) suitability of the methods to be employed; (3) qualifications of the investigator and the grantee organization; (4) effect of the activity on the infrastructure of science, engineering and education, if applicable; and (5) amount of funding required. It should present the intellectual merit and broader impacts of the proposed project clearly and should be prepared with the care and thoroughness of a paper submitted for publication. The requisite proposal preparation instructions are contained in Chapter II. Sufficient information should be provided to enable reviewers to evaluate the proposal in accordance with the two merit review criteria established by the NSB. (See Chapter III for additional information on NSF processing and review of proposals.)

NSF expects strict adherence to the rules of proper scholarship and attribution. The responsibility for proper scholarship and attribution rests with the authors of a proposal; all parts of the proposal should be prepared with equal care for this concern. Authors other than the PI (or any co-PI) should be named and acknowledged. Serious failure to adhere to such standards can result in findings of research misconduct. Research misconduct refers to fabrication, falsification, or plagiarism in proposing or performing research funded by NSF, reviewing research proposals submitted to NSF, or in reporting research results funded by NSF. Reporting results include but is not limited to: annual/final project reports and Project Outcomes Reports submitted to NSF, as well as the publication of results from the NSF-funded projects. NSF policies and rules on research misconduct are discussed in the Chapter XII.C, as well as 45 CFR Part 689.

NSF will not tolerate research misconduct. Allegations of research misconduct are taken seriously and are investigated by NSF's Office of Inspector General (OIG). OIG refers completed investigations of research misconduct to NSF for action. Upon findings of research misconduct, NSF will take appropriate action against individuals or organizations.

The Metric Conversion Act of 1975, as amended, and E.O. 12770 of 1991 encourage Federal agencies to use the Metric System (SI) in procurement, grants and other business-related activities. Proposers are encouraged to use the Metric System of weights and measures in proposals submitted to the Foundation. Grantees also are encouraged to use metric units in reports, publications and correspondence relating to proposals and awards.

E. Who May Submit Proposals

NSF welcomes proposals on behalf of all qualified scientists, engineers and educators. The Foundation strongly encourages women, minorities and persons with disabilities to participate fully in its programs. In accordance with Federal statutes, regulations and NSF policies, no person on grounds of race, color, age, sex, national origin or disability shall be excluded from participation in, be denied the benefits of, or be

subjected to discrimination under, any program or activity receiving financial assistance from NSF, although some programs may have special requirements that limit eligibility.

Scientists, engineers and educators usually initiate proposals that are officially submitted by their employing organization. Before formal submission, the proposal may be discussed with appropriate NSF program staff. Graduate students are not encouraged to submit research proposals but should arrange to serve as research assistants to faculty members. Some NSF divisions accept proposals for Doctoral Dissertation Research Grants when submitted by a faculty member on behalf of the graduate student.

Categories of Proposers

Except where a program solicitation establishes more restrictive eligibility criteria, organizations in the following categories may submit proposals:

1. Institutions of Higher Education (IHEs) — Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the U.S., acting on behalf of their faculty members. IHEs located outside the U.S. fall under paragraph 6. below.

Special Instructions for International Branch Campuses of U.S. IHEs

If the proposal includes funding to be provided to an international branch campus of a U.S. institution of higher education (including through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus and justify why the project activities cannot be performed at the U.S. campus. Such information must be included in the project description. The box for "Funding of an International Branch Campus of a U.S. IHE, including through use of a subaward or consultant arrangement" must be checked on the Cover Sheet if the proposal includes funding for an international branch campus of a U.S. IHE.

2. Non-profit, Non-academic Organizations — Independent museums, observatories, research laboratories, professional societies and similar organizations located in the U.S. that are directly associated with educational or research activities.

3. For-profit Organizations — U.S. commercial organizations, especially small businesses with strong capabilities in scientific or engineering research or education. An unsolicited proposal from a commercial organization may be funded when the project is of special concern from a national point of view, special resources are available for the work, or the proposed project is especially meritorious. NSF is interested in supporting projects that couple industrial research resources and perspectives with those of IHEs; therefore, it especially welcomes proposals for cooperative projects involving both IHEs and the private commercial sector.

4. State and Local Governments — State educational offices or organizations and local school districts may submit proposals intended to broaden the impact, accelerate the pace, and increase the effectiveness of improvements in science, mathematics and engineering education in both K-12 and post-secondary levels.

5. Unaffiliated Individuals — Unless specifically authorized in an NSF solicitation (e.g., NSF postdoctoral fellowship programs), unaffiliated individuals in the U.S. and unaffiliated U.S. citizens are not eligible to receive direct funding support from NSF. Recipients of Federal funds must be able to demonstrate their ability to fully comply with the requirements specified in 2 CFR § 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards.* As such, unaffiliated individuals are strongly encouraged to affiliate with an organization that is able to meet the requirements specified in 2 CFR § 200.

Unaffiliated individuals must contact the cognizant Program Officer prior to preparing and submitting a proposal to NSF.

6. Foreign Organizations — NSF rarely provides direct funding support to foreign organizations. NSF will consider proposals for cooperative projects involving U.S. and foreign organizations, provided support is requested only for the U.S. portion of the collaborative effort.

In cases however, where the proposer considers the foreign organization's involvement to be essential to the project (e.g., through subawards or consultant arrangements), the proposer must explain why local support is not feasible and why the foreign organization can carry out the activity more effectively. In addition, the proposed activity must demonstrate how one or more of the following conditions have been met:

- The foreign organization contributes a unique organization, facilities, geographic location and/or access to unique data resources not generally available to U.S. investigators (or which would require significant effort or time to duplicate) or other resources that are essential to the success of the proposed project; and/or

- The foreign organization to be supported offers significant science and engineering education, training or research opportunities to the U.S.

Such information must be included in the project description section of the proposal. The box for "Funding of a Foreign Organization, including through use of a subaward or consultant arrangement" must be checked on the Cover Sheet if the proposal includes funding for a foreign organization.

7. Other Federal Agencies — NSF does not normally support research or education activities by scientists, engineers or educators employed by Federal agencies or FFRDCs. Under unusual circumstances, other Federal agencies and FFRDCs may submit proposals directly to NSF. A proposed project is only eligible for support if it meets one or more of the following exceptions, as determined by a cognizant NSF Program Officer:

- Special Projects. Under exceptional circumstances, research or education projects at other Federal agencies or FFRDCs that can make unique contributions to the needs of researchers elsewhere or to other specific NSF objectives may receive NSF support.

- National and International Programs. The Foundation may fund research and logistical support activities of other Government agencies or FFRDCs directed at meeting the goals of special national and international research programs for which the Foundation bears special responsibility, such as the U.S. Antarctic Research Program.

- International Travel Awards. To help ensure appropriate representation or availability of a particular expertise at an international conference, staff researchers of other Federal agencies may receive NSF international travel awards.

Proposers who think their project may meet one of the exceptions listed above must contact a cognizant NSF Program Officer before preparing a proposal for submission. In addition, a scientist, engineer or educator who has a joint appointment with an IHE and a Federal agency (such as a Veterans Administration Hospital, or with an IHE and a FFRDC) may submit proposals through the IHE and may receive support if he/she is a faculty member (or equivalent) of the IHE, although part of his/her salary may be provided by the Federal agency. Preliminary inquiry must be made to the appropriate program before preparing a proposal for submission.

F. When to Submit Proposals

Proposers should allow adequate time for processing of proposals (see Chapter I.H for further information). Many NSF programs accept proposals at any time. Other programs, however, establish due dates for submission of proposals. The following types of due dates are utilized by NSF:

1. **Target Dates:** dates after which proposals will still be accepted, although they may miss a particular panel or committee meeting.

2. **Deadline Dates:** dates after which proposals will not be accepted or will be returned without review by NSF. The deadline date will be waived only in extenuating circumstances. Such a deviation may be authorized only in accordance with Chapter II.A.

3. **Submission Windows:** designated periods of time during which proposals will be accepted for review by NSF. It is NSF's policy that the end date of a submission window converts to, and is subject to, the same policies as a deadline date.

These target dates, deadlines, and submission windows are published in specific program descriptions, program announcements and solicitations that can be obtained through the NSF website.[5] Unless otherwise stated in a program announcement or solicitation, proposals must be received by the specified date. If the deadline date falls on a weekend, it will be extended to the following Monday; if the date falls on a Federal holiday, it will be extended to the following business day. Proposals must be received by 5 p.m. submitter's local time on the established deadline date. Failure to submit by 5.p.m. submitter's local time will result in the proposal not being accepted. See Chapter IV.B for additional information. Letters of intent or preliminary proposals also follow the 5 p.m. submitter's local time standard.

Special Exceptions to NSF's Deadline Date Policy

In the event of a natural or anthropogenic disaster, or when NSF is closed due to inclement weather or other reason that interferes with an organization's ability to meet a proposal submission deadline, NSF has developed the following guidelines for use by impacted organizations.

Natural or Anthropogenic Disasters - Flexibility in meeting announced deadline dates because of a natural or anthropogenic disaster that impacts a proposer's ability to submit a proposal to NSF may be granted with the approval of the cognizant NSF Program Officer. Where possible, such requests should be submitted in advance of the proposal deadline. Proposers should contact the cognizant NSF Program Officer in the Division/Office to which they intend to submit their proposal and request authorization to submit a proposal after the deadline date. Proposers should then follow the written or verbal guidance provided by the cognizant NSF Program Officer. The Foundation will work with each impacted organization on a case-by-case basis to address its specific issue(s). Generally, NSF permits extension of the deadline by up to five business days.

To submit the proposal after the deadline date, proposers must check the "Special Exception to the Deadline Date Policy" box on the NSF Cover Sheet, indicating NSF approval has been obtained. A statement identifying the nature of the event that impacted the ability to submit the proposal on time should be uploaded under Nature of Natural or Anthropogenic event in the Single Copy Document section in FastLane. If available, written approval from the cognizant NSF Program Officer also should be uploaded under the Additional Single Copy Documents in the Single Copy Document section in FastLane.

[5] A listing of upcoming target dates and deadlines, sorted by date and by program area is available on the NSF website at: http://nsf.gov/funding/pgm_list.jsp?org=NSF&ord=date.

Closure of NSF – When NSF is closed due to inclement weather or other reason[6], deadline(s) that occurred during the closure automatically will be extended to the following business day after the closure ends.

G. How to Submit Proposals

1. Submission Instructions

The same work/proposal cannot be funded twice. If the proposer envisions review by multiple programs, more than one program may be designated on the Cover Sheet. The submission of duplicate or substantially similar proposals concurrently for review by more than one program without prior NSF approval will result in the return of the redundant proposals. (See Chapter IV.B for further information.)

In submission of a proposal for funding, the AOR is required to provide certain NSF-specific proposal certifications. (See Chapter II.C.1.d for a listing.) This certification process will occur concurrently with submission of the proposal. Submission of government-wide representations and certifications is addressed below.

2. Requirements Relating to Data Universal Numbering System (DUNS) Numbers and Registration in the System for Award Management (SAM)

Proposers must provide a Dun and Bradstreet (D&B) DUNS number when applying for a new or renewal award. NSF requires that organizations registering to use NSF's electronic systems have a valid and active SAM registration and have a valid DUNS number. NSF will validate that each proposer's DUNS number and SAM registration are active and valid prior to allowing submission of a proposal to NSF. Any subrecipients named in the proposal also are required to obtain a DUNS number and register in FastLane. Subrecipients named in the proposal, however, do not need to be registered in SAM.

SAM is the primary registrant database for the U.S. Government. SAM collects, validates, stores, and disseminates data in support of agency acquisition missions, including Federal agency contract and assistance awards. This SAM registration must be maintained with current information at all times during which an organization has an active award or a proposal under consideration by NSF. Failure to comply with SAM registration requirement prior to proposal submission may impact the processing of the proposal. To register in SAM, go to: https://www.sam.gov. Proposers are advised that entity registration will become active after three to five days when the Internal Revenue Service (IRS) validates the Tax ID Number.

Organizations are responsible for maintaining the accuracy of their information in SAM and utilizing SAM to submit government-wide representations and certifications. Prior to proposal submission, all proposing organizations are required to have reviewed and certified compliance with the government-wide financial assistance representations and certifications maintained in SAM. Failure to comply with SAM certification and registration requirements will impact the submission and processing of the proposal. If a registration is not active, an organization will not be able to submit a proposal, nor will NSF be able to take approval actions on any submitted proposals or recommended awards. Additionally, payments will not be able to be processed and approved.

Organizations also are responsible for updating all SAM registration information as it changes. Once an award is made, failure to maintain current and complete information within SAM will impact receipt of funding. To maintain an active status in SAM, an organization's registration must be renewed and revalidated at least every 12 months from the date of the previous registration, including recertification of the government-wide financial assistance representations and certifications. If the registration is not renewed, it will expire. An expired registration will impact an organization's ability to submit proposals and/or receive grant payments.

[6] This policy is not intended to cover NSF closures due to lapses in appropriation. In such cases, specific guidance will be issued, as appropriate.

SAM is the NSF system of record for organizational information, including financial and address information. The Legal Business Name and Physical Address information are automatically input into the proposer's SAM registration from D&B, and it is an organization's responsibility to keep this information updated.

3. NSF ID

The NSF ID is a unique numerical identifier assigned to users by NSF. The NSF ID is used throughout NSF's electronic systems as a login ID and identification verification. Each individual user of NSF systems, (e.g., Fastlane and Research.gov) should not have more than one NSF ID. Users with more than one NSF ID should contact the Help Desk at (800) 673-6188 or (703) 292-8142 or by e-mail to fastlane@nsf.gov for assistance.

Submission of Social Security Numbers (SSNs) only will be requested where it is necessary for business purposes, e.g., financial reimbursement. An SSN is solicited under the NSF Act of 1950, as amended.

4. Proposal Receipt

Once the proposal is submitted, PIs can check the status of the proposal via use of NSF's electronic systems. If a proposal number is not reflected in the electronic systems, contact the Help Desk at (800) 673-6188 or (703) 292-8142 or by e-mail to fastlane@nsf.gov.

Communications about the proposal should be addressed to the cognizant NSF Program Officer with reference to the proposal number. Proposers are strongly encouraged to use NSF's electronic systems to verify the status of their submission to NSF.

H. Proposal Processing

Proposers should allow up to six months for programmatic review and processing (see Chapter III for additional information on the NSF merit review process). In addition, proposers should be aware that the NSF Division of Grants and Agreements generally makes awards within 30 days after the program division/office makes its recommendation. Grants that are being made to organizations that have not received an NSF award within the preceding five years or involving special situations (such as coordination with another Federal agency or a private funding source), cooperative agreements, and other unusual arrangements may require additional review and processing time. Proposals that are time-sensitive (e.g., conference and group travel) will be accepted for review only if, in the opinion of the cognizant Program Officer, they are received in sufficient time to permit appropriate NSF review and processing to support an award in advance of the activity to be supported. Every effort is made to reach a decision and inform the proposer promptly. Until an award is made, NSF is not responsible for any costs incurred by the proposing organization.

Chapter II: Proposal Preparation Instructions

Each proposing organization that is new to NSF or has not had an active NSF assistance award within the previous five years should be prepared to submit basic organization and management information and certifications, when requested, to the applicable award-making division within the Office of Budget, Finance & Award Management (BFA). The requisite information is described in the *NSF Prospective New Awardee Guide*. The information contained in this Guide will assist the organization in preparing documents which NSF requires to conduct administrative and financial reviews of the organization. This Guide also serves as a means of highlighting the accountability requirements associated with Federal awards.

Proposers should be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in *Building the Future: Investing in Discovery and Innovation - NSF Strategic Plan for Fiscal Years (FY) 2018 – 2022.* 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 NSF grantee organizations. These organizations recruit, train, and prepare a diverse science, technology, engineering, and mathematics (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 STEM workforce by investing in building the knowledge that informs improvements in STEM teaching and learning.

NSF will not tolerate research misconduct in proposing or performing research funded by NSF, reviewing research proposals submitted to NSF, or in reporting research results funded by NSF. For additional information, see Chapters I.D.3., IX.B., and XII.C.

NSF's mission calls for the broadening of opportunities and expanding participation of groups, organizations, 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. Conformance with Instructions for Proposal Preparation

It is important that all proposals conform to the proposal preparation instructions contained in Part I of the PAPPG or the NSF *Grants.gov Application Guide*. Conformance is required and will be strictly enforced unless an authorization to deviate from standard proposal preparation requirements has been approved. NSF will not accept or will return without review proposals that are not consistent with these instructions. See Chapter IV.B for additional information. NSF authorization to deviate from these instructions must be received prior to proposal submission. Deviations may be authorized in one of two ways:

1. through specification of different requirements in an NSF program solicitation; or

2. by the written approval of the cognizant NSF Assistant Director/Office Head or designee. These approvals to deviate from NSF proposal preparation instructions may cover a particular program or programs or, in rare instances, an individual deviation for a particular proposal.

Proposers may deviate from these instructions only to the extent authorized. Proposals must include an authorization to deviate from standard NSF proposal preparation instructions in one of the following ways, as appropriate: (a) by identifying the solicitation number that authorized the deviation in the appropriate block on the Cover Sheet; or (b) for individual deviations, by identifying the name, date and title of the NSF official authorizing the deviation.

B. Format of the Proposal

Prior to submission, it is strongly recommended that proposers conduct an administrative review to ensure that proposals comply with the guidelines established in Part I of the PAPPG or the NSF *Grants.gov Application Guide*. The Proposal Preparation Checklist (Exhibit II-1) may be used to assist in this review. The checklist is not intended to be an all-inclusive repetition of the required proposal contents and associated proposal preparation guidelines. It is, however, meant to highlight certain critical items so they will not be overlooked when the proposal is prepared.

During completion of the proposal Cover Sheet (See Chapter II.C.2.a.), the PI will be prompted to select the applicable response that describes the nature and type of proposal being developed:

The type of proposal being developed:

- Research (see Chapter II, Sections A through C);
- Rapid Response Research (RAPID) (see Chapter II.E.1);
- Early-concept Grants for Exploratory Research (EAGER) (see Chapter II.E.2);
- Research Advanced by Interdisciplinary Science and Engineering (RAISE) (see Chapter II.E.3);
- Grant Opportunities for Academic Liaison with Industry (GOALI) (see Chapter II.E.4);
- Ideas Lab (see Chapter II.E.5);
- Facilitation Awards for Scientists and Engineers with Disabilities (FASED) (see Chapter II.E.6);
- Conference (see Chapter II.D.7);
- Equipment (see Chapter II.D.8);
- Travel (see Chapter II.D.9);
- Center (see relevant funding opportunity);
- Research Infrastructure (see relevant funding opportunity); or
- Fellowship (see relevant funding opportunity).

Whether the proposal is:

- A collaborative proposal from one organization (see Chapter II.D.3.a);
- A collaborative proposal from multiple organizations (see Chapter II.D.3.b); or
- Not a collaborative proposal.

The requested proposal information noted above will be used to determine the applicable proposal preparation requirements that must be followed. Proposers are strongly advised to review the applicable sections of Part I of the PAPPG pertinent to the type of proposal being developed prior to submission.

All proposals are checked for compliance with applicable requirements prior to submission in FastLane and Research.gov. Additional information on NSF auto-compliance checks can be found at: http://www.nsf.gov/bfa/dias/policy/autocompliance.jsp.

1. Proposal Pagination Instructions

Proposers are advised that FastLane does not automatically paginate a proposal. Each section of the proposal that is uploaded as a file must be individually paginated prior to being uploaded to the electronic system.

2. Proposal Font, Spacing and Margin Requirements

The proposal must conform to the following requirements:

a. Use one of the following fonts identified below:

- Arial[7] (not Arial Narrow), Courier New, or Palatino Linotype at a font size of 10 points or larger;
- Times New Roman at a font size of 11 points or larger; or
- Computer Modern family of fonts at a font size of 11 points or larger.

A font size of less than 10 points may be used for mathematical formulas or equations, figures, tables or diagram captions and when using a Symbol font to insert Greek letters or special characters. Other fonts not specified above, such as Cambria Math, may be used for mathematical formulas, equations, or when inserting Greek letters or special characters. PIs are cautioned, however, that the text must still be readable.

b. No more than six lines of text within a vertical space of one inch.

c. Margins, in all directions, must be at least an inch. No proposer-supplied information may appear in the margins.

d. Paper size must be no larger than standard letter paper size (8 ½ by 11").

These requirements apply to all uploaded sections of a proposal, including supplementary documentation.

3. Page Formatting

Proposers are strongly encouraged to use only a standard, single-column format for the text.

The guidelines specified above establish the minimum font size requirements; however, PIs are advised that readability is of paramount importance and should take precedence in selection of an appropriate font for use in the proposal. **Use of a small font size makes it difficult for reviewers to read the proposal; consequently, the use of small fonts not in compliance with the above guidelines may be grounds for NSF to return the proposal without review.** Adherence to font size and line spacing requirements also is necessary to ensure that no proposer will have an unfair advantage, by using smaller font or line spacing to provide more text in the proposal.

C. Proposal Contents

1. Single-Copy Documents

Certain categories of information that are submitted in conjunction with a proposal are for "NSF Use Only." As such, the information is not provided to reviewers for use in the review of the proposal. With the exception of NSF-specific proposal certifications (which are submitted via the Authorized Organizational Representative function[8]), these documents should be submitted via the FastLane Proposal Preparation Module. A summary of each of these categories follows:

a. Authorization to Deviate from NSF Proposal Preparation Requirements (if applicable)

Instructions for obtaining authorization to deviate from NSF proposal preparation instructions are provided in Chapter II.A.

[7] Macintosh users also may use Helvetica and Palatino fonts.
[8] Further instructions for this process are available in FastLane.

b. List of Suggested Reviewers or Reviewers Not to Include (optional)

Proposers may include a list of suggested reviewers (including email address and organizational affiliation) who they believe are especially well qualified to review the proposal. Proposers also may designate persons they would prefer not to review the proposal. These suggestions are optional. Exhibit II-2 contains information on conflicts of interest that may be useful in preparation of this list.

The cognizant Program Officer handling the proposal considers the suggestions and may contact the proposer for further information. The decision regarding whether to use these suggestions, however, remains with the Program Officer.

c. Proprietary or Privileged Information (if applicable)

Instructions for submission of proprietary or privileged information are provided in Chapter II.D.1.

d. Proposal Certifications

Government-wide representations and certifications are provided by the proposer on an annual basis in SAM (see PAPPG Chapter I.G.2). Note that the box for "Disclosure of Lobbying Activities" must be checked on the Cover Sheet if, pursuant to the Lobbying certification provided in SAM, submission of the SF LLL is required. The AOR must use the "Authorized Organizational Representative function" to sign and submit the proposal, including NSF-specific proposal certifications. It is the proposing organization's responsibility to assure that only properly authorized individuals perform this function.[9]

The required proposal certifications are as follows:

- **Certification for Authorized Organizational Representative (AOR) or Individual Proposer:** The AOR is required to complete certifications regarding the accuracy and completeness of statements contained in the proposal, as well as to certify that the organization (or individual) agrees to accept the obligation to comply with grant terms and conditions.

- **Certification Regarding Conflict of Interest:** The AOR is required to complete certifications stating that the organization has implemented and is enforcing a written policy on conflicts of interest (COI), consistent with the provisions of Chapter IX.A: that, to the best of his/her knowledge, all financial disclosures required by the conflict of interest policy were made; and that conflicts of interest, if any, were, or prior to the organization's expenditure of any funds under the grant, will be, satisfactorily managed, reduced or eliminated in accordance with the organization's conflict of interest policy. Conflicts that cannot be satisfactorily managed, reduced or eliminated, and research that proceeds without the imposition of conditions or restrictions when a conflict of interest exists, must be disclosed to NSF via use of NSF's electronic systems.

- **Certification Regarding Flood Hazard Insurance:** Two sections of the National Flood Insurance Act of 1968 (42 USC § 4012a and § 4106) bar Federal agencies from giving financial assistance for acquisition or construction purposes in any area identified by the Federal Emergency Management Agency (FEMA) as having special flood hazards unless the:

(1) community in which that area is located participates in the national flood insurance program; and

(2) building (and any related equipment) is covered by adequate flood insurance.

By signing the certification pages, AORs for prospective grantees located in FEMA-designated special flood hazard areas are certifying that adequate flood insurance has been or will be obtained in the following situations:

[9] Detailed instructions for completion of this process are available in FastLane.

(1) for NSF grants for the construction of a building or facility, regardless of the dollar amount of the grant; and

(2) for other NSF grants when more than $25,000 has been budgeted in the proposal for repair, alteration or improvement (construction) of a building or facility.

Prospective grantees should contact their local government or a Federally-insured financial institution to determine what areas are identified as having special flood hazards and the availability of flood insurance in their community.

- **Certification Regarding Responsible and Ethical Conduct of Research (RECR):** The AOR is required to complete a certification that the institution has a plan to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduates, graduate students, and postdoctoral researchers who will be supported by NSF to conduct research.

NSF's RECR policy is available in Chapter IX.B. While training plans are not required to be included in proposals submitted to NSF, IHEs are advised that they are subject to review upon request. NSF has provided funding to the Online Ethics Center for S&E (www.onlineethics.org/) an online collaborative resource environment that provides resources that may be used by the IHE in developing their training plan. This site contains RECR resources by discipline, provides links to published codes of ethics, as well as includes pages dedicated to resources produced or used by specific professional groups.

- **Certification Regarding Organizational Support:** The AOR is required to complete a certification that there is organizational support for the proposal as required by Section 526 of the *America COMPETES Reauthorization Act of 2010.* This support extends to the portion of the proposal developed to satisfy the broader impacts review criterion as well as the intellectual merit review criterion, and any additional review criteria specified in the solicitation. Organizational support will be made available, as described in the proposal, in order to address the broader impacts and intellectual merit activities to be undertaken.

- **Certification Regarding Dual Use Research of Concern:** The AOR is required to complete a certification that the organization will be or is in compliance with all aspects of the *United States Government Policy for Institutional Oversight of Life Sciences Dual Use Research of Concern.*

e. Collaborators & Other Affiliations Information

The following information regarding collaborators and other affiliations (COA) must be separately provided for each individual identified as senior personnel on the project. The COA information must be provided through use of the COA template. The information in the tables is not required to be sorted, alphabetically or otherwise. For additional information please refer to the frequently asked questions on the COA template page.

There are five separate categories of information which correspond to the five tables in the COA template:

COA template Table 1:

List the individual's last name, first name, middle initial, and organizational affiliation in the last 12 months.

COA template Table 2:

List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer. In the "Type of Relationship" column please specify the personal, family, or business relationship involved.

COA template Table 3:

List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:

- The individual's Ph.D. advisors; and
- All of the individual's Ph.D. thesis advisees.

COA template Table 4:

List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:

- Co-authors on any book, article, report, abstract or paper with collaboration in the last 48 months (publication date may be later); and
- Collaborators on projects, such as funded grants, graduate research or others in the last 48 months.

COA template Table 5:

List editorial board, editor-in chief and co-editors with whom the individual interacts. An editor-in-chief must list the entire editorial board.

- Editorial Board:[10] List name(s) of editor-in-chief and journal in the past 24 months; and
- Other co-Editors of journal or collections with whom the individual has directly interacted in the last 24 months.

The template has been developed to be fillable, however, the content and format requirements must not be altered by the user. When completing the template, do not change the column sizes or the font type. The instructions at the top of the template may be deleted, and rows may be inserted as needed to provide additional names[11].

This information is used to manage reviewer selection. See Exhibit II-2 for additional information on potential reviewer conflicts.

f. Submission of Proposals by Former NSF Staff

For one year following separation from the Foundation, any communication with NSF by a former employee or IPA must be done through use of a "substitute negotiator." Unless a substitute negotiator has been designated by the proposer/grantee, the Division of Grants and Agreements (DGA) or the Division of

[10] Editorial board does not include Editorial Advisory Board, Scientific Editorial Board, or any other subcategory of Editorial Board. It is limited to those individuals who perform editing duties or manage the editing process (i.e., editor in chief).
[11] To accommodate long names or other information, the font size may be reduced to fit data within the cell.

Acquisition and Cooperative Support (DACS) will not process a new proposal with a former employee or IPA as PI or co-PI. If it has been less than a year since a former employee separated from NSF or an IPA ended their appointment and they submit a proposal, documentation from the AOR needs to be included which designates a substitute negotiator for that proposal. The substitute negotiator must be from the same organization as the PI or co-PI for whom the negotiator is required. A co-PI on a new proposal should designate the PI as the substitute negotiator. This information should be submitted as a single copy document and uploaded in the "Additional Single Copy Documents" category.

2. Sections of the Proposal

The sections described below represent the body of a research proposal submitted to NSF. Failure to submit the required sections will result in the proposal not being accepted[12], or being returned without review. See Chapter IV.B for additional information.

A full research proposal must contain the following sections[13]. Note that the *NSF Grants.gov Application Guide* may use different naming conventions, and sections may appear in a different order than in FastLane, however, the content is the same:

a. Cover Sheet
b. Project Summary
c. Table of Contents
d. Project Description
e. References Cited
f. Biographical Sketch(es)
g. Budget and Budget Justification
h. Current and Pending Support
i. Facilities, Equipment and Other Resources
j. Special Information and Supplementary Documentation
   - Data Management Plan
   - Postdoctoral Mentoring Plan (if applicable)
k. Single Copy Documents
   - Collaborators & Other Affiliations Information

The proposal preparation instructions for RAPID, EAGER, RAISE, GOALI, Ideas Lab, FASED, conference, equipment, travel, center, research infrastructure, and fellowship proposal types may deviate from the above content requirements.

All proposals to NSF will be reviewed using the two NSB-approved merit review criteria described in greater length in Chapter III.

a. Cover Sheet

There are four major components of the Cover Sheet. A number of the boxes contained on the Cover Sheet are pre-filled as part of the FastLane login process. The information requested on the Cover Sheet is as follows:

(1) Awardee Organization/Primary Place of Performance

The information on the Awardee Organization is prefilled on the Cover Sheet based on the login information entered. If the project will be performed at the awardee organization, check the designated box. If the project, however, will be performed at a location other than the awardee, provide the following information (where applicable):

[12] Proposal Not Accepted is defined as FastLane will not permit submission of the proposal by the AOR.
[13] See Chapter II.E. for the proposal preparation requirements for other types of proposals submitted to NSF.

- Organization Name (identify the organization name of the primary site where the work will be performed, if different than the awardee);
- Street;
- City;
- State;
- Country; and
- 9-digit Zip Code.

For research infrastructure projects, the project/performance site should correspond to the physical location of the asset. For research infrastructure that is mobile or geographically distributed, information for the primary site or organizational headquarters (as defined by the proposer) should be provided.

(2) Program Announcement/Solicitation/Program Description Number

Proposers are required to select the applicable funding opportunity (i.e., program description, announcement, or solicitation.) If the proposal is not submitted in response to a specific funding opportunity, proposers should select "Proposal and Award Policies and Procedures Guide."

(3) NSF Unit of Consideration

Proposers must follow instructions for selection of an applicable NSF Division/Office and Program(s) to which the proposal should be directed.

(4) Remainder of the Cover Sheet

(a) Title of Proposed Project

The title of the project must be brief, scientifically or technically valid, and suitable for use in the public press. NSF may edit the title of a project prior to making an award.

(b) Budget and Duration Information

The proposed duration for which support is requested should be consistent with the nature and complexity of the proposed activity. The Foundation encourages proposers to request funding for durations of three to five years when such durations are necessary for completion of the proposed work and are technically and managerially advantageous. The requested start date should allow at least six months for NSF review, processing and decision. The PI should consult his/her organization's SPO for unusual situations (e.g., a long lead time for procurement) that create problems regarding the proposed start date. Specification of a desired start date for the project is important and helpful to NSF staff; however, requests for specific start dates may not be met.

(c) Announcement and Consideration Information

This information is prefilled based on previously entered information.

(d) PI Information and co-PI Information

Information (including address information) regarding the PI is derived from login information and is not entered when preparing the Cover Sheet. The proposal also may identify up to four co-PIs.

Each individual's name and either NSF ID or primary registered e-mail address, must be entered in the boxes provided.

(e) Previous NSF Award

If the proposal is a renewal proposal, or an accomplishment-based renewal proposal, the applicable box must be checked. If yes, the proposer will be requested to select the applicable previous award number.

Some NSF program solicitations require submission of both a preliminary and full proposal as part of the proposal process. In such cases, the following instructions apply:

(i) During the preliminary proposal stage, the proposing organization should identify the submission as a preliminary proposal by checking the block entitled, “Preliminary Proposal” on the Cover Sheet;

(ii) During the full proposal submission stage, the proposing organization should identify in the block entitled, “Show Related Preliminary Proposal Number”, the related preliminary proposal number assigned by NSF.

(f) Consideration by Other Federal Agencies

If the proposal is being submitted for consideration by another Federal agency, the abbreviated name(s) of the Federal agency(ies) must be identified in the spaces provided.

(g) Awardee Organization Information

The awardee organization name, address, NSF organization code, DUNS number and Employer Identification Number/Taxpayer Identification Number are derived from the profile information provided by the organization or pulled by NSF from the SAM database and are not entered when preparing the Cover Sheet.

Profit-making organizations must identify their status by checking the appropriate boxes on the Cover Sheet, using the following guidelines:

- A small business must be organized for profit, independently owned and operated (not a subsidiary of, or controlled by, another firm), have no more than 500 employees, and not be dominant in its field.

- A minority business must be: (i) at least 51 percent owned by one or more minority or disadvantaged individuals or, in the case of a publicly owned business, have at least 51 percent of the voting stock owned by one or more minority or disadvantaged individuals; and (ii) one whose management and daily business operations are controlled by one or more such individuals.

- A woman-owned business must be at least 51 percent owned by a woman or women, who also control and operate it. "Control" in this context means exercising the power to make policy decisions. "Operate" in this context means being actively involved in the day-to-day management.

(h) Primary Place of Performance

This information is prefilled based on previously entered information.

(i) Other Information

Should any of the following items on the Cover Sheet apply to a proposal, the applicable box(es) must be checked.

- Beginning Investigator (See Chapter II.D.2) (Note: this box is applicable only to proposals submitted to the Biological Sciences Directorate.)

- Proprietary or Privileged Information (See Chapter II.C.1.c and II.D.1)

- Historic Places (See Chapter II.C.2.j)

- Vertebrate Animals[14] (See Chapter II.D.4)

- Human Subjects[15] (See Chapter II.D.5)

- International Activities Country Name(s) -- For each proposal that describes an international activity, proposers should list the primary countries involved. A maximum of five countries may be listed. An international activity is defined as research, training, and/or education carried out in cooperation with international counterparts either overseas or in the U.S. using virtual technologies. Proposers also should enter the country/countries with which project participants will engage and/or travel to attend international conferences. If the specific location of the international conference is not known at the time of the proposal submission, proposers should enter "Worldwide". (See Chapter II.C.2.j)

- Funding of an International Branch Campus of a U.S. IHE, including through use of a subaward or consultant arrangement. (See Chapter I.E.) If this box is checked, the proposer also must enter the name of the applicable country(ies) in the International Activities Country Name(s) box described above.

- Funding of a Foreign Organization, including through use of a subaward or consultant arrangement. (See Chapter I.E.) If this box is checked, the proposer also must enter the name of the applicable country(ies) in the International Activities Country Name(s) box described above.

b. Project Summary

Each proposal must contain a summary of the proposed project not more than one page in length. The Project Summary consists of an overview, a statement on the intellectual merit of the proposed activity, and a statement on the broader impacts of the proposed activity.

The overview includes a description of the activity that would result if the proposal were funded and a statement of objectives and methods to be employed. The statement on intellectual merit should describe the potential of the proposed activity to advance knowledge. The statement on broader impacts should describe the potential of the proposed activity to benefit society and contribute to the achievement of specific, desired societal outcomes.

The Project Summary should be informative to other persons working in the same or related fields, and, insofar as possible, understandable to a broad audience within the scientific domain. It should not be an abstract of the proposal.

The Project Summary may **ONLY** be uploaded as a Supplementary Document if use of special characters is necessary. Such Project Summaries must be formatted with separate headings for Overview, Intellectual Merit and Broader Impacts. Failure to include these headings will result in the proposal being returned without review.

[14] If the proposal includes use of vertebrate animals, supplemental information is required. See Chapter II.D.4. for additional information.
[15] If the proposal includes use of human subjects, supplemental information is required. See Chapter II.D.5. for additional information.

c. Table of Contents

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

d. Project Description (including Results from Prior NSF Support)

(i) Content

The Project Description should provide a clear statement of the work to be undertaken and must include the objectives for the period of the proposed work and expected significance; the relationship of this work to the present state of knowledge in the field, as well as to work in progress by the PI under other support.

The Project Description should outline the general plan of work, including the broad design of activities to be undertaken, and, where appropriate, provide a clear description of experimental methods and procedures. Proposers should address what they 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. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified. These issues apply to both the technical aspects of the proposal and the way in which the project may make broader contributions.

The Project Description also must contain, as a separate section within the narrative, a section labeled "Broader Impacts". This section should provide a discussion of the broader impacts of 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 the 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 U.S.; use of science and technology to inform public policy; and enhanced infrastructure for research and education. These examples of societally relevant outcomes should not be considered either comprehensive or prescriptive. Proposers may include appropriate outcomes not covered by these examples.

Plans for data management and sharing of the products of research, including preservation, documentation, and sharing of data, samples, physical collections, curriculum materials and other related research and education products should be described in the Special Information and Supplementary Documentation section of the proposal (see Chapter II.C.2.j for additional instructions for preparation of this section).

For proposals that include funding to an International Branch Campus of a U.S. IHE or to a foreign organization (including through use of a subaward or consultant arrangement), the proposer must provide the requisite explanation/justification in the project description. See Chapter I.E for additional information on the content requirements.

(ii) Page Limitations and Inclusion of Uniform Resource Locators (URLs) within the Project Description

Brevity will assist reviewers and Foundation staff in dealing effectively with proposals. Therefore, the Project Description (including Results from Prior NSF Support, which is limited to five pages) **may not exceed 15 pages.** Visual materials, including charts, graphs, maps, photographs and other pictorial presentations are included in the 15-page limitation. PIs are cautioned that the Project Description must be self-contained and that URLs **must not** be used because: 1) the information could circumvent page

limitations; 2) the reviewers are under no obligation to view the sites; and 3) the sites could be altered or deleted between the time of submission and the time of review.

Conformance to the 15-page limit will be strictly enforced and may not be exceeded unless a deviation has been specifically authorized. (Chapter II.A contains information on deviations.)

(iii) Results from Prior NSF Support

The purpose of this section is to assist reviewers in assessing the quality of prior work conducted with prior or current NSF funding. If **any PI or co-PI** identified on the proposal has received prior NSF support including:

- an award with an end date in the past five years; or
- any current funding, including any no cost extensions,

information on the award is required **for each PI and co-PI**, regardless of whether the support was directly related to the proposal or not. In cases where the PI or any co-PI has received more than one award (excluding amendments to existing awards), they need only report on the one award that is most closely related to the proposal. Support means salary support, as well as any other funding awarded by NSF, including research, Graduate Research Fellowship, Major Research Instrumentation, conference, equipment, travel, and center awards, etc.

The following information must be provided:

(a) the NSF award number, amount and period of support;

(b) the title of the project;

(c) a summary of the results of the completed work, including accomplishments, supported by the award. The results must be separately described under two distinct headings: Intellectual Merit and Broader Impacts;

(d) a listing of the publications resulting from the NSF award (a complete bibliographic citation for each publication must be provided either in this section or in the References Cited section of the proposal); if none, state "No publications were produced under this award."

(e) evidence of research products and their availability, including, but not limited to: data, publications, samples, physical collections, software, and models, as described in any Data Management Plan; and

(f) if the proposal is for renewed support, a description of the relation of the completed work to the proposed work.

If the project was recently awarded and therefore no new results exist, describe the major goals and broader impacts of the project. Note that the proposal may contain up to five pages to describe the results. Results may be summarized in fewer than five pages, which would give the balance of the 15 pages for the Project Description.

(iv) Unfunded Collaborations

Any substantial collaboration with individuals not included in the budget should be described in the Facilities, Equipment and Other Resources section of the proposal (see Chapter II.C.2.i) and documented in a letter of collaboration from each collaborator. Such letters should be provided in the supplementary documentation section of the FastLane Proposal Preparation Module and follow the format instructions specified in Chapter II.C.2.j. Collaborative activities that are identified in the budget should follow the instructions in Chapter II.D.3.

(v) Group Proposals

NSF encourages submission of proposals by groups of investigators; often these are submitted to carry out interdisciplinary projects. Unless stipulated in a specific program solicitation, however, such proposals will be subject to the 15-page Project Description limitation established in Section (ii) above. PIs who wish to exceed the established page limitations for the Project Description must request and receive a deviation in advance of proposal submission. (Chapter II.A contains information on deviations.)

(vi) Proposals for Renewed Support

See Chapter V for guidance on preparation of renewal proposals.

e. References Cited

Reference information is required. Each reference must include the names of all authors (in the same sequence in which they appear in the publication), the article and journal title, book title, volume number, page numbers, and year of publication. (See also Chapter II.C.2.d.(iii)(d)) If the proposer has a website address readily available, that information should be included in the citation. It is not NSF's intent, however, to place an undue burden on proposers to search for the URL of every referenced publication. Therefore, inclusion of a website address is optional. A proposal that includes reference citation(s) that do not specify a URL is not considered to be in violation of NSF proposal preparation guidelines and the proposal will still be reviewed.

Proposers must be especially careful to follow accepted scholarly practices in providing citations for source materials relied upon when preparing any section of the proposal. While there is no established page limitation for the references, this section must include bibliographic citations only and must not be used to provide parenthetical information outside of the 15-page Project Description.

f. Biographical Sketch(es)

Note: The requirement to use an NSF-approved format for preparation of the biographical sketch will go into effect for new proposals submitted or due on or after October 5, 2020. In the interim, proposers must continue to prepare this document in accordance with the guidance specified in the PAPPG (NSF 20-1). NSF, however, encourages the community to use the NSF-approved formats and provide valuable feedback as we enhance them for the October implementation.

(i) Senior Personnel

A separate biographical sketch (limited to two pages) must be provided through use of an NSF-approved format, for each individual designated as senior personnel. (See Exhibit II-3 for the definitions of Senior Personnel.)

The following information must be provided in the order and format specified below. Inclusion of additional information beyond that specified below may result in the proposal being returned without review.

Do not submit any personal information in the biographical sketch. This includes items such as: home address; home telephone, fax, or cell phone numbers; home e-mail address; driver's license number; marital status; personal hobbies; and the like. Such personal information is not appropriate for the biographical sketch and is not relevant to the merits of the proposal. NSF is not responsible or in any way liable for the release of such material. (See also Chapter III.H).

(a) Professional Preparation

A list of the individual's undergraduate and graduate education and postdoctoral training (including location) as indicated below:

Undergraduate Institution(s)	Location	Major	Degree & Year
Graduate Institution(s)	Location	Major	Degree & Year
Postdoctoral Institution(s)	Location	Area	Inclusive Dates (Years)

(b) Appointments

A list, in reverse chronological order by start date of all the individual's academic, professional, or institutional appointments, beginning with the current appointment. Appointments include any titled academic, professional, or institutional position whether or not remuneration is received, and whether full-time, part-time, or voluntary (including adjunct, visiting, or honorary).

(c) Products

A list of: (i) up to five products most closely related to the proposed project; and (ii) up to five other significant products, whether or not related to the proposed project. Acceptable products must be citable and accessible including but not limited to publications, data sets, software, patents, and copyrights. Unacceptable products are unpublished documents not yet submitted for publication, invited lectures, and additional lists of products. Only the list of ten will be used in the review of the proposal.

Each product must include full citation information including (where applicable and practicable) names of all authors, date of publication or release, title, title of enclosing work such as journal or book, volume, issue, pages, website and URL, or other Persistent Identifier.

If only publications are included, the heading "Publications" may be used for this section of the Biographical Sketch.

(d) Synergistic Activities

A list of up to five distinct examples that demonstrates the broader impact of the individual's professional and scholarly activities that focus on the integration and transfer of knowledge as well as its creation. Synergistic activities should be specific and must not include multiple examples to further describe the activity. Examples may include, among others: innovations in teaching and training; contributions to the science of learning; development and/or refinement of research tools; computation methodologies and algorithms for problem-solving; development of databases to support research and education; broadening the participation of groups underrepresented in STEM; and service to the scientific and engineering community outside of the individual's immediate organization.

(ii) Other Personnel

For the personnel categories listed below, the proposal also may include information on exceptional qualifications that merit consideration in the evaluation of the proposal. Such information should be clearly identified as "Other Personnel" biographical information and uploaded as a single PDF file in the Other Supplementary Documents section of the proposal.

(a) Postdoctoral associates

(b) Other professionals

(c) Students (research assistants)

(iii) Equipment Proposals

For equipment proposals, the following must be provided for each auxiliary user:

(a) Short biographical sketch; and

(b) List of up to five publications most closely related to the proposed acquisition.

Such information should be clearly identified as "Equipment Proposal" biographical information and uploaded as a single PDF file in the Other Supplementary Documents section of the proposal.

g. Budget and Budget Justification

Each proposal must contain a budget for each year of support requested. The budget justification must be no more than five pages per proposal. The amounts for each budget line item requested must be documented and justified in the budget justification as specified below. For proposals that contain a subaward(s), **each subaward** must include a separate budget justification of no more than five pages. See Chapter II.C.2.g.(vi)(e) for further instructions on proposals that contain subawards.

The proposal may request funds under any of the categories listed so long as the item and amount are considered necessary, reasonable, allocable, and allowable under 2 CFR § 200, Subpart E, NSF policy, and/or the program solicitation. For-profit entities are subject to the cost principles contained in the Federal Acquisition Regulation, Part 31. Amounts and expenses budgeted also must be consistent with the proposing organization's policies and procedures and cost accounting practices used in accumulating and reporting costs.

Proposals for mid-scale and major facilities also should consult NSF's *Major Facilities Guide* as well as the relevant solicitation for additional budgetary preparation guidelines.

(i) Salaries and Wages (Lines A and B on the Proposal Budget)

(a) Senior Personnel Salaries & Wages Policy

NSF regards research as one of the normal functions of faculty members at institutions of higher education. Compensation for time normally spent on research within the term of appointment is deemed to be included within the faculty member's regular organizational salary.

As a general policy, NSF limits the salary compensation requested in the proposal budget for senior personnel to no more than two months of their regular salary in any one year. (See Exhibit II-3 for the definitions of Senior Personnel.) It is the organization's responsibility to define and consistently apply the term "year", and to specify this definition in the budget justification. This limit includes salary compensation received **from all NSF-funded grants**. This effort must be documented in accordance with 2 CFR § 200, Subpart E, including 2 CFR § 200.430(i). If anticipated, any compensation for such personnel in excess of two months must be disclosed in the proposal budget, justified in the budget justification, and must be specifically approved by NSF in the award notice budget.[16]

Under normal rebudgeting authority, as described in Chapters VII and X, a grantee can internally approve an increase or decrease in person months devoted to the project after an award is made, even if doing so results in salary support for senior personnel exceeding the two-month salary policy. No prior approval from NSF is necessary unless the rebudgeting would cause the objectives or scope of the project to change. NSF prior approval is necessary if the objectives or scope of the project change.

[16] NSF grantees remain subject to the provisions of OMB M-01-06, "*Clarification of OMB A-21 Treatment of Voluntary Uncommitted Cost Sharing and Tuition Remission Costs*" regarding requirements for committing and tracking "some level" of faculty (or senior researcher) effort as part of the organized research base.

These same general principles apply to other types of non-academic organizations.

(b) Administrative and Clerical Salaries & Wages Policy

In accordance with 2 CFR § 200.413, the salaries of administrative and clerical staff should normally be treated as indirect costs (F&A). Direct charging of these costs may be appropriate only if all the conditions identified below are met:

(i) Administrative or clerical services are integral to a project or activity;

(ii) Individuals involved can be specifically identified with the project or activity;

(iii) Such costs are explicitly included in the approved budget or have the prior written approval of the cognizant NSF Grants Officer; and

(iv) The costs are not also recovered as indirect costs.

Conditions (i) (ii) and (iv) above are particularly relevant for consideration at the budget preparation stage.

(c) Procedures

The names of the PI(s), faculty, and other senior personnel and the estimated number of full-time-equivalent person-months for which NSF funding is requested, and the total amount of salaries requested per year, must be listed. For consistency with the NSF cost sharing policy, if person months will be requested for senior personnel, a corresponding salary amount must be entered on the budget. If salary and person months are not being requested for an individual designated as senior personnel, they should be removed from Section A of the budget. Their name(s) will remain on the Cover Sheet and the individual(s) role on the project should be described in the Facilities, Equipment and Other Resources section of the proposal.

For postdoctoral associates and other professionals, the total number of persons for each position must be listed, with the number of full-time-equivalent person-months and total amount of salaries requested per year. For graduate and undergraduate students, secretarial, clerical, technical, etc., whose time will be charged directly to the project, only the total number of persons and total amount of salaries requested per year in each category is required. Compensation classified as salary payments must be requested in the salaries and wages category. Salaries requested must be consistent with the organization's regular practices. The budget justification should detail the rates of pay by individual for senior personnel, postdoctoral associates, and other professionals.

(d) Confidential Budgetary Information

The proposing organization may request that salary data on senior personnel not be released to persons outside the Government during the review process. In such cases, the item for senior personnel salaries in the proposal may appear as a single figure and the person-months represented by that amount omitted. If this option is exercised, senior personnel salaries and person-months must be itemized in a separate statement and forwarded to NSF in accordance with the instructions specified in Chapter II.D.1. This statement must include all of the information requested on the proposal budget for each person involved. NSF will not forward the detailed information to reviewers and will hold it privileged to the extent permitted by law. The information on senior personnel salaries will be used as the basis for determining the salary amounts shown in the budget. The box for "Proprietary or Privileged Information" must be checked on the Cover Sheet when the proposal contains confidential budgetary information.[17]

[17] Detailed instructions for submission of confidential budgetary information are available in FastLane.

(ii) Fringe Benefits (Line C on the Proposal Budget)

If the proposer's usual accounting practices provide that its contributions to employee benefits (leave, employee insurance, social security, retirement, other payroll-related taxes, etc.) be treated as direct costs, NSF grant funds may be requested to fund fringe benefits as a direct cost. These are typically determined by application of a calculated fringe benefit rate for a particular class of employee (full time or part-time) applied to the salaries and wages requested. They also may be paid based on actual costs for individual employees, if that institutional policy has been approved by the cognizant Federal agency. See 2 CFR § 200.431 for the definition and allowability of inclusion of fringe benefits on a proposal budget.

(iii) Equipment (Line D on the Proposal Budget)

Equipment is defined as tangible personal property (including information technology systems) having a useful life of more than one year and a per-unit acquisition cost which equals or exceeds the lesser of the capitalization level established by the proposer for financial statement purposes, or $5,000. It is important to note that the acquisition cost of equipment includes modifications, attachments, and accessories necessary to make an item of equipment usable for the purpose for which it will be purchased. Items of needed equipment must be adequately justified, listed individually by description and estimated cost.

Allowable items ordinarily will be limited to research equipment and apparatus not already available for the conduct of the work. General purpose equipment such as office equipment and furnishings, and information technology equipment and systems are typically not eligible for direct cost support. Special purpose or scientific use computers or associated hardware and software, however, may be requested as items of equipment when necessary to accomplish the project objectives and not otherwise reasonably available. Any request to support such items must be clearly disclosed in the proposal budget, justified in the budget justification, and be included in the NSF award budget. See 2 CFR § 200.313 for additional information.

(iv) Travel (Line E on the Proposal Budget)

(a) General

When anticipated, travel and its relation to the proposed activities must be specified, itemized and justified by destination and cost. Funds may be requested for field work, attendance at meetings and conferences, and other travel associated with the proposed work, including subsistence. In order to qualify for support, however, attendance at meetings or conferences must be necessary to accomplish proposal objectives or disseminate research results. Travel support for dependents of key project personnel may be requested only when the travel is for a duration of six months or more either by inclusion in the approved budget or with the prior written approval of the cognizant NSF Grants Officer. Temporary dependent care costs above and beyond regular dependent care that directly result from travel to conferences are allowable costs provided that the conditions established in 2 CFR § 200.474 are met.

Allowance for air travel normally will not exceed the cost of round-trip, economy airfares. Persons traveling under NSF grants must travel by U.S.-Flag Air carriers, if available.

(b) Domestic Travel

Domestic travel includes travel within and between the U.S., its territories and possessions.[18] Travel, meal and hotel expenses of grantee employees who are not on travel status are unallowable. Costs of employees on travel status are limited to those specifically authorized by 2 CFR § 200.474.

[18] According to the IRS, US territories and possessions are as follows: Puerto Rico, US Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, Midway Island, Wake Island, Palmyra Island, Howland Island, Johnston Island, Baker Island, Kingman Reef, Jarvis Island, and other US islands, cays, and reefs that are not part of the 50 States.

(c) Foreign Travel

Travel outside the areas specified above is considered foreign travel. When anticipated, the proposer must enter the names of countries and dates of visit on the proposal budget, if known.

(v) Participant Support (Line F on the Proposal Budget)

This budget category refers to direct costs for items such as stipends or subsistence allowances, travel allowances, and registration fees paid to or on behalf of participants or trainees (but not employees) in connection with NSF-sponsored conferences or training projects. Any additional categories of participant support costs other than those described in 2 CFR § 200.75 (such as incentives, gifts, souvenirs, t-shirts and memorabilia), must be justified in the budget justification, and such costs will be closely scrutinized by NSF. (See also Chapter II.E.7) Speakers and trainers generally are not considered participants and should not be included in this section of the budget. However, if the primary purpose of the individual's attendance at the conference is learning and receiving training as a participant, then the costs may be included under participant support. If the primary purpose is to speak or assist with management of the conference, then such costs should be budgeted in appropriate categories other than participant support.

For some educational projects conducted at local school districts, the participants being trained are employees. In such cases, the costs must be classified as participant support if payment is made through a stipend or training allowance method. The school district must have an accounting mechanism in place (i.e., sub-account code) to differentiate between regular salary and stipend payments.

To help defray the costs of participating in a conference or training activity, funds may be proposed for payment of stipends, per diem or subsistence allowances, based on the type and duration of the activity. Such allowances must be reasonable, in conformance with the policy of the proposing organization and limited to the days of attendance at the conference plus the actual travel time required to reach the conference location. Where meals or lodgings are furnished without charge or at a nominal cost (e.g., as part of the registration fee), the per diem or subsistence allowance should be correspondingly reduced. Although local participants may participate in conference meals and coffee breaks, funds may not be proposed to pay per diem or similar expenses for local participants in the conference. Costs related to an NSF-sponsored conference (e.g., venue rental fees, catering costs, supplies, etc.) that will be secured through a service agreement/contract should be budgeted on line G.6., "Other Direct Costs" to ensure appropriate allocation of indirect costs.

This section of the budget also may not be used for incentive payments to research subjects. Human subject payments should be included on line G.6. of the NSF budget under "Other Direct Costs," and any applicable indirect costs should be calculated on the payments in accordance with the organization's federally negotiated indirect cost rate.

Funds may be requested for the travel costs of participants. If so, the restrictions regarding class of accommodations and use of U.S.-Flag air carriers are applicable.[19] In training activities that involve field trips, costs of transportation of participants are allowable. The number of participants to be supported must be entered in the parentheses on the proposal budget. Participant support costs must be specified, itemized and justified in the budget justification section of the proposal. Indirect costs (F&A) are not usually allowed on participant support costs unless the grantee's current, federally approved indirect cost rate agreement provides for allocation of F&A to participant support costs. Participant support costs must be accounted for separately should an award be made.

[19] See Chapter XI.F, Grant General Conditions (GC-1) Article 10, and Article 14 in the NSF Agency Specific Requirements to the Research Terms and Conditions, as applicable, for additional information on travel restrictions.

(vi) Other Direct Costs (Lines G1 through G6 on the Proposal Budget)

Any costs proposed to an NSF project must be allowable, reasonable and directly allocable to the supported activity. When anticipated, the budget must identify and itemize other anticipated direct costs not included under the headings above, including materials and supplies, publication costs, computer services and consultant services. Examples include aircraft rental, space rental at research establishments away from the proposing organization, minor building alterations, payments to human subjects, and service charges. Reference books and periodicals only may be included on the proposal budget if they are specifically allocable to the project being supported by NSF.

(a) Materials and Supplies (including Costs of Computing Devices) (Line G1 on the Proposal Budget)

When anticipated, the proposal budget justification must indicate the general types of expendable materials and supplies required. Supplies are defined as all tangible personal property other than those described in paragraph (d)(iii) above. A computing device is considered a supply if the acquisition cost is less than the lesser of the capitalization level established by the proposer or $5,000, regardless of the length of its useful life. In the specific case of computing devices, charging as a direct cost is allowable for devices that are essential and allocable, but not solely dedicated, to the performance of the NSF project. Details and justification must be included for items requested to support the project.

(b) Publication/Documentation/Dissemination (Line G2 on the Proposal Budget)

The proposal budget may request funds for the costs of documenting, preparing, publishing or otherwise making available to others the findings and products of the work to be conducted under the grant. This generally includes the following types of activities: reports, reprints, page charges or other journal costs (except costs for prior or early publication); necessary illustrations; cleanup, documentation, storage and indexing of data and databases; development, documentation and debugging of software; and storage, preservation, documentation, indexing, etc., of physical specimens, collections or fabricated items. Line G.2. of the proposal budget also may be used to request funding for data deposit and data curation costs.[20]

(c) Consultant Services (also referred to as Professional Service Costs) (Line G3 on the Proposal Budget)

The proposal budget may request costs for professional and consultant services. Professional and consultant services are services rendered by persons who are members of a particular profession or possess a special skill, and who are not officers or employees of the proposing organization. Costs of professional and consultant services are allowable when reasonable in relation to the services rendered and when not contingent upon recovery of costs from the Federal government. Anticipated services must be justified and information furnished on each individual's expertise, primary organizational affiliation, normal daily compensation rate, and number of days of expected service. Consultants' travel costs, including subsistence, may be included. If requested, the proposer must be able to justify that the proposed rate of pay is reasonable. Additional information on the allowability of consultant or professional service costs is available in 2 CFR § 200.459. In addition to other provisions required by the proposing organization, all contracts made under the NSF award must contain the applicable provisions identified in 2 CFR § 200 Appendix II.

(d) Computer Services (Line G4 on the Proposal Budget)

The cost of computer services, including computer-based retrieval of scientific, technical and educational information, may be requested only where it is institutional policy to charge such costs as direct charges.

[20] A data deposit cost is a one-time charge paid at the time a data set is deposited into a data repository. Data curation costs are expenses associated with preparing data into a form that others can use.

A justification based on the established computer service rates at the proposing organization must be included. The proposal budget also may request costs for leasing of computer equipment.

(e) Subawards[21] (Line G5 on the Proposal Budget)

Except for the purpose of obtaining goods and services for the proposer's own use which creates a procurement relationship with a contractor, no portion of the proposed activity may be subawarded or transferred to another organization without prior written NSF authorization. Such authorization must be provided either through inclusion of the subaward(s) on an NSF award budget or by receiving written prior approval from the cognizant NSF Grants Officer after an award is issued.

If known at the time of proposal submission, the intent to enter into such arrangements must be disclosed in the proposal. A separate budget and a budget justification of no more than five pages, must be provided for each subrecipient, if already identified. The description of the work to be performed must be included in the project description.

All proposing organizations are required to make a case-by-case determination regarding the role of a subrecipient versus contractor for each agreement it makes. 2 CFR § 200.330 provides characteristics of each type of arrangement to assist proposing organizations in making that determination. However, inclusion of a subaward or contract in the proposal budget or submission of a request after issuance of an NSF award to add a subaward or contract will document the organizational determination required.
It is NSF's expectation that, consistent with 2 CFR § 200.414, NSF grantees will use the domestic subrecipient's applicable U.S. Federally negotiated indirect cost rate(s). If no such rate exists, the NSF grantee may either negotiate a rate or will fund the subrecipient using the *de minimis* indirect cost rate recovery of 10% of modified total direct costs.

It is also NSF's expectation that NSF grantees will use the foreign subrecipient's applicable U.S. Federally negotiated indirect cost rate(s). However, if no such rate exists, the NSF grantee will fund the foreign subrecipient using the *de minimis* indirect cost rate recovery of 10% of modified total direct costs.

(f) Other (Line G6 on the Proposal Budget)

Any other direct costs not specified in Lines G.1. through G.5. must be identified on Line G.6. Such costs must be itemized and detailed in the budget justification. Examples include:

- Contracts for the purpose of obtaining goods and services for the proposer's own use (see 2 CFR § 200.330 for additional information); and

- Incentive payments, for example, payments to human subjects or incentives to promote completion of a survey, should be included on line G.6. of the NSF budget. Incentive payments should be proposed in accordance with organizational policies and procedures. Indirect costs should be calculated on incentive payments in accordance with the organization's approved U.S. Federally negotiated indirect cost rate(s). Performance based incentive payments to employees as described in 2 CFR §200.430(f) should not be included in this section of the budget.

(vii) Total Direct Costs (Line H on the Proposal Budget)

The total amount of direct costs requested in the budget, to include Lines A through G, must be entered on Line H.

[21] A subaward may be provided through any form of legal agreement, including an agreement that the proposing organization considers a contract. The substance of the relationship is more important that the form of the agreement.

(viii) Indirect Costs (also known as Facilities and Administrative Costs (F&A) for Colleges and Universities) (Line I on the Proposal Budget)

Except where specifically identified in an NSF program solicitation, the applicable U.S. Federally negotiated indirect cost rate(s) must be used in computing indirect costs (F&A) for a proposal. Use of an indirect cost rate lower than the organization's current negotiated indirect cost rate is considered a violation of NSF's cost sharing policy. See section (xii) below. The amount for indirect costs should be calculated by applying the current negotiated indirect cost rate(s) to the approved base(s), and such amounts should be specified in the budget justification. Indirect cost recovery for IHEs are additionally restricted by 2 CFR § 200, Appendix III, paragraph C.7. which specifies Federal agencies are required to use the negotiated F&A rate that is in effect at the time of the initial award throughout the life of the sponsored agreement. Additional information on the charging of indirect costs to an NSF award is available in Chapter X.D.

Domestic proposing organizations that do not have a current negotiated rate agreement with a cognizant Federal agency, and who are requesting more than a *de minimis* 10% recovery of modified total direct costs should prepare an indirect cost proposal based on expenditures for its most recently ended fiscal year. Based on the information provided in the indirect cost proposal, NSF may negotiate an award-specific rate to be used only on the award currently being considered for funding. No supporting documentation is required for proposed rates of 10% or less of modified total direct costs. The contents and financial data included in indirect cost proposals vary according to the make-up of the proposing organization. Instructions for preparing an indirect cost rate proposal can be found at: http://www.nsf.gov/bfa/dias/caar/docs/idcsubmissions.pdf. NSF formally negotiates indirect cost rates for the organizations for which NSF has rate cognizance. NSF does not negotiate rates for organizations that are not direct recipients of NSF funding (e.g., subrecipients). The prime grantee is responsible for ensuring that proposed subrecipient costs, including indirect costs, are reasonable and appropriate.

Foreign organizations that do not have a current U.S. Federally negotiated indirect cost rate(s) are limited to a *de minimis* indirect cost rate recovery of 10% of modified total direct costs. Foreign grantees that have a U.S. Federally negotiated indirect cost rate(s) may recover indirect costs at the current negotiated rate.

(ix) Total Direct and Indirect Costs (F&A) (Line J on the Proposal Budget)

The total amount of direct and indirect costs (F&A) (sum of Lines H and I) must be entered on Line J.

(x) Fees (Line K on the Proposal Budget)

This line is available for use only by the SBIR/STTR programs and Major Facilities programs when specified in the solicitation.

(xi) Amount of This Request (Line L on the Proposal Budget)

The total amount of funds requested by the proposer.

(xii) Cost Sharing (Line M on the Proposal Budget)

The National Science Board issued a report entitled "*Investing in the Future: NSF Cost Sharing Policies for a Robust Federal Research Enterprise"* (NSB 09-20, August 3, 2009), which contained eight recommendations for NSF regarding cost sharing. In implementation of the Board's recommendation, NSF's guidance[22] is as follows:

[22] See NSF's Revised Cost Sharing Policy Statement for the Foundation's overarching policies on cost sharing.

Voluntary Committed and Uncommitted Cost Sharing

As stipulated in 2 CFR § 200.99, **"***Voluntary committed cost sharing* means cost sharing specifically pledged on a voluntary basis in the proposal's budget or the Federal award on the part of the non-Federal entity and that becomes a binding requirement of Federal award." As such, to be considered voluntary committed cost sharing, the amount must appear on the NSF proposal budget and be specifically identified in the approved NSF budget.[23] Unless required by NSF (see the section on Mandatory Cost Sharing below), inclusion of voluntary committed cost sharing is prohibited and Line M on the proposal budget will not be available for use by the proposer. NSF Program Officers are not authorized to impose or encourage mandatory cost sharing unless such requirements are explicitly included in the program solicitation.

In order for NSF, and its reviewers, to assess the scope of a proposed project, all organizational resources necessary for, and available to, a project must be described in the Facilities, Equipment and Other Resources section of the proposal (see Chapter II.C.2.i for further information). While not required by NSF, the grantee may, at its own discretion, continue to contribute voluntary uncommitted cost sharing to NSF-sponsored projects. **As noted above, however, these resources are not auditable by NSF and should not be included in the proposal budget or budget justification.**

Mandatory Cost Sharing

Mandatory cost sharing will only be required for NSF programs when explicitly authorized by the NSF Director, the NSB, or legislation. A complete listing of NSF programs that require cost sharing is available on the NSF website at: http://www.nsf.gov/bfa/dias/policy/. In these programs, cost sharing requirements will be clearly identified in the solicitation and must be included on Line M of the proposal budget. For purposes of budget preparation, the cumulative cost sharing amount must be entered on Line M of the first year's budget. Should an award be made, the organization's cost sharing commitment, as specified on the first year's approved budget, must be met prior to the award end date.

Such cost sharing will be considered as an eligibility, rather than a review criterion. Proposers are advised not to exceed the mandatory cost sharing level or amount specified in the solicitation.[24]

When mandatory cost sharing is included on Line M, and accepted by the Foundation, the commitment of funds becomes legally binding and is subject to audit. When applicable, the estimated value of any in-kind contributions also should be included on Line M. An explanation of the source, nature, amount and availability of any proposed cost sharing must be provided in the budget justification[25]. It should be noted that contributions derived from other Federal funds or counted as cost sharing toward projects of another Federal agency must not be counted towards meeting the specific cost sharing requirements of the NSF award.

Failure to provide the level of cost sharing required by the NSF solicitation and reflected in the NSF award budget may result in termination of the NSF award, disallowance of award costs and/or refund of award funds to NSF by the grantee.

(xiii) Allowable and Unallowable Costs

2 CFR § 200, Subpart E provides comprehensive information regarding costs allowable under Federal awards. The following categories of unallowable costs are highlighted because of their sensitivity:

[23] Inclusion in the Budget Justification also meets this definition.
[24] For further information on procedures for inclusion of programmatic cost sharing in an NSF solicitation, see: http://www.nsf.gov/bfa/dias/policy/csdocs/principles.pdf.
[25] 2 CFR § 200.306 describes criteria and procedures for the allowability of cash and in-kind contributions in satisfying cost sharing and matching requirements.

(a) Entertainment

Costs of entertainment, amusement, diversion and social activities, and any costs directly associated with such activities (such as tickets to shows or sporting events, meals, lodging, rentals, transportation and gratuities) are unallowable. Travel, meal and hotel expenses of grantee employees who are not on travel status are unallowable. See also 2 CFR § 200.438.

(b) Meals and Coffee Breaks

No funds may be requested for meals or coffee breaks for intramural meetings of an organization or any of its components, including, but not limited to, laboratories, departments and centers. (See 2 CFR § 200.432, for additional information on the charging of certain types of costs generally associated with conferences supported by NSF.) Meal expenses of grantee employees who are not on travel status are unallowable. See also 2 CFR § 200.438.

(c) Alcoholic Beverages

No NSF funds may be requested or spent for alcoholic beverages.

h. Current and Pending Support

Note: The requirement to use an NSF-approved format for preparation of current and pending support will go into effect for new proposals submitted or due on or after October 5, 2020. In the interim, proposers must continue to prepare this document in accordance with the guidance specified in the PAPPG (NSF 20-1). NSF, however, encourages the community to use the NSF-approved formats and provide valuable feedback as we enhance them for the October implementation.

Current and pending support information must be separately provided through use of an NSF-approved format, for each individual designated as senior personnel on the proposal. Current and pending support includes all resources made available to an individual in support of and/or related to all of his/her research efforts, regardless of whether or not they have monetary value. Current and pending support also includes in-kind contributions (such as office/laboratory space, equipment, supplies, employees, students[26]). In-kind contributions not intended for use on the project/proposal being proposed also must be reported.[27]

Current and pending support information must be provided for this project, for ongoing projects, and for any proposals currently under consideration from whatever source[28], irrespective of whether such support is provided through the proposing organization or is provided directly to the individual.

The total award amount for the entire award period covered (including indirect costs) must be provided, as well as the number of person-months (or partial person-months) per year to be devoted to the project by the individual.

Concurrent submission of a proposal to other organizations will not prejudice its review by NSF, if disclosed.[29] If the project (or any part of the project) now being submitted has been funded previously by a source other than NSF, information must be provided regarding the last period of funding.

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[26] If the in-kind contributions are intended for use on the project being proposed to NSF, the information must be included as part of the Facilities, Equipment and Other Resources section of the proposal and need not be replicated in the individual's current and pending support submission.

[27] If the time commitment or dollar value is not readily ascertainable, reasonable estimates should be provided.

[28] For example, Federal, State, local, foreign, public or private foundations, non-profit organizations, industrial or other commercial organizations or internal funds allocated toward specific projects.

[29] The Biological Sciences Directorate exception to this policy is delineated in Chapter II.D.2.

i. Facilities, Equipment and Other Resources

This section of the proposal is used to assess the adequacy of the resources available to perform the effort proposed to satisfy both the Intellectual Merit and Broader Impacts review criteria. Proposers should describe only those resources that are directly applicable. Proposers should include an aggregated description of the internal and external resources (both physical and personnel) that the organization and its collaborators will provide to the project, should it be funded. Such information must be provided in this section, in lieu of other parts of the proposal (e.g., Budget Justification, Project Description). The description should be narrative in nature and must not include any quantifiable financial information. Reviewers will evaluate the information during the merit review process and the cognizant NSF Program Officer will review it for programmatic and technical sufficiency.

Although these resources are not considered voluntary committed cost sharing as defined in 2 CFR § 200.99, the Foundation **does expect** that the resources identified in the Facilities, Equipment and Other Resources section will be provided, or made available, should the proposal be funded. Chapter VII.B.1 specifies procedures for use by the grantee when there are postaward changes to objectives, scope or methods/procedures.

j. Special Information and Supplementary Documentation

Except as specified below, special information and supplementary documentation must be included as part of the Project Description (or part of the budget justification), if it is relevant to determining the quality of the proposed work. Information submitted in the following areas is not considered part of the 15-page Project Description limitation. This Special Information and Supplementary Documentation section also is not considered an appendix. Specific guidance on the need for additional documentation may be obtained from the organization's SPO or in the references cited below.

- Postdoctoral Researcher Mentoring Plan. Each proposal[30] that requests funding to support **postdoctoral researchers**[31] must upload under "Mentoring Plan" in the supplementary documentation section of FastLane, a description of the mentoring activities that will be provided for such individuals. In no more than one page, the mentoring plan must describe the mentoring that will be provided to all postdoctoral researchers supported by the project, regardless of whether they reside at the submitting organization, any subrecipient organization, or at any organization participating in a simultaneously submitted collaborative proposal. Proposers are advised that the mentoring plan must not be used to circumvent the 15-page Project Description limitation. See Chapter II.D.3 for additional information on collaborative proposals. Mentoring activities provided to postdoctoral researchers supported on the project will be evaluated under the Broader Impacts review criterion.

  Examples of mentoring activities include but are not limited to: career counseling; training in preparation of grant proposals, publications and presentations; guidance on ways to improve teaching and mentoring skills; guidance on how to effectively collaborate with researchers from diverse backgrounds and disciplinary areas; and training in responsible professional practices.

- Plans for data management and sharing of the products of research. Proposals must include a document of no more than two pages uploaded under "Data Management Plan" in the supplementary documentation section of FastLane. This supplementary document should

[30] For purposes of meeting the mentoring requirement, simultaneously submitted collaborative proposals, and collaborative proposals that include subawards, constitute a single unified project. Therefore, only one mentoring plan must be submitted for the entire project.

[31] In situations where a postdoctoral researcher is listed in Section A of the NSF Budget, and is functioning in a Senior Personnel capacity (i.e., responsible for the scientific or technical direction of the project), a mentoring plan is not required.

describe how the proposal will conform to NSF policy on the dissemination and sharing of research results (see Chapter XI.D.4), and may include:

1. the types of data, samples, physical collections, software, curriculum materials, and other materials to be produced in the course of the project;

2. 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);

3. policies for access and sharing including provisions for appropriate protection of privacy, confidentiality, security, intellectual property, or other rights or requirements;

4. policies and provisions for re-use, re-distribution, and the production of derivatives; and

5. plans for archiving data, samples, and other research products, and for preservation of access to them.

Data management requirements and plans specific to the Directorate, Office, Division, Program, or other NSF unit, relevant to a proposal are available at: http://www.nsf.gov/bfa/dias/policy/dmp.jsp. If guidance specific to the program is not available, then the requirements established in this section apply.

Simultaneously submitted collaborative proposals and proposals that include subawards are a single unified project and should include only one supplemental combined Data Management Plan, regardless of the number of non-lead collaborative proposals or subawards included. In such collaborative proposals, the data management plan should discuss the relevant data issues in the context of the collaboration.

A valid Data Management Plan may include only the statement that no detailed plan is needed, as long as the statement is accompanied by a clear justification. Proposers who feel that the plan cannot fit within the limit of two pages may use part of the 15-page Project Description for additional data management information. Proposers are advised that the Data Management Plan must not be used to circumvent the 15-page Project Description limitation. The Data Management Plan will be reviewed as an integral part of the proposal, considered under Intellectual Merit or Broader Impacts or both, as appropriate for the scientific community of relevance.

- Rationale for performance of all or part of the project off-campus or away from organizational headquarters.

- Documentation of collaborative arrangements of significance to the proposal through letters of collaboration. (See Chapter II.C.2.d.(iv).) Letters of collaboration should be limited to stating the intent to collaborate and should not contain endorsements or evaluation of the proposed project. The recommended format for letters of collaboration is as follows:

  "If the proposal submitted by Dr. [insert the full name of the Principal Investigator] entitled [insert the proposal title] is selected for funding by NSF, it is my intent to collaborate and/or commit resources as detailed in the Project Description or the Facilities, Equipment and Other Resources section of the proposal."

  While letters of collaboration are permitted, unless required by a specific program solicitation, letters of support should not be submitted as they are not a standard component of an NSF proposal. A letter of support is typically from a key stakeholder such as an organization, collaborator or Congressional Representative, and is used to convey a sense of enthusiasm for the

project and/or to highlight the qualifications of the PI or co-PI. A letter of support submitted in response to a program solicitation requirement must be unique to the specific proposal submitted and cannot be altered without the author's explicit prior approval. Proposals that contain letters of support not authorized by the program solicitation may be returned without review.

- In order for NSF to comply with Federal environmental statutes (including, but not limited to, the National Environmental Policy Act (42 USC. §§ 4321, et seq.), the National Historic Preservation Act (54 USC § 306108 [previously codified at 16 USC § § 470, et seq.], and the Endangered Species Act (16 USC. §§ 1531, et seq.), the proposer may be requested to submit supplemental post-proposal submission information to NSF in order that a reasonable and accurate assessment of environmental impacts by NSF may be made. The types of information that may be requested is shown in the Organization Environmental Impacts Checklist.

- Antarctic proposals to *any* NSF program require "Logistical Requirements and Field Plan" supplementary documents to be submitted with the proposal. See "proposal with fieldwork" in Chapter V.A of the Antarctic Research solicitation. Special budgetary considerations also apply. See also Chapter V.B of the Antarctic Research solicitation.

- Research in a location designated, or eligible to be designated, a registered historic place. (See Chapter XI.J). Where applicable, the box for "Historic Places" must be checked on the Cover Sheet.

- Research involving field experiments with genetically engineered organisms. (See Chapter XI.B.2)

- Documentation regarding research involving the use of human subjects, hazardous materials, vertebrate animals, or endangered species. (See Chapter XI.B, Chapter II.D.4 and II.D.5).

- Special components in new proposals or in requests for supplemental funding, such *as Facilitation Awards for Scientists and Engineers with Disabilities (FASED), Research Opportunity Awards (ROAs), Research Experiences for Undergraduates (REUs), and Facilitating Research at Primarily Undergraduate Institutions (RUIs).* See Chapter II.E.6 for information on FASED, and, for the other programs identified, consult the relevant solicitation).

In addition, the supplementary documentation section should alert NSF officials to unusual circumstances that require special handling, including, for example, proprietary or other privileged information in the proposal, matters affecting individual privacy, required intergovernmental review under E.O. 12372 (Intergovernmental Review of Federal Programs) for activities that directly affect State or local governments, or possible national security implications.

k. Appendices

All information necessary for the review of a proposal must be contained in Sections a through i of the proposal. **Appendices may not be included unless a deviation has been authorized.** Chapter II.A contains further information.

D. Special Processing Instructions

1. Proprietary or Privileged Information

Patentable ideas, trade secrets, privileged or confidential commercial or financial information, disclosure of which may harm the proposer, should be included in proposals only when such information is necessary to convey an understanding of the proposed project. Such information must be clearly marked in the proposal and be appropriately labeled with a legend such as,

"The following is (proprietary or confidential) information that (name of proposing organization) requests not be released to persons outside the Government, except for purposes of review and evaluation."

Such information also may be included as a separate statement. If this method is used, the statement must be submitted as a single-copy document in the Proposal Preparation Module in FastLane. (See also Chapter II.C.1 for further information regarding submission of single-copy documents.)[32]

The box for "Proprietary or Privileged Information" must be checked on the Cover Sheet when the proposal contains such information. While NSF will make every effort to prevent unauthorized access to such material, the Foundation is not responsible or in any way liable for the release of such material.

2. Beginning Investigators (applies to proposals submitted to the Biological Sciences Directorate only)

Research proposals to the Biological Sciences Directorate ONLY (not proposals for conferences) cannot be duplicates of proposals to any other Federal agency for simultaneous consideration. The only exceptions to this rule are: (1) when the Program Officers at the relevant Federal agencies have previously agreed to joint review and possible joint funding of the proposal; or (2) proposals for PIs who are beginning investigators (individuals who have not been a PI or co-PI on a Federally funded award with the exception of doctoral dissertation, postdoctoral fellowship or research planning grants). For proposers who qualify under this latter exception, the box for "Beginning Investigator" must be checked on the Cover Sheet.

3. Collaborative Proposals

A collaborative proposal is one in which investigators from two or more organizations wish to collaborate on a unified research project. Collaborative proposals may be submitted to NSF in one of two methods: as a single proposal, in which a single award is being requested (with subawards administered by the lead organization); or by simultaneous submission of proposals from different organizations, with each organization requesting a separate award. In either case, the lead organization's proposal must contain all of the requisite sections as a single package to be provided to reviewers (that will happen automatically when procedures below are followed). All collaborative proposals must clearly describe the roles to be played by the other organizations, specify the managerial arrangements, and explain the advantages of the multi-organizational effort within the Project Description.

a. Submission of a collaborative proposal from one organization

The single proposal method allows investigators from two or more organizations who have developed an integrated research project to submit a single, focused proposal. A single investigator bears primary responsibility for the administration of the grant and discussions with NSF, and, at the discretion of the organizations involved, investigators from any of the participating organizations may be designated as co-PIs. Note, however, that if awarded, a single award would be made to the submitting organization, with any collaborators listed as subawards. (See Chapter II.C.2.g(vi)(e) for additional instructions on preparation of this type of proposal.)

If a proposed subaward includes funding to support postdoctoral researchers, the mentoring activities to be provided for such individuals must be incorporated in the supplemental mentoring plan outlined in Chapter II.C.2.j.

[32] Detailed instructions for submission of proprietary or privileged information are available in FastLane at: http://www.fastlane.nsf.gov/help/proprietary.htm.

b. Submission of a collaborative proposal from multiple organizations

Simultaneous submission of proposals allows multiple organizations to submit a unified set of certain proposal sections, as well as information unique to each organization as specified below. All collaborative proposals arranged as separate submissions from multiple organizations must be submitted via FastLane. For these proposals, the project title must begin with the words "Collaborative Research:" If funded, each organization bears responsibility for a separate award.

Required sections of the proposal differ based on the organization's role. The following sections are required for a collaborative proposal submitted by:

Lead Organization

- Cover Sheet
- Project Summary
- Table of Contents (automatically generated)
- Project Description
- References Cited
- Biographical Sketch(es)
- Budget and Budget Justification
- Current and Pending Support
- Facilities, Equipment and Other Resources
- Data Management Plan
- Postdoctoral Mentoring Plan (if applicable)
- Collaborators & Other Affiliations Information

Non-Lead Organization

- Cover Sheet
- Table of Contents (automatically generated)
- Biographical Sketch(es)
- Budget and Budget Justification
- Current and Pending Support
- Facilities, Equipment and Other Resources
- Collaborators & Other Affiliations Information

See Chapter II.C.2.j for additional guidance on the mentoring and data management plan requirements for collaborative proposals. NSF will combine the proposal submission for printing or electronic viewing.

To submit the collaborative proposal, the following process must be completed:[33]

(i) Each non-lead organization must assign their proposal a proposal PIN. This proposal PIN and the temporary proposal ID generated by FastLane when the non-lead proposal is created must be provided to the lead organization before the lead organization submits its proposal to NSF.

(ii) The lead organization must then enter each non-lead organization(s) proposal PIN and temporary proposal ID into the FastLane lead proposal by using the "Link Collaborative Proposals" option found on the FastLane "Form Preparation" screen.

(iii) **All components** of the collaborative proposal must meet any established deadline date, and failure to do so may result in the entire collaborative proposal being returned without review.

(iv) Each collaborative proposal that includes funding to an International Branch Campus of a U.S. IHE or to a foreign organization (including through use of a subaward or consultant arrangement), must check the appropriate box on the proposal cover sheet. The requirement to check the box only applies to the

[33] Detailed instructions for the preparation and submission of collaborative proposals are available in FastLane.

proposing organization that includes the international component. The lead organization also must provide the requisite explanation/justification in the project description. See Chapter I.E. for additional information on the content requirements.

(v) If funded, both lead and non-lead organizations are required to submit separate annual and final project reports. These reports should reference the work of the collaborative, while focusing on the distinct work conducted at each funded organization.

4. Proposals Involving Vertebrate Animals

a. Any project proposing use of vertebrate animals for research or education shall comply with the Animal Welfare Act (7 USC 2131, *et seq*.) and the regulations promulgated thereunder by the Secretary of Agriculture (9 CFR 1.1-4.11) pertaining to the humane care, handling, and treatment of vertebrate animals held or used for research, teaching, or other activities supported by Federal awards. In accordance with these requirements, proposed projects involving use of any vertebrate animal for research or education must be approved by the submitting organization's Institutional Animal Care and Use Committee (IACUC) before an award can be made. For this approval to be accepted by NSF, the organization must have a current Public Health Service (PHS) Approved Assurance. See also Chapter XI.B.3 for additional information on the administration of awards that utilize vertebrate animals. Note that for some types of vertebrate animals, additional review may be required.

Any project proposing use of vertebrate animals for research or education must comply with the provision in the PHS Assurance for Institutional Commitment (Section II) that requires the submitting organization to establish and maintain a program for activities involving animals in accordance with the *Guide for the Care and Use of Laboratory Animals* (Guide). Taxon-specific guidelines may be used as supplemental references.[34] Departures from the Guide must be approved by the IACUC and based on scientific, veterinary, medical, or animal welfare issues (for more information, see Office of Laboratory Animal Welfare (OLAW) Departures from the Guide).

b. Sufficient information must be provided within the 15-page Project Description to enable reviewers to evaluate the:

(i) rationale for involving animals;

(ii) choice of species and number of animals to be used;

(iii) description of the proposed use of the animals;

(iv) exposure of animals to discomfort, pain, or injury; and

(v) description of any euthanasia methods to be used.

c. Research facilities subject to the Animal Welfare Act using or intending to use live animals in research and who receive Federal funding are required to register the facility with the Animal and Plant Health Inspection Service (APHIS), US Department of Agriculture. A current listing of licensed animal dealers also may be obtained from APHIS. The location of the nearest APHIS Regional Office, as well as information concerning this and other APHIS activities, may be obtained at: http://www.aphis.usda.gov/.

d. Projects involving the care or use of vertebrate animals at an international organization or international field site also require approval of research protocols by the U.S. grantee's IACUC. If the project is to be funded through an award to an international organization or through an individual fellowship

[34] Guidelines to the use of Wild Birds in Research; Guidelines of the American Society of Mammologists for the Use of Wild Mammals in Research; Guidelines for the Use of Fishes in Research; and Guidelines for the Use of Live Amphibians and Reptiles in Field and Laboratory Research.

award that will support activities at an international organization, NSF will require a statement from the international organization explicitly listing the proposer's name and referencing the title of the award to confirm that the activities will be conducted in accordance with all applicable laws in the international country and that the *International Guiding Principles for Biomedical Research Involving Animals* (see: http://www.cioms.ch/) will be followed.

e. The following information regarding the organization's intention to utilize vertebrate animals as part of the project should be provided on the Cover Sheet:

(i) The box for "Vertebrate Animals" must be checked on the Cover Sheet if care and use of vertebrate animals is envisioned.

(ii) The date of IACUC approval of the animal-use protocol covering the proposed work, if such approval has been granted prior to proposal submission, must be identified in the space provided. If IACUC approval has not been obtained prior to submission, the proposer should indicate "Pending" in the space provided for the approval date. If a decision is made to fund the proposal, the organization must provide a copy of the approval letter from the IACUC. The approval letter must affirm that an animal-use protocol covering the proposed activities has been approved, and should explicitly list the organization's PHS Assurance Number, the proposer's name, the title and number of the NSF proposal, and the date of IACUC approval, as well as show an organizational signature. The approval letter must be provided to the cognizant NSF Program Officer before an award can be issued.

(iii) The PHS Approved Animal Welfare Assurance Number must be entered in the space provided.

f. For fellowship proposals submitted by individuals that involve the care and use of vertebrate animals, the proposal should contain the information specified in paragraph b. above. In addition, a copy of the approval letter from the IACUC of the organization that provides oversight of the proposed work should be included as an "Other Supplementary Document" in FastLane. The approval letter must affirm that an animal-use protocol covering the proposed activities has been approved, and should explicitly list the organization's PHS Assurance Number, the proposer's name, the title and number of the NSF proposal, and the date of IACUC approval, as well as show an organizational signature. If IACUC approval has not been obtained prior to submission, the individual should indicate "Pending" in the space provided for the approval date. If a decision is made to fund the proposal, the individual must provide a signed copy of the official IACUC approval letter (which includes the items specified above) to the cognizant NSF Program Officer before an award can be issued.

See also Chapter XI.B.3 for additional information on the administration of awards that include use of vertebrate animals.

5. Proposals Involving Human Subjects

a. Projects involving research with human subjects must ensure that subjects are protected from research risks in conformance with the relevant Federal policy known as the Common Rule (Federal Policy for the Protection of Human Subjects, 45 CFR § 690). All projects involving human subjects must either have: (1) approval from an Institutional Review Board (IRB) before issuance of an NSF award; or, (2) an IRB determination that the project is exempt from review, in accordance with the applicable subsection, as established in 45 CFR § 690.104(d) of the Common Rule. If certification of exemption is provided after submission of the proposal and before the award is issued, the exemption number corresponding to one or more of the exemption categories also must be included in the documentation provided to NSF.

NSF cannot accept any IRB document that requires continued monitoring of the award activities involving human subjects by NSF. For projects lacking definite plans for the use of human subjects, their data or their specimens, pursuant to 45 CFR § 690.118, NSF can accept a determination notice[35] that establishes

[35] An NSF-approved format for submission of these determinations is available on the NSF website.

a period under which the PI may conduct preliminary or conceptual work that does not involve human subjects. Further instructions are provided in paragraph (iv) below.

If the project involves human subjects and is to be performed outside of the U.S., evidence of IRB approval also is required. If there is no IRB approval provided, nor is a Federal Wide Assurance (FWA) on file with the Department of Health and Human Services, Office for Human Research Protections (OHRP) (http://ohrp.cit.nih.gov/search/search.aspx?styp=bsc), NSF may decline to support the project. Pursuant to 45 CFR §690.101(g), the Common Rule is not intended to supersede any additional protections that may be afforded to human subjects under foreign laws or regulations. OHRP maintains the *International Compilation of Human Research Standards* which contains a listing of over 1000 laws, regulations, and guidelines on human subjects protections in 130 countries and from many organizations. This site is an excellent resource regarding the conduct of human subjects research in an international setting.

b. The following information regarding the organization's intention to use human subjects as part of the project should be provided on the Cover Sheet:

(i) The box for "Human Subjects" must be checked on the Cover Sheet if use of human subjects is envisioned.

(ii) If human subject activities are exempt from IRB review, provide the exemption number(s) corresponding to one or more of the exemption categories. The eight categories of research that qualify for exemption from coverage by the regulations are defined in the *Common Rule for Protection of Human Subjects.*

(iii) If the research is not designated as exempt, and has an approved, unexpired protocol at the time of submission, the IRB approval date should be identified in the space provided. If IRB approval has not been obtained at the time of submission, the proposer should indicate "Pending" in the space provided for the approval date. If a decision is made to fund the proposal, a signed copy of the IRB approval letter must be provided to the cognizant program prior to award. The letter should indicate approval of the proposed activities and must be submitted prior to an award being issued.

(iv) If the project lacks definite plans regarding use of human subjects, their data or their specimens, pursuant to 45 CFR §690.118, the proposer must check the box for "Human Subjects" on the Cover Sheet and enter "Pending" in the space provided for the approval date. If available at the time of proposal submission, the determination notice should be uploaded as an "Other Supplementary Document". If the determination notice is not available, and, the decision is made to fund the proposal, a signed copy of the determination notice must be provided to the cognizant program prior to award.

Prior to the expiration date specified in the determination notice, the AOR is required to provide to the cognizant NSF Program Officer:

1. verification that the project continues to lack definite plans for the involvement of human subjects, their data, or their specimens; or

2. documentation that demonstrates that IRB approval has been obtained. The determination notice must indicate that no work with human subjects, including recruitment, will be conducted until full IRB approval is obtained. NSF will add conditions to the grant that prevent any research involving human subjects from being carried out, or otherwise restrict the drawing down of funds, until IRB approval has been obtained.

(v) The FWA Number that the proposer has on file with OHRP should be entered, if available.

See also Chapter XI.B.1 for additional information on the administration of awards that include use of human subjects.

6. Life Sciences Dual Use Research of Concern (DURC)

a. Applicability

This section applies to all research, for which NSF grant funds may be used, that potentially falls within the scope of the *U.S. Government Policy for Institutional Oversight of Life Sciences Dual Use Research of Concern* (http://www.phe.gov/s3/dualuse/Pages/default.aspx) as published in September, 2014, hereafter referred to as the "Policy".

b. NSF Implementation of the Policy

NSF is committed to preserving the benefits of life sciences research while minimizing the risk of misuse of the knowledge, information, products, or technologies provided by such research. The purpose of NSF's implementation of the Policy is to clarify proposer expectations about NSF-funded research with certain high-consequence pathogens and toxins with potential to be considered DURC.

Proposing organizations are responsible for identifying NSF-funded life sciences proposals that could potentially be considered DURC as defined in the Policy and for compliance with the requirements established in that Policy therein. NSF will not fund research that would be considered to lead to a gain of function of agents associated with the U.S. Government Policy on DURC (See also Chapter XI.B.5 for additional information.)

7. Projects Requiring High-Performance Computing Resources, Data Infrastructure, or Advanced Visualization Resources

Many research projects require access to computational, data and/or visualization resources in order to complete the work proposed. Typically, such resources will be noted in the proposal under Facilities, Equipment and Other Resources. However, for those projects that require such resources at scales beyond what may be available locally, NSF supports a number of national resources. For the most computationally- and/or data-intensive projects, the Frontera system at the Texas Advanced Computing Center (TACC) at the University of Texas at Austin is the most suitable. Frontera is designed to support a small number (~50) of research teams involved with projects requiring the most advanced computational and data capabilities. The Office of Advanced Cyberinfrastructure within the Directorate for Computer and Information Science and Engineering oversees the allocation process for this system. Proposals are reviewed for both their scientific and computational/data needs. The Frontera system is among the largest and most powerful supercomputers ever deployed at a U.S. IHE; it offers over 16,000 processors, as well as significant other processing capabilities, to advance research that would not otherwise be possible. More information about the system can be found at https://www.tacc.utexas.edu/systems/frontera.

The National Center for Atmospheric Research (NCAR) provides high-performance computing resources for NSF-funded researchers in atmospheric and related sciences. To access these supercomputers, data storage systems, and other resources, users must apply for allocations through NCAR. Applications are reviewed, and time is allocated according to the needs of the projects and the availability of resources. More details on the allocations process can be found at https://www2.cisl.ucar.edu/user-support/allocations. The intention to request use of these NSF-supported national resources should be noted in the Facilities, Equipment and Other Resources section of the proposal. No letter of support or collaboration is required.

The most general set of large computational and data resources funded by NSF are accessible through the eXtreme Science and Engineering Discovery Environment (XSEDE) project. XSEDE provides the integrating fabric for a collection of very powerful supercomputers, a high-throughput computing environment, high-volume data storage facilities, and advanced visualization services, connected by a high-bandwidth private network. Additionally, XSEDE offers an education and outreach program on how to use its services, and an extended collaborative support program to assist researchers in using the advanced computational resources. The physical resources themselves are provided by service providers via

separate awards from NSF. Allocations of those resources for large projects are determined by the XSEDE Resource Allocation Committee, which meets quarterly, using an external set of experts. Smaller requests do not require a proposal or review, and a simple online process may be used to request such an allocation. NSF encourages prospective users to seek more information at https://www.xsede.org/allocations.

8. International Activities

a. International Research/Education/Training Activities. For each proposal that describes an international activity, PIs should list the primary countries involved on the Cover Sheet.

b. An international activity is defined as research, training, and/or education carried out in cooperation with foreign counterparts either overseas or in the U.S. using virtual technologies. If the "Funding of an International Branch Campus of a U.S. IHE, including through use of a subaward or consultant agreement" box or "Funding of a Foreign Organization, including through use of a subaward or consultant agreement" box is checked on the Cover Sheet, the proposer also must enter the name of the applicable country(ies) in the International Activities Country Name(s) box(es) on the Cover Sheet. (See also PAPPG Chapter I.E for additional information.)

c. International Conferences. Proposers also should enter on the Cover Sheet the country/countries with which project participants will engage and/or travel to attend international conferences. If the specific location of the international conference is not known at the time of the proposal submission, proposers should enter "Worldwide" on the Cover Sheet.

d. Work in foreign countries. Some governments require nonresidents to obtain official approval to carry out investigations within their borders and coastal waters under their jurisdiction. PIs are responsible for obtaining the required authorizations. Advance coordination should minimize disruption of the research. (See Chapter XI.B.4.)

E. Other Types of Proposals

In addition to standard research proposals that follow the proposal preparation instructions contained in sections A through C of this chapter, there are other types of proposals that may be submitted to NSF. Each of them is described below, along with instructions that may supplement or deviate from NSF's standard proposal preparation instructions.

1. Rapid Response Research (RAPID) Proposal

RAPID is a type of proposal used when there is a severe urgency with regard to availability of, or access to, data, facilities or specialized equipment, including quick-response research on natural or anthropogenic disasters and similar unanticipated events.

RAPID proposals are NOT for:

- projects that are appropriate for submission as "regular" NSF proposals;
- events that are unanticipated due to lack of awareness of timelines; or
- collection of only non-perishable data.

Prior to submission of a RAPID proposal, PI(s) must contact the NSF Program Officer(s) whose expertise is most germane to the proposal topic to ascertain that submission of a RAPID proposal is appropriate. This will facilitate determining whether the proposed work is appropriate for RAPID funding.

- The Project Description is expected to be brief and must be no more than five pages. It must include clear statements as to why the proposed research is urgent and why RAPID is the most

appropriate type of proposal for supporting the proposed work. Note this proposal preparation instruction deviates from the standard proposal preparation instructions contained in this Guide; RAPID proposals must otherwise be compliant with the proposal preparation requirements specified in Part I of the PAPPG.

- The “RAPID” proposal type must be selected in the proposal preparation module in FastLane.
- The project title will be preceded by the prefix “RAPID:”
- Only internal merit review is required for RAPID proposals. In some instances, Program Officers may elect to obtain external reviews to inform their decision. If external review is to be obtained, then the PI will be informed in the interest of maintaining the transparency of the review and recommendation process. The two standard NSB-approved merit review criteria will apply.
- Email documentation from at least one NSF Program Officer confirming approval to submit a RAPID proposal must be uploaded by the PI as a document entitled “RAPID – Program Officer Concurrence Email” in the Supplementary Documentation section of FastLane.
- Requests may be for up to $200K and up to one year in duration. The award size, however, will be consistent with the project scope and of a size comparable to grants in similar areas.
- RAPID proposals are not eligible for reconsideration, if declined. See Chapter IV.D.2.b.
- No-cost extensions and requests for supplemental funding will be processed in accordance with standard NSF policies and procedures.
- Renewed funding of RAPID awards may be requested only through submission of a proposal that will be subject to full external merit review. Such proposals would be designated as “RAPID renewals.”

2. EArly-concept Grants for Exploratory Research (EAGER) Proposal

EAGER is a type of proposal used to support exploratory work in its early stages on untested, but potentially transformative, research ideas or approaches. This work may be considered especially "high risk-high payoff" in the sense that it, for example, involves radically different approaches, applies new expertise, or engages novel disciplinary or interdisciplinary perspectives. These exploratory proposals also may be submitted directly to an NSF program, but the EAGER proposal type should not be used for projects that are appropriate for submission as “regular” (i.e., non-EAGER) NSF proposals. PI(s) must contact the NSF Program Officer(s) whose expertise is most germane to the proposal topic prior to submission of an EAGER proposal. This will aid in determining the appropriateness of the work for consideration under the EAGER proposal type; this suitability must be assessed early in the process.

EAGER proposals are NOT:

- for projects that are appropriate for submission as "regular" NSF proposals;
- for planning grants;
- to support the collection of preliminary data; or
- to provide services to NSF.

Please note that an NSF DCL may require submission of a research concept outline, or similar document, prior to submission of an EAGER proposal. Typically, this required document will not exceed two pages. Specific guidance, however, will be provided in the DCL.

- The Project Description is expected to be brief and must be no more than eight pages. It must include clear statements as to why this project is appropriate for EAGER funding, including why it does not fit into existing programs and why it is a good fit for EAGER. Note this proposal preparation instruction deviates from the standard proposal preparation instructions contained in this Guide; EAGER proposals must otherwise be compliant with the proposal preparation requirements specified in Part I of the PAPPG.

- The "EAGER" proposal type must be selected in the proposal preparation module in FastLane.

- The project title will be preceded by the prefix "EAGER:"

- Only internal merit review is required for EAGER proposals. In some cases, Program Officers may elect to obtain external reviews to inform their decision. If external review is to be obtained, then the PI will be informed in the interest of maintaining the transparency of the review and recommendation process. The two standard NSB-approved merit review criteria will apply.

- Email documentation from at least one NSF Program Officer confirming approval to submit an EAGER proposal must be uploaded by the PI as a document entitled "EAGER – Program Officer Concurrence Email" in the Supplementary Documentation section of FastLane. In cases where an NSF DCL required submission of a research concept outline and the PI was then invited to submit an EAGER proposal, the email invitation from the NSF Program Officer serves as documentation and must be uploaded in the Supplementary Documentation section.

- Requests may be for up to $300K and up to two years in duration. The award size, however, will be consistent with the project scope and of a size comparable to grants in similar areas.

- EAGER proposals are not eligible for reconsideration, if declined. See Chapter IV.D.2.b.

- No-cost extensions and requests for supplemental funding will be processed in accordance with standard NSF policies and procedures.

- Renewed funding of EAGER awards may be requested only through submission of a proposal that will be subject to full external merit review. Such proposals would be designated as "EAGER renewals."

3. Research Advanced by Interdisciplinary Science and Engineering (RAISE) Proposal

RAISE is a type of proposal that may be used to support bold, interdisciplinary projects whose:

- Scientific advances lie in great part outside the scope of a single program or discipline, such that substantial funding support from more than one program or discipline is necessary.

- Lines of research promise transformational advances.

- Prospective discoveries reside at the interfaces of disciplinary boundaries that may not be recognized through traditional review or co-review.

To receive funding as a RAISE-appropriate project, all three criteria must be met. RAISE is not intended to be used for projects that can be accommodated within other types of proposals or that continue well established practices. Prospective PIs must receive approval to submit a proposal from at least two NSF

Program Officers, in intellectually distinct programs, whose expertise is most germane to the proposal topics. Please note that an NSF DCL may require submission of a research concept outline, or similar document, prior to submission of a RAISE proposal. Typically, this required document will not exceed two pages. Specific guidance will be contained in the DCL.

Contingent on Program Officers' approval to submit a proposal:

- RAISE proposals must be compliant with Part I of the PAPPG unless a deviation from the standard proposal preparation requirements is indicated below.
- NSF will not accept a RAISE separately submitted collaborative proposal from multiple organizations. A collaborative proposal must be submitted as a single proposal from one organization, with any collaborators identified as subawardee organizations.
- The RAISE proposal type must be selected in the proposal preparation module in Fastlane.
- The project title will be preceded by the prefix "RAISE:"
- Email documentation from at least two NSF Program Officers confirming approval to submit a proposal must be uploaded under "RAISE – Program Officer Concurrence Emails" in the Supplementary Documentation section of FastLane.
- Requests may be for up to $1,000,000 and up to five years in duration. The award size and duration will be consistent with the project scope.
- The proposal must explicitly address how the project is better suited for RAISE than for a regular NSF review process.
- Only internal merit review is required for RAISE proposals. Program Officers may elect to obtain external reviews to inform their decision. If external review is to be obtained, then the PI will be informed in the interest of maintaining the transparency of the review and recommendation process.
- The two standard NSB-approved merit review criteria will apply. The interdisciplinary and transformative potential of the project will be evaluated within the intellectual merit of the proposal.
- On the basis of the review criteria, the cognizant Program Officers will decide whether to recommend a RAISE proposal for co-funding from their programs.
- RAISE proposals are not eligible for reconsideration, if declined. See Chapter IV.D.2.b.
- No-cost extensions and requests for supplemental funding will be processed in accordance with standard NSF policies and procedures.
- There are no renewals for RAISE awards.

4. Grant Opportunities for Academic Liaison with Industry (GOALI) Proposal

GOALI is a type of proposal that seeks to stimulate collaboration between academic research institutions and industry. Under this proposal type, academic scientists and engineers request funding either in conjunction with a regular proposal submitted to a standing NSF program or as a supplemental funding request to an existing NSF-funded award. GOALI is not a separate program; GOALI proposals must be submitted to an active NSF funding opportunity and must be submitted in accordance with the deadlines specified therein. A proposer interested in submitting a GOALI proposal or a GOALI supplemental funding

request to an existing NSF-funded award must contact the cognizant NSF Program Officer listed in the relevant funding opportunity prior to submission. Special interest is focused on affording opportunities for:

- Interdisciplinary university-industry teams to conduct collaborative research projects, in which the industry research participant provides critical research expertise, without which the likelihood for success of the project would be diminished;

- Faculty, postdoctoral fellows, and students to conduct research and gain experience in an industrial setting; and

- Industrial scientists and engineers to bring industry's perspective and integrative skills to academe.

GOALI proposals should focus on research that addresses shared interests by academic researchers and industrial partners. The research should further scientific and engineering foundations to enable future breakthrough technologies with the potential to address critical industry needs. Industry involvement assures that the research is industrially relevant. Principal Investigators are expected to integrate their research objectives with educational and industrial needs.

Interdisciplinary research and education projects that enable faculty from different academic departments or institutions to interact with one or more industrial partners in industry-university groups or networks are encouraged. Proposals may include the participation of a "third partner" such as a National Laboratory or a non-profit organization. NSF funding can be used for university research/education activities and may support activities of faculty and their students and research associates in the industrial setting. NSF funds are not permitted to be used to support the industrial research partner.

GOALI proposals and supplemental funding requests are reviewed by the program to which the proposal is submitted. In addition to any program-specific review criteria defined in the solicitation, reviewers may be asked to evaluate the degree and extent to which industry will be involved with the proposed research and the extent to which students and/or post-doctoral researchers will benefit from the interaction. The proposed research should be transformative, beneficial to industry, and further collaboration between the academic and industrial partners.

Specific instructions for each type of request are provided below.

a. Requests as part of a competitive proposal submission

(i) GOALI proposals must follow the deadlines applicable to an existing funding opportunity as well as the following GOALI-specific requirements: The title of a GOALI proposal should start with "GOALI:" (after any other title requirements specified by the funding opportunity to which the proposal is being submitted);

(ii) At least one industrial co-PI must be listed on the Cover Sheet at the time of submission although the industrial participant cannot use or receive any NSF funds;

(iii) The university-industry interaction should be described in the Project Description;

(iv) A GOALI-Industrial PI Confirmation Letter from the industrial partner that confirms the participation of a co-PI from industry **must be submitted with the proposal** (if applicable, the letter also must state the degree of industrial participation as well as detail any support that the industry is providing to the academic partner). All GOALI-related confirmation must be uploaded under “GOALI-Industrial PI Confirmation Letter” in the supplementary documentation section of FastLane. This supplementary documentation will not be counted towards the 15-page Project Description limitation; and

(v) Academic and industry partners should agree in advance as to how intellectual property (IP) rights will be handled. A signed university-industry agreement on IP (including publication and patent rights) must be submitted prior to issuance of an award. NSF will review this agreement to ensure that the graduation

of students will not be unduly affected. NSF is responsible neither for the agreement reached nor the IP information exchanged between the academic institution and the industrial partner.

b. Supplemental funding requests to existing NSF awards

Supplemental funding requests to add GOALI elements to a currently funded NSF research project should be submitted by using the "Supplemental Funding Request" function in FastLane. Such requests should include a brief description of the proposed activity, a budget and a budget justification, in addition to items (iii)-(v) above. At least one industrial participant must be included in the GOALI activity and must be specified in the GOALI-Industrial PI Confirmation Letter. The industrial participant cannot use or receive any NSF funds.

5. Ideas Lab Proposal

"Ideas Lab" is a type of proposal to support the development and implementation of creative and innovative project ideas that have the potential to transform research paradigms and/or solve intractable problems. An Ideas Lab may be run independently, or in parallel, with the issuance of an NSF funding opportunity on the same topic. These project ideas typically will be high-risk/high-impact, as they represent new and unproven ideas, approaches and/or technologies. This mechanism was developed collaboratively within NSF, modeled on the "sandpit" workshops that are a key component of the United Kingdom Research Council's "IDEAs Factory" program.

The Ideas Lab type of proposal is implemented using the four-stage process described below:

a. Stage 1: Selection of Panelists

There are two separate panels convened for an Ideas Lab: a selection panel and an Ideas Lab panel. The role of the selection panel is to provide advice on the selection of participants. The role of the Ideas Lab panel is to provide an assessment of the project ideas developed during the Ideas Lab. The individuals selected to participate in each of these panels are subject matter experts for the specific topic of the Ideas Lab. All panelists are barred from receiving any research funding through, or in any other way collaborating on, the particular Ideas Lab in which they are involved.

b. Stage 2: Selection of Participants

A "call for participants" solicitation that describes the specific focus of the Ideas Lab will be issued. The solicitation will specify the content and submission instructions for such applications.

The Project Description is limited to two pages and should include information regarding the applicant's specific expertise and interest in the topic area, as well as certain personal attributes that enhance the success of the Ideas Lab workshop (e.g., experience and interest in working in teams, communication skills, level of creativity, willingness to take risks). Applicants also must include a Biographical Sketch and Current and Pending Support information (both of which must be prepared in accordance with standard NSF formatting guidelines). All other elements of a "full proposal" are waived (i.e., Project Summary, References Cited, Budget and Budget Justification, Facilities, Equipment and Other Resources). The application must be submitted as a preliminary proposal in FastLane. No appendices or supplementary documents may be submitted.

Applicants are notified electronically of NSF's decision regarding whether they are invited or not invited to participate in the Ideas Lab. Applicants will be informed about the context of the review and the criteria that were used to assess the applications in the form of a panel summary but will not receive individual reviews or other review-related feedback.

c. Stage 3: Ideas Lab

The agenda and duration[36] of the Ideas Lab are communicated to meeting participants by the cognizant NSF Program Officer. Typically, Anonymous real-time peer review involving the participants and the Ideas Lab panel is incorporated into the workshop format, providing iterative constructive feedback during the development of project ideas. The Ideas Lab concept incorporates a "guided creativity" process, thus the use of a facilitator(s) is included, both to guide the creation of interdisciplinary teams and the creative development of ideas, and to ensure that the workshop progresses in a productive manner. At the end of the Ideas Lab, the Ideas Lab panel will provide a consensus report summarizing their evaluation of each project idea. The recommendations of the Ideas Lab panel are advisory to NSF. Within seven to fourteen days following the Ideas Lab, the NSF Program Officers will determine which project ideas are meritorious and should be invited as full proposals. At the NSF Program Officers' discretion (subject to Division Director concurrence), they may invite none, some, or all of the project ideas as full proposals, with the final funding decision to occur after the full proposals have been received and reviewed. Invited full proposals (which are prepared in accordance with standard research proposal formatting guidelines) must be submitted within two months of receiving NSF notification after the Ideas Lab.

d. Stage 4: Review and recommendation of full proposals

Invited proposals will be reviewed internally by the cognizant NSF Program Officers, the Ideas Lab panelists, and other external reviewers, as appropriate. Resulting awards will be administered in accordance with standard NSF policies and procedures, including no-cost extensions and supplemental funding requests. Renewed funding of an Ideas Lab award may be requested only through submission of a full proposal that will be subject to external merit review. Such proposals would be designated as an "Ideas Lab renewal."

6. Facilitation Awards for Scientists and Engineers with Disabilities (FASED) Proposal

As part of its effort to promote full utilization of highly qualified scientists, mathematicians, and engineers, and to develop scientific and technical talent, the Foundation has the following goals:

- to reduce or remove barriers to participation in research and training by persons with physical disabilities by providing special equipment and assistance under awards made by NSF; and

- to encourage persons with disabilities to pursue careers in science and engineering by stimulating the development and demonstration of special equipment that facilitates their work performance.

Persons with disabilities eligible for facilitation awards include PIs, other senior personnel, and graduate and undergraduate students. The cognizant NSF Program Officer will make decisions regarding what constitutes appropriate support on a case-by-case basis. The specific nature, purpose, and need for equipment or assistance should be described in sufficient detail in the proposal to permit evaluation by knowledgeable reviewers.

There is no separate program for funding of special equipment or assistance. Requests are made in conjunction with regular competitive proposals, or as a supplemental funding request to an existing NSF award. Specific instructions for each type of request are provided below.

a. Requests as part of a competitive proposal submission

Funds may be requested to purchase special equipment, modify equipment or provide services required specifically for the work to be undertaken. Requests for funds for equipment or assistance that compensate in a general way for the disabling condition are not permitted. For example, funds may be requested to provide: prosthetic devices to manipulate a particular apparatus; equipment to convert sound to visual

[36] Ideas Labs are generally one to five days in duration.

signals, or vice versa, for a particular experiment; access to a special site or to a mode of transportation (except as defined below); a reader or interpreter with special technical competence related to the project; or other special-purpose equipment or assistance needed to conduct a particular project. Items, however, such as standard wheel chairs, prosthetics, hearing aids, TDD/text-phones, or general readers for the blind would not be supported because the need for them is not specific to the proposed project. Similarly, ramps, elevators, or other structural modifications of research facilities are not eligible for direct support under this program.

No maximum funding amount has been established for such requests. It is expected, however, that the cost (including equipment adaptation and installation) will not be a major component of the total proposed budget for the project. Requests for funds for special equipment or assistance to facilitate the participation of individuals with disabilities should be included in the proposed budget for the project and documented in the budget justification. The specific nature, purpose and need for such equipment or assistance should be described in sufficient detail in the Project Description to permit evaluation of the request by knowledgeable reviewers.

b. Supplemental funding requests to existing NSF grants

Supplemental funds for special equipment or assistance to facilitate participation in NSF-supported projects by persons with disabilities may be requested under existing NSF grants. Normally, title is vested in the grantee organization for equipment purchased in conjunction with NSF-supported activities. In accordance with the applicable grant terms and conditions, the grantee organization guarantees use of the equipment for the specific project during the period of work funded by the Foundation and assures its use in an appropriate manner after project completion. In instances involving special equipment for persons with disabilities, the need for such may be unique to the individual. In such cases, the grantee organization may elect to transfer title to the individual to assure appropriate use after project completion.

Supplemental funding requests should be submitted by using the ”Supplemental Funding Request” function in FastLane and should include a brief description of the request, a budget and a budget justification. Requests must be submitted at least two months before funds are needed. Funding decisions will be made on the basis of the justification and availability of program funds with any resultant funding provided through a formal amendment of the existing NSF grant.

7. Conference Proposal[37]

NSF supports conferences in special areas of science and engineering that bring experts together to discuss recent research or education findings or to expose other researchers or students to new research and education techniques. NSF encourages the convening in the U.S. of major international conferences.

A conference proposal will be evaluated through use of the two National Science Board (NSB)-approved merit review criteria of Intellectual Merit and Broader Impacts, and, will be supported only if equivalent results cannot be obtained by attendance at regular meetings of professional societies. Although requests for support of a conference proposal ordinarily originates with educational institutions or scientific and engineering societies, they also may come from other groups. Shared support by several Federal agencies, States or private organizations is encouraged. A conference proposal should generally be submitted at least a year in advance of the scheduled date. Conferences, including the facilities in which they are held, funded in whole or in part with NSF funds, must be accessible to participants with disabilities.

It is NSF policy (see Chapter XI.A.1.g.) to foster harassment-free environments wherever science is conducted, including at NSF-sponsored conferences. Proposers are required to have a policy or code-of-

[37] This coverage also applies to symposia and workshop proposals.

conduct that addresses sexual harassment, other forms of harassment[38], and sexual assault, and that includes clear and accessible means of reporting violations of the policy or code-of-conduct. The policy or code-of-conduct must address the method for making a complaint as well as how any complaints received during the conference will be resolved. This policy or code-of-conduct must be disseminated to conference participants prior to attendance at the conference as well as made available at the conference itself.

A conference proposal must contain the elements identified below:

- Collaborators & Other Affiliations Information (see Chapter II.C.1.e) (for conference proposals in excess of $50,000)
- Cover Sheet
- Project Summary (see Chapter II.C.2.b)
- Project Description (not to exceed 15 pages) that includes:

a. A statement of the need for such a gathering and a list of topics;

b. Separate statements on the intellectual merit and broader impacts of the proposed activity;

c. A listing of recent meetings on the same subject, including dates and locations;

d. The names of the chairperson and members of organizing committees and their organizational affiliations;

e. Information on the location and probable date(s) of the meeting and the method of announcement or invitation;

f. A statement of how the meeting will be organized and conducted, how the results of the meeting will be disseminated and how the meeting will contribute to the enhancement and improvement of scientific, engineering and/or educational activities;

g. A plan for recruitment of, and support for, speakers and other attendees, that includes participation of groups underrepresented in science and engineering (e.g., underrepresented minorities, women, and persons with disabilities);

h. A description of plans to identify resources for child care and other types of family care at the conference site to allow individuals with family care responsibilities to attend. Attendance for some participants will be dependent on the availability of such resources. This information should help enable attendees to make arrangements for family care, as needed; and

i. Results from Prior NSF Support (up to five pages). If **any PI or co-PI** identified on the proposal has received prior NSF support including:

- an award with an end date in the past five years; or
- any current funding, including any no cost extensions,

information on the award is required **for each PI and co-PI**, regardless of whether the support was directly related to the proposal or not. See Chapter II.C.2.d.(iii) for additional instructions on preparation of this section.

[38] For purposes of this requirement, "other forms of harassment" is defined as "Non-gender or non-sex-based harassment of individuals protected under federal civil rights laws, as set forth in organizational policies or codes of conduct, statutes, regulations, or executive orders."

- Proposal Budget and Budget Justification: A budget, and budget justification for the conference prepared in accordance with Chapter II.C.2.g. The following provides a listing of the types of costs that may be included on a conference budget. Such costs may be included only if they are specifically and clearly identified in the proposed scope of work and budget. Note that registration fees under NSF-supported conferences are considered program income. For additional information on program income generated from conferences, see Chapter VIII.D.4.

a. Conference Facilities. Rental of facilities and necessary equipment.

b. Supplies. Expendable materials and supplies necessary for the meeting.

c. Conference Services. Costs of translation services, audio visual, webcast, and computer services for recording, transmitting and transcribing the proceedings.

d. Publication Costs. Costs of publishing the proceedings.

e. Salaries. Salaries of professional personnel, editorial and clerical assistants and other staff members in proportion to the time or effort devoted to the preparation and conduct of the conference and summarizing its results.

f. Consultant Services and Speaker Fees. Reasonable fees and travel allowances and per diem (or meals provided in lieu of per diem). Consultants' travel costs, including subsistence, may be included. If requested, the proposer must be able to justify that the proposed rate of pay is reasonable. Additional information on the allowability of consultant or professional service costs is available in 2 CFR § 200.459. In addition to other provisions required by the proposing organization, all contracts made under the NSF award must contain the applicable provisions identified in 2 CFR § 200, Appendix II.

g. Meals and Coffee Breaks. Meals that are an integral and necessary part of a conference (e.g., working meals where business is transacted). Funds may be included for furnishing a reasonable amount of hot beverages or soft drinks to conference participants and attendees during periodic coffee breaks. Proposed costs for meals must be reasonable and otherwise allowable to the extent such costs do not exceed charges normally allowed by the grantee organization in its regular operations as the result of the grantee organizations' written policies. In the absence of an acceptable, written grantee organizational policy regarding meal costs, 2 CFR §200.474(d) will apply. Costs that will be secured through a service agreement/contract should be budgeted under Line G.6, Other Direct Costs, to ensure the proper allocation of indirect costs.

h. Participant Support Costs. (See Chapter II.C.2.g.(v)).

i. Dependent Care Costs. As needed, the costs of identifying, but not providing, locally available dependent care resources may be included.

The following provides a listing of the types of costs that are not allowable for inclusion on a conference budget.

(i) Meals and Coffee Breaks for Intramural Meetings. NSF funds may not be included or spent for meals or coffee breaks for intramural meetings of an organization or any of its components, including, but not limited to, laboratories, departments and centers, as a direct cost.

(ii) Entertainment. Costs of entertainment, amusement, diversion and social activities (such as tickets to shows or sporting events, meals, lodging, rentals, transportation and gratuities) are unallowable and may not be requested. Travel, meal, and hotel expenses of awardee employees who are not on travel status also are not permitted. See also 2 CFR § 200.438.

(iii) Alcoholic Beverages. No NSF funds may be requested or spent for alcoholic beverages.

(iv) Speaker Fees. Speakers and trainers are not considered participants and should not be included in this section of the budget. However, if the primary purpose of the individual's attendance at the conference is learning and receiving training as a participant, then the costs may be included under participant support. If the primary purpose is to speak or assist with management of the conference, then such costs should be budgeted in appropriate categories other than participant support.

- Current and Pending Support: The support requested or available from other Federal agencies and other sources. (see Chapter II.C.2.h).

- Facilities, Equipment and Other Resources: If there will be support from other sources for the conference, such information should be included in the Facilities, Equipment and Other Resources section of the proposal. The description should be narrative in nature and must not include any quantifiable financial information. Chapter II.C.2.i should be consulted to prepare this portion of the proposal. If included, these resources will not be auditable and must not be included in the proposal budget or budget justification. A description of such support should be included in the Facilities, Equipment and Other Resources section of the proposal.

Data Management Plan: Plans for management and sharing of any data products resulting from the activity. (see Chapter II.C.2.j).

8. Equipment Proposal

A proposal for specialized equipment may be submitted by an organization for: individual investigators; groups of investigators within the same department; several departments; organization(s) participating in a collaborative or joint arrangement; any components of an organization; or a region. One individual must be designated as PI. Investigators may be working in closely related areas or their research may be multidisciplinary.

An equipment proposal must contain all of the following proposal sections:

- Collaborators & Other Affiliations Information (see Chapter II.C.1.e.)

- Cover Sheet

- Project Summary (see Chapter II.C.2.b)

- Project Description (not to exceed 15 pages) that includes:

a. an overall acquisition plan which discusses arrangements for acquisition, maintenance and operation. Equipment to be purchased, modified or constructed must be described in sufficient detail to allow comparison of its capabilities with the needs of the proposed activities;

b. a description, from each potential major user, of the project(s) for which the equipment will be used. This description must be succinct, not necessarily as detailed as in a full research proposal and must emphasize the intrinsic merit of the activity and the importance of the equipment to it. A brief summary will suffice for auxiliary users; and

c. a description of comparable equipment already at the proposing organization(s), if applicable, and an explanation of why it cannot be used. This includes comparable government-owned equipment that is on-site.

d. Results from Prior NSF Support (up to five pages). If **any PI or co-PI** identified on the proposal has received prior NSF support including:

- an award with an end date in the past five years; or

- any current funding, including any no cost extensions,

information on the award is required **for each PI and co-PI**, regardless of whether the support was directly related to the proposal or not. See Chapter II.C.2.d.(iii) for additional instructions on preparation of this section.

- Biographical Sketch(es) of the person(s) who will have overall responsibility for maintenance and operation of the equipment and a brief statement of qualifications. (Chapter II.C.2.f should be consulted to prepare this portion of the proposal; also see Chapter II.C.2.f.(iii).

- Proposal Budget and Budget Justification: An annual budget and budget justification for the operation, maintenance and administration of the proposed equipment (Chapter II.C.2.g should be consulted to prepare this portion of the proposal).

- Current and Pending Support: Chapter II.C.2.h should be consulted to prepare this portion of the proposal.

- Facilities, Equipment and Other Resources that includes a description of the physical facility, including floor plans or other appropriate information, where the equipment will be located; a narrative description of the source of funds available for operation and maintenance of the proposed equipment; a brief description of other support services available, and a statement of why the equipment is severable or non-severable from the physical facility (Chapter II.C.2.i should be consulted to prepare this portion of the proposal).

- Data Management Plan: (see Chapter II.C.2.j)

- Postdoctoral Mentoring Plan (if applicable): Chapter II.C.2.j should be consulted to prepare this portion of the proposal.

This type of proposal normally competes with proposals for research or education projects.[39]

9. Travel Proposal

A proposal for travel support, either domestic and/or international, for participation in scientific and engineering meetings are handled by the NSF organizational unit with program responsibility for the area of interest.

A group travel proposal is encouraged as the primary means of support for travel. A university, professional society or other non-profit organization may apply for funds to enable it to coordinate and support participation in one or more scientific meeting(s). A proposal submitted for this purpose must contain the elements identified below, with particular attention to plans for composition and recruitment of the travel group. Information on planned speakers should be provided, where available, from the conference organizer.

- Cover Sheet

- Project Summary (see Chapter II.C.2.b)

[39] See Chapter IX.D. for additional information on the administration of equipment awards.

- Project Description (not to exceed 15 pages) that includes:

a. A statement of the need for attending such a gathering and a list of topics;

b. A listing of recent meetings on the same subject, including dates and locations;

c. Information on the location and probable date(s) of the meeting;

d. A statement of how the meeting will be organized and conducted, how the results of the meeting will be disseminated and how the meeting will contribute to the enhancement and improvement of scientific, engineering and/or educational activities; and

e. Results from Prior NSF Support (up to five pages). If **any PI or co-PI** identified on the proposal has received prior NSF support including:

- an award with an end date in the past five years; or

- any current funding, including any no cost extensions,

- information on the award is required **for each PI and co-PI**, regardless of whether the support was directly related to the proposal or not. See Chapter II.C.2.d.(iii) for additional instructions on preparation of this section.

Proposal Budget and Budget Justification: A budget, and budget justification for the travel prepared in accordance with Chapter II.C.2.g. For proposals to support travel to international destinations, in accordance with the Fly America Act (49 USC 40118), any air transportation to, from, between, or within a country other than the U.S. of persons or property, the expense of which will be assisted by NSF funding, must be performed by or under a code-sharing arrangement with a U.S.-flag air carrier if service provided by such a carrier is available (see Comptroller General Decision B-240956, dated September 25, 1991). Tickets (or documentation for electronic tickets) must identify the U.S. flag air carrier's designator code and flight number. See Chapter XI.F for additional information.

- Current and Pending Support: The support requested or available from other Federal agencies and other sources. Chapter II.C.2.h should be consulted to prepare this portion of the proposal.

- Facilities, Equipment and Other Resources: If there will be support from other sources for the travel, such information should be included in the Facilities, Equipment and Other Resources section of the proposal. The description should be narrative in nature and must not include any quantifiable financial information. Chapter II.C.2.i should be consulted to prepare this portion of the proposal. If included, these resources will not be auditable and must not be included in the proposal budget or budget justification. A description of such support should be included in the Facilities, Equipment and Other Resources section of the proposal.

- Data Management Plan: Plans for management and sharing of any data products resulting from the activity. Chapter II.C.2.j should be consulted to prepare this portion of the proposal.

A group travel proposal may request support only for the travel costs of the proposed activity. Group travel grantees are required to retain supporting documentation that funds were spent in accordance with the original intent of the proposal. Such documentation may be required in final reports and is subject to audit.

10. Center Proposal

NSF provides support for a variety of individual Centers and Centers programs that contribute to the Foundation's vision as outlined in the NSF Strategic Plan. Centers exploit opportunities in science, engineering and technology in which the complexity of the research problem(s) or the resources needed to

solve the(se) problem(s) require the advantages of scope, scale, change, duration, equipment, facilities, and students that can only be provided by an academic research center. They focus on investigations at the frontiers of knowledge not normally attainable through individual investigations, at the interfaces of disciplines and/or by incorporating fresh approaches to the core of disciplines. Centers focus on integrative learning and discovery and demonstrate leadership in broadening participation through focused investments in a diverse set of partner organizations and individuals. In doing so, they draw upon, and contribute to, the development of the Nation's full intellectual talent. Most Center awards are limited to a maximum duration of ten years and are often subject to mid-course external merit review. Proposers interested in learning more about current or future NSF Centers are encouraged to contact the appropriate disciplinary NSF Program Officer. Centers are not considered research infrastructure but will often use research infrastructure to meet their objectives.

11. Research Infrastructure Proposal

As an integral part of its responsibility for strengthening the science and engineering capacity of the country, NSF provides support for the design, construction, operation and upgrade of research infrastructure. NSF defines research infrastructure as any combination of facilities, equipment, instrumentation, computational hardware and software, and the necessary supporting human capital. Research infrastructure includes major research instrumentation, mid-scale projects and major facilities. NSF depends on the research communities to provide the justification as well as the capabilities to manage the development and implementation of research infrastructure projects. Justification normally occurs through National Academies studies, workshop reports, professional society activities, and other community-based mechanisms, including engineering studies and research projects related to the development of new technologies. Many of these mechanisms are funded by interested NSF Programs on the basis of merit-reviewed proposals. The NSF process and funding mechanisms for development and implementation of research infrastructure projects depends, in part, on the scale of the project. Construction of the largest projects, major facilities, is typically supported through the Major Research Equipment and Facilities Construction (MREFC) account. Proposers are strongly encouraged to contact the appropriate NSF Program to discuss the availability of funding and the appropriate funding mechanisms in advance of proposal submission. The *Major Facilities Guide*, a public document managed by the Large Facilities Office, contains policies and procedures related to NSF oversight and Recipient management of larger research infrastructure projects funded by NSF. The purpose of the *Major Facilities Guide* is to: (1) provide guidance to NSF staff on conducting appropriate oversight and to recipients in carrying out effective project planning and management; and (2) clearly state the required policies and procedures as well as pertinent good practices for each life-cycle stage.

Exhibit II-1: Proposal Preparation Checklist

It is imperative that all proposals conform to the proposal preparation and submission instructions specified in Part I of the *Proposal and Award Policies and Procedures Guide*. Conformance with all preparation and submission instructions is required and will be strictly enforced unless a deviation has been approved in advance of proposal submission. Note that some NSF program solicitations modify standard NSF proposal preparation guidelines, and, in such cases, the guidelines provided in the solicitation must be followed. FastLane uses the rules specified for each type of proposal, (e.g., Research, RAPID, EAGER, RAISE, GOALI, Ideas Lab, FASED, Conference, Equipment, or Travel) to check for compliance prior to submission to NSF. Proposers are strongly advised to review Chapter II.C (for Research proposals) and the applicable sections of Chapter II.E. relevant to the other types of proposals being developed PRIOR to submission. NSF will not accept[40] or will return without review proposals that are not consistent with these instructions. See Chapter IV.B and visit: http://www.nsf.gov/bfa/dias/policy/autocompliance.jsp for additional information.

Prior to submission, it is strongly recommended that an administrative review be conducted to ensure that proposals comply with the instructions, and the format specified. This checklist is not intended to be an all-inclusive repetition of the required proposal contents and associated proposal preparation guidelines. It is, however, meant to highlight certain critical items so they will not be overlooked when the proposal is prepared.

[ ] General:

[ ] The proposer has an active and valid SAM registration and a valid DUNS number.

[ ] The proposer has reviewed and certified compliance with the government-wide financial assistance representations and certifications in SAM.

[ ] The proposal is compliant with the provisions in the PAPPG and/or the relevant program solicitation.

[ ] The proposal is responsive to the relevant program description or announcement (if applicable).

[ ] If the proposal has been previously declined and is being resubmitted, the proposal has been substantively revised to take into account the major comments from the prior NSF review.

[ ] The proposed work is appropriate for funding by NSF, and is not a duplicate of, or substantially similar to, a proposal already under consideration by NSF from the same submitter.

[ ] The proposal will be submitted by 5 p.m. submitter's local time on the established deadline date.

[ ] Single Copy Documents:

[ ] Authorization to Deviate from NSF Proposal Preparation Requirements is included (if applicable).

[ ] List of Suggested Reviewers, or Reviewers Not To Include has been provided (if applicable).

[40] Proposal Not Accepted is defined as FastLane will not permit submission of the proposal.

[ ] SF LLL, *Disclosure of Lobbying Activities* has been provided (if applicable).

[ ] Collaborators and Other Affiliations (COA) Information has been separately provided for each individual identified as senior personnel through use of the COA template available at: https://nsf.gov/bfa/dias/policy/coa.jsp.

[ ] Cover Sheet:

[ ] For interdisciplinary proposals, all relevant programs have been identified.

[ ] Proposal title includes any necessary prefix, e.g., "Collaborative Research:".

[ ] For renewal proposals, previous award numbers have been entered.

[ ] Related preliminary proposal number has been entered (if applicable).

[ ] The "Special Exception to the Deadline Date Policy" box has been checked on the NSF Cover Sheet and the requisite Single Copy Document has been provided (if applicable).

[ ] Appropriate box(es) have been checked, and requisite information has been provided.

[ ] If the box for "Funding of an International Branch Campus of a U.S. IHE, including through use of a subaward or consultant arrangement" or "Funding of a Foreign Organization, including through use of a subaward or consultant arrangement" has been checked on the Cover Sheet, the name of the applicable country(ies) in the International Activities Country Name(s) box(es) has been provided.

[ ] Project Summary:

[ ] The Project Summary does not exceed one page.

[ ] The Project Summary contains an overview, a statement on the intellectual merit of the proposed activity, and a statement on the broader impacts of the proposed activity.

[ ] The Project Summary may ONLY be uploaded as a Supplementary Document if use of special characters is necessary. If uploaded as a Supplementary Document, the Project Summary has been formatted to include separate headings for Overview, Intellectual Merit and Broader Impacts.

[ ] Project Description:

[ ] The Project Description does not exceed the 15-page limitation, the limit specified in a specific program solicitation, or the limit provided in the instructions for types of proposals (e.g., RAPID, EAGER and Ideas Lab).

[ ] Project Description contains, as a separate section within the narrative, a section labeled "Broader Impacts".

[ ] Project Description contains the requisite explanation/justification for proposals that include funding to an International Branch Campus of a U.S. IHE or to a foreign organization, including through use of a subaward or consultant arrangement.

[ ] Project Description is self-contained, and Uniform Resource Locators (URLs) have not been included.

[ ] Results from Prior NSF Support have been provided for any PI or co-PI identified on the proposal that has received prior NSF support including:

- an award with an end date in the past five years; or
- any current funding, including any no cost extensions.

[ ] Results related to Intellectual Merit and Broader Impacts are described under two separate, distinct headings, and are limited to five pages of the Project Description. and

[ ] Results are limited to five pages of the Project Description.

[ ] References Cited:

[ ] This section includes bibliographic citations only and does not provide parenthetical information outside of the 15-page Project Description.

[ ] Each reference is in the required format, which may vary according to the norms of the scientific discipline.

[ ] Biographical Sketch(es):

[ ] A separate biographical sketch has been prepared through use of an NSF-approved format and provided for each individual identified as senior personnel.. The pdf file(s) has been uploaded into FastLane, Research.gov or Grants.gov.

[ ] Each biographical sketch does not exceed two pages.

[ ] The content described has been prepared in accordance with the instructions, and does not contain additional information beyond that specified.

[ ] A list, in reverse chronological order by start date of all of the individual's academic, professional, or institutional appointments, beginning with the current appointment, has been provided for each individual.

[ ] A list of: (i) up to five products most closely related to the proposed project; and (ii) up to five other significant products, whether or not related to the proposed project has been provided. Each product includes the full citation information including (where applicable and practicable) names of all authors, date of publication or release, title, title of enclosing work such as journal or book, volume, issue, pages, website and URL, or other Persistent Identifier.

[ ] A list of up to five distinct examples that demonstrate the broader impact of the individual's professional and scholarly activities that focus on the integration and transfer of knowledge as well as its creation has been provided. The synergistic activities provided are specific and do not include multiple examples to further describe the activity.

[ ] Proposal Budget:

[ ] Each budget line item has been documented and justified in the budget justification.

[ ] Any compensation for senior personnel in excess of two months has been disclosed in the proposal budget and justified in the budget justification.

[ ] Contracts for the purpose of obtaining goods and services for the proposer's own use have been identified on Line G6 of the proposal budget, when applicable.

[ ] The amount for indirect costs was calculated by applying the current negotiated indirect cost rate(s) to the approved base(s) and amount has been specified in the budget justification.

[ ] Each budget justification does not exceed five pages or the page limitation specified in a specific program solicitation. For proposals that contain a subaward(s), **each subaward** includes a separate budget justification that does not exceed five pages.

[ ] Cost Sharing:

[ ] Unless required by an NSF program solicitation, voluntary committed cost sharing has not been included. Note that voluntary committed cost sharing is prohibited and Line M on the proposal budget will not be available for use by the proposer. While not required by NSF, proposing organizations may, at their own discretion, continue to contribute voluntary uncommitted cost sharing to NSF-sponsored projects. These resources are not auditable by NSF and should not be included in the proposal budget or budget justification.

[ ] Current and Pending Support:

[ ] A separate current and pending support document has been prepared through use of an NSF-approved format and provided for each individual identified as senior personnel. The pdf file(s) has been uploaded into FastLane, Research.gov or Grants.gov.

[ ] All resources made available to the individual in support of and/or related to all of his/her research efforts, regardless of whether or not they have monetary value, have been reported.

[ ] In-kind contributions not intended for use on the project/proposal being proposed have been reported, if applicable.

[ ] Current and pending support information has been provided for this project, for ongoing projects, and for any proposals currently under consideration from whatever source, irrespective of whether such support has been provided through the proposing organization or is provided directly to the individual.

[ ] The total award amount for the entire award period covered (including indirect costs) has been provided, as well as the number of person-months (or partial person-months) per year to be devoted to the project by the individual.

[ ] If the project (or any part of the project) now being submitted has been funded previously by a source other than NSF, information has been provided regarding the last period of funding.

[ ] Information on this proposal has been included.

[ ] Facilities, Equipment and Other Resources:

[ ] An aggregated description of the internal and external resources (both physical and personnel) that the organization and its collaborators will provide to the project, should it be funded, has been included.

[ ] Current and pending support provided as in-kind contributions to the project (such as office/laboratory space, equipment, supplies, employees, students) has been identified, where applicable.

[ ] No quantifiable financial information has been provided.

[ ] If there are no facilities, equipment or other resources identified, a statement to that effect has been included in this section of the proposal and uploaded into FastLane, Research.gov or Grants.gov.

[ ] Special Information and Supplementary Documentation:

[ ] A postdoctoral mentoring plan, limited to one page, has been included, if required.

[ ] A data management plan, limited to two pages, has been included.

[ ] Letters of collaboration documenting collaborative arrangements of significance to the proposal have been included (if applicable).

[ ] Other types of information identified in Chapter II.C.2.j have been included, as appropriate.

[ ] Any additional items specified in a relevant program solicitation have been included.

[ ] Appendices:

[ ] Appendices many not be included unless a deviation has been authorized.

[ ] Other Types of Proposals:

[ ] For other types of proposals (See Chapter II.E.), the applicable proposal preparation guidance has been followed.

Exhibit II-2: Potentially Disqualifying Conflicts of Interest

Unless a waiver has been granted by NSF, a reviewer cannot review a proposal if:

- the reviewer, the reviewer's spouse, minor child, or business partner;
- an organization where the reviewer is employed, serves as a consultant, has an arrangement for future employment or is negotiating for employment; or
- the organization where the reviewer is an officer, director, trustee, or partner;

has a financial interest in the outcome of the proposal.

Unless a waiver has been granted by NSF, a potential reviewer also may be barred from reviewing a proposal, if it involves individuals with whom he/she has a personal relationship, such as a close relative, current or former collaborator, or former Ph.D. student/advisor.

Unless a waiver has been granted by NSF, a disqualifying conflict may exist, if a proposal involves an organization or other entity with which the potential reviewer has a connection. Such potentially disqualifying connections include:

- a reviewer's recent former employer;
- an organization in which the reviewer is an active participant;
- an institution at which the reviewer is currently enrolled as a student, or at which he/she serves as a visiting committee member; or
- an entity with which the reviewer has or seeks some other business or financial relationship (including receipt of an honorarium).

Exhibit II-3: Definitions of Categories of Personnel

The personnel categories listed on parts A and B of the Proposal Budget are defined as follows:

A. Senior Personnel

1. (co) Principal Investigator/Project Director (PI/PD) -- the individual(s) designated by the proposer, and approved by NSF, who will be responsible for the scientific or technical direction of the project. NSF does not infer any distinction in scientific stature among multiple PIs, whether referred to as PI or co-PI. If more than one, the first one listed will serve as the contact PI, with whom all communications between NSF program officials and the project relating to the scientific, technical, and budgetary aspects of the project should take place. The PI and any identified co-PIs, however, will be jointly responsible for submission of the requisite project reports. The term "Principal Investigator" generally is used in research projects, while the term “Project Director” generally is used for centers, major facilities, or similar projects. For purposes of this Guide, PI/co-PI is interchangeable with PD/co-PD.

2. Faculty Associate (faculty member) (or equivalent) -- an individual other than the Principal Investigator(s) considered by the performing institution to be a member of its faculty (or equivalent) or who holds an appointment as a faculty member at another institution, and who will participate in the project being supported.

B. Other Personnel

1. Postdoctoral (Scholar, Fellow, or Other Postdoctoral Position) -- an individual who has received a doctoral degree (or equivalent) and is engaged in a temporary and defined period of mentored advanced training to enhance the professional skills and research independence needed to pursue his or her chosen career path. Postdoctoral scholars not identified under Senior Personnel above should be listed as Other Personnel.

2. Other Professional -- a person who may or may not hold a doctoral degree or its equivalent, who is considered a professional and is not reported as a Principal Investigator, faculty associate, postdoctoral scholar or student. Examples of persons included in this category are doctoral associates not reported under B1, professional technicians, physicians, veterinarians, system experts, computer programmers and design engineers.

3. Graduate Student (research assistant) -- a part-time or full-time student working on the project in a research capacity who holds at least a bachelor’s degree and is enrolled in a degree program leading to an advanced degree.

4. Undergraduate Student -- a student who is enrolled in a degree program (part-time or full-time) leading to a bachelor’s or associate’s degree.

5. & 6. These categories include persons working on the project in a non-research capacity, such as secretaries, clerk-typists, draftsmen, animal caretakers, electricians and custodial personnel regardless of whether they hold a degree or are involved in degree work.

Any personnel category for which NSF funds are requested must indicate, in the parentheses provided on the Proposal Budget, the number of persons expected to receive some support from those funds.

Chapter III: NSF Proposal Processing and Review

Proposals received by NSF are assigned to the appropriate NSF program and are assessed to ensure that they meet NSF compliance requirements. All compliant proposals are then 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. 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. 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 as Exhibit III-1.

A comprehensive description of the Foundation's merit review process is available on the NSF website at: http://www.nsf.gov/bfa/dias/policy/merit_review/.

Proposal review is one step in the NSF program planning and implementation process. Embedded in this process are core strategies that are fundamental to the fulfillment of NSF's mission. More information about NSF's mission and strategies can be found in Building the Future: Investing in Discovery and Innovation - NSF Strategic Plan for Fiscal Years (FY) 2018 - 2022. NSF's mission is particularly well-implemented through the integration of research and education and broadening participation in NSF programs, projects, and activities.

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 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. (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 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?

B. Selection of Reviewers

The NSF guidelines for the selection of reviewers are designed to ensure selection of experts who can give Program Officers the proper information needed to make a recommendation in accordance with the NSB-approved criteria for selection of projects. Optimally, reviewers should have:

1. Special knowledge of the science and engineering subfields involved in the proposals to be reviewed to evaluate competence, intellectual merit, and utility of the proposed activity. Within reasonable limits, reviewers' fields of specialty should be complementary within a reviewer group.

2. Broader or more generalized knowledge of the science and engineering subfields involved in the proposals to be reviewed to evaluate the broader impacts of the proposed activity. Reviewers with broad expertise are required for proposals involving substantial size or complexity, broad disciplinary or multidisciplinary content, or significant national or international implications.

3. Broad knowledge of the infrastructure of the science and engineering enterprise, and its educational activities, to evaluate contributions to societal goals, scientific and engineering personnel, and distribution of resources to organizations and geographical areas.

4. To the extent possible, diverse representation within the review group. The goal is to achieve a balance among various characteristics. Important factors to consider include: type of organization represented, reviewer diversity, age distribution and geographic balance.

C. Proposal File Updates

It is the responsibility of the proposing organization to thoroughly review each proposal prior to submission. On occasion, however, a problem is identified with a portion of the proposal after the proposal has been submitted electronically to NSF.

The FastLane Proposal File Update Module allows the organization to request the replacement of files or revision of other Proposal Attributes, associated with a previously submitted proposal. (Note: The FastLane Proposal File Update module must not be used for submission of revised budgets. All budgetary revisions must be submitted through use of the FastLane Revised Proposal Budget Module. See Section D. below for further information.) A request for a proposal file update must be signed and submitted by the AOR. A Proposal Update Justification must be provided that addresses:

1. why the changes or file replacements are being requested; and

2. any differences between the original and proposed replacement files.

A request for a proposal file update automatically will be accepted if submitted **prior to:**

- the deadline date;
- initiation of external peer review in cases when a target date is utilized; [41] and
- initiation of external peer review in the case of an unsolicited proposal.

A request for a proposal file update **after** the timeframes specified above will require acceptance by the cognizant NSF Program Officer. Such requests shall be submitted only to correct a technical problem with the proposal (i.e., formatting or print problems). Changes in the content of the proposal should not be requested after the timeframes specified above. When a request is accepted, the proposed files or

[41] The status of a proposal may be found in Research.gov.

revisions to proposal attributes will immediately replace the existing files and become part of the official proposal.

PIs can access the Proposal File Update Module via the "Proposal Functions" section of FastLane. Authorized individuals in the organization's SPO can initiate or review requests for proposal file updates using the "Submit Proposals/Supplements/File Updates/Withdrawals" Module via the FastLane "Research Administration Functions."[42]

NSF will consider only one request for a proposal file update per proposal at a time. It is anticipated that it will be a rare occurrence for more than one file update request to be submitted for a proposal.

D. Revisions to Proposals Made During the Review Process

In the event of a significant development (e.g., research findings, changed circumstances, unavailability of PI or other senior personnel, etc.) that might materially affect the outcome of the review of a pending proposal, the proposer must contact the cognizant NSF Program Officer to discuss the issue. Submitting additional information must not be used as a means of circumventing page limitations or stated deadlines.

Before recommending whether or not NSF should support a particular project, the cognizant NSF Program Officer may, subject to certain constraints outlined below, engage in discussions with the proposing PI(s).

Negotiating budgets generally involves discussing a lower or higher amount of total support for the proposed project. The cognizant NSF Program Officer may suggest reducing or eliminating costs for specific budget items that are clearly unnecessary or unreasonable for the activities to be undertaken, especially when the review process supports such changes; however, this would generally not include faculty salaries, salary rates, fringe benefits, or tuition. Note: indirect cost (F&A) rates are not subject to negotiation. The NSF Program Officer may discuss with PIs the "bottom line" award amount, i.e., the total NSF funding that will be recommended for a project. NSF Program Officers may not renegotiate cost sharing or other organizational commitments.

When such discussions result in a budget reduction of 10% or more from the amount originally proposed, a corresponding reduction should be made in the scope of the project. A revised proposal budget, budget justification, as well as a Budget Impact Statement that describes the impact of the budget reduction on the scope of the project, must be provided. Proposers must use the FastLane Revised Proposal Budget Module to submit this information. Revised proposal budgets must be signed and submitted by the AOR.

E. Funding Recommendation

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant NSF Division Director whether the proposal should be declined or recommended for award. Normally, final programmatic approval is at the Division/Office level. Because of the large volume of proposals, this review and consideration process may take up to six months. Large or particularly complex proposals may require additional review and processing time.

Should a proposal be recommended for award, the PI may be contacted by the NSF Program Officer for assistance in preparation of the public award abstract and its title. An NSF award abstract, with its title, is an NSF document that describes the project and justifies the expenditure of Federal funds by articulating how the project serves the national interest, as stated by NSF's mission: "to promote the progress of science; to advance the national health, prosperity and welfare; or to secure the national defense."

[42]Detailed instructions on submitting proposer-initiated proposal file updates are available on the FastLane website at: https://www.fastlane.nsf.gov/documents/pfu/pfu.jsp.

Note that a recommendation for an award by an NSF Program Officer does not constitute approval or obligation of Federal funds. Proposers are cautioned that only an appointed NSF Grants Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF or the Government should be inferred from technical or budgetary discussions with an NSF Program Officer. A PI or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by a NSF Grants Officer does so at its own risk.

F. NSF's Risk Management Framework and the Decision to Award or Decline Proposals

If the program recommendation is for an award and final Division/Office or other programmatic approval is obtained, then the recommendation goes to the Division of Grants and Agreements (DGA) or the Division of Acquisition and Cooperative Support (DACS) for review of business, financial and policy implications. After the completion of this review, a final decision will be made to fund or decline the proposal.

1. NSF Risk Management Framework. Consistent with 2 CFR §200.205, NSF's risk-based framework evaluates the risks posed by proposers prior to issuance of an NSF award. This framework includes, but is not limited to, the following:

- conducting pre-award financial and administrative reviews for all proposers recommended for award that have not managed NSF funding in the last five years and whose NSF funding would exceed $225,000;

- conducting pre-award financial and administrative reviews for organizations who have received prior NSF awards whose cumulative NSF funding amount would exceed $225,000 should the proposal recommended for award be funded;

- conducting pre-award financial and administrative reviews for all proposers recommended for Phase II funding under the Small Business Innovation Research (SBIR) or Small Business Technology Transfer (STTR) program;

- considering the proposer's record of how it has managed past and current Federal awards, and leveraging NSF systems and to identify any ongoing issues that need to be considered before proceeding with future awards;

- considering the status of corrective actions necessary to address findings or concerns noted in audits, desk reviews, site visits, or other monitoring activities of the proposer's past and current Federal awards; and

- ensuring that NSF conducts review of information available through any OMB-designated repositories and that no awards are made to proposers that are currently suspended or debarred or otherwise ineligible for participation in Federal programs or activities.

DGA generally makes the decision to award or decline proposals within 30 days after the program Division/Office makes its recommendation. Proposals from organizations that have not received an NSF award within the preceding five years, involve special situations (such as coordination with another Federal agency or a private funding source), cooperative agreements, or unusual arrangements, may require additional review and processing time. NSF will report proposals that are declined for reasons that meet the guidelines set forth by OMB to the OMB-designated integrity and performance system in accordance with Federal regulation, but only after the proposer has had an opportunity to exhaust the review procedures contained in Chapter III.F.2 below.

2. Process to Appeal NSF's Decision to Decline a Proposal for Financial or Administrative Reasons

a. Background

A proposer who has been declined for an NSF award for reasons related to NSF's pre-award financial and administrative reviews will be afforded the opportunity to discuss the decline decision with the cognizant NSF Grants Officer or Branch Chief in DGA or DACS. If, after obtaining further clarification from the cognizant NSF Grants Officer or Branch Chief in DGA or DACS, the proposer believes that NSF made a substantive or procedural error in arriving at its decision to decline an award, the proposer may submit a request for review to the cognizant Division Director of DGA or DACS. The decision made by the cognizant Division Director of DGA or DACS is final.

Award of NSF assistance is discretionary. A formal hearing, therefore, is not provided.

b. Applicability

Chapter III.F.2.c contains the process by which proposers may appeal a DGA or DACS Branch Chief's decision to decline an NSF award arising from NSF's pre-award financial and administrative reviews. This process does not apply to decisions to return or decline a proposal for any other reason.

Proposals declined for administrative or financial reasons are not eligible for reconsideration under Chapter IV.D.

c. Procedures

1. Proposers who are declined for an NSF award for financial or administrative reasons will be identified as such in the declination notice. A proposer who disagrees with NSF's decision should first contact the cognizant NSF Grants Officer or Branch Chief in DGA or DACS, who will afford the proposer an informal opportunity to obtain further clarification.

2. If dissatisfied with the explanation provided by the cognizant NSF Grants Officer or Branch Chief in DGA or DACS, the proposing organization's AOR may submit a request for review to the cognizant Division Director of DGA or DACS. The letter must be addressed to the Division Director, Division of Grants and Agreements (DGA), or the Division Director, Division of Acquisition and Cooperative Support (DACS) as appropriate, and must be received by the Foundation within 30 days after the date of the declination notice. The time for filing a request for review is strictly enforced and no extensions for the purpose of preparing it will be granted.

3. The request for review need not follow any prescribed format. However, it must contain a full statement of the proposer's position with respect to the disputed matter, as well as the facts and reasons supporting the proposer's position that the declination was unwarranted. The request may address any errors made in the financial and administrative review process, and it may contain supporting documentation that was not originally presented as part of the financial and administrative review process. However, NSF will not consider any new information that would not have been available at the time the decision to decline was made. Therefore, new information presented in relation to the proposer's financial stability or the quality of its management systems will not be considered.

4. The Division Director, DGA or DACS, will review or designate one or more individuals to review the matter. In no case will the review be undertaken by any individual involved with the decline decision. The reviewing official(s) may request additional information from the proposer, but only information that would have been available at the time the decision to decline was made will be considered.

5. The designated reviewing official(s) will, within 30 days of NSF's receipt of the request for review, forward a report to the Division Director, DGA or DACS or his/her designee for a final written decision for the agency. The Division Director, DGA or DACS or his/her designee will communicate the decision in

writing to the proposer, normally within 15 days of receipt of the report, unless otherwise specified by NSF. The decision made by the Division Director, DGA or DACS, is final.

G. Review Information Provided to PI

When a decision has been made (whether an award or a declination), the following information is released electronically to the PI:

- description of the context in which the proposal was reviewed;
- copies of all reviews used in the decision (with any reviewer-identifying information redacted);
- copy of panel summary, if the proposal was reviewed by a panel at any point in the process; and/or
- site-visit reports, if applicable.

In addition, if not otherwise provided in the panel summary, the PI is provided an explanation (written or telephoned) of the basis for the declination. A PI also may request and obtain any other releasable material in NSF's file on his/her proposal. Everything in the file, except information that identifies either reviewers or other pending or declined proposals is usually releasable to the PI.

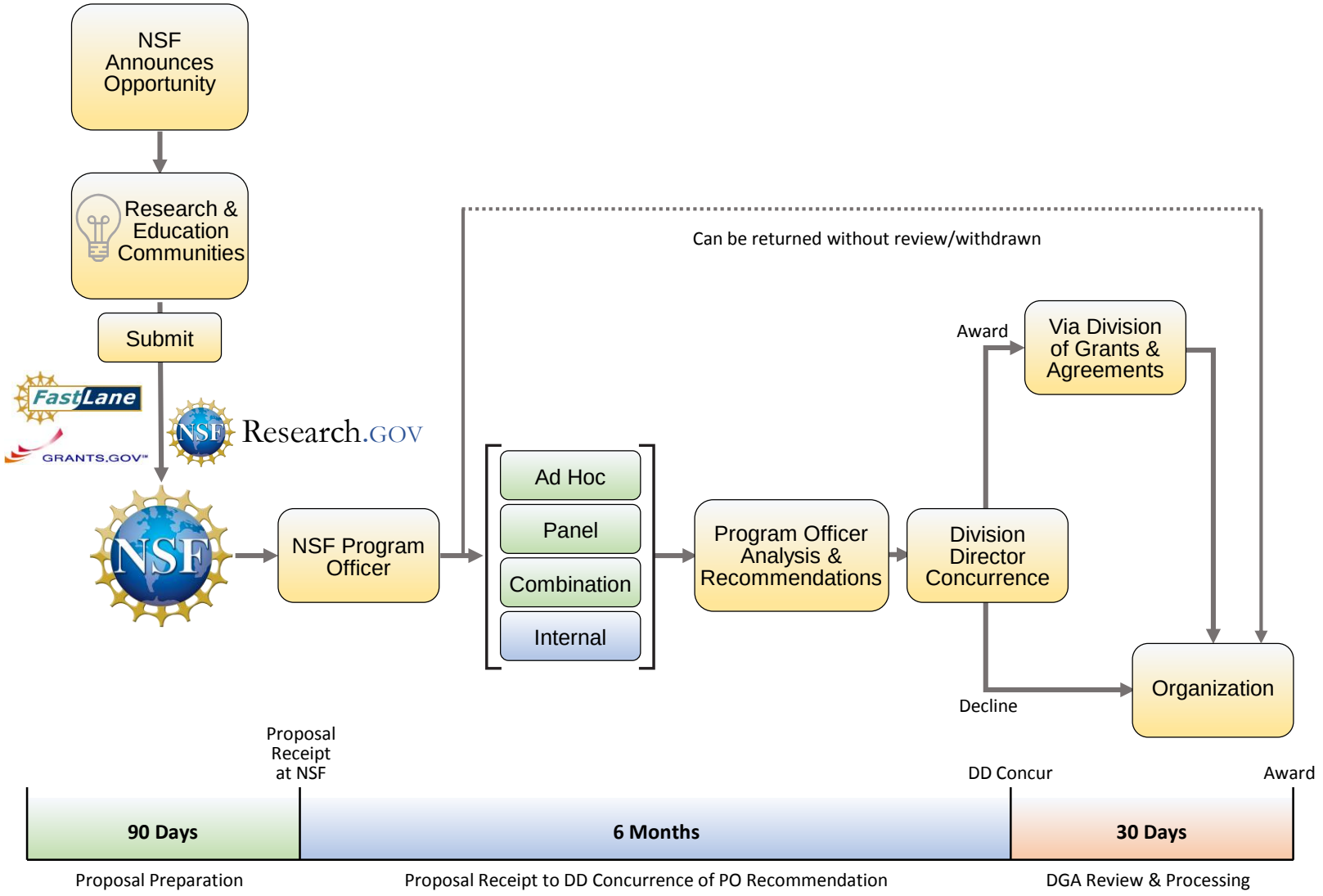
Reviews are made available directly to the PI, to provide feedback for the purpose of improving proposed research and research methods, and to assist in preparation of future proposals. They are not intended for any other purpose.

H. Release of Grantee Proposal Information

A proposal that results in an NSF award will be made available to the public on request, consistent with the Freedom of Information Act, except for privileged information or material that is personal, proprietary or otherwise exempt from disclosure under law. Appropriate labeling in the proposal aids identification of what may be specifically exempt. (See Chapter II.D.1) Such information will be withheld from public disclosure to the extent permitted by law. Without assuming any liability for inadvertent disclosure, NSF will seek to limit disclosure of such information to its employees and to outside reviewers when necessary for merit review of the proposal, or as otherwise authorized by law.

Portions of proposals resulting in grants that contain descriptions of inventions in which either the Government or the grantee owns a right, title, or interest (including a non-exclusive license) will not normally be made available to the public until a reasonable time has been allowed for filing patent applications. NSF will notify the grantee of receipt of requests for copies of funded proposals so the grantee may advise NSF of such inventions described, or other confidential, commercial or proprietary information contained in the proposal.

Exhibit III-1: NSF Proposal & Award Process & Timeline



Chapter IV: Non-Award Decisions and Transactions

A. Proposal Withdrawal

A proposal may be withdrawn at any time before a funding recommendation is made by the cognizant NSF Program Officer. FastLane automates the proposal withdrawal process and provides a mechanism that will help organizations to more effectively manage their proposal portfolio, as well as to help eliminate the submission of duplicate proposals to NSF. The Withdrawals Module includes three processes:

- *Principal Investigator's Proposal Withdrawal* allows a PI to initiate a proposal withdrawal and forward it to the organization's AOR for submission to NSF.

- *Sponsored Projects Office (SPO) Proposal Withdrawal* allows an authorized individual in the organization's SPO to initiate a proposal withdrawal and forward it to the AOR for submission to NSF.

- *Proposal Submission Duplicate Withdrawal* prevents the AOR from submitting a new proposal if a duplicate (a proposal from the same organization with the same title and same PI and co-PIs) already has been submitted to NSF within the last two weeks prior to the current submission. If these conditions are met, the system will allow the AOR to either withdraw the previous duplicate proposal, and then proceed with the submission of the new proposal, or to modify the new proposal so it is different from the previous proposal.

Authorized individuals[43] can initiate or review a proposal withdrawal using the " Proposals/File Updates/Supplements/Withdrawals" Module via the FastLane "Research Administration Functions".[44]

In cases where NSF already has made a funding decision, proposals will not be permitted to be withdrawn via the electronic proposal withdrawal system. When a PI or other authorized official attempts to prepare a proposal withdrawal for such a proposal, a message will be displayed to contact the cognizant NSF Program Officer for further assistance.

NSF must be notified if any funding for the proposed project is received from another source or sponsor. If it is brought to NSF's attention that funding for a proposal to NSF has been accepted from another sponsor, NSF will send a withdrawal confirmation to the PI and the SPO without waiting for the official withdrawal notification.

If a proposal withdrawal is submitted for a proposal that is part of a collaborative effort, regardless of whether the organization is the lead or non-lead, the electronic proposal withdrawal system will withdraw that proposal along with the other remaining proposals that are identified as part of the collaborative effort. If the remaining organizations in the collaborative determine that the project can still proceed, a new collaborative proposal must be submitted.

Copies of reviews received by NSF before a proposal is withdrawn will be provided to the PI. NSF provides notice of a withdrawal, return, declination, or reconsideration to both the PI and the SPO.

[43] AORs also can initiate a proposal withdrawal.
[44] Detailed instructions are available in FastLane at: https://www.fastlane.nsf.gov/documents/epw/epw.jsp.

B. Proposal Not Accepted or Returned Without Review

A proposal will not be accepted[45] or will be returned without review by NSF for the following reasons.

The proposal:

1. is inappropriate for funding by the National Science Foundation (see Chapter I.B);
2. is submitted with insufficient lead-time before the activity is scheduled to begin;
3. is a full proposal that was submitted by a proposer that has received a "not invited" response to the submission of a preliminary proposal (see Chapter I.D.2. and Chapter I.D.2.a);
4. is a duplicate of, or substantially similar to, a proposal already under consideration by NSF from the same submitter (see Chapter I.G.2);
5. does not meet NSF proposal preparation requirements, such as page limitations, formatting instructions, and electronic submission, as specified in Part I of the *Proposal and Award Policies and Procedures Guide* (see Chapters II.A, II.B, and II.C), the NSF *Grants.gov Application Guide,* or program solicitation;
6. is not responsive to the NSF funding opportunity;
7. does not meet an announced proposal deadline date;
8. was previously reviewed and declined and has not been substantially revised (see Chapter IV.E);
9. duplicates another proposal that was already awarded; and/or
10. does not contain each of the required sections of the proposal, as described in Chapter II.C.2.

C. Declinations

A PI whose proposal for NSF support has been declined will receive information and an explanation of the reason(s) for declination along with copies of the reviews considered in making the decision. If that explanation does not satisfy the PI, he/she may request additional information from the cognizant NSF Program Officer or Division Director. See Chapter III.G for additional information.

PIs and co-PIs may access review information from NSF after the decision has received the concurrence of the cognizant NSF Division Director, when all the review information has been released for their proposal.

D. Reconsideration

1. Overview

a. A proposer whose proposal has been declined may ask the cognizant NSF Program Officer or the cognizant NSF Division Director for information over and above the explanatory materials received with the declination notice. If the PI/PD is not satisfied that the proposal was fairly handled and reasonably reviewed, he/she may request reconsideration by the cognizant Assistant Director (AD) or Office Head. An organization (or an unaffiliated PI/PD) still not satisfied after reconsideration by the cognizant AD/Office Head may request further reconsideration by the Deputy Director of the Foundation. The decision made by the Deputy Director is final.

b. If a proposal has been declined after review by the NSB, only an explanation will be available.

c. The aim of any reconsideration is to ensure that NSF's review has been fair and reasonable, both substantively and procedurally. The scientific and technical merits may be examined within the context of budget availability and program priorities. Reconsideration also may address any procedural errors in peer review or other aspects of proposal review, including unaccounted-for conflict of interests or inappropriate consideration of records, information or rumor.

[45] Proposal Not Accepted is defined as FastLane will not permit submission of the proposal.

d. Award of NSF assistance is discretionary and reconsideration is not an adversarial process. A formal hearing, therefore, is not provided. Because factors such as program budget and priorities factor into the decision on a proposal, NSF cannot ensure proposers that reconsideration will result in an award even if error is established in connection with the initial review.

e. No revisions made to the proposal after declination will be considered in connection with the original proposal. A substantially revised proposal, however, may be submitted for review as a new proposal under standard procedures. NSF reserves the right to return without review a proposal that is substantially the same as one that was previously reviewed and declined whether or not a request for reconsideration was made.

2. Applicability

NSF's reconsideration process is available to individuals and organizations concerning proposals for grant funding. It does not apply to:

a. "discourage" (i.e., non-binding) decisions resulting from submission of a preliminary proposal;

b. proposals for:

(1) fellowships;
(2) travel grants;
(3) Rapid Response Grants (RAPID);
(4) EArly-concept Grants for Exploratory Research (EAGER);
(5) Research Advanced by Interdisciplinary Science and Engineering (RAISE);
(6) Phase I proposals submitted under the Small Business Innovation Research (SBIR) program; and
(7) Phase I proposals submitted under the Small Business Technology Transfer (STTR) program.

c. proposals returned without review by NSF for failure to:

(1) be submitted with sufficient lead time before the activity is to begin;
(2) meet an announced proposal deadline date; or
(3) meet NSF proposal preparation requirements, such as page limitations, formatting instructions, and electronic submission, as specified in Part I of the PAPPG, the NSF *Grants.gov Application Guide,* or program solicitation.

3. Reconsideration Process

The following paragraphs highlight the various stages of the NSF Reconsideration Process, including the necessary procedural aspects of each stage of the process.

a. Explanations by the NSF Program Officer or Division Director

When a proposal is declined, the PI/PD receives verbatim but unattributed copies of any *ad hoc* reviews and the panel summary (if applicable), a description of how the proposal was reviewed, and, if not otherwise provided in the panel summary, an explanation (written or telephoned) of the basis for the declination. A returned proposal also will be accompanied by an explanation. A PI/PD who is considering asking for reconsideration should first contact the cognizant NSF Program Officer or Division Director, who will afford the PI/PD an informal opportunity to seek further clarification.

b. Reconsideration by the Cognizant NSF Assistant Director

(1) If dissatisfied with the explanation provided by the NSF Program Officer or Division Director, the PI/PD may request in writing that NSF reconsider its action. Such a request will be considered only if the PI/PD has first sought and obtained further clarification from the cognizant NSF Program Officer or Division

Director, and only if the request is received by the Foundation within 90 days after the declination or the return. The request should be addressed to the AD/Office Head for the Directorate or Office that handled the proposal and should explain why the PI/PD believes that the declination or return was unwarranted.

(2) The AD/Office Head will reconsider the record to determine whether NSF's review of the declined proposal was fair and reasonable, substantively and procedurally, taking into account availability of funds and the policies and priorities of the program and NSF. In the case of a returned proposal, the record will be reviewed to determine whether the proposed project was inappropriate for NSF consideration. The AD/Office Head may request additional information from the PI/PD and may obtain additional reviews. If additional reviews are sought, they are subject to standard review procedures (e.g., instructions must be provided to reviewers and conflicts-of-interest policies must be followed). The AD/Office Head may conduct the reconsideration personally or may designate another NSF official who had no part in the initial review to do so. As used here, "AD/Office Head" includes such a designated official.

(3) Within 45 days after the date of the request, the AD/Office Head will furnish the results of the reconsideration, in writing, to the PI/PD. If results cannot be furnished within 45 days, the AD/Office Head will send the PI/PD a written explanation of the need for more time, indicating the date when the results can be expected. If the AD/Office Head reaffirms the declination or return, he/she will inform the PI/PD that the PI/PD's organization may obtain further reconsideration by the Deputy Director of NSF as provided below.

c. Further Reconsideration by the NSF Deputy Director

(1) Within 60 days after the AD/Office Head has notified the PI/PD of the results of the reconsideration, the proposing organization or an unaffiliated PI/PD may request further reconsideration by the Deputy Director of NSF.

(2) A request for further reconsideration need not be in any particular format, but it must be in writing, and must be signed by the organization's president or other chief executive officer and by the PI/PD. For declinations, it should explain why the organization believes that an error may have occurred in the initial evaluation and why it is not entirely satisfied with the reconsideration by the cognizant AD/Office Head. For returned proposals, it should explain why the organization believes that an error may have occurred in the initial determination that the proposal was inappropriate for NSF consideration.

(3) The Deputy Director will review the request for further reconsideration and the record of earlier NSF actions, including the original review and the reconsideration by the AD/Office Head, to determine whether NSF's review of the declined proposal was fair and reasonable, or, in the case of a returned proposal, whether the proposed project was inappropriate for NSF consideration. The Deputy Director may request additional information from the PI/PD or the proposing organization and may obtain additional reviews. If additional reviews are sought, they are subject to standard review procedures (e.g., instructions must be provided to reviewers and conflicts-of-interest policies must be followed).

(4) The Deputy Director may conduct the further reconsideration personally or may designate another NSF official who had no part in the initial evaluation of the proposal or the earlier reconsideration to do so. As used here, "Deputy Director" includes such a designated official.

(5) Within 30 days after a request for further reconsideration is received at NSF, the Deputy Director will furnish the results of the further reconsideration, in writing, to the organization. If results cannot be furnished within 30 days, the Deputy Director will send the organization a written explanation of the need for more time, indicating the date when the results can be expected.

(6) The decision made by the Deputy Director is final.

E. Resubmission

A declined proposal may be resubmitted, but only after it has undergone substantial revision. NSF programs that accept proposals at any time may have established guidelines in which a declined proposal (or reasonable facsimile of that proposal/topic by the same PI, and co-PIs, where applicable) is ineligible for resubmission for a specified period of time. This moratorium allows PIs/co-PIs sufficient time to digest the results of the merit review and revise/restructure the declined proposal accordingly. Please note that a proposal that the program considers too similar to a previous proposal that is under the moratorium period may be returned without review. A resubmitted proposal that has not clearly taken into account the major comments or concerns resulting from the prior NSF review may be returned without review. The Foundation will treat the revised proposal as a new proposal, subject to the standard review procedures.

Chapter V: Renewal Proposals

A renewal proposal is a request for additional funding for a support period subsequent to that provided by a standard or continuing grant. A renewal proposal competes with all other proposals and must be developed as fully as though the proposer is applying for the first time. Renewal proposals must be submitted at least six months before additional funding is required or consistent with an established deadline, target date or submission window. In preparing a renewal proposal, proposers should assume that reviewers will not have access to previously submitted versions of the proposal. Please note the National Science Board affirms that merit-reviewed competition is the foundation for the NSF's grant/award making process so there should be a presumption that expiring awards are to be recompeted.[46]

All proposals for renewed support of research projects, from academic institutions *only*, must include information on human resources development at the postdoctoral, graduate and undergraduate levels as part of Results from Prior NSF Support.[47] This may involve, but is not limited to, the role of research in student training, course preparation and seminars (particularly for undergraduates). Special accomplishments in the development of professional scientists and engineers from underrepresented groups should be described. Graduate students who participated in the research should be identified by name. This requirement does not apply to non-academic organizations.

PIs are encouraged to discuss renewal proposals with the program prior to submission of a proposal. Unless precluded by individual program requirements, PIs may choose either of the following two formats for preparation of a renewal proposal.

A. Traditional Renewal. The "traditional" renewal proposal is developed as fully as though the proposer were applying for the first time. It covers all the information required in a proposal for a new project, including Results from Prior NSF Support. The 15-page limitation on the Project Description applies.

B. Accomplishment-Based Renewal. In an "Accomplishment-Based Renewal" (ABR) proposal, the Project Description (including the Results from Prior NSF Support) is replaced with the following items:

1. copies of no more than six reprints[48] of publications resulting from the research supported by NSF (including research supported by other sources that is closely related to the NSF-supported research) during the preceding period of NSF support. Of the six publications, two preprints (accepted for publication) may be included;

2. information on human resources development at the postdoctoral, graduate and undergraduate levels; and

3. a brief summary (not to exceed four pages) of plans for the proposed support period.

All other information required for NSF proposal submission remains the same.

[46]Reference National Science Board Policy Statement (NSB-2015-45) on Recompetition of Major Facilities and Resolution (NSB-2015-46) entitled, Recompetition of Ongoing Facilities. For the operation of a major facility, the National Science Board has endorsed the principle that NSF should perform a rigorous review prior to the end date of an award to determine whether it is in the best interest of US science and engineering to recompete that award.

[47]This requirement applies to both types of renewal proposals: Traditional Renewal and Accomplishment-Based Renewal.

[48]Reprints should be provided as supplementary documentation and should be submitted via the Proposal Preparation Module in FastLane.

It must be clearly indicated in the proposal that it is an ABR submission and the box for "Accomplishment-Based Renewal" must be checked on the Cover Sheet. ABR proposals may not be submitted for consecutive renewals.

PIs are advised that the ABR is a special type of renewal proposal appropriate only for an investigator who has made significant contributions, over a number of years, in the area of research addressed by the proposal. Investigators are strongly urged to contact the cognizant NSF Program Officer prior to developing a proposal using this format.

Descriptions of other forms of additional funding support, including continuing grants and supplemental funding requests, are contained in Chapter VI.

PART II: AWARD, ADMINISTRATION AND MONITORING OF GRANTS AND COOPERATIVE AGREEMENTS

Part II of the NSF *Proposal & Award Policies & Procedures Guide* sets forth NSF guidance regarding the award, administration, and monitoring of grants and cooperative agreements. Coverage includes the NSF award process, from issuance and administration of an NSF award through closeout. Guidance is provided regarding other requirements or considerations that either are not universally applicable or do not follow the award cycle. Part II also implements other Public Laws, Executive Orders (E.O.) and other directives insofar as they apply to grants, and is issued pursuant to the authority of Section 11(a) of the NSF Act (42 USC §1870). When NSF Grant General Conditions or an award notice reference a particular section of the PAPPG, then that section becomes part of the award requirements through incorporation by reference.

Chapter VI: NSF Awards

A. Acceptance of Assistance Agreements

Grantees[49] are free to accept or reject the grant as awarded. Normally, a request to drawdown NSF funds constitutes acceptance, however, in limited circumstances, NSF may require formal acceptance of a grant. If the grantee chooses not to accept the award, then a written request should be sent to the cognizant NSF Program Officer to withdraw (or terminate) the grant.

B. Award Instrument

1. Composition of an NSF Award

Composition of an NSF award includes:

a. the award notice, including any special conditions applicable to the award and any numbered amendments thereto;

b. general Federal award information as required by 2 CFR § 200.210;

c. the budget, which indicates the amounts, by categories of expense, on which NSF has based its support;

d. the applicable NSF general conditions referenced in the award notice;

e. the proposal referenced in the award notice; and

f. any NSF program announcement, program solicitation or other documents or special requirements incorporated by reference in the award notice.

2. Award Transmission

NSF transmits award notices to organizations via e-mail. In addition to the e-mail notification, grantees and PIs also may access NSF award notices via use of NSF's electronic systems. SPOs are able to view, print and/or download NSF award notices for their organizations. PIs also may access their award notices via FastLane.

[49] For purposes of this Guide, except where explicitly noted, the term "grant" is interchangeable with the term "cooperative agreement", and the term "grantee" is interchangeable with the "awardee" of a cooperative agreement.

C. NSF Award Conditions

Each NSF award notice specifically identifies certain conditions that are applicable to, and become part of, that award. The award conditions are available electronically on NSF's website at: http://www.nsf.gov/awards/managing/. When these conditions reference a particular PAPPG section, that section becomes part of the award requirements through incorporation by reference.

D. NSF Grant Periods

1. Definitions

a. START DATE is the date specified in the award notice on or after which, except for fixed amount awards, expenditures may be charged to the grant. With the exception of PI transfers, the start date used by NSF is either the 1st or the 15th day of the month. If no start date is specified, then the date of the award notice is the start date. (For preaward expenditures, Chapter X.A.2.b.)

b. END DATE is the date specified in the award notice after which expenditures may not be charged against the grant except to satisfy obligations to pay allowable project costs committed on or before that date. The end date is the last day of a month.

c. AWARD DATE is the date when the NSF award is signed by the cognizant NSF Grants Officer.

d. GRANT PERIOD is the period of time between the start date and the end date of an NSF award shown as the duration.

2. Significance of Grant Period

a. An NSF grant gives authority to the grantee to commit and expend funds in support of the project up to the grant amount specified in the award notice at any time during the grant period.

b. Except as provided in Chapter X.A.2.b or Chapter X.A.2.c, expenditures may not be charged prior to the start date or subsequent to the end date under an NSF cost reimbursement grant.

3. Changes in a Grant Period

a. Start Date

Once an award is made, the start date cannot be changed; however, grantees have the authority to incur pre-award costs as outlined in Chapter X.A.2.b.

b. End Date

The end date may be changed as a result of approval of a request for continued support of a continuing grant, for a no-cost grant extension, or by approval of a request for supplemental support. When appropriate, the NSF Grants Officer will issue an amendment to the grant.

c. No-Cost Extension

(i) Grantee-Approved Extension. Grantees may authorize a one-time extension of the end date of the grant of up to 12 months if additional time beyond the established end date is required to assure adequate completion of the original scope of work within the funds already made available. This one-time extension may not be exercised merely for the purpose of using the unliquidated balances. Grantees are not authorized to extend an award that contains a zero balance. The grantee shall notify NSF, providing supporting reasons for the extension and the revised period of performance, at least ten calendar days prior to the end date specified in the grant to ensure accuracy of NSF's grant data. All grantee-approved

extension notifications must be signed and submitted by the AOR via use of NSF's electronic systems.[50] For grantee-approved extensions, no amendment will be issued. The revised end date can be viewed via NSF's electronic systems.

(ii) NSF-Approved Extension

(a) If additional time beyond the extension provided by the grantee is required and exceptional circumstances warrant, a formal request must be signed and submitted by the AOR via use of NSF's electronic systems. The request should be submitted to NSF at least 45 days prior to the end date of the grant. All late requests must include a strong justification as to why it was not submitted earlier. The request must explain the need for the extension and include an estimate of the unobligated funds remaining and a plan for their use. As indicated above, that unobligated funds may remain at the end of the grant is not in itself sufficient justification for an extension. The plan must adhere to the previously approved objectives of the project. Such requests must be signed and submitted by the AOR via use of NSF's electronic systems.

(b) The first no-cost extension request will be considered for approval by the cognizant NSF Program Officer. The grantee and the PI will be electronically notified of the disposition of this request by the cognizant NSF Program Officer (an amendment to the grant will not be issued). The second (or any subsequent) no-cost extension request will be subject to the approval of an NSF Grants Officer, and, if approved, will be in the form of an amendment to the grant specifying a new end date. Grantees are cautioned not to make new commitments or incur new expenditures after the end date of the award in anticipation of a no-cost extension. In addition, grantees must be aware that most NSF appropriated funds have a limited period of availability for expenditure before the appropriation cancels. No-cost extensions do not extend the period of availability for canceling funds[51].

d. Two-Year Extensions for Special Creativity

A Program Officer may recommend the extension of funding for certain research grants beyond the initial period for which the grant was awarded for a period of up to two years. The objective of such extensions is to offer the most creative investigators an extended opportunity to attack adventurous, "high-risk" opportunities in the same general research area, but not necessarily covered by the original/current award. Awards eligible for such an extension are generally continuing grants. Special Creativity Extensions are normally initiated by the NSF Program Officer based on progress during the first two years of the grant; PIs will be informed of such action a year in advance of the end date of the grant. In response to the Program Officer's recommendation, the required information must be signed and submitted by the AOR via use of NSF's electronic systems.

E. Additional Funding Support

1. Types of Additional Funding Support

Additional funding of a project beyond the original grant period will be in the form of renewed support, continued support or supplemental support. A description of each of these additional funding mechanisms is provided below.

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[50] NSF has developed a matrix that lists NSF's electronic capabilities, and whether they can be found in FastLane, Research.gov or both. This matrix will be updated as appropriate, independent of the *Proposal & Award Policies & Procedures Guide* revision cycle. The current version is located at: http://www.nsf.gov/bfa/dias/policy/estatus_matrix.jsp.

[51] In accordance with 31 USC 1552(a), funds will no longer be available for expenditure for any purpose beyond September 30th of the fifth fiscal year after the expiration of a fixed appropriation's period of availability for incurring new obligations – see also Chapter VIII.E for Financial Requirements and Payments.)

2. Renewed Support

Renewed support is defined as additional funding for a support period subsequent to that provided by the original grant. Renewals to grants, if any, will be in the form of a new grant with a new grant number. Costs incurred under the old grant cannot be transferred to the new grant. Residual funds remaining in the old grant cannot be transferred to the new grant.

Instructions for preparation of renewal proposals are contained in Chapters II and V.

3. Support under Continuing Grants

a. Funding increments for projects being supported under continuing grants receive high priority within NSF and normally are not considered in competition with proposals for new grants or for grants for renewed support.

b. Unless otherwise provided for in the original award notice, each increment of a continuing grant will be funded at the level indicated in the original award notice without a formal request, subject to NSF's judgment of satisfactory progress, availability of funds, and receipt and approval of the required annual report. NSF makes every attempt to honor continuing grant commitments. In order to adjust to changes in the general level of funds for a particular field of science or engineering or to major new opportunities in that field, however, NSF may reduce continuing grant increments below the levels indicated in original award notice. This requires full written justification by program staff and management review and approval. In the absence of major unanticipated fiscal year constraints, reductions are rare. Continuing grant increments will be released by the cognizant NSF Program Officer upon approval of the annual report. The SPO and PI will be notified by the cognizant NSF Program Officer of NSF's approval via email.

c. In order to obtain a committed funding increment and ensure continuity of funding, an annual project report must be submitted by the PI electronically via use of Research.gov no later than 90 days prior to the end of the current budget period. (See Chapter VII.D for additional information on submission of project reports.)

4. Supplemental Support

a. In unusual circumstances, small amounts of supplemental funding and up to six months of additional support may be requested to assure adequate completion of the original scope of work. Such requests for supplemental funding support must be signed and submitted by the AOR via use of NSF's electronic systems at least two months prior to the need for the additional funds and must be adequately justified. Program Officers may make decisions regarding whether or not to recommend a small supplement without merit review of the supplemental request. Requests for larger supplements may require external merit review.

b. A request for supplemental support must be submitted electronically via FastLane and must include:

(i) A summary of the proposed work;

(ii) A justification of the need for the supplemental funds; and

(iii) A budget and budget justification, highlighting the use by budget category of the additional funding as distinguished from the original funding provided in those categories of cost. AORs are required to electronically sign the supplemental funding request via the Authorized Organizational Representative Functions in FastLane.

c. NSF will not approve requests for supplemental support for such purposes as defraying the costs of increases in salaries, wages or staff benefits or for additional indirect cost (F&A) reimbursement, whether

caused by a change in the indirect cost rate or by changes in direct cost expenditures which affect the indirect cost base. (See Chapter X.A.2.a.)

d. If approved, the NSF Grants Officer will amend the grant to provide additional funding for the current support period. The amendment notice will specify both the amount of supplemental funding and the cumulative amount awarded through the end date, which normally will remain unchanged.

e. Special NSF programs such as *Research Experiences for Undergraduates* may provide their funding through supplements to other NSF grants. In such instances, the guidance in this section may not be applicable. Please see the applicable NSF funding opportunity for the relevant guidance.

Chapter VII: Grant Administration

A. Monitoring Project Performance

1. Grantee Responsibilities

a. The grantee has full responsibility for the conduct of the project or activity supported under an NSF grant and for the results achieved. The grantee should monitor the performance of the project to assure adherence to performance goals, time schedules or other requirements as appropriate to the project or the terms and conditions of the grant. In order to carry out these responsibilities, each grantee organization shall agree to comply with the applicable Federal requirements for grants and to the prudent management of all expenditures and actions affecting the grant. Documentation for each expenditure or action affecting the grant shall reflect appropriate organizational reviews or approvals, which should be made in advance of the action. Organizational reviews are intended to help assure that expenditures are allowable, necessary and reasonable for the conduct of the project, and that the proposed action:

(i) is consistent with grant terms and conditions;

(ii) is consistent with NSF and grantee policies;

(iii) represents effective utilization of resources; and

(iv) does not constitute changes in objectives or scope.

b. Notwithstanding these responsibilities, NSF continues to encourage communication between NSF Program Officers and PI/PDs on the progress of projects supported by NSF as well as on project changes.

c. NSF, through authorized representatives, has the right, at all reasonable times, to make site visits to review project accomplishments, grantee management control systems and administration and management of the grant and to provide technical assistance as may be required. If any site visit is made by the Foundation on the premises of the grantee or a subrecipient under a grant, the grantee shall provide and shall require its subrecipients to provide all reasonable facilities and assistance for the safety and convenience of the NSF representatives.

2. Grantee Notifications to NSF

The following is a listing of grantee notifications to NSF, including a reference to where additional guidance is provided. Except where noted below, all notifications must be submitted via use of NSF's electronic systems. With the exception of significant changes in methods or procedures and significant changes, delays or events of unusual interest, all notifications must be signed and submitted by the AOR.

a. Grantee-Approved No-Cost Extension – See Chapter VI.D.3.c(i).

b. Significant Changes in Methods or Procedures (Other than Changes in Objectives or Scope) – See Chapter VII.B.1.b.

c. Significant Changes, Delays or Events of Unusual Interest (Other than Changes in Objectives or Scope) – See Chapter VII.B.1.c.

d. Annual and Final Cost Share Notification by Recipient – See Chapter VII.C.3.

e. Conflicts of Interest that cannot be satisfactorily managed, reduced or eliminated and research that proceeds without the imposition of conditions or restrictions when a conflict of interest exists – See Chapter IX.A.

f. Finding/Determination that a PI/PD or co-PI/co-PD has been found to have violated awardee policies or codes of conduct, statutes, regulations or executive orders relating to sexual harassment, other forms of harassment, or sexual assault - See Chapter XI.A.1. This notification must be submitted through use of NSF's Office of Diversity and Inclusion website; or

g. Placement by the grantee of a PI/PD or co-PI/co-PD on administrative leave or the imposition of any administrative action on the PI/PD or any co-PI/co-PD by the awardee relating to any finding/determination or an investigation of an alleged violation of awardee policies or codes of conduct, statutes, regulations or executive orders relating to sexual harassment, other forms of harassment, or sexual assault. See Chapter XI.A.1. This notification must be submitted through use of NSF's Office of Diversity and Inclusion website.

Certain actions require prior approval from NSF. Guidance regarding prior approval requirements is covered in Chapter X.A.3, and the NSF column of the Research Terms and Conditions, Appendix A.

B. Changes in Project Direction or Management

1. Changes in Objectives, Scope or Methods/Procedures

a. Changes in Objectives or Scope

The objectives or scope of the project may not be changed without prior NSF approval. Such change requests must be signed and submitted by the AOR via use of NSF's electronic systems. If approved by NSF, the Grants Officer will amend the grant. Prior written NSF approval also is required for changes to the Facilities, Equipment and Other Resources section of the approved proposal that would constitute changes in objectives or scope (see Chapter II.C.2.i for further information).

b. Significant Changes in Methods or Procedures

NSF believes that the PI/PD and co-PI/co-PD, operating within the established policies of the grantee organization, should feel free to pursue interesting and important leads that may arise during the conduct of a research (or other grant-supported) project or to adopt an alternative approach which appears to be a more promising means of achieving the objectives of the project. Significant changes in methods or procedures should be reported to appropriate grantee official(s). The PI/PD also must notify NSF via use of NSF's electronic systems.

c. Significant Changes, Delays or Events of Unusual Interest

In the event there are problems, delays or adverse conditions that will materially impact the ability to attain the objectives of the project or to meet such time schedules as may have been proposed, the PI/PD should notify the appropriate grantee official(s). The PI/PD also must notify NSF via use of NSF's electronic systems.

NSF should be informed of any events of unusual interest that occur during the course of the project. Reports, communications or photographs should be submitted via the interim report capability in Research.gov.

2. Changes in PI/PD, co-PI/co-PD or Person-Months Devoted to the Project at the Initiation of the Grantee Organization

The NSF decision to support a proposed project is based to a considerable extent upon its evaluation of the proposed PI/PD and any identified co-PI/co-PD's knowledge of the field of study and his/her capabilities to conduct the project in an efficient and productive manner. This is reflected in the NSF merit review criteria (see Chapter III). The named PI/PD (and co-PI/co-PD) should be continuously responsible for the conduct of the project and be closely involved with the effort.

If the grantee determines that there is a need for the addition of a new co-PI/co-PD, or the current PI/PD or co-PI/co-PD plans to, or becomes aware that he/she will: (i) devote substantially less effort to the project than anticipated in the approved proposal; (ii) sever his/her connection with the grantee organization; or (iii) otherwise

relinquish active direction of the project, he/she shall advise the appropriate official at the grantee organization, who shall initiate action appropriate to the situation under the guidelines that follow.

a. Long-Term Disengagement of PI/PD or co-PI/co-PD

(i) In the event the PI/PD or co-PI/co-PD will be disengaged from the project for a period greater than three months (e.g. sabbatical leave) but intends to return, arrangements for oversight of the project must be signed and submitted by the AOR via use of NSF's electronic systems. This request must be submitted at least 30 days before departure or as soon as practicable after the prospective disengagement is known.[52] The cognizant NSF Program Officer will provide written approval to the grantee if the arrangements are satisfactory, but no formal amendment to the grant will be made. If the arrangements are not satisfactory to NSF, the grant may be terminated as prescribed in Chapter XII.A.

(ii) In the event the PI/PD or co-PI/co-PD will temporarily be working for NSF as an IPA (Intergovernmental Personnel Act employee) or VSEE (Visiting Scientist, Engineer or Educator), the appropriate officials at the grantee organization **must** contact the cognizant NSF Program Officer for procedural guidance regarding any existing grants or pending proposals of the PI/PD or co-PI/PD.

b. Changes in Person-Months Devoted to the Project

If the PI/PD or co-PI/co-PD will devote substantially less time to the project than anticipated in the approved proposal, (defined in the applicable grant terms and conditions as a reduction of 25% or more in time) he/she should consult with the appropriate officials of the grantee organization. Requests for changes to the person-months devoted to the project must be signed and submitted by the AOR via use of NSF's electronic systems. This request must be submitted at least 30 days before the proposed change, or as soon as practicable after the prospective change is known. If the grantee organization or NSF determines that the reduction of effort will substantially impair the successful execution of the project, the NSF Program Officer will consult the NSF Grants Officer. The NSF Grants Officer may:

(i) request the grantee to nominate a replacement PI/PD or co-PI/co-PD acceptable to the cognizant NSF Program Officer;

(ii) initiate the termination procedures described in Chapter XII.A.; or

(iii) negotiate an appropriate modification to the grant.

c. Addition of co-PI/co-PD

In the event the grantee desires to add a new co-PI/co-PD to a project[53], the AOR must sign and submit the request via use of NSF's electronic systems. The new co-PI/co-PD's name, biographical sketch, current and pending support from all ongoing projects and proposals, as well as a justification for the addition must also be included in the request. The contact information for the new co-PI/co-PD also should be included. If approved by NSF, the Grants Officer will amend the grant.

d. Withdrawal of PI/PD or co-PI/co-PD

In the event the PI/PD or co-PI/co-PD severs his/her connection with the grantee organization or otherwise relinquishes active direction of the project, the AOR must sign and submit a notification of the withdrawal of the PI/PD or co-PI/co-PD via use of NSF's electronic systems. This request must be submitted at least 30 days before the proposed change, or as soon as practicable after the prospective withdrawal is known. The grantee also must:

(i) initiate transfer of the grant as described in Chapter VII.B.2.f;

[52] However, a shorter period is provided in situations falling under Chapter XI.A.1.g.

[53] NSF's policy limits the number of co-PIs/co-PDs to four per award.

(ii) nominate a substitute as described in Chapter VII.B.2.e; or

(iii) initiate grant closeout procedures through submission of final reports as described in Chapter VII.D.2.

e. Substitute (Change) PI/PD or co-PI/co-PD

In the event the grantee desires to continue the project with a substitute PI/PD or co-PI/co-PD, the AOR must sign and submit the request via use of NSF's electronic systems. The substitute PI/PD's name or co-PI/PD's name, biographical sketch, current and pending support from all ongoing projects and proposals, as well as a justification for the substitution must also be included in the request. The contact information for the substitute PI/PD or co-PI/co-PD also should be included. If approved by NSF, the Grants Officer will amend the grant. If not approved, NSF may take steps, pursuant to Chapter XII.A to suspend or terminate the grant.

In cases where a former NSF employee or IPA is being reappointed as PI or co-PI to an award they were previously involved with, the grantee must submit a "Change of PI" request using the FastLane Notifications and Requests module. The change in PI request should include documentation from the AOR designating a substitute negotiator for that award under the Associated Documents section. A co-PI request should designate the PI as the substitute negotiator.

f. Disposition of a Grant When a PI/PD Transfers from One Organization to Another Organization

(i) Policy. When a PI/PD plans to leave an organization during the course of a grant, the organization has the prerogative to nominate a substitute PI/PD or request that the grant be terminated and closed out. In those cases where the PI/PD's original and new organizations agree, NSF will facilitate a transfer of the grant and the assignment of remaining unobligated funds to the PI/PD's new organization. This should normally be done with a tripartite agreement (involving NSF, the PI/PD's original organization and new organization), or by a subaward arrangement between the PI/PD's original and new organizations, subject to NSF's consent. (See Chapter VII.B.3)

(ii) Procedures. When a PI/PD plans to leave an organization during the course of a grant, the PI/PD or the SPO, shall notify the cognizant NSF Program Officer. If the project is to continue with the original organization, the cognizant NSF Program Officer should advise the grantee to nominate a substitute PI/PD (see Chapter VII.B.2.e). If the project is to be continued at the PI/PD's new organization, and if NSF and both organizations agree, formal notification of the impending transfer can be electronically initiated by either the PI/PD or the PI/PD's organization. The amount transferred has to be equal to or less than the unobligated balance. The request shall include a:

(a) brief summary of progress to date;

(b) description of work yet to be accomplished;

(c) completed on-line transfer request, including total disbursements and unpaid obligations to date (transfer amount will be automatically calculated, based on the amount entered in total disbursements). The original organization is responsible for including in the total estimated disbursements, any anticipated costs yet to be incurred against the original grant;

(d) detailed line item budget for the transfer amount and any outstanding continuing grant increments; and

(e) If funding is requested to support a postdoctoral researcher, then the request must include the requisite mentoring plan as described in Chapter II.C.2.j. The plan must be uploaded under "Mentoring Plan" in the Supplementary Documentation section of Fastlane. The PI must report on the mentoring activities provided to the individual(s) in annual and final project reports.

The original organization concurs with the transfer of the award by electronically forwarding the request to the new organization.

The new organization completes the request by providing a detailed budget for the transfer amount agreed to by both organizations. The AOR of the new organization must sign and submit the request via use of NSF's electronic systems. Submission of the request constitutes agreement by the new organization to assume responsibility for completion of the project effort and to administer the grant (as originally awarded) from the transfer date to completion in accordance with any special terms and conditions and the applicable general terms and conditions that normally govern NSF grants made to the new organization. Special terms and conditions, as appropriate, cited in the original award will convey to the new grantee organization.

NSF will assign a proposal number at the time of submission. This proposal number will become the new grant number when the transfer is approved by an NSF Grants Officer.

(iii) Fund Transfer. Upon receipt of the above material, NSF will review the request and, if approved, deduct the specified transfer amount from the original grant and re-establish it under a new grant number at the new organization. Award notification by the NSF Grants Officer will constitute NSF approval of the grant transfer. The award notification also will specify the applicable general terms and conditions that govern the grant.

(iv) Monetary Discrepancies. Upon transfer of the grant to the new organization, any monetary discrepancies must be resolved between the original and the new grantee. NSF will not intervene in any disputes between the two organizations regarding the transferred amount.

(v) Equipment Transfers. Equipment purchased with NSF funds for use in a specific project should remain available for use for the duration of the project. PI/PDs who are in the midst of projects that included funding for equipment and who will continue the project at a new organization with NSF support, should arrange with their original organization to have the equipment transferred with them. Shipping costs for such equipment may be charged to the original or transferred grant as an allowable cost. Budgets should not include funds to "buy" equipment that had been previously obtained with Federal funds.

(vi) Possible Alternatives to the Transfer Process. When the amount of time and funds remaining in a project are modest, and if both the original and new organizations are in agreement, the original organization may issue a subaward to the new organization for completion of the project. This and other possible alternatives should be discussed with the NSF Grants Officer.

3. Changes in PI/PD, co-PI/co-PD or Person-Months Devoted to the Project at the Initiation of NSF

a. Upon receipt of a notification specified in Chapter VII.A.2. f or g, NSF will consider, at a minimum, the following factors:

(i) The safety and security of personnel supported by the NSF award;

(ii) The overall impact to the NSF-funded activity;

(iii) The continued advancement of taxpayer-funded investments in science and scientists; and

(iv) Whether the awardee has taken appropriate action(s) to ensure the continuity of science and that continued progress under the funded project can be made.

b. Upon receipt and review of the information provided, NSF will consult with the AOR, or designee. Based on the results of this review and consultation, the Foundation may, if necessary, assert its programmatic stewardship responsibilities and oversight authority, to initiate the substitution or removal of the PI/PD or any co-PI/co-PD, reduce the award funding amount, or where neither of those previous options is available or adequate, to suspend or terminate the award.

c. When NSF invokes this authority, the grantee must nominate a substitute PI/PD or co-PI/co-PD via use of NSF's electronic systems. The substitute PI/PD's name or co-PI/co-PD's name, biographical sketch, current and pending support from all ongoing projects and proposals, must also be included in the request. The contact information for the substitute PI/PD or co-PI/co-PD also should be included. If approved by NSF, the Grants

Officer will amend the grant. If not approved, or a substitute PI/PD or co-PI/co-PD is not available, NSF may take steps, pursuant to Chapter XII.A to suspend or terminate the grant.

4. Subawarding or Transferring Part of an NSF Award (Subaward)

Excluding the purchase of items such as commercially available materials and supplies, equipment or general support services allowable under the grant, no part of an NSF award may be subawarded or transferred to another organization without prior NSF authorization. The intent to enter into such arrangements should be disclosed in the proposal.

If it becomes necessary to subaward or transfer part of an NSF award after a grant has been made, the grantee shall submit, at a minimum:

a. a clear description of the work to be performed by each subrecipient;

b. a separate budget and budget justification for each subaward; and

c. If funding is requested to support a postdoctoral researcher, and the original proposal did not include a mentoring plan, then the request must include the requisite mentoring plan as described in Chapter II.C.2.j. The plan must be uploaded under "Mentoring Plan" in the Supplementary Documentation section of Fastlane.

The request must be signed and submitted by the AOR via use of NSF's electronic systems, and NSF authorization will be indicated by an amendment to the grant signed by the Grants Officer. The NSF grant terms and conditions will identify which articles flow-down to subrecipients.

Procurements under NSF grants are subject to Chapter X.C as well as 2 CFR § 200.317-326.

5. Postaward Additions of Postdoctoral Scholars

If a grantee rebudgets funds to support a postdoctoral researcher and the original proposal included a mentoring plan, no further documentation is necessary. If the original proposal did not include a mentoring plan, then the grantee must send the cognizant NSF Program Officer the requisite mentoring plan, as described in Chapter II.C.2.j.

If supplemental funding is requested to support a postdoctoral researcher and the original proposal did not include a mentoring plan, then the supplemental funding request must include the requisite mentoring plan, as described in Chapter II.C.2.j. The plan should be uploaded to the "Other Supplementary Documents" section of the FastLane Supplemental Funding Request module.

In all cases, the PI must report on the mentoring activities provided to the individual in the annual and final project reports.

C. Cost Sharing

1. General

The National Science Board issued a report entitled "*Investing in the Future: NSF Cost Sharing Policies for a Robust Federal Research Enterprise"* (NSB 09-20), which contained eight recommendations for NSF regarding cost sharing. In implementation of the Board's recommendations, NSF's revised guidance[54] (see Chapter II.C.2.g(xii)) is as follows:

- inclusion of voluntary committed cost sharing is prohibited. It should be noted that foregoing full indirect cost rate (F&A) recovery is considered voluntary committed cost sharing; and

[54] See NSF's Revised Cost Sharing Policy Statement for the Foundation's overarching policies on cost sharing.

- when mandatory cost sharing is included on Line M and accepted by NSF, the commitment of funds becomes legally binding and is subject to audit. Failure to provide the level of cost sharing required by the NSF solicitation and reflected in the NSF award budget may result in termination of the NSF award, disallowance of award costs and/or refund of award funds to NSF by the grantee.

2. Mandatory Cost Sharing Commitments

2 CFR § 200.306 prescribes criteria and procedures for the allowability of cash and in-kind contributions. Grantees should be aware that mandatory cost sharing commitments are subject to audit. Audit findings involving cost sharing have pertained to: a) failure to keep adequate source documentation for claimed cost sharing; b) unclear valuation of in-kind donated contributions; c) lack of support for cost sharing contributions by subrecipients; and d) failure to complete annual certifications for awards with mandatory cost sharing requirements. Additional guidance on cost sharing may be obtained at: http://www.nsf.gov/bfa/dias/caar/costrev.jsp.

3. Mandatory Cost Sharing Records and Reports

a. Grantee Records

Grantees shall maintain records of all project costs that are claimed by the grantee to meet mandatory cost sharing requirements specified in an NSF program solicitation. Records for cost share contributed to NSF awards must be compliant with the requirements of 2 CFR § 200.306 and are subject to audit.

b. Grantee Reports

The amount of mandatory cost sharing must be documented (on an annual and final basis), certified by the AOR, and reported to the cognizant NSF Program Officer via use of NSF's electronic systems. Such notifications must be submitted no later than 90 days prior to the end of the current budget period to meet the annual notification requirement, and no later than 120 days following the end date of the of the grant to meet the final notification requirement. The cost share notification is considered due during the 90 or 120 day period respectively. The notification becomes overdue the day after the respective 90 or 120 day period ends.

c. Changes to the Cost Sharing Amount Specified on Line M of the NSF Award Budget

Should the grantee become aware that it may be unable to provide the cost sharing of at least the amount identified on Line M of the NSF award budget, the AOR must immediately sign and submit a request to revise the agreed upon cost sharing amount and submit the request via use of the "Other" category" in the Notification and Request module of NSF's electronic systems. The request must provide a description of why the cost sharing amount cannot be provided, and either indicate steps the grantee plans to take to secure replacement cost sharing; or indicate the plans that the grantee has to either continue or phase out the project in the absence of the approved level of cost sharing.

Should NSF agree to the organization's proposed plans, the NSF Grants Officer will modify the award accordingly, including, if appropriate, reducing the amount of NSF support. Should the organization's plans be unacceptable to NSF, the award may be subject to termination. NSF modifications to proposed cost sharing revisions are made on a case-by-case basis.

Failure by the organization to notify NSF, in accordance with the paragraph above, may result in the disallowance of some or all of the costs charged to the grant; the subsequent recovery by NSF of some or all of the NSF funds provided under the grant; possible termination of the grant; and may constitute a violation of the terms of the award so serious as to provide grounds for subsequent suspension or debarment.

D. Technical Reporting Requirements

NSF requires project reports for all assistance awards. Information from these reports is used in annual reports to Congress to demonstrate the Foundation's performance as mandated by the Government Performance and Results Act (GPRA) of 1993. These reports also provide NSF program officers and administrative offices with

information on the progress of supported projects and the way these funds are used. Information in these reports may be made available to the general public through the Freedom of Information Act (FOIA). These reports are fully consistent with and implement the Research Performance Progress Report (RPPR), which is the government-wide standard for use with research and research-related activities. Except where another format is approved by OMB for use by an NSF program, this means that the ''where practicable'' requirement specified in 2 CFR § 200.301 is not required as the RPPR does not relate financial information to performance data.

1. Annual Project Reports

Annual Project Reports should address progress in all activities of the project, including any activities intended to address the Broader Impacts criterion that are not intrinsic to the research. These reports are not cumulative, and should be written specifically for the most recently completed budget period. Unless otherwise specified in the grant, annual project reports should be submitted electronically no later than 90 days prior to the end of the current budget period to allow adequate time for the cognizant Program Officer to review and approve the report.

As reflected in the Project Report System, the report is considered due during the 90 day period. The report becomes overdue the day after the 90 day period ends. Failure to submit timely reports will delay processing of additional funding and administrative actions, including, but not limited to, no cost extensions. In the case of continuing grants, failure to submit timely reports may delay processing of funding increments. See also Chapter VI.E.3.

Annual project reports may not be required for fellowship awards. Specific reporting requirements for fellowships are established in the applicable program solicitation and award conditions.

For multi-year standard grants, PIs are required to submit annual reports as outlined above. In the case of cooperative agreements, the annual report is required before NSF approves any future funding increments.

Continuing grants also are subject to the same policies regarding report submission as outlined above. For continuing grants that have a duration of 18 months or more per increment, two annual reports are required. A report must be submitted for the first 12 months of the project, and then another report for the remaining months of the increment. Continuing grants which include an increment of 24 months will require an annual report for each 12 month period.

2. Final Project Report

The final project report should address progress in all activities of the project, including any activities intended to address the Broader Impacts criterion that are not intrinsic to the research. This report is not cumulative; it is the last annual report of the project and should be written specifically for the most recently completed budget period. By submitting the final project report, the PI is signifying that the scope of work for the project has been completed and that he/she does not anticipate that any further research activities (including a no-cost extension, supplemental funding, or transfer of the grant) need to be completed on the project. Submission of the final project report, however, does not preclude the grantee from requesting any further payments for costs incurred during the period of performance.

Unless otherwise specified in the award, the final project report should be submitted electronically no later than 120 days following the end date of the grant. As reflected in the Project Report System, the report is considered due during the 120-day period. The report becomes overdue the day after the 120-day period ends. In addition, the grantee also shall provide to the cognizant NSF Program Officer, within 120 days following the end date of the grant:

- any unique reports or other end items specified in the grant, including any reporting requirements set forth in any NSF brochure, guide, solicitation, etc., referenced in the grant as being directly related to either the award or the administration of the grant.

- a final cost share notification documented and certified by the AOR for grants where there is mandatory cost sharing established for the program.

Final project reports may not be required for institutional graduate research fellowships. However, final reporting requirements for individual fellowships are established in the applicable program solicitation.

3. Project Outcomes Report for the General Public (POR)

This report serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project.

Section Contents:

a. Describe the project outcomes or findings that address the intellectual merit and broader impacts of the work as defined in the NSF merit review criteria. This description should be a brief (generally, two to three paragraphs) summary of the project's results that is written for the lay reader. PIs are strongly encouraged to avoid use of jargon, terms of art, or acronyms.

b. NSF will automatically include all publications associated with the grant that are reported in annual and final project reports. Other products that have resulted from the grant may also be listed. Examples of other products include collections, data sets, software, as well as educational materials.

c. Information regarding anticipated publication of project results, as well as any other information that would be of interest to the public also may be included in this section.

Grantees are to ensure that the report does not contain any confidential, proprietary business information; unpublished conclusions or data that might compromise the ability to publish results in the research literature; or invention disclosures that might adversely affect the patent rights or those of the organization, in a subject invention under the award. PORs are not to contain any personally identifiable information such as home contact information, individual demographic data or individually identifiable information collected from human research participants.

This report will be posted electronically by NSF **exactly as it is submitted** and will be accompanied by the following disclaimer:

> "This Project Outcomes Report for the General Public is displayed verbatim as submitted by the Principal Investigator (PI) for this award. Any opinions, findings, and conclusions or recommendations expressed in this Report are those of the PI and do not necessarily reflect the views of the National Science Foundation; NSF has not approved or endorsed its content."

The POR must be submitted electronically no later than 120 days following end date of the grant. By submitting the POR, the PI is signifying that the scope of work for the project has been completed and that he/she does not anticipate that any further research activities (including a no-cost extension, supplemental funding, or transfer of the grant) need to be completed on the project. Submission of the POR, however, does not preclude the grantee from requesting any further payments for costs incurred during the period of performance.

4. Compliance with Technical Reporting Requirements

PIs must submit final technical reports within the time period specified. **Failure to provide these reports on a timely basis will delay NSF review and processing of pending proposals for all identified PIs and co-PIs on a given grant.**

5. Grant Closeout

Grant closeout is the process by which NSF determines that all applicable administrative actions and all required work of the grant have been completed. Grants will be financially closed out on the first day of each month for all awards with end dates of 120 or more days prior to the financial closeout day. See also Chapter VI.D.3.c for additional information on no cost extensions. The close out amount will be based on the costs recorded at that time. See also Chapter VIII.E.5 for additional information on post closeout adjustments and final disbursements. Grants are administratively closed after receipt of the Final Project Report and after determination that any other

administrative requirements in the grant have been met. In the event a final audit has not been performed prior to the closeout of the grant, NSF reserves the right to recover funds after fully considering the recommendations on disallowed costs resulting from the final audit.

E. Record Retention and Audit

1. Financial records, supporting documents, statistical records and all other records pertinent to the NSF grant must be retained by the grantee for a period of three years from award financial closeout described in Chapter VIII.E.3, except as noted in 2 CFR § 200.333.

2. It is the responsibility of grantees that are States, local governments or non-profit organizations to arrange for the conduct of audits as required by 2 CFR § 200, Subpart F. They shall provide copies of the reports of these audits to the Federal Audit Clearinghouse (see 2 CFR § 200.512(b)). Any Federal audit deemed necessary by NSF shall build upon the results of such audit(s).

3. All awards issued by NSF meet the definition of "Research and Development" (R&D) at 2 CFR § 200.87. As such, auditees should identify NSF awards as part of the R&D cluster on the Schedule of Expenditures of Federal Awards (SEFA). The auditor should test NSF awards for compliance as instructed in Part V, Clusters of Programs. NSF recognizes that some awards may have another classification for purposes of indirect costs (F&A). The auditor is not required to report the disconnect (i.e., the award is classified as R&D for audit purposes but non-research for indirect cost rate (F&A) purposes), unless the auditee is charging indirect costs at a rate other than the rate(s) specified in the award document(s).

Chapter VIII - Financial Requirements and Payments

The acceptance of an award from NSF creates a legal obligation on the part of the grantee organization to use the funds or property made available in accordance with the terms and conditions of the award. Payments may be made in advance of work performed or as a reimbursement for work performed and/or costs incurred by the grantee. Payments, however, may not be made prior to an award being signed by an NSF Grants Officer.

NSF has a revisionary interest in any:

(a) unused funds from advance payments;

(b) improperly applied funds (whether or not received as an advance payment); and

(c) property acquired through the award, to which NSF specifically either retains title or reserves the right to require title transfer.

While the provisions of this Chapter cover all NSF assistance awards (i.e., grants and cooperative agreements), the term “grantee” is used throughout. Graduate fellowship awards to domestic colleges and universities are included, but contracts are excluded. All categories of grantees (academic, non-academic, profit and non-profit) are covered by this chapter. The procedures in this chapter apply primarily to the comptroller’s office or business office.

A. Standards for Financial Management

NSF grantees must meet the financial management systems requirements of 2 CFR § 200.302.

B. Definitions

The following definitions are either not included elsewhere in Part II of the PAPPG or are repeated in this Chapter because of their special applicability.

1. ADVANCE PAYMENT - means a payment that NSF makes by any appropriate payment mechanism, including a predetermined payment schedule, before the grantee disburses the funds for program purposes.

2. BUSINESS OFFICER – means the financial official of the grantee organization who has primary responsibility for the accountability for, and reporting on, NSF award funds.

3. CASH ON HAND – means a grantee organization’s cash position relative to the funds received from NSF minus the costs incurred for the award.

4. DISBURSEMENTS/OUTLAYS/EXPENDITURES – means charges made by the grantee to a project or program for which an NSF award was received.

5. FINANCIAL FUNCTIONS – means the NSF systems and services used by grantees to transmit financial information to NSF. Grantees must access Financial Functions through Research.gov. The primary Financial Functions used by grantees are:

(a) Award Cash Management Service (ACM$) – means NSF’s award payment process under which grantees provide award level detail at the time of the payment request. ACM$ replaced both the reporting of expenditures on the Federal Financial Report (FFR) and the Cash Request Function.

(b) Federal Financial Report History – means the electronic version of the standard "Federal Financial Report". This was used by grantees prior to ACM$ implementation to report the financial activity of NSF awards on a quarterly basis.

6. GRANTEE - means the organization or other entity that receives a grant and assumes legal and financial responsibility and accountability both for the awarded funds and for the performance of the grant-supported activity. NSF grants are normally made to organizations rather than to individual PI/PD(s). Categories of eligible proposers may be found in Chapter I.E.

7. NSF OBLIGATIONS – means funds authorized by an NSF Grants Officer for a specific NSF award creating a balance payable to a grantee.

8. GRANTEE OBLIGATIONS – means orders placed for property and services, contracts and subawards made, and similar transactions during a given period that require payment by the grantee during the same or a future period.

9. PAYMENTS – means the funds transferred from NSF to the grantee by electronic funds transfer (Automated Clearing House (ACH)) and on some rare occasions by check or by wire for same day electronic funds transfer or international payments.

10. UNLIQUIDATED OBLIGATIONS –

(a) for grantees operating on a cash basis, means obligations incurred by the grantee that have not been paid (liquidated).

(b) for grantees operating on an accrual expenditure basis, means obligations incurred by the grantee for which an expenditure has not been recorded.

11. UNEXPENDED BALANCE – means the sum of the unobligated and obligated balances. An unexpended balance is the result of awarded funds not being spent, or when the total expenditures for a project are less than the amount awarded. It can also be defined as the unspent portion of a budgeted amount, available for authorized future expenses during the award period.

12. UNOBLIGATED BALANCE – means the cumulative amount of budget authority that remains available for obligation under law in unexpired accounts.

C. Payment Requirements

1. Requesting Payments

NSF grantees, except for some Special Payment grantees (see Chapter VIII.C.4), and some foreign grantees, are required to request payments electronically through ACM$. Under ACM$, grantees must provide award level detail at the time of the payment request.

Certain Special Payment grantees and foreign grantees without access to a U.S. bank are required to request funds by submitting a "Request for Advance or Reimbursement Form", (SF 270), to NSF either through mail, email or by fax.

2. Payment Policies

The purpose of this section is to prescribe the timing of advances and the procedures to be observed to ensure that cash payments occur only when essential to meet the needs of a grantee for its actual disbursements.

a. Timing of Payments. Advance payments to grantees must be limited to the minimum amounts needed. The timing of advanced payments must be in accordance with the actual, immediate cash requirements of the grantee in carrying out the purpose of the approved program or project. The timing and amount of advance payments must be as close as is administratively practicable to the actual disbursements by the grantee for direct program or project costs and the proportionate share of any allowable indirect costs (F&A).

b. Payments to Subrecipients and Contractors. Payments made by NSF grantees to subrecipients and contractors shall conform to the same standards of timing and amount as apply to payments by NSF to its grantees.

c. Withholding Payments. NSF reserves the right, upon written notice, to withhold future payments after a specified date if the grantee either:

(i) fails to comply with the terms and conditions of an NSF award, including the reporting requirements; or

(ii) is indebted to the US Government.

Payments will be released to the grantee upon subsequent compliance.

d. Safeguarding Funds. In no case will NSF funds be commingled with the personal funds of, or be used for personal purposes by, any officer, employee, or agent of the grantee; nor will any of these funds be deposited in personal bank accounts for disbursement by personal check.

3. Request for Payment

a. Grantees may submit requests for payments as often as they like and may submit payment requests for reimbursement or in advance of costs incurred. The following conditions must exist for grantees submitting payment requests in advance of costs incurred:

(i) Funds for the project period have been obligated by a Grants Officer in the form of an electronically signed grant;

(ii) The grantee has established written procedures that will minimize the time elapsing between the transfer of funds from the U.S. Treasury and their disbursement by the grantee; and

(iii) The grantee's financial management system meets the standards for fund control and accountability prescribed in 2 CFR § 200.302.

b. Grantees shall maintain advances of NSF funds in interest bearing accounts as specified in Chapter VIII.D.3.

4. Special Payment Grantees

When grantees do not meet the conditions specified in Chapter VIII.C.3 above, or when otherwise considered appropriate, NSF may restrict their capability to request funds through ACM$ or they may be required to request funds by using a Request for Advance or Reimbursement (SF 270) form. The cognizant NSF Grants Officer is responsible for establishing the documentation requirements for special payment grantees. Documentation may be submitted by email, by fax to 703-292-9142, or through the mail to:

National Science Foundation
Division of Grants & Agreements
2415 Eisenhower Avenue
Alexandria, VA 22314

5. Working Capital Advance

In those cases where the reimbursement method described in Chapter VIII.C.3 is not feasible, arrangements may be made whereby NSF projects are financed on a working capital advance basis. On this basis, funds may be advanced to the grantee to cover estimated disbursement needs for a given initial period. Thereafter, the grantee would be reimbursed for the amount of its actual cash disbursements. The amount of the initial advance shall be geared to the reimbursement cycle so that after the initial period, the advance approximately equals the average amount of the grantees' unreimbursed program disbursements.

6. Grantee Banking Information for Payments

The System for Award Management (SAM) is the NSF system of record for organizational financial information. Once a grant is awarded, failure to maintain current and complete financial information within SAM could prevent the grantee from receiving funds.

D. Cash Refunds and Credits to NSF

1. Final Unexpended Balance

NSF has a reversionary interest in the unexpended balance of an award upon the end date or completion of the award. Based on final payment amounts submitted through ACM$, the final unexpended balance will be computed by NSF and de-obligated from the award amount.

2. Erroneous Payments

Advances or reimbursements made in error must be refunded to the National Science Foundation. Excess funds should be promptly refunded electronically or by check. Electronic remittances should be submitted through Pay.gov at: https://pay.gov/paygov/forms/formInstance.html?agencyFormId=10506005. Checks shall be mailed to NSF, Attn. Cashier, 2415 Eisenhower Avenue, Alexandria, VA 22314. Contact the NSF Division of Financial Management at (703) 292-8280 for additional information.

The only exception to the requirement for prompt refunding is when the funds involved will be disbursed immediately. This exception for prompt refunding should not be construed as approval by NSF for a grantee to maintain excessive funds on hand.

3. Interest Earned on Advance Payments

The following provisions implement the applicable portions of 2 CFR § 200.305 on interest income.

Grantees shall maintain advances of NSF funds in interest-bearing accounts, unless any of the following apply:

a. The grantee receives less than $120,000 in Federal awards per year;

b. The best reasonably available interest-bearing account would not be expected to earn interest in excess of $500 per year on Federal cash balances;

c. The depository would require an average or minimum balance so high that it would not be feasible within the expected Federal and non-Federal cash resources; or

d. A foreign government or banking system prohibits or precludes interest bearing accounts.

Grantees may retain interest earned amounts up to $500 per year for administrative expenses. Any additional interest earned on Federal advance payments deposited in interest-bearing accounts must be remitted annually to the Department of Health and Human Services Payment Management System (PMS) through an electronic medium using either Automated Clearing House (ACH) network or a Fedwire Funds Service payment. Remittances must include pertinent information of the payee and nature of payment in the memo area (often referred to as "addenda records" by financial institutions) as that will assist in the timely posting of interest earned on Federal funds. The remittance must be submitted as follows:

(i) For ACH Returns:

Routing Number: 051036706

Account number: 303000

Bank Name and Location: Credit Gateway—ACH Receiver St. Paul, MN

(ii) For Fedwire Returns*:

Routing Number: 021030004

Account Number: 75010501

Bank Name and Location: Federal Reserve Bank Treas NYC/Funds Transfer Division New York, NY

(* Please note organization initiating payment is likely to incur a charge from your Financial Institution for this type of payment)

(iii) For International ACH Returns:

Beneficiary Account: Federal Reserve Bank of New York/ITS (FRBNY/ITS)

Bank: Citibank N.A. (New York)

Swift Code: CITIUS33

Account Number: 36838868

Bank Address: 388 Greenwich Street, New York, NY 10013 USA

Payment Details (Line 70): Agency

Name (abbreviated when possible) and ALC Agency POC: Michelle Haney, (301) 492-5065

(iv) For grantees that do not have electronic remittance capability, please make check** payable to: "The Department of Health and Human Services."

Mail Check to Treasury approved lockbox:

HHS Program Support Center, P.O. Box 530231, Atlanta, GA 30353-0231

(** Please allow 4-6 weeks for processing of a payment by check to be applied to the appropriate PMS account)

(v) Any additional information/instructions may be found on the PMS website at: http://www.dpm.psc.gov/.

4. Program Income

a. Background

The following provisions implement the applicable portions of 2 CFR § 200.307 on program income.

b. Definition

PROGRAM INCOME means gross income earned by the grantee that is directly generated by a supported activity or earned as a result of the grant during the period of performance. Program income includes, but is not limited to, income from fees for services performed, the use of rental or real or personal property acquired under the grant, the sale of commodities or items fabricated under the grant, license fees and royalties on patents and copyrights, and principal and interest on loans made with grant funds. Interest earned on advances of Federal funds is not program income. Except as otherwise provided in Federal statutes, regulations, or the terms and conditions of the grant, program income does not include rebates, credits, discounts, and interest earned on any of them.

Note: Registration fees collected under NSF-supported conferences are considered program income.

c. NSF Policy

(i) Standard Treatment

Unless otherwise specified in the grant, program income received or accruing to the grantee during the period of the grant is to be retained by the grantee, added to the funds committed to the project by NSF, and thus used to further project objectives. The grantee has no obligation to NSF with respect to program income received beyond the period of the grant. The grantee also shall have no obligation to NSF with respect to program income earned from license fees and royalties for copyrighted material, patents, patent applications, trademarks, and inventions produced under an award. However, Patent and Trademark Amendments (35 USC 18) shall apply to inventions made under an award.

Efforts should be made to avoid having unexpended program income remaining at the end date of the grant. Program income earned during the project period should be expended prior to requesting reimbursement against the grant. In the event a grantee has unexpended program income remaining at the end of the grant, it must be remitted to NSF by crediting costs otherwise chargeable against the grant. If it is not possible to record the credit via ACM$, the excess program income must be remitted to NSF electronically or by check payable to the National Science Foundation. (See section D.2 above for further information.)

(ii) Special Treatment

In exceptional circumstances, the NSF Grants Officer, in collaboration with Program Officers and other appropriate NSF offices, may approve use of a special grant provision to restrict or eliminate a grantee's control of income earned through NSF-supported activities if it determines that this would best serve the purposes of a particular program or grant. The special provisions may require treatment of the program income via use of the deductive method, the Federal share of program income be kept in a separate account, or reported on and/or remitted for such periods as may be reasonable under the circumstances.

If, in accordance with the grant terms and conditions program income is designated for deductive treatment, it must be remitted to NSF by crediting costs otherwise chargeable against the grant. Program Income in excess of the award will be remitted to NSF electronically or by check payable to the National Science Foundation.

(iii) Program Income Reporting Requirements

On an annual basis, grantees are required to submit a Program Income Reporting Worksheet to NSF in order to report program income earned and expended for any of their grants or to validate that they did not earn and expend program income for any of their grants during the applicable period.

(a) The Program Income Reporting Worksheet utilizes the standard, OMB-approved government-wide data elements from the Program Income section of the Federal Financial Report (SF 425).

(b) The Program Income Reporting Worksheet in Microsoft Excel is available to grantees through the Program Income page of Research.gov. Grantees are required to report the award number, amount of program income earned, amount of program income expended, and the amount of unexpended program income remaining as of the applicable period. Grantees that have no program income to report will be able to validate that status by an email response. The Program Income Reporting Worksheet is due 45 days after the end of the Federal fiscal year.

Failure to report program income or to validate that no program income was earned/expended could result in suspension of future grant payments.

5. Other Cost Credits

Purchase discounts, rebates, allowances, credits resulting from overhead rate adjustments and other credits relating to any allowable cost received by or accruing to the grantee shall be credited against NSF award costs if the grant has not been financially closed out. See also Chapter X.A.2.c.

E. Award Financial Reporting Requirements and Final Disbursements

NSF does not require grantees to submit FFRs for each award for purposes of final award accountability. NSF procedures have been designed to extract the final financial data from the entries in ACM$. This is accomplished as follows:

For any award listed on the ACM$ Payments screen, the grantee will enter the final payment amount in the Payment Amount Requested column to complete final financial reporting to NSF. Considerations for financial closeout are as follows:

1. After closeout, if final disbursements change by $1.00 or more from the final award amount, then the grantee should submit an "Adjustment to a Financially Closed Award" through the ACM$ payment process.

2. Grantees must liquidate all obligations incurred under their awards not later than 120 calendar days after the award end date.

3. NSF will financially close awards 120 days after the award end date[55] and the award will be removed from the ACM$ payment screen for active awards. Any remaining funds that exceed the final payment amount will be deobligated from the award so the net award balance will equal total payments.

4. Grantees also have the option of using ACM$ to designate awards for financial closeout prior to NSF's regularly scheduled close out date. Grantees can complete that action by selecting the Final Flag on the ACM$ payment screen. (Note that the flag cannot be unchecked at a later date and should typically not be used for original awards that transferred to another awardee organization). Selecting the Final Flag will financially close the award upon posting of the ACM$ transaction to the NSF financial accounting system, typically overnight.

5. Grantees are authorized to make upward or downward adjustments to the Federal share of costs for a financially closed award within the following time limits:

- Upward adjustments may be submitted through ACM$ for up to 14 months after the financial closeout date of the award or until the appropriated funds cancel[56], whichever is earlier.

- Downward adjustments may be submitted through ACM$ until the appropriated funding for the award cancels. The time limitation for ACM$ downward adjustments has no effect on the requirement that the grantee return any funds due to NSF as a result of later refunds, corrections, or other transactions including final indirect cost rate adjustments. In cases where the award appropriation has been canceled, the grantee should return the funds associated with the downward adjustment in accordance with section D. Cash Refunds and Credits to NSF.

6. NSF will notify grantees of any canceling appropriations on open awards in order for grantees to properly expend and draw down funds before the end of the Federal fiscal year. Grantees must not interpret NSF's notification of canceling appropriations as direction to draw down NSF funds for which there is no associated expenditure need. Grantees are reminded that "the timing and amount of advance payments must be as close and as administratively practicable to the actual disbursements…" in accordance with Chapter VIII.C.2, and that all excess funds drawn must be returned to NSF promptly. See section C. above for additional information on grant payments. If only a portion of the awarded funds are canceling, then NSF will reduce the available balance of the award. If all funds under the award are canceling appropriations, then NSF must financially close the award no later than September 30th regardless of the award end date. No extensions, requests for payment, or upward adjustments will be allowed beyond the end of the Federal fiscal year in which the funds cancel. Although in this situation awards may be financially closed early, grantees will still have the full 120-day closeout period to submit final project reports in accordance with the grant terms and conditions.

[55] Awards that end on May 31 may be closed early, on or before the last day ACM$ is available for drawing down funds in September, to accommodate NSF's Federal fiscal year end closeout.

[56] In accordance with 31 USC 1552(a), funds will no longer be available for expenditure for any purpose beyond September 30th of the fifth fiscal year after the expiration of a fixed appropriation's period of availability for incurring new obligations.

Chapter IX: Grantee Standards

NSF encourages the increased involvement of academic researchers and educators with industry and private entrepreneurial ventures but recognizes that such interactions carry with them an increased risk of conflicts of interest. Chapter IX.A contains NSF's policy on conflicts of interest.

2 CFR § 200 prescribes three separate sets of standards related to the financial and program management of Federal grants, each governing a different area: financial management, property management, and procurement management. Chapter IX.C, IX.D and IX.E implement these standards and extend their applicability to all types of grantees of NSF grants, including for-profit organizations.

A. Conflict of Interest Policies

1. NSF requires each grantee organization employing more than fifty persons to maintain an appropriate written and enforced policy on conflict of interest and that all conflicts of interest for each award be managed, reduced or eliminated prior to the expenditure of the award funds. If the organization carries out agency-funded research through subrecipients or collaborators, the organization must take reasonable steps to ensure that:

a. the entity has its own policies in place that meet the requirements of this policy; or

b. investigators working for such entities follow the policies of the primary organization.

Guidance for development of such policies has been issued by university associations and scientific societies.

2. An organizational conflict of interest policy should require that each investigator disclose to a responsible representative of the organization all significant financial interests of the investigator (including those of the investigator's spouse and dependent children): (i) that would reasonably appear to be affected by the research or educational activities funded or proposed for funding by NSF; or (ii) in entities whose financial interests would reasonably appear to be affected by such activities.

The term "investigator" means the PI/PD, co-PI/co-PDs, and any other person identified on the proposed project who is responsible for the design, conduct, or reporting of research or educational activities funded or proposed for funding by NSF.

The term "significant financial interest" means anything of monetary value, including, but not limited to, salary or other payments for services (e.g., consulting fees or honoraria); equity interest (e.g., stocks, stock options or other ownership interests); and intellectual property rights (e.g., patents, copyrights and royalties from such rights).

The term does not include:

a. salary, royalties or other remuneration from the proposing organization;

b. any ownership interests in the organization, if the organization is an applicant under the Small Business Innovation Research Program (SBIR) or Small Business Technology Transfer Program (STTR);

c. income from seminars, lectures, or teaching engagements sponsored by public or non-profit entities;

d. income from service on advisory committees or review panels for public or nonprofit entities;

e. an equity interest that, when aggregated for the investigator and the investigator's spouse and dependent children, meets both of the following tests: (i) does not exceed $10,000 in value as determined

through reference to public prices or other reasonable measures of fair market value; and (ii) does not represent more than a 5% ownership interest in any single entity; or

f. salary, royalties or other payments that, when aggregated for the investigator and the investigator's spouse and dependent children, are not expected to exceed $10,000 during the prior twelve-month period.

3. An organizational policy must ensure that investigators have provided all required financial disclosures at the time the proposal is submitted to NSF. It must also require that those financial disclosures are updated during the period of the award, either on an annual basis, or as new reportable significant financial interests are obtained.

4. An organizational policy must designate one or more persons to review financial disclosures, determine whether a conflict of interest exists, and determine what conditions or restrictions, if any, should be imposed by the organization to manage, reduce or eliminate such conflict of interest. A conflict of interest exists when the reviewer(s) reasonably determines that a significant financial interest could directly and significantly affect the design, conduct, or reporting of NSF-funded research or educational activities.

Examples of conditions or restrictions that might be imposed to manage, reduce or eliminate conflicts of interest include, but are not limited to:

a. public disclosure of significant financial interests;

b. monitoring of research by independent reviewers;

c. modification of the research plan;

d. disqualification from participation in the portion of the NSF-funded research that would be affected by significant financial interests;

e. divestiture of significant financial interests; or

f. severance of relationships that create conflicts.

If the reviewer(s) determines that imposing conditions or restrictions would be either ineffective or inequitable, and that the potential negative impacts that may arise from a significant financial interest are outweighed by interests of scientific progress, technology transfer, or the public health and welfare, then the reviewer(s) may allow the research to go forward without imposing such conditions or restrictions.

5. The organizational policy must include adequate enforcement mechanisms and provide for sanctions where appropriate.

6. The organizational policy must include arrangements for keeping NSF's Office of the General Counsel (OGC) appropriately informed if the organization finds that it is unable to satisfactorily manage a conflict of interest and if the organization finds that research will proceed without the imposition of conditions or restrictions when a conflict of interest exists.[57]

When OGC is notified of an unmanageable conflict of interest by a grantee, OGC will conduct the following review:

[57] Grantee notifications of conflict of interest that cannot be managed, reduced, or eliminated and awardee notifications of situations where research will proceed without the imposition of conditions or restrictions when a conflict of interest exists, must be signed and submitted by the AOR via use of NSF's electronic systems.

a. Examine a copy of the organization's conflict of interest policy to ascertain if the policy includes procedures for addressing unmanageable conflicts.

b. Contact the grantee organization's representative to determine what actions the organization plans/has taken with respect to the reported unmanageable conflict of interest, ensuring consistency with their conflict of interest policy.

c. Request confirmation from the grantee when proposed actions have been accomplished.

7. Organizations must maintain records of all financial disclosures and of all actions taken to resolve conflicts of interest for at least three years beyond the termination or completion of the grant to which they relate, or until the resolution of any NSF action involving those records, whichever is longer.

B. Responsible and Ethical Conduct of Research (RECR)

1. Background

The responsible and ethical conduct of research (RECR) is critical for excellence, as well as public trust, in science and engineering. RECR involves not only a responsibility to generate and disseminate knowledge with rigor and integrity, but also a responsibility to:

a. conduct peer review with the highest ethical standards;

b. diligently protect proprietary information and intellectual property from inappropriate disclosure; and

c. treat students and colleagues fairly and with respect.

Consequently, education in RECR is considered essential in the preparation of future scientists and engineers.

Section 7009 of the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science (COMPETES) Act (42 USC 1862o–1) requires that "each institution that applies for financial assistance from the Foundation for science and engineering research or education describe in its grant proposal a plan to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduate students, graduate students, and postdoctoral researchers participating in the proposed research project." NSF encourages consideration of the following reports by the National Academies of Sciences, Engineering, and Medicine in meeting RECR requirements: *Fostering Integrity in Research; Sexual Harassment of Women: Climate, Culture, and Consequences in Academic Sciences, Engineering, and Medicine*; and *Reproducibility and Replicability in Science*. NSF also encourages the training of faculty in the responsible and ethical conduct of research.

The language specified below provides NSF's implementation of Section 7009.

2. Institutional Responsibilities

a. An institution must have a plan in place to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduates, graduate students, and postdoctoral researchers who will be supported by NSF to conduct research. As noted in Chapter II.C.1.d, an institutional certification to this effect is required for each proposal.

b. NSF's RECR requirement applies to the breadth of research disciplines that the Foundation funds. The training provided should be effective and must be appropriately tailored to the specific needs and circumstances at each institution. Accordingly, it is the responsibility of each institution to

determine the content, focus and the delivery method for the RECR training.[58] While training plans are not required to be included in proposals submitted to NSF, institutions are advised that they are subject to review, upon request.

c. An institution must designate one or more persons to oversee compliance with the RECR training requirement.

d. Institutions are responsible for verifying that undergraduate students, graduate students, and postdoctoral researchers supported by NSF to conduct research have received training in the responsible and ethical conduct of research.

3. NSF's Responsibilities

NSF will not tolerate research misconduct in proposing or performing research funded by NSF, in reviewing research proposals submitted to NSF, or in reporting research results funded by NSF. Allegations of research misconduct are taken seriously and are investigated by NSF's Office of Inspector General (OIG). OIG refers completed investigations of research misconduct to NSF for action. Upon findings of research misconduct, NSF will take appropriate action against individuals or organizations.

C. Financial Management Systems Standards

NSF grantees are required to have financial management systems which meet the requirements of 2 CFR § 200.302.

D. Property Management Standards

2 CFR §§ 200.310-316 prescribe standards for managing and disposing of property furnished by the Federal government or whose cost was charged to a project supported by a Federal grant. In the rare instances where NSF grants involve the acquisition of real property, the real property standards of 2 CFR § 200.311 are applicable to such NSF grants. NSF implementation of the OMB standards on intangible property is contained in Chapter XI.D. Title to materials developed and supplies purchased under an NSF grant will vest in the grantee, subject to the conditions identified the applicable grant terms and conditions, and in Chapter IX.D.2.a. below.

1. Title to Equipment

Title to equipment purchased or fabricated with NSF funds will normally vest in the grantee organization upon acquisition. This includes IHEs or other non-profit organizations, small businesses or other for-profit organizations, and foreign public entities or foreign organizations. Only if specified in the award will title pass directly to the government upon acquisition and is then designated as federally-owned property. For equipment use and disposition, the following applies:

a. For major facility awards, including associated upgrades, equipment is subject to the provisions of 2 CFR § 200.313.

b. For all other awards, such equipment is considered "exempt property" (see PAPPG Chapter IX.D) and subject to the applicable award terms and conditions.

[58] NSF has provided funding to the Online Ethics Center for S&E (www.onlineethics.org/) an online collaborative resource environment that provides resources that may be used by the institution in developing their training plan. This site contains RECR resources by discipline, provides links to published codes of ethics, as well as includes pages dedicated to resources produced or used by specific professional groups.

2. Conditions for Acquisition, Use, and Disposition of Equipment

a. Grantee Assurance. The grantee will assure each purchase of equipment is:

(i) necessary for the research or activity supported by the grant;

(ii) not otherwise reasonably available and accessible;

(iii) of the type normally charged as a direct cost to sponsored agreements; and

(iv) acquired in accordance with organizational practice.

b. General Purpose Equipment. Expenditures for general purpose equipment are typically not available for support.

c. Equipment Usage. The equipment must remain in use for the specific project for which it was obtained in accordance with 2 CFR § 200.313 unless the provision in 2 CFR § 200.313(c)(4) applies.

d. Equipment Sharing. The equipment must be shared on other projects or programs in accordance with 2 CFR § 200.313(c)(1).

e. Management Requirements. The grantee shall maintain a property management system which, at a minimum, meets the requirements of 2 CFR § 200.313(d).

f. Competition. In accordance with 2 CFR § 200.313(c)(3), grantees shall not use equipment acquired with Federal funds to provide services for a fee that is less than private companies charge for equivalent services, unless specifically authorized by statute, for as long as the Federal government retains an interest in the equipment.

g. Right to Transfer Title.

(i) In accordance with 2 CFR § 200.313(e), NSF may identify items of equipment having a unit acquisition cost of $5,000 or more where NSF reserves the right to transfer the title to the Federal government or to a third party named by the Federal government.

(ii) In such cases where NSF elects to transfer the title, disposition instructions will be issued no later than 120 days after the end date of the NSF-supported project for which it was acquired.

3. Principles Relating to the Use of NSF-Supported Research Instrumentation and Facilities

The following principles on use of NSF-supported instrumentation and facilities were adopted by the NSB:

> The National Science Foundation seeks the maximum productive use of the Nation's scientific instrumentation and research expertise. Ensuring that the highest quality instrumentation, facilities, and services are available to scientific users, both academic and industrial, is a key requirement, as are harmonious relations and cooperation between industry and universities. Private research and testing laboratories, as well as university, government, and industrial laboratories, have a contribution to make.
>
> The National Science Board recognizes that there may be circumstances where NSF grantees use NSF-supported research instrumentation to provide services in commerce for a fee, to an extent that such practice, (1) detracts from the performance of their obligation under the grant, and/or (2) may have a material and deleterious effect on the success of private companies engaged in the provision of equivalent services. It is contrary to the NSF's intent for grantees to use NSF-supported research instrumentation or facilities to provide

services for a fee in competition with private companies in a manner that is prohibited by 2 CFR § 200.313(c)(3).

Grantees should implement the above principles and related grant conditions in a reasonable manner. Grantees are expected to provide fair and adequate consideration of any complaints about use of instrumentation and facilities.

4. Property Management Requirements for Federally-Owned Property

In the event that title to equipment or real property is vested in the Federal government, such Federally-owned property (FOP) must be identified, tagged or segregated in such a manner as to indicate clearly its ownership by the government. Unless otherwise provided in the grant, such FOP must be used only for the performance of the project. The grantee must submit an annual inventory report for all FOP by NSF grant number to the NSF Property Administrator. The report should be submitted electronically to nsfproperty@nsf.gov and must be received by the NSF Property Administrator no later than October 15 each year. Additionally, upon the end date of the grant, the grantee must report the final inventory for all FOP for further agency utilization. (See Chapter IX.D.5).

5. Excess Government Personal Property

a. Policy

(i) As a means of expanding the ability of grantees to accomplish NSF objectives while conserving supply and equipment funds, NSF will continue to sponsor the transfer of excess government personal property to NSF grantees.

(ii) Excess government personal property includes all types of personal equipment and materials (except consumable items such as drugs, paint, etc.), new or used, owned by the Federal government and no longer needed by the holding agency, but having additional useful life. Under regulations established by the General Services Administration (GSA), the agency charged with operating this program, excess government personal property may be reported to, or requested from, GSA by other Federal agencies, including NSF.

(iii) NSF will sponsor the transfer of excess government personal property to eligible organizations under one of the following conditions:

(a) the use of the property significantly furthers an NSF grant-supported activity;

(b) the property is such that it would have been procured under the grant for which property is being requested if additional grant funds had been available;

(c) the property is used as part of the grant activity and subsequently for research or science education purposes; or

(d) the property is classified by GSA as scientific or engineering research equipment and has a unit acquisition cost of $1,000 or more. (See Chapter IX.D.5.f.)

b. Eligibility

Eligible organizations are NSF grantees that are public or private colleges or universities or non-profit organizations whose primary purpose is the conduct of research or science education activities. State and municipal governments, public health units, hospitals, for-profit firms and individual PI/PDs are not eligible for excess government personal property under NSF sponsorship.

c. Procedures

(i) To access a worldwide inventory of available excess personal property, an eligible grantee should contact the Property Administrator (fsrpts@nsf.gov), DAS to become a registered user of GSAXcess® (GSA's online personal property system located at: http://gsaxcess.gov/).

(ii) Grantees can visit GSAXcess® to screen for items that are necessary to accomplish the NSF supported project by searching GSA's inventory and adding items to the Selection Cart. Excess personal property is reported by Category (Federal Supply Classification (FSC)) and includes the item control number, name, location, quantity available, and unit of issue, original acquisition cost, surplus release date and condition of items posted. In some instances a photograph of the property item is available.

(iii) Materials and equipment so selected should be inspected whenever possible (see Chapter IX.D.5.d), or the holding Federal agency should be contacted by the grantee to verify the condition of the items, because interpretation of condition codes can vary among agencies.

(iv) If the condition of the item is acceptable, the grantee should freeze items by Checkout of the Selection Cart to generate a Transfer Control Number/SF 122, *Transfer Order Excess Personal Property*.

(v) The grantee should next submit the SF 122, *Transfer Order Excess Personal Property* and a separate written justification statement, if necessary, to the Property Administrator, DAS. The justification will explain why the property is needed to reduce the cost or enhance the performance under the specific grant for which the property is requested.

(vi) The SF 122 should be signed by either the PI/PD or the AOR. The following information should also be provided on each SF 122:

(a) name of grantee;

(b) grant number;

(c) grant end date;

(d) the statement "The above equipment is requested for use by the grantee in support of research or education as outlined in the grant"; and

(e) the statement "Transfer is in accordance with the provisions of 41 CFR § 101.43." The grantee should also verify the automatic release date with GSA to preclude loss of property before the transaction is processed.

(vii) The written justification should detail the scientific need for the equipment as it relates to the particular grant under which the equipment is to be used, and should cite the conditions of this section as being binding upon the grantee, should the property be acquired.

(viii) Upon receipt by NSF, the SF 122 will be reviewed and forwarded to the appropriate GSA Office. Items are usually allocated on a first come, first served basis. Since GSA may have several freezes on a piece of equipment, first come, first served is interpreted as the first approved SF 122 received by the GSA office and designated Area Property Officer (APO). However, preference will be given by GSA to agencies which do not grant title to equipment. As confirmation of approval, the grantee will receive copies of the SF 122 from the GSA APO. If the request is disapproved, it will be returned to the grantee with an appropriate explanation.

(ix) Upon receipt of the requested property, the grantee should immediately return a copy of the SF 122 to NSF as evidence of delivery. Cancelations by GSA, or nonreceipt within a reasonable period of time should also be reported to NSF after follow-up inquiries have been made to GSA.

d. Visiting Holding Agency Facilities

(i) Under current GSA regulations all non-Federal grantee representatives wishing to visit holding agency facilities to screen or freeze government excess personal property must receive prior certification from GSA. Because of current security protocols, the holding agency may require written authorization for access.

(ii) The number of screeners on a grant should be limited to no more than two persons. The primary screener should be the PI/PD. However, if the PI/PD finds it impossible to screen, he/she may designate, in writing, a substitute.

(iii) Normally, certification will be on a regional basis; however, NSF will, under certain circumstances, sponsor grantee representatives who need to make interregional visits in order to secure equipment not readily available within their region.

e. Dollar Limitation

To ensure equitable distribution of excess government personal property, grantees may be authorized to acquire property under each NSF grant up to a total acquisition cost equal to the dollar value of that particular grant. Any request for excess property which causes the total to exceed the value of the grant will require additional justification beyond that requested in Chapter IX.D.5.c. A higher percentage of excess property requested under a particular grant by a grantee must be approved by an administrative level in NSF which is higher than the cognizant Program Officer. NSF will give full consideration to all factors in determining whether to approve transfers of excess property above the dollar value of a given grant. Grantees are therefore urged to be selective in their requests for excess government personal property to limit quantities of each item where possible and to avoid stockpiling items for future use.

f. Restrictions

(i) NSF will sponsor the transfer of excess government personal equipment to eligible organizations only under project grants. As defined in the GSA regulations, “project grants” refers to grants made for specific purposes with established termination dates, e.g., grants made to specific organizations to perform specific tasks within set time frames and costs. No excess property may be acquired on behalf of conference, publication-support grants or travel grants. In addition, on “summer-type training grants,” no property may be acquired after the training period has terminated. Further, grantees should exercise careful judgment on the appropriateness of requesting excess personal property when only a short period of time exists between the date of the property request and the completion or successful accomplishment of the NSF-supported activity. GSA will consider items of personal property as research equipment for transfer without reimbursement to NSF for use by a grantee when the property requested has a unit acquisition cost of $1,000 or more and is within Federal Supply Classification Groups:

(a) 12 Fire Control Equipment;

(b) 14 Guided Missiles;

(c) 43 Pumps and Compressors;

(d) 48 Valves;

(e) 58 Communication, Detection and Coherent Radiation Equipment;

(f) 59 Electrical and Electronic Equipment Components;

(g) 65 Medical, Dental and Veterinary Equipment and Supplies;

(h) 66 Instruments and Laboratory Equipment;

(i) 67 Photographic Equipment;

(j) 68 Chemical and Chemical Products; or

(k) 70 General Purpose Automatic Data Processing Equipment, Software, Supplies and Support Equipment.

Automatic data processing equipment must be acquired under the provisions in 41 CFR § 201.23.

(ii) GSA will give consideration to the transfer without reimbursement of items of excess property in other Federal supply classification groups and items with a unit acquisition cost of less than $1,000, when NSF certifies that the item requested is a component part of or related to a piece of research equipment or is an otherwise difficult to acquire item needed for scientific or engineering research. Items of property determined by GSA to be common-use or general purpose property, regardless of classification or unit acquisition cost, shall not be transferred to a grantee for the purpose of cannibalization, unless the granting agency sends with the transfer request a supporting statement which clearly indicates that disassembly of the requested item for secondary use of its component parts, or for repair and maintenance of a similar item, has greater potential benefit than utilization of the item in its existing form and that a clear cost savings to the government will result, subject to final determination by GSA.

g. Costs

Excess government personal property is usually secured without cost. However, the grantee should specify the method of shipment and must pay all costs of packing, transportation and subsequent installation, rehabilitation and maintenance if required. Grant funds may be used to pay such costs.

h. Title

Title to excess government personal property obtained by colleges, universities, and other non-profit grantees through NSF sponsorship remains with the government until the property is delivered to the grantee organization. Upon delivery, the grantee should forward to NSF a receipted SF 122 which clearly lists the items of property actually obtained by the grantee. Unless NSF informs the grantee to the contrary, when this SF 122 is received at NSF, title to all property acquired will automatically pass to and be vested in the grantee organization, subject to the understanding that the property will be used for research or for science education purposes as long as it has a useful life. At such time as the property is no longer useful for such purposes, it may be disposed of in accordance with organizational practices, but any proceeds therefrom shall be used by the grantee solely for research or science education purposes. Under certain conditions, such as when highly specialized equipment is involved, NSF may retain title to excess property. When such a condition exists, NSF will inform the grantee. Excess government personal property may not be transferred to a foreign country without the express written approval of the Grants Officer.

i. Accountability and Recordkeeping

(i) While no particular type of classification of accounts or inventory system is required, NSF expects that the responsible officials of the grantee organization will exercise careful stewardship of excess government personal property acquired in support of projects undertaken with NSF's financial assistance. In accordance with Chapter IX.D.5.e, relating to the dollar limitation on the amount of excess government personal property provided by NSF, grantees should maintain appropriate inventory procedures that will enable them to identify those requests which require more extensive administrative and scientific justification. In those cases where title to excess government personal property remains with the government, the grantee must maintain suitable records to identify its location, description, utilization and value. The use of excess government personal property under an NSF grant is subject to inspection and audit by representatives of NSF at all reasonable times during the life of the grant under which the property was acquired.

(ii) Further details may be obtained from the Property Administrator, Division of Administrative Services, National Science Foundation, 2415 Eisenhower Avenue, Alexandria, VA 22314.

E. Procurement Standards

a. NSF grantees shall adhere to the requirements of 2 CFR §§ 200.317-326 which prescribes standards for use by grantees in establishing procedures for the procurement of supplies and other expendable property, equipment, real property and other services with Federal funds.

b. In accordance with Section 806 of the National Defense Authorization Act (NDAA) for 2018, as implemented by Office of Management and Budget (OMB) Memorandum M-18-18, dated June 20, 2018, the micro-purchase threshold for procurement activities for all types of grantee organizations is raised to $10,000. Grantees are authorized to establish lower thresholds at their discretion. Section 805 of the NDAA for 2018 also raised the simplified acquisition threshold from $100,000 to $250,000.

c. Section 217(b) of the NDAA for FY 2017 also established an interim uniform process for institutions of higher education or related or affiliated nonprofit entities, or nonprofit research organizations or independent research institutes to request a micro-purchase threshold above $10,000 if one of the following requirements is met: the grantee has “clean single audit findings”, the grantee has an acceptable internal institutional risk assessment, or the higher threshold must be consistent with State law for public institutions of higher education. Pursuant to OMB Memorandum M-18-18, the approving agency for such requests shall be the cognizant agency for indirect costs.

Chapter X: Allowability of Costs

A. Basic Considerations

Expenditures under NSF cost reimbursement grants are governed by the Federal cost principles and must conform with NSF policies where articulated in the applicable grant general terms and conditions, grant special provisions and grantee internal policies. While grantees are encouraged to seek advice regarding the treatment of costs from the NSF Grants Officer identified in the award notice, it is the grantee that is ultimately responsible for ensuring that all costs charged to NSF awards meet the requirements of the cost principles contained in 2 CFR § 200, Subpart E.[59], grant terms and conditions, and any other specific requirements of both the award notice and the applicable program solicitation. In addition, grantees should ensure that their own internal policies and procedures and other requirements are met for all charges to NSF grants. Otherwise such costs may be disallowed during audit resolution or by specific determination of an NSF Grants Officer.

In the event a grantee anticipates charging an item of direct cost that might subsequently be disputed, an authorized official of the grantee organization should discuss the matter with the cognizant NSF Grants Officer and document the conditions or factors surrounding the item in order to avoid possible subsequent disallowance. If the NSF Grants Officer determines that such costs are appropriate considering the special requirements of a particular NSF sponsored activity, this should be documented through an advance agreement or understanding. Advance agreements regarding the treatment of such costs may be incorporated by specific language in the award notice, or by other written correspondence.

1. Conflicting Guidelines

It is NSF's intent that the following guidance on cost allowability be consistent with the Federal cost principles. However, in the event of any discrepancy between the summary information contained in this Chapter and any specific provision of the cost principles contained in 2 CFR § 200, Subpart E, the cost principles in effect as of the start date of the NSF grant will govern. In the case of a discrepancy between the special provisions of an NSF grant and the standards of the cost principles, the special provisions of the grant will govern.

2. Other Considerations

a. Maximum Obligation

The maximum obligation of NSF for support of the project will not exceed the amount specified in the grant, as amended. NSF does not amend grants to provide additional funds for such purposes as reimbursement for unrecovered indirect costs resulting from the establishment of final negotiated rates, or for increases in salaries, fringe benefits and other costs.

b. Pre-Award Costs

(1) Grantees may incur allowable pre-award costs within the 90-day period immediately preceding the start date of the grant providing:

(a) the approval of pre-award spending is made and documented in accordance with the grantee's procedures; and

(b) the advanced funding is necessary for the effective and economical conduct of the project.[60]

[59] Applicable cost principles for for-profit organizations are contained in Federal Acquisition Regulation Part 31.
[60] In the case of a renewal award, grantees are reminded that costs incurred under the old grant cannot be transferred to the new grant.

(2) Pre-award expenditures are made at the grantee's risk. Grantee authority to approve pre-award costs does not impose an obligation on NSF: (a) in the absence of appropriations; (b) if an award is not subsequently made; or (c) if an award is made for a lesser amount than the grantee anticipated.

(3) Requests for pre-award costs for periods exceeding 90 days must be submitted to NSF via use of NSF's electronic systems. Pre-award expenditures prior to funding of an increment within a continuing grant are not subject to this limitation or approval requirement but are subject to paragraph (2) above.

Additional information on pre-award costs is available at 2 CFR §§ 200.308(d)(1) & (d)(4).

c. Post-End Date Costs

NSF funds may not be expended subsequent to the end date of the grant, except to liquidate valid commitments that were made on or before the end date, e.g., commitment of project funds for subrecipient or contractor for services rendered during that award period but not billed to the grantee until after the grant ended. (See Chapter VIII.E.2.) Generally, the costs of equipment or materials and supplies ordered after the end date may not be charged to the project.

In addition, the grantee typically should not purchase items of equipment, computing devices, or restock materials and supplies in anticipation of the end date of the grant where there is little or no time left for such items to be utilized in the actual conduct of the research.
However, in accordance with 2 CFR § 200.461, Publication and Printing costs, grantees may charge the NSF award before closeout for the costs of publication or sharing of research results, if the costs are not incurred during the period of performance of the award.

3. Prior Written Approvals

The funding of items identified in the NSF grant budget constitutes NSF's authorization for the grantee to incur these costs, provided there is not a specific limitation in the grant language and the costs are otherwise allowable, allocable, and reasonable in accordance with the cost principles contained in 2 CFR § 200, Subpart E.

If required in furtherance of the project, the grantee is authorized to transfer funds from one budget category to another for allowable expenditures. Grantees should refer to the applicable grant general terms and conditions referenced in the grant. The Research Terms and Conditions (RTC), Appendix A, (NSF column) provides a consolidated listing of prior approvals that are required to be obtained from NSF. Unless otherwise specified in the grant notice or the applicable grant general terms and conditions, no additional prior approvals beyond those specified in RTC Appendix A are required. Chapter VII.A.2 also provides a listing of required notifications to NSF.

When a change requires NSF approval, the request must be submitted via NSF's electronic systems. The request should clearly state which budget items, if any, are to be changed and by what amounts, and should explain the reasons for any changes.

B. Direct Costs

1. Compensation - Personal Services

a. Salaries and Wages

Compensation paid or accrued by the organization for employees working on the NSF-supported project during the grant period is allowable, in accordance with 2 CFR § 200.430.

b. Fringe Benefits

If the proposer's usual accounting practices provide that its contributions to employee benefits (leave, employee insurance, social security, retirement, other payroll-related taxes, etc.) be treated as direct costs, NSF grant funds may be requested to fund fringe benefits as a direct cost. These are typically determined by application of a calculated fringe benefit rate for a particular class of employee (full time or part-time) applied to the salaries and wages requested. They also may be paid based on actual costs for individual employees, if that institutional policy has been approved by the cognizant Federal agency for Indirect Costs.

Fringe benefits that are not accrued but are charged as direct costs and incurred under "pay as you go plans" may be subject to reasonableness determination where the benefits are earned under other work and charged to the last activity on which the employee was working. This is of particular concern for large lump sum payments for leave, disability, pregnancy or other employee fringe benefits. See 2 CFR § 200.431 for the definition and allowability of fringe benefits.

2. Intra-University (IHE) Consulting

Since intra-university consulting is assumed to be undertaken as a university obligation requiring no compensation in addition to full-time salary, the principles summarized in Chapter X.B.1, also apply to those who function as consultants or otherwise contribute to a project conducted by another faculty member of the same institution. However, in unusual cases where consultation is across departmental lines or involves a separate or remote operation, and the work performed by the consultant is in addition to his/her regular appointment, any charges for such work representing extra compensation above the institutional base salary are allowable if consistent with established university policy and the applicable cost principles.

3. Federal Employees

Employees of the Federal government (other than NSF) may be utilized as lecturers or staff members on a project and may receive compensation and/or expenses if they obtain prior approval from their agencies to participate, and if services to the project are performed outside their regular working hours or while they are on leave status from official duties. Under no circumstances may NSF employees receive compensation from an NSF-supported project.

C. Other Direct Costs

1. Rearrangement and Reconversion Costs

a. Except under certain programs, NSF does not normally make grants for construction or facility improvements. However, rearrangement and reconversion costs that do not constitute construction (i.e., rearrangement and reconversion costs aggregating $25,000 or less) may be allowable under NSF grants to adapt space or utilities within a completed structure to accomplish the objective of the NSF-supported activity, provided that the:

(i) grantee is not an individual or a foreign organization;

(ii) building has a usable life consistent with project purposes and is architecturally suitable for conversion;

(iii) rearrangement and reconversion costs are essential to the project supported by the grant; and

(iv) space involved will actually be occupied by the project. In situations where the space is rented, in order for the costs of the rearrangement and reconversion to be allowable, the grantee must secure a lease for the length of the project.

b. Rearrangement and reconversion expenditures which do not exceed $25,000 may be approved by grantees. For rearrangement and reconversion expenditures exceeding $25,000, the grantee must request prior approval from NSF via use of NSF's electronic systems. Otherwise, any plans for such rearrangement or reconversion should be clearly set forth in the proposal. If approved by NSF, such approval must be indicated in the award notice. Note that 2 CFR § 200, Appendix II contains provisions that must be included in contracts made by the grantee.

See 2 CFR § 200.462 for additional information on rearrangement and reconversion costs.

2. News Release Costs

Costs of communicating with the public and press to announce the results and accomplishments of an NSF-supported project are allowable. Grantees should be aware of the restrictions on advertising, organizational promotion, and lobbying costs as outlined in the applicable cost principles. See 2 CFR § 200.421 for additional information on advertising and public relations.

In the event the performing organization wishes to collaborate with NSF in a simultaneous news release, arrangements may be made through the NSF's Office of Legislative and Public Affairs, Public Affairs Group, telephone (703) 292-8070.

3. Travel and Temporary Dependent Care Costs

Travel, meal and hotel expenses of grantee employees who are not on travel status are unallowable. Costs of employees on travel status are limited to those specifically authorized by 2 CFR § 200.474.

Temporary dependent care costs (a dependent is defined in 26 USC 152) above and beyond regular dependent care that directly results from travel to conferences are allowable costs provided that the costs are:

a. a direct result of the individual's travel for the NSF conference award;

b. consistent with the grantee's documented travel policy for all employee travel; and

c. only temporary during the travel period.

See 2 CFR § 200.474 for additional information on travel costs.

D. Indirect Costs

1. NSF Policy

a. Except as noted in an NSF program solicitation, it is NSF policy that grantees are entitled to reimbursement from grant funds for indirect costs (F&A) allocable to the NSF share of allowable direct costs of a project. NSF program staff are not authorized to negotiate indirect costs as a discrete item of a proposal budget. NSF program staff also are not authorized to suggest or request that PI/PDs seek reductions or waivers of indirect costs.

b. The awarded indirect cost rate is generally based upon a grantee's current Federally negotiated indirect cost rate agreement. When establishing an indirect rate for an award where the domestic grantee does not have a current negotiated rate agreement, NSF will consider the rate proposed in the budget, the grantee's indirect cost proposal submission, the amount of total funding requested and other pertinent financial factors. Supporting documentation is not required for organizations that request a *de minimis* rate of 10% (or less) of modified total direct costs.

Foreign grantees that do not have a U.S. Federally negotiated indirect cost rate are limited to a *de minimis* indirect cost rate recovery of 10% of modified total direct costs. Foreign grantees that have a negotiated rate agreement with a U.S. Federal agency may recover indirect costs at the current negotiated rate.

Since some types of rates limit indirect cost recoveries and require adjustments, grantees receiving awards should ensure that they understand the type of indirect cost rate, the applicable base and the type of rate used in the grant.

Types of indirect cost rates that are most frequently used on NSF awards are as follows:

(i) Predetermined Rate – As authorized by 41 USC § 4708 and recommended by the Federal cost principles in 2 CFR § 200, Appendices III, IV, and VI, NSF has elected to use predetermined rates, where appropriate. A predetermined rate is an indirect cost rate, applicable to a specified current or future period, usually the organization's fiscal year. The rate is based on an estimate of the costs to be incurred during the period. A predetermined rate is not subject to adjustment.

Special Limitation concerning Predetermined Rates at Colleges and Universities subject to 2 CFR § 200 Appendix III, paragraph C.7 contains an additional restriction on recovery of indirect costs for colleges and universities and other organizations of higher education. These awardees are subject to a further limitation in that the negotiated rate at the time the award is made shall be used throughout the life of the award. The applicable text from 2 CFR § 200 Appendix III, paragraph C.7 is repeated below:

> "7. Fixed rates for the life of the sponsored agreement.
>
> "Federal agencies must use the negotiated rates except as provided in paragraph (e) of §200.414 Indirect (F&A) costs, in effect at the time of the initial award throughout the life of the Federal award. Award levels for Federal awards may not be adjusted in future years as a result of changes in negotiated rates. "Negotiated rates" per the rate agreement include final, fixed, and predetermined rates and exclude provisional rates. "Life" for the purpose of this subsection means each competitive segment of a project. A competitive segment is a period of years approved by the Federal awarding agency at the time of the award. If negotiated rate agreements do not extend through the life of the Federal award at the time of the initial award, then the negotiated rate for the last year of the award must be extended through the end of the life of the Federal award."

Where grantees receive limited NSF funding, the Foundation may elect to set award specific rates as opposed to a formal annual negotiated indirect cost rate agreement. In these cases, the award notice will specify the rate type and application base. If the award notice is silent on the rate type, the rate approved in the award budget will be considered a predetermined rate.

(ii) Provisional (or billing) rate – A provisional rate is a temporary indirect cost rate applicable to a specified period which is used for funding, interim reimbursement, and reporting indirect costs pending the establishment of a final rate for the period.

Grantees with provisional rates are required to submit indirect cost proposals to their cognizant Federal Agency for rate negotiation within six months after the close of each fiscal year. Adjustments to awards for amounts previously billed at provisional rates are required after final indirect cost rates are established.

(iii) Final rate – A final rate is an indirect cost rate applicable to a specified past period which is based on the actual costs of the period. A final rate is not subject to adjustment.

c. NSF will not amend a grant solely to provide additional funds for changes in indirect cost rates.

d. NSF will generally fund continuing grant increments and supplemental support using the negotiated indirect cost rate(s) approved at the time of the initial award. (See Chapter VI.E.)

e. Any negotiations with respect to business and financial matters on specific grants, including the amount of indirect cost reimbursement, are conducted by the cognizant Grants Officer in DGA with an authorized official of the grantee's organization. When other Federal agencies are responsible for negotiating indirect cost rates and an awardee does not have a current negotiated indirect cost rate in effect at the time of award but had a previous indirect cost rate agreement, DGA may elect to use the most recently negotiated rate for award funding purposes. The NSF Cost Analysis and Pre-Award Review Branch in the Division of Institution and Award Support provides advisory assistance to the Grants Officer.

2. NSF Cognizant Organizations

Organizations for which NSF is the cognizant agency for negotiation of indirect cost rates and who do not have approved award specific rates are required to submit indirect cost proposals, reconciled to financial statements, within six months after the close of each accounting year during which NSF has active awards. Indirect cost proposals should be sent to the Cost Analysis and Pre-Award Review Branch. Grantees are responsible for timely submission of indirect cost rate proposals. If the organization is unable to submit their indirect cost rate proposal within the time frame allotted, then an extension should be requested. Failure to submit the indirect cost proposal and to have a negotiated indirect cost rate in place could lead to NSF withholding reimbursement of indirect costs.

See: http://www.nsf.gov/bfa/dias/caar/docs/idcsubmissions.pdf for indirect cost rate proposal submission requirements.

Such proposals and requests for extensions in time to submit proposals should be sent electronically to BFACAPIDC@nsf.gov or by paper copy to Lead Analyst Indirect Costs, National Science Foundation, NSF Cost Analysis and Pre-Award Review Branch, 2415 Eisenhower Avenue, Alexandria, Virginia 22314.

E. Fee Payments under NSF Grants

Payment of fees (profit) is allowable only if expressly authorized by solicitation and the terms and conditions of the NSF award.

Chapter XI: Other Post Award Requirements and Considerations

A. Non-Discrimination Statutes and Regulations

1. General

a. A number of statutes prohibit NSF grantees from discriminating against individuals who participate in any of their programs, services, and activities. These statues include: Title VI of the Civil Rights Act of 1964 (prohibits discrimination on the basis of race, color, or national origin); Section 504 of the Rehabilitation Act of 1973 (prohibits discrimination on the basis of disability); Title IX of the Educational Amendments of 1972 (prohibits discrimination on the basis of sex in Federally assisted education programs or activities); and the Age Discrimination Act of 1975 (prohibits discrimination on the basis of age). In addition to statutory prohibitions, Executive Order (E.O.) 11246 bars various types of discriminatory employment practices under grants for construction, and E.O. 13166 "Improving Access to Services for Persons with Limited English Proficiency (LEP)" requires government agencies to take steps to provide meaningful access to its programs and activities to members of the public who are limited in their English proficiency, including recipients' programs and activities. The following sections discuss the application of each of these Statutes and E.O. 11246 and E.O. 13166 to NSF grantees.

b. When an NSF grantee receives a complaint alleging discrimination under any of these statutes and the complainant requests that NSF conduct the investigation, the original complaint is to be sent to the Director, Office of Diversity and Inclusion (ODI), National Science Foundation, 2415 Eisenhower Avenue, Alexandria, VA 22314 or email to ProgramComplaints@nsf.gov.

Information on the complaint process can be found at https://www.nsf.gov/od/odi/awardee_civil_rights/index.jsp. The complainant may also use the grantee's internal discrimination complaint process. Such processes are required for NSF grantees to implement under Title IX for sex discrimination complaints, including sexual harassment and under Section 504 for disability discrimination complaints. Grantees are prohibited by these regulations from engaging in acts of intimidation, coercion or retaliation against: a) any person who attempts to assert a right protected by these statutes and their implementing regulations; or b) cooperates in any part of NSF's review, investigation and compliance resolution or enforcement process.

c. NSF proposers and grantees are required under these regulations to keep records deemed pertinent to ascertain a grantee's compliance with these regulations. It also requires the grantee to submit to NSF timely, complete and accurate reports, and in such form and containing such information, as NSF may determine to be necessary to ascertain whether the grantee has complied or is complying with these regulations.

d. NSF proposers and grantees are advised that NSF may conduct pre-award and post-award compliance reviews to ensure that the grantee is complying with NSF's civil rights regulations. Grantees are required to provide NSF with access to information, records, grantee officials, grantee program participants, and facilities deemed pertinent by NSF to ascertain a grantee's compliance with these regulations.

e. NSF proposers and grantees are required under these regulations to make available to its participants, beneficiaries, and other interested persons, information regarding these regulations and their applicability to the program(s) under which the grantee receives Federal financial assistance from NSF. Proposers and grantees are also required to make such information available to these parties in such a manner as NSF finds necessary to apprise such persons of the protections against discrimination assured them by these regulations.

f. NSF proposers and grantees may contact ODI at the address in (b) above or at 1-703-292-8020 with any questions regarding these non-discrimination statutes and their implementing NSF regulations and their applicability to their institutions' programs, services and activities.

g. NSF Policy on Sexual Harassment, Other Forms of Harassment, or Sexual Assault

The National Science Foundation (NSF) will not tolerate sexual harassment, other forms of harassment, or sexual assault within the agency, at awardee organizations, or anywhere NSF-funded science and education are conducted.

As the primary funding agency of fundamental science and engineering research in the U.S., NSF is committed to promoting safe, productive research and education environments for current and future scientists and engineers. The Foundation considers the PI/PD and any co-PI/co-PDs(s) identified on an NSF award to be in positions of trust. The PI/PD and co-PI/co-PD and all award personnel must comport themselves in a responsible and accountable manner during the performance of award activities whether at the grantee organization, on-line, or conducted outside the organization, such as at field sites, or facilities, or during conferences and workshops.

The 3,000 U.S. institutions of higher education and other organizations that receive NSF funds are responsible for fully investigating complaints and for compliance with federal non-discrimination laws, regulations and executive orders.

In support of this position, the Foundation has taken steps to bolster our commitment to a safe research environment, including development and implementation of an award term and condition that requires NSF to be notified: 1) of any findings/determinations regarding the PI/PD or co-PI/co-PD that demonstrate a violation of awardee codes of conduct, policies, regulations or statutes relating to sexual harassment, other forms of harassment, or sexual assault; or 2) if the awardee places the PI/PD, or co-PI/co-PD on administrative leave or imposes an administrative action relating to a finding or investigation of a violation of awardee policies, codes of conduct, statutes or regulations relating to sexual harassment, other forms of harassment, or sexual assault. See Chapter VII.B.3 for additional information on the notification process.

NSF expects all research organizations to establish and maintain clear and unambiguous standards of behavior to ensure harassment-free workplaces wherever science is conducted. NSF has developed a sexual harassment website that includes promising practices on policies, effective codes of conduct and standards of behavior, as well as Frequently Asked Questions that respond to inquiries received on this complex topic.

A community effort is essential to eliminate sexual and other forms of harassment in science and to build scientific workspaces where people can learn, grow and thrive.

h. Grant Condition

Each NSF grant includes as part of the grant general terms and conditions an article that implements the notification requirements and harassment policy specified above.

2. Title VI of the Civil Rights Act of 1964

a. Background

Section 602 of the Civil Rights Act of 1964 (42 USC § 2000d, et seq.) provides that no person in the U.S. shall, on the grounds of race, color or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity receiving Federal financial assistance. Section 602 requires that each Government agency which is empowered to extend such financial assistance issue rules or regulations implementing Title VI with respect to such programs or activities administered by the agency.

b. NSF Regulations

NSF regulations implementing Title VI are found at 45 CFR § 611. These regulations apply to grantees, subrecipients and successors in interest. These regulations do not apply to contracts for commercially available materials and supplies, equipment or general support services.

c. Key Procedural and Programmatic Requirements

The procedures for ensuring NSF grantees' compliance with Title VI are found at 45 CFR §§ 611.6-11. These regulations provide for the compliance and investigative actions that NSF may initiate in order to ascertain grantees' compliance with Title VI. These regulations also provide for the enforcement procedures to compel grantee compliance with Title VI if a grantee refuses to take corrective action for violations found during an NSF complaint investigation or compliance review. NSF's Section 504, Title IX and Age Discrimination Act regulations incorporate by reference the Title VI compliance, investigative and enforcement procedures.

3. Section 504 of the Rehabilitation Act of 1973

a. Background

Section 504 of the Rehabilitation Act of 1973, as amended (29 USC § 794) provides that "no otherwise qualified individual with a disability in the United States...shall, solely by reason of her or his disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance...."

b. NSF Regulations

NSF regulations implementing Section 504 are found at 45 CFR § 605. With a few changes, these regulations mirror the regulations issued by the Department of Health and Human Services (DHHS) at 45 CFR § 84. These regulations also apply to subrecipients and successors in interest. These regulations do not apply to contracts for commercially available materials and supplies, equipment or general support services.

c. Key Procedural and Programmatic Requirements

NSF's Section 504 regulations, in addition to prohibiting discrimination on the basis of disability, requires NSF grantees to designate a Section 504 coordinator, publish and adopt procedures to investigate and adjudicate complaints of internally-filed disability discrimination complaints, and notify the public of its obligation to comply with Section 504. NSF's Section 504 regulation also requires NSF grantees to conduct a self-evaluation to determine the accessibility of its programs, services, activities and facilities, and implement modifications, implement corrective actions identified from the self-evaluation and conduct a transition plan to identify those physical elements of the NSF grantee's facilities that are inaccessible to individuals with disabilities and require retrofit. NSF's Section 504 regulations also require that all new construction and alterations to existing facilities are accessible to individuals with disabilities and meet current accessibility standards. See 45 CFR § 605 for all of the regulatory requirements for NSF grantees.

4. Title IX of the Education Amendments of 1972

a. Background

Subject to exceptions regarding admission policies at certain religious and military organizations, Title IX of the Education Amendments of 1972 (20 USC §§ 1681-1686) prohibits discrimination on the basis of sex in any education program or activity receiving Federal financial assistance.

b. NSF Regulations

NSF regulations implementing Title IX are found at 45 CFR § 618. All NSF grantees who provide or operate educational programs as defined in 45 CFR 618.105 must comply with Title IX. These regulations also apply to subrecipients and successors in interest who operate such educational programs. These regulations do not apply to contracts for commercially available materials and supplies, equipment or general support services.

c. Key Procedural and Programmatic Requirements

NSF's Title IX regulations, in addition to prohibiting discrimination on the basis of sex in education programs, requires NSF grantees to designate a Title IX coordinator, publish and adopt procedures to investigate and adjudicate complaints of internally-filed sex discrimination complaints, notify the public of its obligation to comply with Title IX, conduct a self-evaluation to determine whether its programs, services, activities and facilities comply with Title IX and implement corrective actions identified from the self-evaluation. See 45 CFR § 618 for all of the regulatory requirements for NSF grantees under Title IX.

5. Age Discrimination Act of 1975

a. Background

The Age Discrimination Act of 1975, as amended (42 USC § 6101 et seq.), provides that pursuant to regulations issued by DHHS "no person in the United States shall, on the basis of age, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under, any program or activity receiving Federal financial assistance."

b. NSF Regulations

NSF regulations implementing the Age Discrimination Act are found at 45 CFR § 617. These regulations also apply to subrecipients and successors in interest. These regulations do not apply to contracts for commercially available materials and supplies, equipment or general support services.

c. Key Procedural and Programmatic Requirements

NSF's Age Discrimination Act regulations, in addition to prohibiting discrimination on the basis of age in education programs, requires NSF grantees conduct a self-evaluation to determine each recipient shall identify all age distinctions it uses and justify each age distinction it imposes on the program or activity receiving Federal financial assistance from NSF. See 45 CFR § 617 for all of the regulatory requirements under the Age Discrimination Act for NSF grantees.

6. Equal Employment Opportunity under E.O. 11246

a. Background

E.O. 11246, as amended, requires contractors and subcontractors performing Federally assisted construction projects to provide equal opportunity, without regard to race, color, religion, sex or national origin, to persons employed or seeking employment with them. This E.O. may apply to some NSF grants for construction. E.O. 11246 is enforced by the U.S. Department of Labor's Office of Federal Contract Compliance Programs.

b. Grant Condition

In instances when E.O. 11246 is applicable, the grant will include an equal opportunity clause in conformance with regulations issued by the Secretary of Labor at 41 CFR § 60.

7. Limited English Proficiency under E.O. 13166

a. Background

E.O. 13166 requires Federal agencies and NSF grantees to take steps to provide meaningful access to its programs and activities to program participants who are limited English proficient (LEP). The failure to ensure that LEP persons can effectively participate in or benefit from Federally-assisted programs and activities may violate the prohibition under Title VI of the Civil Rights Act of 1964 and NSF's Title VI implementing regulations against national origin discrimination. The U.S. Department of Justice has published guidance to assist NSF grantees in their efforts to comply with Title VI when providing LEP individuals with access to recipient programs, services and activities.

b. Grant Condition

In instances when E.O. 13166 is applicable, NSF grantees should contact NSF's LEP Coordinator within the Office of Diversity and Inclusion for guidance at 2415 Eisenhower Avenue, Alexandria, VA 22314.

B. Protection of Living Organisms

1. Human Subjects

a. Background

The grantee is responsible for the protection of the rights and welfare of human subjects involved in activities supported by NSF. All research involving human subjects supported or otherwise subject to regulation by any Federal agency is covered by a policy set forth in the Common Rule, "Protection of Human Subjects" For projects lacking definite plans for the use of human subjects pursuant to 45 CFR § 690.118, NSF can accept a determination from an IRB that stipulates that no work with human subjects, including recruitment, may be conducted until full IRB approval is obtained. Complete instructions on preparation and submission of proposals that involve use of human subjects are available in Chapter II.D.5.

b. NSF Regulation

(i) NSF's Common Rule on Protection of Human Subjects is available on the NSF website at: https://www.nsf.gov/bfa/dias/policy/docs/45cfr690.pdf. Guidance about the regulation is available at: https://www.nsf.gov/bfa/dias/policy/human.jsp.

(ii) During the life of the grant, additional IRB approval must be obtained if the protocols for the use of human subject has been changed substantively from those originally proposed and approved. When an additional IRB approval is required, the organization must provide to the cognizant NSF Program Officer a signed copy of the new IRB approval letter indicating approval of the covered activities and explicitly referencing the title of the grant. In the event the grantee's FWA is canceled or lapses, the grantee must immediately notify the cognizant NSF Grants Officer identified in the grant.

(iii) Supplements to existing grant do not require a separate IRB approval letter. If the scope of the project has been substantively changed from the grant, however, a new signed IRB approval letter is required, indicating approval of the covered activities and explicitly referencing the title of the grant.

c. Grant Condition

Each NSF grant contains as part of the grant general terms and conditions, an article implementing NSF regulations on projects involving research with human subjects. In addition, each award notice contains the

following language relating to a grantee's responsibilities regarding the use of human subjects during the life of the grant:

> "It is the grantee's responsibility to ensure that any human subjects work conducted under this award has an Institutional Review Board (IRB) approval, where required, and that such approval remains valid at all times that human subjects work is conducted under the award. Failure to comply with this condition will result in suspension and/or termination of the award."

2. Research Involving Recombinant or Synthetic Nucleic Acid Molecules

a. Applicability

This section applies to all research, for which NSF grant funds are used, that falls within the scope of the Guidelines for Research Involving Recombinant DNA or Synthetic Nucleic Acid Molecules (NIH Guidelines) (http://oba.od.nih.gov/rdna/nih_guidelines_oba.html), as amended in March 2013, hereafter referred to as the "Guidelines".

b. Policy

NSF grantees performing research within the U.S. that falls within the scope of the Guidelines shall comply with the Guidelines, including the procedural requirements and any subsequent revisions as they are published in the Federal Register. Grantee responsibilities include:

(i) Each organization involved in the conduct of NSF-supported recombinant or synthetic nucleic acid research subject to the Guidelines must have a standing Institutional Biosafety Committee (IBC) as specified in Section IV of the Guidelines.

(ii) Recombinant or synthetic nucleic acid research subject to the Guidelines must be registered with the IBC indicating compliance with the containment requirements specified in Part III of the Guidelines. IBCs are required to keep records of recombinant or synthetic nucleic acid research conducted at their organization in a form that is available to NSF upon request.

c. Research Requiring Prior Approval

In certain instances, research should not be initiated or registered with IBCs prior to approval and determination of containment level by the Director, NIH. Normally such experiments are reviewed by the Recombinant DNA Advisory Committee before a decision is made by the Director, NIH. Such instances are:

(i) research for which containment levels are not explicitly specified by the Guidelines;

(ii) research involving experiments prohibited by the Guidelines, i.e., requests for exceptions to the Guidelines; and

(iii) requests to perform experiments without regard to the containment specified in the Guidelines, i.e., exemptions from the Guidelines.

3. Vertebrate Animals

a. Background

The grantee is responsible for the humane care and treatment of any vertebrate animal used or intended for use in such activities as field or laboratory research, development, training, experiments, biological testing or for related purposes supported by NSF grants.

b. Federal Regulations

(i) Any grantee performing research on vertebrate animals[61] shall comply with the Animal Welfare Act [7 USC 2131 et seq.] and the regulations promulgated thereunder by the Secretary of Agriculture [9 CFR 1.1-4.11] pertaining to the humane care, handling, and treatment of vertebrate animals held or used for research, teaching, or other activities supported by Federal awards. The grantee is expected to ensure that the guidelines described in the National Academies of Science, Engineering and Medicine (NASEM) Publication, "*Guide for the Care and Use of Laboratory Animals*" are followed and to comply with the *Public Health Service Policy and Government Principles Regarding the Care and Use of Animals* (included as Appendix D to the NAS Guide). Taxon-specific guidelines may be used as supplemental references.[62] Departures from the Guide must be approved by the Institutional Animal Care and Use Committee (IACUC) and based on scientific, veterinary, medical, or animal welfare issues (for more information, see OLAW-Departures from the Guide).

(ii) During the life of the award, additional IACUC approval must be obtained if the protocols for the care of use of vertebrate animals have been changed substantively from those originally proposed and approved. When an additional IACUC approval is required, the organization must provide to the cognizant NSF Program Officer a signed copy of a new IACUC approval letter indicating approval of the covered activities and explicitly referencing the title of the award. In the event the grantee's PHS Assurance is canceled or lapses, the grantee must immediately notify the cognizant NSF Grants Officer identified in the award.

(iii) Supplements to existing awards do not require a separate IACUC approval letter. If the scope of the project has been substantively changed from the parent award, however, a new signed IACUC approval letter is required.

(iv) Research facilities subject to the Animal Welfare Act using or intending to use live animals in research and who receive Federal funding are required to register the facility with the Animal and Plant Health Inspection Service (APHIS), U.S. Department of Agriculture. A current listing of licensed animal dealers may also be obtained from APHIS. The location of the nearest APHIS Regional Office, as well as information concerning this and other APHIS activities, may be obtained at: http://www.aphis.usda.gov/.

(v) Awards to U.S. grantees for projects involving the care or use of vertebrate animals at a foreign institution or foreign field site also require approval of research protocols by the U.S. grantee's IACUC. If the project is to be funded through a grant to a foreign institution or through an individual fellowship award that will support activities at a foreign institution, NSF will require a statement from the international organization explicitly listing the proposer's name and referencing the title of the award to confirm that activities will be conducted in accordance with all applicable laws in the foreign country and that the *International Guiding Principles for Biomedical Research Involving Animals* (see http://www.cioms.ch/) will be followed.

c. Grant Condition

Each NSF grant contains as part of the grant general terms and conditions, an article implementing NSF regulations on projects involving research with vertebrate animals. In addition, each award notice contains the following language relating to a grantee's responsibilities regarding the care or use of vertebrate animals during the life of the grant:

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[61] In addition to vertebrate animals covered by the Animal Welfare Act, the requirements specified in this coverage also are extended to rats, birds, and mice.

[62] Guidelines to the Use of Wild Birds in Research; Guidelines of the American Society of Mammalogists for the Use of Wild Mammals in Research; Guidelines for the Use of Fishes in Research; Guidelines for the Use of Live Amphibians and Reptiles in Field and Laboratory Research.

"It is the grantee's responsibility to ensure that any vertebrate animal work conducted under this award has an Institutional Animal Care and Use Committee (IACUC) approval, where required, and that such approval remains valid at all times that vertebrate animal work is conducted under the award. Failure to comply with this condition will result in suspension and/or termination of the award."

4. Government Permits and Activities Abroad

a. For awards that include activities requiring permits from appropriate Federal, State, or local government authorities, the grantee should obtain any required permits prior to undertaking the proposed activities.

b. The grantee should ensure that activities carried on outside the U.S. are coordinated as necessary with appropriate U.S. and foreign government authorities and that necessary licenses, permits or approvals are obtained prior to undertaking proposed activities. NSF does not assume responsibility for grantee compliance with the laws and regulations of the country in which the work is to be conducted.

5. Life Sciences Dual Use Research of Concern (DURC)

a. Applicability

This section applies to all research, for which NSF grant funds may be used, that potentially falls within the scope of the *U.S. Government Policy for Institutional Oversight of Life Sciences Dual Use Research of Concern* (http://www.phe.gov/s3/dualuse/Pages/default.aspx) as published in September 2014, hereafter referred to as the "Policy".

b. NSF Implementation of the Policy

NSF is committed to preserving the benefits of life sciences research while minimizing the risk of misuse of the knowledge, information, products, or technologies provided by such research. The purpose of NSF's implementation of this Policy is to clarify grantee expectations about NSF-funded research with certain high-consequence pathogens and toxins with potential to be considered dual use research of concern.

Grantees are responsible for monitoring the research progress and for implementation of all appropriate biosafety and biosecurity risk mitigation measures including compliance with all applicable laws and regulations related to that implementation, including the Policy specified above. While the White House Office of Science and Technology Policy has lifted the research funding pause on gain of function research as of January 2017 (https://www.phe.gov/s3/dualuse/Pages/GainOfFunction.aspx), NSF will not consider funding research that would lead to a gain of function for agents of concern.

C. Construction, Rearrangements and Reconversions

1. Davis-Bacon Act

The Davis-Bacon Act (40 USC §§ 276a et seq.) establishes minimum wages to be paid to laborers and mechanics on construction contracts to which the U.S. is a party involving public buildings or public works within the U.S. A number of other statutes have extended this provision to specific Federal grant programs involving construction. However, unless specifically stated in the grant, the Davis-Bacon Act does not normally apply to NSF grants since grantees normally retain title to property acquired under the grant and the construction, if any, is normally on non-Government land.

2. Bonding and Insurance

The NSF Act (42 USC § 1870c) provides NSF with authority to enter into grants, contracts or other agreements without performance or other bonds. Therefore, unless the grant specifically provides otherwise, NSF does not require performance or other bonds or insurance.

3. Seismic Safety of Buildings

E.O. 12699 *Seismic Safety of Federal and Federally-assisted or Regulated New Building Construction* dated January 5, 1990, requires that consideration be given to seismic hazards in the design of buildings. Very seldom are NSF grantees involved with Federally-assisted construction and rarely are new buildings involved. NSF ensures compliance with the Order through its grantees by inclusion of a specific grant condition in any appropriate grant.

D. Intellectual Property

1. Patents and Inventions

a. Background

(i) The disposition of rights to inventions made by small business firms, large business firms, and non-profit organizations, including universities and other institutions of higher education, during NSF-assisted research is governed by Chapter 18 of Title 35 of the USC, commonly called the Bayh-Dole Act and EO 12591, as amended by E.O. 12618. In accordance with a Presidential Memorandum entitled, *Government Patent Policy* issued on February 18, 1983 and under the authority of Section 12 of the National Science Foundation Act of 1950, as amended (42 USC § 1871), NSF applies the policies of the Bayh-Dole Act to all its grantees. The Department of Commerce (DOC) is the lead agency for implementing the Bayh-Dole Act and has published guidance to Federal agencies in 37 CFR § 401. This policy serves as NSF's implementation of 37 CFR § 401 and updates to incorporate changes effective May 14, 2018.

(ii) NSF's standard Patent Rights clauses are identical to that prescribed in the DOC guidance (37 CFR § 401.14) except for modifications and tailoring allowed pursuant to section 401.5 of the DOC guidance (37 CFR § 401.5):

(a) pursuant to section 401.5(c) of the DOC guidance (37 CFR § 401.5(c)), NSF has tailored the clause to apply to grants and to identify NSF;

(b) as permitted by Section 401.5(d) of the DOC guidance (37 CFR § 401.5(d)), NSF has added to paragraph b. of the clause a stipulation that NSF reserves the right to direct a grantee to transfer to a foreign government or research performer such rights to any subject invention as are required to comply with any international treaty or agreement identified when the grant is made as being applicable to the assisted research;

(c) as permitted by Section 401.5(f) of the DOC guidance (37 CFR § 401.5(f)), NSF has added a subparagraph to the end of paragraph f. of the clause to require grantees or their representatives to send NSF confirmations of the Government licenses for subject inventions and the page of any United States patent application that contains the Federal support clause;

(d) since NSF normally uses the same clause for all subrecipients, the first two subparagraphs of paragraph g. of the clause specified in the DOC guidance have been reduced to one;

(e) paragraph c.1 of the clause has been changed to require that invention disclosures be submitted electronically via the iEdison system;

(f) paragraph l. of the clause has been changed to require that all communications required by the Patents Rights clause be submitted electronically via the iEdison system unless prior permission is obtained from the NSF Patent Assistant; and

(g) in accordance with paragraph 401.5(g) of the DOC guidance (37 CFR § 401.5(g)), paragraph k.3 of the clause is substituted when the grant is made to a non-profit organization for the operation of a government-owned, contractor-operated facility.

b. National Science Foundation Patent Policy

As authorized by the NSB, the Director of NSF has adopted the following NSF patent policy:

In accordance with the Bayh-Dole Act and the Presidential Memorandum entitled Government Patent Policy issued February 18, 1983, NSF will use the Patent Rights clause prescribed by DOC at 37 CFR § 401.14 in all of its grants for the performance of experimental, developmental or research work, including grants made to foreign entities, with such modifications and tailoring allowed pursuant to section 401.5 of the DOC guidance (37 CFR § 401.5), unless NSF determines, consistent with sections 401.3(a)(2) and (a)(6) of the DOC guidance (37 CFR §§ 401.3(a)(2) and (a)(6)), that some other provision would better serve the purposes of that Act or the interests of the US and the general public.

c. Standard Patent Rights Clause

Each NSF grant contains as part of the grant general terms and conditions, an article implementing the standard patent rights clause.

d. Special patent provisions

(i) At the request of the prospective grantee, or on recommendation from the cognizant NSF Program Officer, the cognizant NSF Grants Officer may negotiate special patent provisions when it has been determined that exceptional circumstances require restriction or elimination of the right of a prospective grantee to retain title to any subject invention in order to better promote the policy and objectives of chapter 18 of title 35 of the United States Code or the National Science Foundation Act. The cognizant Grants Officer will prepare the written determination required by 37 CFR § 401.3(e) and ensure that appropriate reports are made to the Secretary of Commerce and Chief Counsel for Advocacy of the Small Business Administration as required in 37 CFR § 401.3(f). Unless doing so would be inconsistent with an obligation imposed on the Foundation by statute, international agreement, or pact with other participants in or supporters of the research, every special patent provision will allow the grantee, after an invention has been made, to request that it be allowed to retain principal rights to that invention in accordance procedures at D.1.j.(v) below.

(ii) If the grant is made to a non-profit organization and is for the operation of a government-owned, contractor-operated facility, the following will be substituted for the text of paragraph (k)(3) of the Patent Rights clause at 37 CFR § 401.14:

> After payment of patenting costs, licensing costs, payments to inventors, and other expenses incidental to the administration of subject inventions, the balance of any royalties or income earned and retained by the contractor during any fiscal year on subject inventions under this or any successor contract containing the same requirement, up to any amount equal to five percent of the budget of the facility for that fiscal year, shall be used by the contractor for scientific research, development, and education consistent with the research and development mission and objectives of the facility, including activities that increase the licensing potential of other inventions of the facility. If the balance exceeds five percent, 15 percent of the excess above five percent shall be paid by the contractor to the Treasury of the United States and the remaining 85 percent shall be used by the contractor only for the same purposes as described in the preceding sentence. To the

extent it provides the most effective technology transfer, the licensing of subject inventions shall be administered by contractor employees on location at the facility.

e. Grants Not Primarily for Research

(i) Grants not primarily intended to support scientific or engineering research are not required to contain a patent provision. Examples of such awards are travel and conference grants.

(ii) NSF fellowships and traineeships are primarily intended to support education or training, not particular research. Therefore, in accordance with section 212 of title 35 of the United States Code, the Foundation claims no rights to inventions made by fellows or trainees. The following provision will be included in each fellowship or traineeship program solicitation and made part of the award:

> **Intellectual Property Rights.** The National Science Foundation claims no rights to any inventions or writings that might result from its fellowship or traineeship awards. However, fellows and trainees should be aware that NSF, another Federal agency, or some private party may acquire such rights through other support for particular research. Also, fellows and trainees should note their obligation to include an Acknowledgment and Disclaimer in any publication.

f. Grants affected by International Agreements

(i) Some NSF awards are made as part of international cooperative research programs. The agreements or treaties underlying many of these programs require an allocation of patent rights different from that provided by the Patent Rights clause in 37 CFR § 401.14. Therefore, as permitted by 37 CFR § 401.5(d), paragraph b. of the standard Patent Rights clause has been modified to provide that the Foundation may require the grantee to transfer to a foreign government or research performer such rights in any subject invention as are contemplated in the international agreement. The grant must identify the applicable agreement or treaty.

(ii) After an invention is disclosed to the NSF Patent Assistant, the recipient of a grant subject to an international agreement will be informed as to what rights, if any, it must transfer to the foreign participants. Grantees also may request the cognizant NSF Program Officer to provide them with copies of the identified international agreements before or after accepting the grant.

g. Retention of Rights by the Inventor

If a grantee elects not to retain rights to an invention, the inventor may request prior written approval from the NSF Patent Assistant to retain principal patent rights. Such requests should be made as soon as possible after the grantee notifies the NSF Patent Assistant that it does not intend to patent the invention. Such requests will normally be granted unless either the grantee or the employer of the inventor shows that it would be harmed by that action. As required by 37 CFR § 401.9, the inventor will be subject to the same conditions that would have been applied to the grantee, except that the special restrictions imposed on nonprofit organizations will not apply to the inventor. For purposes of this part, the term “inventor” means the individual(s) identified by the grantee as inventors when submitting an invention report to NSF in accordance with 37 CFR § 401.14(c)(1).

h. Unwanted Inventions

(i) The Foundation will normally allow any patent rights not wanted by the grantee or inventor to be dedicated to the public through publication in scientific and engineering journals or, as a statutory invention registration under section 157 of title 35 of the USC. Except as provided in paragraph (ii) of this section, the NSF Patent Assistant will acknowledge a negative election by encouraging the grantee and inventor to promptly make all research results available to the scientific and engineering community.

(ii) If the NSF Patent Assistant believes that another Federal agency is interested in the relevant technology, the NSF Patent Assistant may, after receiving the awardee's election not to patent and ascertaining that the inventor also does not want to patent, send a copy of the invention disclosure to that agency to give it an opportunity to review and patent the invention. Unless the agency expresses an interest in the invention within thirty days, the NSF Patent Assistant will acknowledge the awardee's negative election by encouraging prompt publication of all research results. If the agency does express an interest in patenting the invention, the NSF Patent Assistant will transfer to it all rights to the invention.

i. Inventions also supported by another Federal Agency

37 CFR § 401.13(a) provides that in the event that an invention is made under awards made by more than one federal agency, the agencies involved will, at the request of the grantee or on their own initiative, designate one agency to be responsible for the administration of the invention. Whenever the NSF Patent Assistant finds that another agency also supported an NSF subject invention, the NSF Patent Assistant will consult with the grantee and appropriate personnel in the other agency to determine if a single agency should be designated to administer the Government's rights in the invention. The NSF Patent Assistant may transfer to, or accept from, any other Federal agency, responsibility for administering a jointly-supported invention.

j. Waivers and Approvals

(i) Requests for extension of time to disclose to the NSF Patent Assistant, make an election to retain title to, or file a patent on a subject invention will be granted by the NSF Patent Assistant unless it is determined that such an extension would either imperil the securing of valid patent protection or unacceptably restrict the publication of the results of the NSF-supported research.

(ii) Approval of assignments by nonprofit organizations (required by subparagraph (k)(1) of the Patent Rights clause in 37 CFR § 401.14) will be granted by the NSF Patent Assistant unless it is determined that the interests of the United States Government will be adversely affected by such assignment.

(iii) Approval of long-term exclusive licensing of NSF-assisted inventions by nonprofit organizations will be granted by the NSF Patent Assistant unless it is determined that the interests of the United States Government will be adversely affected by such waiver.

(iv) The preference for United States industry imposed by paragraph (i) of the Patent Rights clause in 37 CFR § 401.14 may be waived by the NSF Patent Assistant as provided in that paragraph.

(v) Special restrictions on or limitation of the right of a grantee to retain title to subject inventions imposed under paragraph d. of this policy may be waived by the cognizant Grants Officer whenever it is determined, after consultation with the cognizant Program Officer, that the reasons for imposing the restrictions or limitations do not require their application to a particular invention.

(vi) Requests under paragraph (i) of this section for extensions of time to disclose, elect, or file may be made through the iEdison Invention Information Management System. A written request for extension of time to disclose, elect, or file can be assumed to have been approved unless the NSF Patent Assistant replies negatively within ten business days of the date such request was made. Requests for approvals or waivers under paragraphs (ii), (iii), (iv), and (v) of this section must be in writing and should explain why an approval or waiver is justified under the stated criteria. The requester will be provided a written explanation of the reasons for denial of a request covered by this section.

k. Small Business Preference

Small business firms that believe a nonprofit organization is not meeting its obligations under paragraph (k)(4) of 37 CFR § 401.14 may report their concerns to the NSF Office of Small and Disadvantaged Business Utilization. Requests should be in writing and provide the reasons for such concerns.

l. Exercise of march-in rights

(i) The procedures established by this section supplement those prescribed by 37 CFR § 401.6 and apply to all march-in rights held by NSF including those resulting from funding agreements not covered by the Bayh-Dole Act.

(ii) Petitions requesting that NSF exercise a march-in right should be addressed to the NSF Patent Assistant. Such petitions should:

(a) identify the patent or patent application involved and the relevant fields of use of the invention;

(b) state the grounds for the proposed march-in;

(c) supply evidence that one or more of the four conditions creating a march-in right (lack of practical application, unsatisfied health or safety needs, unmet requirements for public use, or failure to prefer U.S. industry) is present; and

(d) explain what action by the Foundation is necessary to correct that condition.

(iii) If evidence received from a petitioner or from the Foundation's administration of the Patent Rights clause indicates that one or more of the four conditions creating a march-in right might exist, the NSF Patent Assistant will informally review the matter as provided in 37 CFR § 401.6(b) of the DOC implementing regulation. If that informal review indicates that one or more of the four conditions creating a march-in right probably exists, the NSF Patent Assistant will initiate a formal march-in proceeding by issuing a written notice to the patent holder. That notice will provide all the information required by 37 CFR § 401.6(c) of the DOC implementing regulation. The patent holder may submit information and argument in opposition to the proposed march-in in person, in writing, or through a representative.

(iv) If the NSF Patent Assistant determines that a genuine dispute over material facts exists, the disputed facts will be identified, and the NSF General Counsel will be notified. The NSF General Counsel will create a cross-directorate fact-finding panel, which will establish its own fact-finding procedures within the requirements of 37 CFR § 401.6(e) of the DOC implementing regulation based on the dimensions of the particular dispute. The NSF Patent Assistant will serve as secretary to the panel but will not take part in its deliberations. Written findings of facts will be submitted to the NSF General Counsel, sent by certified mail to the patent holder, and made available to all other interested parties.

(v) The NSF General Counsel will determine whether and how the Foundation should exercise a march-in right as provided in 37 CFR § 401.6(g).

m. Request for conveyance of title to NSF

(i) The procedures established by this section apply to the exercise of the Foundation's right under paragraph (d) of the Patent Rights clause in 37 CFR § 401.14 to request conveyance of title to a subject invention if certain conditions exist.

(ii) The NSF Patent Assistant may request the grantee to convey to the Foundation or a designee title in one or more countries to any invention to which the grantee has elected not to retain title. The NSF Patent Assistant may request immediate conveyance of title to a subject invention if the grantee fails: (1)

to submit a timely invention disclosure; (2) to make a timely election to retain patent rights; or (3) to file a timely patent application; but only if it is determined that such action is required to preserve patent rights.

(iii) The NSF Patent Assistant will informally review any apparent failure by an awardee to comply with the requirements of paragraph (c) of the Patent Rights clause in 37 CFR § 401.14. The interested organization, the inventor, the patent holder, and any other interested party will be given an opportunity to explain why a particular invention was not disclosed, why an election was not made, or why a patent application was not filed. If the NSF Patent Assistant determines that a genuine dispute over material facts exists, a cross-directorate fact-finding panel will be appointed by the NSF General Counsel. The panel will establish its own fact-finding procedures based on the dimensions of the particular dispute. Written findings of facts will be submitted to the NSF General Counsel, sent by certified mail to the patent holder, and made available to all other interested parties.

(iv) The NSF General Counsel will determine whether the Foundation should request conveyance of title or if it should retain title obtained under section m. (ii) above.

n. Appeals

(i) All actions by the NSF Patent Assistant under section XI.D.1.g denying an inventor's request to retain rights to a subject invention, under XI.D.1.j denying a request for waiver, or under XI.D.1.m(iv) denying the existence of a material dispute may be appealed to the NSF General Counsel by an affected party within thirty days. A request under XI.D.1.m.(ii) to immediately convey title to the Foundation may be appealed to the Director, Division of Grants and Agreements (DGA) by the title holder within five days.

(ii) All actions by a cognizant Grants Officer refusing to eliminate restrictions on or limitation of the right of a grantee to retain title to subject inventions imposed under XI.D.d. of this policy may be appealed to the Director, Division of Acquisition and Cooperative Support (DACS) by an affected party within thirty days.

(iii) A decision by the NSF General Counsel to exercise a march-in right or to request conveyance of title may be appealed by the patent holder or any affected licensee to the NSF Deputy Director within thirty days. When a march-in was initiated in response to a petition, the NSF General Counsel's decision not to exercise a march-in right or to exercise it in a manner different from that requested in the petition may be appealed by the petitioner to the NSF Deputy Director within thirty days.

(iv) In reviewing the actions of the NSF Patent Assistant, a Grants Officer, or the NSF General Counsel, the DACS Division Director or NSF Deputy Director will consider both the factual and legal basis for the action or determination and its consistency with the policies and objectives of the Foundation and, if applicable, the Bayh-Dole Act (35 USC 200-212) and the DOC implementing regulation at part 401 of title 37 of the Code of Federal Regulations.

o. Background rights

The Foundation will acquire rights to a research performer's pre-existing technology only in exceptional circumstances where, due to the nature of the research being supported, the Foundation requires greater control over resulting inventions. The cognizant NSF Grants Officer, with concurrence of the cognizant Program Officer, will negotiate a background rights provision. If the affected grantee is a small business firm or nonprofit organization, the provision will conform to the requirements of the Bayh-Dole Act (35 USC 202(f)) as implemented by 37 CFR 401.12).

p. Subawards

As provided in paragraph (g) of the Patent Rights clause in 37 CFR § 401.14, grantees should normally use that clause in all subawards. At the request of the awardee or subrecipient or on recommendation from NSF staff, the cognizant Grants Officer may direct the awardee to insert into subawards relating to scientific research a special patent provision negotiated under section XI.D.1.d(i).

q. Utilization reports

Paragraph (h) of the standard Patent Rights clause set forth in 37 CFR § 401.14 obliges grantees "to submit on request periodic reports no more frequently than annually on the utilization of a subject invention or on efforts at obtaining such utilization". At this time, the Foundation does not plan to request such reports of all grantees except in connection with march-in investigations conducted under XI.D.1.l. or other circumstances requiring such reports as determined by the NSF Patent Assistant. This section will be amended to describe periodic reporting requirements if such are ever established.

r. Delegation of authority

The NSF General Counsel is responsible for implementing the NSF Patent Policy and is authorized to make any exceptions to or extensions of the NSF Patent Policy as may be required by particular circumstances. The NSF General Counsel will designate the NSF Patent Assistant and that individual is authorized to carry out the functions assigned.

s. Electronic Invention Handling

Grantees are required to use the iEdison System to disclose NSF subject inventions. Detailed instructions for use of that system are provided at: http:edison.gov and should be followed for NSF subject inventions except that:

(i) All communications required must be provided electronically as a pdf or TIFF file through iEdison unless prior permission for another form of submission is obtained from the NSF Patent Assistant.

(ii) NSF does not require either an Annual Utilization Report or a Final Invention Statement and Certification.

Questions on use of iEdison and requests for permission to submit material in other forms may be sent to the NSF Patent Assistant at: patents@nsf.gov, or at the Office of the General Counsel, National Science Foundation, 2415 Eisenhower Avenue, Alexandria, Virginia 22314.

2. Copyright

a. Rights to Copyrighted Material

The following principles governing the treatment of copyrighted material produced under NSF grants were adopted by the NSB.

(i) NSF normally will acquire only such rights to copyrighted material as are needed to achieve its purposes or to comply with the requirements of any applicable government-wide policy or international agreement.

(ii) To preserve incentives for private dissemination and development, NSF normally will not restrict, or take any part of income earned from, copyrighted material except as necessary to comply with the requirements of any applicable government-wide policy or international agreement.

(iii) In exceptional circumstances, NSF may restrict or eliminate a grantee's control of NSF-supported copyrighted material and of income earned from it, if NSF determines that this would best serve the purposes of a particular program or grant.

b. Standard Copyrighted Material Clause

Unless a special clause has been negotiated, each NSF grant that relates to scientific or engineering research contains as part of the grant general terms and conditions, an article implementing the standard copyrighted material requirements.

c. Public Access to Copyrighted Material

NSF's policy on public access to copyrighted material (Public Access Policy) reflects the Foundation's commitment to making certain that, to the extent possible, the American public, industry and the scientific community have access to the results of Federally funded scientific research. Pursuant to this policy, grantees must ensure that articles in peer-reviewed scholarly journals and papers in juried conference proceedings:

- are deposited in a public access compliant repository (as identified in the Public Access Policy);
- are available for download, reading, and analysis within 12 months of publication;
- possess a minimum set of machine-readable metadata elements as described in the Public Access Policy; and
- are reported in annual and final reports with a persistent identifier.

Either the final printed version or the final peer-reviewed manuscript is acceptable for deposit. NSF's Public Access Policy applies to awards, funded in whole or in part, as a result of proposals submitted, or due, on or after January 25, 2016. NSF's Public Access Policy may be viewed at: http://www.nsf.gov/news/special_reports/public_access/index.jsp.

Each NSF grant contains as part of the grant general terms and conditions, an article implementing the public access requirements.

3. Special Patent and Copyright Situations

a. Special Grant Provisions

At the request of the prospective grantee or on recommendation from NSF staff, the cognizant NSF Grants Officer, with the concurrence of the cognizant NSF Program Officer, may negotiate special patent or copyright provisions when he/she determines that exceptional circumstances require restriction or elimination of the right of a prospective grantee to control principal rights to subject inventions or writings in order to better achieve the objectives of the program, the National Science Foundation Act, or (in the case of inventions) Chapter 18 of Title 35 of the USC. Every special copyright or patent provision will allow the grantee, after an invention has been made or copyrighted material created, to request that it be allowed to retain principal rights to that invention or material, unless doing so would be inconsistent with an obligation imposed on NSF by statute, international agreement or pact with other participants in, or supporters of, the research.

b. Grants Not Primarily for Research

(i) Grants not primarily intended to support scientific or engineering research generally do not contain patent or copyrighted material provisions. Examples of such grants are travel, conference and equipment grants.

(ii) NSF Fellowships and Traineeships. In accordance with Section 212 of Title 35 of the USC, NSF claims no rights to inventions made by fellows or trainees. The following provision will be included in each fellowship or traineeship program solicitation and made part of the grant:

INTELLECTUAL PROPERTY RIGHTS

The National Science Foundation claims no rights to any inventions or writings that might result from its fellowship or traineeship grants. However, fellows and trainees should be aware that the NSF, another Federal agency, or some private party may acquire such rights through other support for particular research. Also, fellows and trainees should note their obligation to include an Acknowledgment and Disclaimer in any publication.

[END OF PROVISION]

c. Grants Affected by International Agreements

(i) Many of the bilateral and multilateral treaties and agreements underlying NSF's international cooperative research programs contain provisions on allocation of rights to inventions or writings. These sometimes require an allocation of rights different from that provided by the standard Copyrighted Material or Patent Rights clauses. In those cases, the standard clauses will be modified through the addition of the following to the grant:

"This project is supported under the cooperative program listed below. Your rights in inventions, writings, and data may be affected."

The applicable agreement or treaty will be identified immediately beneath that sentence.

(ii) After an invention is disclosed to the NSF Patent Assistant, the recipient of a grant subject to an international agreement will be informed as to what rights, if any, it must transfer to foreign participants. Grantees also may ask the NSF Program Officer for copies of the identified international agreement before or after accepting a grant.

4. Dissemination and Sharing of Research Results

a. Investigators are expected to promptly prepare and submit for publication, with authorship that accurately reflects the contributions of those involved, all significant findings from work conducted under NSF grants. Grantees are expected to permit and encourage such publication by those actually performing that work, unless a grantee intends to publish or disseminate such findings itself.

b. Investigators are expected to share with other researchers, at no more than incremental cost and within a reasonable time, the primary data, samples, physical collections and other supporting materials created or gathered in the course of work under NSF grants. Grantees are expected to encourage and facilitate such sharing. Privileged or confidential information should be released only in a form that protects the privacy of individuals and subjects involved. General adjustments and, where essential, exceptions to this sharing expectation may be specified by the funding NSF Program or Division/Office for a particular field or discipline to safeguard the rights of individuals and subjects, the validity of results, or the integrity of collections or to accommodate the legitimate interest of investigators. A grantee or investigator also may request a particular adjustment or exception from the cognizant NSF Program Officer.

c. Investigators and grantees are encouraged to share software and inventions created under the grant or otherwise make them or their products widely available and usable.

d. NSF normally allows grantees to retain principal legal rights to intellectual property developed under NSF grants to provide incentives for development and dissemination of inventions, software and publications that can enhance their usefulness, accessibility and upkeep. Such incentives do not, however, reduce the responsibility that investigators and organizations have as members of the scientific and engineering community, to make results, data and collections available to other researchers.

e. NSF program management will implement these policies for dissemination and sharing of research results, in a way appropriate to field and circumstances, through the proposal review process; through award negotiations and grant conditions; and through appropriate support and incentives for data cleanup, documentation, dissemination, storage and the like.

(f) Each NSF grant contains, as part of the grant general terms and conditions, an article implementing dissemination and sharing of research results.

5. Tangible Property

a. Background

Some NSF grants support collection or creation of tangible property, such as insects, marine life, drilling core samples and genetically-altered microorganisms. As used in this section "tangible property" means any personal property other than equipment (see Chapter II.C.2.g.(iii)), and intellectual property.

b. Legal Rights to Tangible Property

Unless otherwise provided in the grant, all legal rights to tangible property collected or created during NSF-assisted research remain with the grantee or investigators as determined by the policies of the organization. As members of the scientific and engineering community, both grantees and investigators are responsible for making such tangible property appropriately available to other researchers.

E. Publication/Distribution of Grant Materials

1. NSF Policy

NSF advocates and encourages open scientific and engineering communication. NSF expects significant findings from research it supports to be promptly submitted for publication, with authorship that accurately reflects the contributions of those involved. Copyrighted material published in peer-reviewed scholarly journals and papers included in juried conference proceedings must comply with NSF's Public Access Policy as implemented in the grant general terms and conditions.

2. Costs

Cost of documenting, preparing, publishing, disseminating and sharing research findings and supporting material are allowable charges against the grant. (See Chapter X.A.2.c.)

3. Responsibilities

Unless otherwise provided in the grant, preparation, content, editing, identification of authorship and submission for publication of significant research findings are the responsibility of the investigators, consistent with such policies and procedures as the grantee may prescribe.

4. Grantee Obligations

a. Acknowledgement of Support. Unless otherwise provided in the grant, the grantee is responsible for assuring that an acknowledgment of NSF support is made:

(i) in any publication (including web pages) of any material based on or developed under this project; and

(ii) NSF support also must be orally acknowledged during all news media interviews, including popular media such as radio, television and news magazines.

b. Disclaimer. The grantee is responsible for assuring that every publication of material (including web pages) based on or developed under an NSF award, except scientific articles or papers appearing in scientific, technical or professional journals, contains a disclaimer that specifies that the opinions, findings, and conclusions or recommendations expressed are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

c. Copies for NSF. The grantee is responsible for assuring that the cognizant NSF Program Officer is provided access to, either electronically or in paper form, a copy of every publication of material based on or developed under this award, clearly labeled with the award number and other appropriate identifying information, promptly after publication.

d. Compliance with NSF Public Access Policy. The grantee is responsible for ensuring that copyrighted material published in peer-reviewed scholarly journals and papers in juried conference proceedings are accessible to the public in accordance with the grant general terms and conditions.

e. Grantees also should note their obligations in regard to copyrights (see Chapter XI.D.2) and their responsibilities as members of the scientific and engineering community to disseminate and share research results (see Chapter XI.D.4).

f. Each NSF grant contains as part of the grant general terms and conditions, an article implementing the grantee obligations regarding the acknowledgement of support and disclaimer.

F. International Considerations

1. Travel to Foreign Countries

a. Policy

(i) Expenses for transportation, lodging, subsistence and related items incurred by project personnel and by outside consultants employed on the project, (see Chapter II.C.2.g.(iv)) who are on travel status on business related to an NSF-supported project are allowable as prescribed in the governing OMB cost principles.

(ii) Except as provided in the governing OMB cost principles, the difference between economy airfare and a higher-class airfare is unallowable. A train, bus or other surface carrier may be used in lieu of, or as a supplement to, air travel at the lowest first-class rate by the transportation facility used. If such travel, however, could have been performed by air, the allowance will not normally exceed that for jet economy airfare.

(iii) Support for the foreign travel of an investigator's dependents is allowable only under the conditions identified in Chapter X.C.5.

b. Use of U.S.-Flag Air Carriers

(i) In accordance with the Fly America Act (49 USC 40118), any air transportation to, from, between, or within a country other than the U.S. of persons or property, the expense of which will be assisted by NSF funding, must be performed by or under a code-sharing arrangement with a U.S.-flag air carrier if service provided by such a carrier is available (see Comptroller General Decision B-240956, dated September 25, 1991). Tickets (or documentation for electronic tickets) must identify the U.S. flag air carrier's designator code and flight number.

(ii) For the purposes of this requirement, U.S.-flag air carrier service is considered available even though:

(a) comparable or a different kind of service can be provided at less cost by a foreign-flag air carrier;

(b) foreign-flag air carrier service is preferred by, or is more convenient for, NSF or traveler; or

(c) service by a foreign-flag air carrier can be paid for in excess foreign currency.

(iii) The following rules apply unless their application would result in the first or last leg of travel from or to the U.S. being performed by a foreign-flag air carrier:

(a) a U.S.-flag air carrier shall be used to destination or, in the absence of direct or through service, to the farthest interchange point on a usually traveled route.

(b) if a U.S.-flag air carrier does not serve an origin or interchange point, a foreign-flag air carrier shall be used only to the nearest interchange point on a usually traveled route to connect with a U.S. flag air carrier.

c. Use of Foreign-Flag Air Carriers

There are certain circumstances under which use of a foreign-flag air carrier is permissible. These circumstances are outlined below:

(i) Airline "Open Skies" Agreement*:*

A foreign-flag air carrier may be used if the transportation is provided under an air transportation agreement between the United States and a foreign government, which the Department of Transportation has determined meets the requirements of the Fly America Act. For information on "Open Skies" agreements in which the United States has entered, please refer to the GSA website at: http://www.gsa.gov/portal/content/103191.

Note on U.S./European Union Open Skies Agreement

In 2007, the U.S. entered into an “Open Skies” Agreement with the European Union (EU). This agreement was modified in June 2010. The current Agreement gives European Community airlines (airlines of Member States) the right to transport passengers and cargo on flights funded by the U.S. government, when the transportation is between: (1) any two points outside the United States; or (2) a point in the United States and any point outside the United States that the EU airline is authorized to serve under the “Open Skies” Agreement.

In 2011, two significant changes were made to the U.S./EU Open Skies Agreement. First, EU airlines are now granted the right to transport civilian agency-funded passengers who are NOT eligible to travel on GSA Airline City Pair Contract fares (e.g., grantees) between a point in the United States and a point outside the United States even if there is a GSA Airline City Pair Contract fare in effect between the origin and destination points. An individual, however, who is traveling on a route for which there is a City Pair Contract fare in effect, *and who is eligible for such a fare* (e.g., Federal employee), are required to fly on a U.S. carrier, absent another applicable exception.

Second, under the amended Agreement, EU airlines are now authorized to transport passengers between points in the United States and points outside the EU if the EU airline is authorized to serve the route under the Agreement. This includes flights that originate, arrive, or stop in the EU. Prior to this change, EU airlines were limited to flying passengers between points in the U.S. and points in the EU.

(ii) Involuntary Rerouting

Travel on a foreign-flag carrier is permitted if a U.S.-flag air carrier involuntarily reroutes the traveler via a foreign-flag air carrier, notwithstanding the availability of alternative U.S.-flag air carrier service.

(iii) Travel To and From the U.S. on non-European Community Airlines

Use of a non-European Community foreign-flag air carrier is permissible if the airport abroad is:

(a) the traveler's origin or destination airport, and use of U.S.-flag air carrier service would extend the time in a travel status by at least 24 hours more than travel by a foreign-flag air carrier; or

(b) an interchange point, and use of U.S.-flag air carrier service would increase the number of aircraft changes the traveler must make outside of the U.S. by two or more, would require the traveler to wait four hours or more to make connections at that point, or would extend the time in a travel status by at least six hours more than travel by a foreign-flag air carrier.

(iv) Travel Between Points Outside the U.S. on non-European Community Airlines

Use of a non-European Community foreign-flag air carrier is permissible if:

(a) travel by a foreign-flag air carrier would eliminate two or more aircraft changes en route;

(b) travel by a U.S.-flag air carrier would require a connecting time of four hours or more at an overseas interchange point; or

(c) the travel is not part of the trip to or from the U.S. and use of a U.S.-flag air carrier would extend the time in a travel status by at least six hours more than travel by a foreign-flag air carrier.

(v) Short Distance Travel

For all short distance travel, regardless of origin and destination, use of a foreign-flag air carrier is permissible if the elapsed travel time on a scheduled flight from origin to destination airport by a foreign-flag air carrier is three hours or less and service by a U.S.-flag air carrier would double the travel time.

2. Charter Flights

Because of the risk of catastrophic loss, NSF does not encourage the use of charter flights as a means of mass transportation for groups of scientists and engineers nor does it make arrangements for purchase of charter flight airline tickets.

3. Projects in a Foreign Country

a. For awards that include activities requiring permits from appropriate Federal, State, or local government authorities, the grantee should obtain any required permits prior to undertaking the proposed activities.

b. The grantee must comply with the laws and regulations of any foreign country in which research is to be conducted. Areas of potential concern include: (1) requirements for advance approval to conduct research or surveys; (2) special arrangements for the participation of foreign scientists and engineers; and (3) special visas for persons engaged in research or studies. NSF does not assume responsibility for grantee compliance with the laws and regulations of the country in which the work is to be conducted.

c. The grantee also should assure that activities carried on outside the U.S. are coordinated as necessary with appropriate U.S. and foreign government authorities and that necessary licenses, permits or approvals are obtained prior to undertaking the proposed activities.

4. Passports and Visas

NSF assumes no responsibility for securing passports or visas required by any person because of participation in an NSF-supported project. For restrictions concerning directly charging visa costs to an NSF award, see 2 CFR § 200.463.

It should be noted that some countries that normally do not require visas for tourists do require special visas for scientists and engineers engaged in research or studies.

G. Intergovernmental Review of Federal Programs

The Foundation's regulation on Intergovernmental Review of National Science Foundation Programs and Activities is published in 45 CFR Part 660.

H. Handling of Information

1. Questionnaires: Data Collection Under NSF Grants

a. Paperwork Control

Under the OMB regulation, *Controlling Paperwork Burdens on the Public* (5 CFR § 1320), if a grantee obtains information from ten or more persons by means of identical questions, it is considered to be "sponsored" by NSF only if:

(i) the grantee is collecting the information at the specific request of NSF; or

(ii) the terms of the grant require specific approval by NSF of the collection or its procedures.

If either of these conditions is met, OMB approval of the data collection is generally required, and grantees should obtain the necessary control number from the cognizant NSF Program Officer.

b. NSF Policy

Data collection activities of NSF grantees are the responsibility of grantees, and NSF support of a project does not constitute NSF approval of the survey design, questionnaire content or data collection procedures. No representation may be made to respondents that such data are being collected for, or in association with, NSF or the government. However, this requirement is not intended to preclude mention of NSF support of the project in response to an inquiry or acknowledgment of such support in any publication of this data (see Chapter XI.E.4).

2. Release of Information by NSF

a. Press Releases

Grants for projects which appear to be of special interest to the general public may be made the subject of an NSF or joint NSF/grantee press release to the news media. (See Chapter X.C.2.)

b. Open Government Legislation

(i) Pursuant to the Freedom of Information Act (FOIA) (5 USC § 552), NSF will provide agency records, with certain exceptions, if the request is in writing, includes the requester's name and mailing address, is clearly identified as a FOIA request, and describes the records sought with sufficient specificity to permit identification. The requester also must agree to pay fees that are chargeable under the NSF regulations. Detailed procedures are contained in 45 CFR § 612. Further information is available at: http://www.nsf.gov/policies/foia.jsp.

(ii) The Government in the Sunshine Act (5 USC § 552b) requires that all meetings of the NSB be open to public observation unless the subject falls within one of ten exemptions. NSF's Sunshine Act regulations are contained in 45 CFR § 614. The Sunshine Act and the FOIA cited above, may require NSF to release to the public information, correspondence and documents received by NSF from grantees, unless they fall within the Acts' limited exceptions.

c. Release of Project Reports

NSF expects significant findings from research it supports to be promptly submitted for publication. To the extent permitted by law, NSF will honor requests from grantees that release of Annual and Final Project Reports be delayed to permit orderly dissemination of significant findings through refereed channels. Unless such a request is received, or material is marked as proprietary, such reports may be made available to others without notice to the grantee. Information, the disclosure of which might invade personal privacy, will be redacted before release.

I. Tax Status

Determination of the tax status of an organization or person receiving compensation in any form as a result of an NSF grant is the responsibility of the IRS, State and local tax authorities and the courts.

J. Protection of Properties in the National Register of Historic Places

NSF is required by 16 USC § 470f to take into account the effect of grant activities on properties included in the National Register of Historic Places. Occasionally, an NSF grant may involve activities that require mitigation or other actions under the National Historic Preservation Act and implementing regulations of the Advisory Council on Historic Preservation (36 CFR § 800). In such cases, as deemed appropriate by NSF, conditions executing the goals of the National Historic Preservation Act may be included in the grant and grantees or prospective grantees may be required to coordinate with State or local historical preservation officers.

K. Environmental Compliance

Prior to making an award, NSF considers the anticipated environmental impacts associated with the activities described in the proposal. The assessment of environmental impacts is based, in part, on information provided by the organization. If, while performing the work required by the grant, the grantee learns of any potential or actual unanticipated environmental impacts, the grantee shall immediately notify NSF of such impacts. The grantee also shall cease all work anticipated to cause or causing such unanticipated environmental impacts until NSF has had a reasonable opportunity to assess the situation, comply with all relevant environmental laws, and provide further direction to the grantee.

L. National Security

NSF grants are intended for unclassified, publicly releasable research. The grantee will not be granted access to classified information. NSF does not expect that the results of the research project will involve classified information.

If, however, in conducting the activities supported under a grant, the PI/PD is concerned that any of the research results involve potentially classifiable information that may warrant Government restrictions on the dissemination of the results, the PI/PD should promptly notify the cognizant NSF Program Officer.

M. Miscellaneous

1. Liabilities and Losses

NSF cannot assume any liability for accidents, bodily injury, illness, breach of contract, any other damages or loss, or any claims arising out of any activities undertaken pursuant to the grant, whether with respect to persons or property of the grantee or third parties. The grantee is advised to insure or otherwise protect itself or others, as it may deem desirable.

2. Pre-College Students and Experimental Curriculum Development Projects

As required by 42 USC § 1869 a and b, grantees of projects which involve pre-college students in research or development, or pilot-testing, evaluation or revision of, experimental or innovative curriculum development projects will:

a. provide to the school board, or comparable authority responsible for the schools considering participation in the project, information concerning the need for and purposes of, the particular education project, the proposed content of the material to be used, the expected benefits to be derived and other information to assist the jurisdiction in arriving at a decision on participation;

b. obtain written approval for participation in the project activities after the responsible authority has carried out its procedures;

c. provide information and materials to the responsible school authority to assist it in carrying out its own established procedures regarding the participation of students in project activities;

d. provide information to NSF describing compliance with the above provisions; and

e. provide in every publication, testing or distribution agreement involving instructional material developed under a grant (including but not limited to teacher's manuals, textbooks, films, tapes or other supplementary material) that such material will be made available within the school district using such material, for inspection by parents or guardians of children engaged in educational programs or projects of that school district.

3. Use of Metric Measurements

The Metric Conversion Act of 1975 (15 USC §§ 205a-k) and E.O. 12770 (3 CFR § 1991 comp.) encourage Federal agencies to use the Metric System in procurement, grants and other business-related activities. Each NSF grant will contain as part of the grant general conditions, a provision encouraging PI/PDs to submit project reports, final reports, other reports and publications produced under grants that employ the metric system of measurements.

4. Executive Order 13788, Buy American and Hire American

Pursuant to Executive Order 13788, dated April 18, 2017, it is the policy of the Executive Branch of the Federal Government to maximize, consistent with law and regulation, the use of goods, products, and materials produced in the U.S. Further, it is the policy of the Executive Branch that relevant agencies will rigorously enforce and administer the laws governing entry into the U.S. of workers from abroad.

Chapter XII: Grant Administration Disputes and Misconduct

A. Suspension and Termination Procedures

1. Definitions

a. SUSPENSION means an action by NSF that temporarily withholds Federal support of a project pending corrective action by the grantee or a decision by NSF to terminate the grant.

b. TERMINATION means the ending of the NSF award, in whole or in part at any time prior to the planned end of the period of performance.

2. Suspension and Termination

a. NSF Policy

(i) A grant may be suspended or terminated in whole or in part in any of the following situations by:

(a) NSF when the grantee fails to comply with the terms and conditions of the grant;

(b) NSF when the Foundation has cause;

(c) NSF when ordered by the Deputy Director under NSF's Regulation on Research Misconduct (45 CFR § 689);

(d) mutual agreement of NSF and the grantee; or

(e) the grantee on written notice to NSF setting forth the reasons for such action, the effective date, and, in the case of partial termination, the portion to be terminated or suspended (with the understanding that if NSF determines that the unterminated portion will not accomplish the purposes of the grant it may suspend or terminate the entire grant).

(ii) Normally, action by NSF to suspend or terminate a grant will be taken only after the grantee has been informed by NSF of the proposed action, or informed of any deficiency on its part and given an opportunity to correct it. NSF, however, may immediately suspend or terminate a grant without notice when it believes such action is reasonable to protect the interests of the government.

(iii) No costs incurred during a suspension period or after the effective date of a termination will be allowable, except those costs which, in the opinion of NSF, the grantee could not reasonably avoid or eliminate, or which were otherwise authorized by the suspension or termination notice, provided such costs would otherwise be allowable under the terms of the grant and the governing cost principles.

(iv) Within 30 days of the termination date the grantee will furnish a summary of progress under the grant and an itemized accounting of costs incurred prior to the termination date or pursuant to (iii) above. Final allowable costs under a termination settlement shall be in accordance with the terms of the grant, including this section, and the governing cost principles, giving due consideration to the progress under the grant. In no event will the total of NSF payments under a terminated grant exceed the grant amount or the NSF pro rata share when cost sharing was anticipated, whichever is less.

(v) A notice of termination other than by mutual agreement and/or the final settlement amount may be subject to review pursuant to Chapter XII.B.

(vi) NSF will report award terminations to the OMB-designated integrity and performance system in accordance with Federal regulation, but only after the grantee has had an opportunity to exhaust the review procedures contained in Chapter XII.B.

b. Procedures for Suspension or Termination by NSF

(i) When it is believed that a grantee has failed to comply with one or more of the terms and conditions of a grant, the NSF Grants Officer will normally advise the grantee in writing of the nature of the problem and that failure to correct the deficiency may result in suspension or termination of the grant. The grantee will be requested to respond in writing within 30 calendar days of the date of such letter, describing the action taken or the plan designed to correct the deficiency. Copies of such correspondence will be furnished to the PI/PD and to the cognizant NSF Program Officer. NSF, however, may immediately suspend or terminate a grant without notice when it believes such action is reasonable to protect the interests of the government.

(ii) If a satisfactory response is not received within the above period, the NSF Grants Officer may issue a notice immediately suspending authority to further obligate grant funds, in whole or in part. Notice of suspension is sent to the AOR, with a copy to the PI/PD. Within NSF, copies are furnished to the NSF Division of Financial Management and to the cognizant NSF Program Officer. The notice will set forth the terms of the suspension and its effective date.

(iii) Normally, the suspension will remain in effect for a maximum of 60 days to allow the grantee to take corrective action. In the event that the deficiency is not corrected to the satisfaction of NSF, the NSF Grants Officer may issue a notice of termination. The notice will set forth the reasons for the action and its effective date.

(iv) The remedies described in Chapter XII.B do not preclude a grantee from being subject to debarment and suspension under the OMB Guidelines to Agencies on Government-wide Debarment and Suspension (Nonprocurement) published at 2 CFR § 180 and NSF's Implementation of the OMB Guidelines, located at 2 CFR Chapter XXV.

(v) Suspension or termination due to research misconduct will be imposed as provided in that regulation.

3. Termination by Mutual Agreement

a. NSF Policy

Circumstances may arise in which either NSF or the grantee wishes to terminate a project. If both parties agree that continuation of the project would not produce results commensurate with the further expenditure of funds, or if there arises any other reason, the grant may be terminated by mutual agreement.

b. Procedures

(i) If the grantee wishes to terminate the project, the AOR should advise the NSF Grants Officer in writing and send a copy to the cognizant NSF Program Officer.

(ii) If NSF wishes to terminate the project, the NSF Grants Officer will advise the grantee's AOR in writing and send copies to the PI/PD and the cognizant NSF Program Officer.

(iii) Within 30 days after receipt of request from either party for termination by mutual agreement, the other party will provide an appropriate written response. In the event of disagreement between the parties, the NSF Grants Officer will make a final decision, subject to the review procedures prescribed by Chapter XII.B.

(iv) Following termination, grant closeout procedures will be initiated.

4. NSF Suspension or Termination Review Procedure

Grantees should refer to Chapter XII.B.3 for procedures to request review of a suspension or termination notice. Pending resolution of the request for review, a notice of termination shall remain in effect.

B. Informal Resolution of Grant Administration Disputes

1. Background

Consistent with the *Recommendation on Grant Disputes* by the Administrative Conference of the U.S., and with the intent of the provisions of Alternative Dispute Resolution, the Foundation provides the informal resolution processes described below concerning disputes or disagreements that may arise over Grants Officer post-award decisions under an NSF grant.

2. Scope of Post-Award Disputes Covered

The disputes below are covered under the process described in Chapter XII.B.3:

a. cost disallowances pursuant to a Grants Officer's decision (e.g., specific disallowances under an individual grant or as a result of an audit report);

b. termination orders; and

c. the final settlement amount under a termination.

3. Procedures

a. The grantee should submit a letter addressed to both the Division Director, Division of Grants and Agreements (DGA) and the Division Director, Division of Acquisition and Cooperative Support (DACS), National Science Foundation, 2415 Eisenhower Avenue, Alexandria, VA 22314. This letter must specify the grantee's disagreement or dispute and identify the NSF Grants Officer's decision in question, giving reasons for the request for review and providing any other material pertinent to the request. NSF will determine the appropriate Division to respond to the dispute.

b. The letter to the Division Directors, DGA and DACS, must be either postmarked or stamped received by NSF no later than 30 days after the date of the NSF letter notifying the grantee of the decision in question. The time for filing a request for review is strictly enforced and no extensions will be granted.

c. The request for review need not follow a prescribed format; however, it must contain a full statement of the grantee's position with respect to the disputed matter and the facts and rationale that support the grantee's position. Dispute requests will be reviewed if the grantee:

- submits new information (which was unavailable at the time of the original decision);
- identifies an error in fact or application of NSF policy in the original decision; or
- improper procedures were followed in the original decision.

d. The Division Director, DGA or DACS, will review or designate one or more individuals to review the matter. One reviewing official will be at least at a management level equivalent to the official who made the decision that is being reviewed. In no case, will the review be conducted by any individual involved with

the original decision or involved in recommending and/or monitoring the programmatic aspects of the project, or responsible for negotiating and/or administering its business or financial aspects.

e. The designated individual(s) will review and consider all relevant information available. A report which identifies the conclusion and recommendation will be completed, and in disputes covered under:

(i) Chapter XII.B.2.a and Chapter XII.B.2.b, the report will be completed within 30 days and forwarded to the Director, DGA or DACS or their designee for a final and unappealable written decision for the agency. The Director, DGA or DACS or their designee will communicate the decision in writing to the grantee, normally within 15 days of receipt of the report, unless otherwise specified by NSF.

(ii) Chapter XII.B.2.c, the report will be completed within 90 days and forwarded to the NSF Deputy Director or his/her designee. The NSF Deputy Director or his/her designee will make the final and unappealable decision for the agency and will communicate the decision in writing to the grantee within 15 days of receipt of the report unless otherwise specified by NSF.

C. Research Misconduct

RESEARCH MISCONDUCT means fabrication, falsification, or plagiarism in proposing or performing research funded by NSF, reviewing research proposals submitted to NSF, or in reporting research results funded by NSF.

1. NSF Policies and Responsibilities

a. NSF will take appropriate action against individuals or organizations upon a determination that misconduct has occurred. It may also take interim action during an investigation. Possible actions include sending a letter of reprimand to the individual or organization, requiring prior NSF approval of particular activities by an individual or organization, requiring special assurances of compliance with particular policies, restricting designated activities or expenditures under particular grants, suspending or terminating grants, debarring or suspending an individual or organization and prohibiting participation by an individual as an NSF reviewer, advisor or consultant.

b. NSF will find misconduct only after careful inquiry and investigation by a grantee, by another Federal agency or by NSF. An “inquiry” consists of preliminary information-gathering and preliminary fact-finding to determine whether an allegation or apparent instance of misconduct has substance. An investigation must be undertaken if the inquiry determines the allegation or apparent instance of misconduct has substance. An “investigation” is a formal development, examination, and evaluation of a factual record to determine whether misconduct has taken place or, if misconduct has already been confirmed, to assess its extent and consequences or determine appropriate action.

c. Before NSF makes any final finding of misconduct or takes any final action on such a finding, NSF will normally afford the accused individual or organization notice, a chance to provide comments and rebuttal and a chance to appeal. In structuring procedures in individual cases, NSF may take into account procedures already followed by other entities investigating or adjudicating the same allegation of misconduct.

d. Debarment or suspension for misconduct will be imposed only after further procedures described in applicable debarment and suspension regulations (2 CFR § 180 and 2 CFR Chapter XXV).

e. The OIG oversees investigations of research misconduct and conducts any NSF inquiries and investigations into suspected or alleged research misconduct.

f. The Deputy Director adjudicates research misconduct proceedings and the Director decides appeals.

g. After receiving an investigation report, the subject's rebuttal and recommendations of the OIG, the NSF Deputy Director may initiate further investigation or hearings or order interim or final actions. A written disposition specifying actions to be taken will be sent to affected individuals or organizations and will include instructions on how to pursue an appeal to the Director of the Foundation.

2. Role of Grantees

a. Grantees bear primary responsibility for prevention and detection of misconduct. In most instances, NSF will rely on grantees to promptly:

(i) initiate an inquiry into any suspected or alleged misconduct;

(ii) conduct a subsequent investigation, if the inquiry finds substance;

(iii) take action necessary to ensure the integrity of research, the rights and interests of research subjects and the public and the observance of legal requirements or responsibilities; and

(iv) provide appropriate safeguards for subjects of allegations as well as informants.

b. If a grantee wishes NSF to defer independent inquiry or investigation, it should:

(i) inform NSF immediately if an initial inquiry finds substance;

(ii) keep NSF informed during such an investigation;

(iii) notify NSF even before deciding to initiate an investigation or as required during an investigation:

(a) if there is reasonable indication of possible violations of civil or criminal law;

(b) if public health or safety is at risk;

(c) if NSF's resources, reputation, or other interests need protecting;

(d) if Federal action may be needed to protect the interests of a subject of the investigation or of others potentially affected;

(e) if the research community or the public should be informed; or

(f) if research activities should be suspended.

(iv) provide NSF with the final report from any investigation.

c. If a grantee wishes NSF to defer independent inquiry or investigation, it should complete any inquiry and decide whether an investigation is warranted within 90 days. It should similarly complete any investigation and reach a disposition within 180 days. If completion of an inquiry or investigation is delayed, but the grantee wishes NSF deferral to continue, NSF may require submission of periodic status reports.

d. Grantees should maintain and effectively communicate to their staff appropriate policies and procedures relating to misconduct, which should indicate when NSF must or should be notified.

e. Online research ethics training is available through the Department of Health and Human Services, Office of Research Integrity.

3. Reporting Possible Misconduct

Possible misconduct in activities funded by NSF should be reported to the Office of Inspector General, National Science Foundation through use of one of the following methods:

Mail: NSF Office of Inspector General, 2415 Eisenhower Avenue, Alexandria, VA 22314;
Phone: (703) 292-7100, or (800) 428-2189;
E-mail: oig@nsf.gov, or;
Website: https://www.nsf.gov/oig/report-fraud/

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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 Proposers 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," 79 Federal Register 76398 (December 22, 2014), and NSF-51, "Reviewer/Proposal File and Associated Records," 79 Federal Register 76398 (December 22, 2014). 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 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
Alexandria, VA 22314