Management and Operation of the National Optical Astronomy Observatory (NOAO)

PROGRAM SOLICITATION
NSF 13-582

National Science Foundation

Directorate for Mathematical & Physical Sciences
Division of Astronomical Sciences

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

October 18, 2013

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

January 13, 2014

IMPORTANT INFORMATION AND REVISION NOTES

Informational Site Visit

NSF intends to conduct site visits to NOAO operational sites in Chile and Arizona for representatives of potential proposing organizations. The visits are expected to take place in September 2013, and will be guided and managed by NSF staff. The visits are voluntary for proposers, but they will be an opportunity for potential proposers to view the facilities and to acquire information relevant to the development of a proposal. Attendees will be responsible for their own expenses. Additional detail on the site visits, such as dates, times, locations, number of participants, will be available from the Cognizant Program Officer.

Eligible organizations that are interested in submitting a proposal and wish to send representatives to the site visit should email the Cognizant Program Officer by 15 August 2013.

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) (NSF 16-1), which is effective for proposals submitted, or due, on or after January 25, 2016.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

National Optical Astronomy Observatory (NOAO)

Synopsis of Program:

Proposals are solicited to manage and operate the National Optical Astronomy Observatory (NOAO). NOAO is a Federally Funded Research and Development Center (FFRDC), sponsored by the National Science Foundation (NSF) and operated by a managing organization under cooperative agreement with NSF. NOAO is a national center for research in ground-based, nighttime, optical and infrared (O/IR) astronomy for the U.S. astronomical community.

NOAO's core mission is to facilitate access for all qualified professional researchers to state-of-the-art observational capabilities and data bases in O/IR astronomy, and to enable the U.S. research community to pursue a broad range of modern astrophysical challenges from small bodies within the Solar System, to the most distant galaxies in the early Universe, to indirect observations of dark energy and dark matter.

The awardee will work closely with NSF and the scientific community to ensure that NOAO continues to support, sustain and advance frontier science as enabled by unique research capabilities and as promoted through a culture of excellence. In cooperation with NSF and within available resources, NOAO will plan and execute a viable, coherent and inclusive program to facilitate research and education, consistent with the objectives and priorities of the scientific community. The awardee will manage facilities and equipment provided by NSF in accord with the scope and funding described in this solicitation. NOAO is a multidisciplinary and multiuser resource, and its programs will be carried out in collaboration with its stakeholder communities.

Proposals should describe how the proposing organization(s) will provide access to observing capabilities and scientific data; facilitate an integrated program of research, education, training and outreach; maintain instruments, facilities and infrastructure; manage and develop a skilled and diverse workforce; and establish appropriate partnerships with academic institutions, industry, private organizations and the international community to support the NOAO mission.

Within available resources and as consistent with the expectations and criteria identified in this solicitation, the successful proposal will present a compelling, sustainable vision for NOAO that supports an optimal suite of community-driven research and education activities through effective structures for management and operations.

Cognizant Program Officer(s):

Please note that the following information is current at the time of publishing. See program website for any updates to the points of contact.

- Vernon L. Pankonin, 1030 S, telephone: (703) 292-4902, email: vpankoni@nsf.gov
- Elizabeth A. Pentecost, 1030 S, telephone: (703) 292-4907, email: epenteco@nsf.gov

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

- 47.049 --- Mathematical and Physical Sciences

Award Information

Anticipated Type of Award: Cooperative Agreement for the Management and Operation of the National Optical Astronomy Observatory

Estimated Number of Awards: 1

Anticipated Funding Amount: $200,617,888 The projected total for the 10-year duration of the award, starting 01 October 2015, subject to the availability of funding.

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Universities and Colleges - Universities and two- and four-year colleges (including community colleges) accredited in, and having a campus located in, the US acting on behalf of their faculty members. Such organizations also are referred to as academic institutions.
- Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities.
- For-profit organizations: U.S. commercial organizations, especially small businesses with strong capabilities in scientific or engineering research or education.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization: 1

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

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

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

B. Budgetary Information

- **Cost Sharing Requirements:**

  Inclusion of voluntary committed cost sharing is prohibited.

- **Indirect Cost (F&A) Limitations:**

  Not Applicable

- **Other Budgetary Limitations:**

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

C. Due Dates

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

  October 18, 2013

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

  January 13, 2014

Proposal Review Information Criteria

Merit Review Criteria:

National Science Board approved criteria. Additional merit review considerations apply. Please see the full text of this solicitation for further information.

Award Administration Information

Award Conditions:

Additional award conditions apply. Please see the full text of this solicitation for further information.

Reporting Requirements:

Additional reporting requirements apply. Please see the full text of this solicitation for further information.

TABLE OF CONTENTS

I. INTRODUCTION

The National Science Foundation (NSF) is authorized by the National Science Act of 1950, as amended, to initiate and support basic and applied scientific research and to initiate and support programs to strengthen scientific research potential. To achieve these goals, NSF supports facilities that provide research capabilities in various scientific disciplines. One such facility, the National Optical Astronomy Observatory (NOAO) provides services and facilities to support research in ground-based optical and infrared (O/IR) astronomy.

NSF's Division of Astronomical Sciences (AST) has determined that in order to implement its strategic programmatic goals for supporting O/IR astronomy in the next decade, to accommodate the changing needs of the astronomical community, to preserve high priority components of its portfolio, and to do this under constrained budget projections, there must be a funding reduction at NOAO that results in a re-baselined scope, and the mission adjusted accordingly. Anticipated NSF funding for future management and operations of NOAO is reduced relative to recent levels. NSF intends to fully fund the baseline scope as defined in Section II.A.3 in this solicitation. Proposing organizations are encouraged to present creative, but realizable, plans to deal with the budget exigencies imposed on the baseline scope.

This solicitation is solely for the management and operation of NOAO. Management and operation of the International Gemini Observatory and management of the Large Synoptic Survey Telescope (LSST) construction project are not included in this

solicitation. The concept of LSST operations and its management will be an evolving effort during LSST construction. Hence, LSST operations is not a component of this solicitation.

II. PROGRAM DESCRIPTION

A. Description of the National Optical Astronomy Observatory

1. Overview

NOAO is a Federally Funded Research and Development Center (FFRDC), sponsored by the NSF and operated by a managing organization under cooperative agreement with NSF. NOAO is a national center for research in ground-based, nighttime, optical and infrared astronomy for the U.S. astronomical community.

NOAO's core mission is to facilitate access for all qualified professional researchers to state-of-the-art observational capabilities and data bases in O/IR astronomy, and to enable the U.S. research community to pursue a broad range of modern astrophysical challenges from small bodies within the Solar System, to the most distant galaxies in the early Universe, to indirect observations of dark energy and dark matter.

NOAO serves as a national resource for the scientific community. NOAO operates administrative, laboratory, and O/IR facilities at locations in Arizona and in Region IV (Coquimbo) of northern Chile, and manages observatory sites at Kitt Peak National Observatory (KPNO) in Arizona and Cerro Tololo Inter-American Observatory (CTIO) in Chile. It is the gateway for the U.S. astronomical community to the International Gemini Observatory through the U.S. National Gemini Office (US-NGO), and to other U.S. O/IR telescopes that offer public access. It coordinates community access to telescopes throughout the U.S. O/IR system, and it facilitates connecting the scientific user to the data repository by developing and maintaining data management capabilities. NOAO integrates community planning for facilities and instrumentation under a national organization. It manages national community involvement in the development of potential future facility and infrastructure projects. NOAO has participated in the Large Synoptic Survey Telescope (LSST) project from its inception and is currently involved in the design, development, and future construction of LSST.

A large number of U.S. colleges and universities operate their own astronomical facilities at Kitt Peak National Observatory (KPNO) in Arizona and at Cerro Tololo Inter-American Observatory (CTIO) in Chile with contracted supporting services provided by NOAO. Development of new telescopes, instrumentation, and sensor techniques by NOAO is carried out in partnership with universities and with industry through subawards to aerospace, optical fabrication, and information technology companies. NOAO leverages NSF support with funding from other federal agencies and non-federal sources. In FY 2012, in addition to NSF base operations and maintenance funding, NOAO received $10,300,000 for reimbursed services from partnerships and tenant observatory support, from the Kitt Peak Visitors' Center, from NSF grants for the Research Experiences for Undergraduates (REU) program, and grants from other federal agencies.

In addition to facilitating research by the scientific community, the NOAO Education and Public Outreach (EPO) program promotes public understanding of science, education, and training at all levels, especially within groups that have been historically underrepresented in the U.S. physics and astronomy science enterprise. NOAO has a diverse education program, visitor centers, and a web-based information portal at www.noao.edu. Many of the education and outreach activities are funded from sources outside of the NOAO base operations and maintenance budget, such as public donations and grants from other NSF programs. Much of the public visitor program is self supporting through visitor fees.

In the new award period, NOAO should focus on its role as a national-level resource for the community. As a national center, NOAO is expected to integrate service to the community into its mission and to add value to the U.S. astronomy enterprise through facilitating community access to observational capabilities, post-observational services, and management of data bases. NOAO may retain on-staff technical and engineering expertise that is made available to the community. The cost of work for others must be fully and equitably allocated to those cost objectives. This contract expertise may assist the community in developing instrumentation and supporting resources for facilities that they own and operate.

Through this solicitation, NSF intends to define a basic framework for NOAO on which to build during the award period as funding opportunities might materialize and as various projects that are in planning or construction become operational. In this solicitation, NSF provides a guidance level of funding for the baseline scope. Responders to this solicitation should propose to manage the baseline scope for NOAO as described in Section II.A.3. There may be opportunities during the award period for increasing the NSF-funded scope of NOAO as planned U.S.-led facilities progress toward operation, if these include a compelling vision for an NOAO role in facilitating community participation.

2. Transformation from Current NOAO (NOAO-2013) to New NOAO (NOAO-2016)

The FY 2013 NOAO operations and maintenance (O&M) budget from NSF/AST is $25,500,000. The budget target for FY 2016 is $17,500,000. This section outlines the process for the transformation of NOAO-2013 to NOAO-2016.

With guidance from NSF, AURA will finalize an NOAO transformation plan that is to be carried out in FY 2014 and 2015. The Program Plan for the transformation is to be submitted to NSF in October 2013. It will be posted in the Resource Library for this solicitation and updated as needed. The transition should be substantially complete by the end of FY 2015. The primary consequence of the decreased funding for NOAO is a reduction or discontinuance of activities which results in a significant reduction from current levels in personnel carried on NSF funds for NOAO O&M. Since the guidance budget level for NOAO is such a significant reduction from current levels, proposing organizations should take great care in matching staffing in their proposed operation to available funding. Current staffing levels will be reported in the Resource Library that NSF will maintain for prospective proposers.

The one exception to the transformation schedule given above is with regard to the Mayall telescope on Kitt Peak. Mayall operations costs are not included in the baseline NOAO budget for FY 2016 (Sec. 3). However, NSF anticipates that it may be necessary to continue NSF funding for Mayall operations through FY 2016 and possibly FY 2017 in order to facilitate a smooth transition to an anticipated new funding source. In this event, NSF will add supplementary funds to the Kitt Peak operations budget in 2016 and possibly 2017 that are targeted specifically to continue Mayall operations at a constant level of effort and to bridge the Mayall from NSF support to a new source of operating funds. If these NSF funds are necessary, they will be an addition to the baseline O&M funding for NOAO. The amount of NSF funds needed may not be known until 2015. Proposers should not include operation of the Mayall in the baseline scope of their proposal. Nevertheless, they should describe how they would handle continued operation of the Mayall as an add-on from NSF in the first two years of the award for continuing the current operations model, and then in subsequent years providing contracted NOAO technical services in support of operating the Mayall with a non-NSF source of

funding. The status of the Mayall will be kept up-to-date in the Program Plan for the transformation that is posted on the Resource Library.

3. Baseline Scope for NOAO

This section describes the scope for NOAO that NSF intends to fund through this solicitation and to which responders to this solicitation should propose to manage, and provides guidance on the allocation of the budget. In defining the baseline scope, NSF considers NOAO to be comprised of three major administrative units:

- NOAO Core - scientific, technical, administrative integration & coordination (currently at NOAO headquarters in Tucson, AZ)
- Kitt Peak Operations - Kitt Peak National Observatory (KPNO); all responsibilities on the mountain
- Chilean Operations (CO) - La Serena labs and administrative offices; Cerro Tololo Inter-American Observatory (CTIO); Cerro Pachón facilities

Proposers are welcome to describe other organizational structures for NOAO as long as they are consistent with and support the NOAO mission.

NSF/AST anticipates providing $17,500,000 total O&M funding for NOAO for FY 2016. As guidance for distributing these funds across the organization, proposers should limit the allocation of funding for Kitt Peak Operations to a target of about $1,000,000 per year and for Chilean Operations to a target of about $7,500,000 per year. Within the NOAO Core, approximately $700,000 must be budgeted for the U.S. National Gemini Office (US-NGO).

NOAO Core. NSF has determined that within a total NOAO annual O&M budget of $17,500,000, a target of approximately $9,000,000 is an appropriate allocation to maintain the basic core, central observatory functions, and operate as a national resource for consolidated services to the community.

The NOAO Core performs the integration of the scientific, technical, and administrative support functions that serve the organization as a whole, as well as provide services to the community. NOAO Core functions are at present co-located with the NOAO headquarters offices and labs in Tucson, AZ, but that need not be the case in the new award period. The Tucson facilities are located in buildings owned by the NSF on the campus of the University of Arizona. The National Solar Observatory (NSO), Advanced Technology Solar Telescope (ATST), and LSST project share office and laboratory space with NOAO, and each pays its share of the building operating costs.

NOAO Core functions should include items such as central administration and business services, including human resources and management costs and fees; environment, safety, & health (ES&H); physical plant (building) operating costs; information transfer and communications (ITC) systems; central instrumentation labs; and community support services, such as the US-NGO. Other NOAO Core functions that proposers might consider include community/system science and data center, including data management; facilitating community access to current and future facility and instrument capabilities; community/system technology and instrumentation development; covering the costs of public access time on telescopes on Kitt Peak; engagement with, and coordination of, the O/IR system; strategic and long-range planning for the field; and education and public outreach (EPO). With due consideration of the guidance provided, potential managing organizations are free to propose to allocate the budget to cover the core functions as they believe to be most effective. Proposers are encouraged to (re)define the services to be provided to the community within the available budget.

No NOAO base funds are targeted for the LSST project in 2016. There are currently funds in the NOAO Core for LSST design and development. However, FY 2014 or 2015 is expected to be the last year for that funding line, provided that LSST enters the NSF MREFC line during one of those years. Continuing funding for LSST design and development is provided by NSF through a separate funding stream to the LSST Project Office through AURA.

It is unlikely that the budget for the Core will be sufficient to accommodate an in-house scientific research staff. Proposing organizations are encouraged to provide creative ideas on ways and means of engaging community scientists in NOAO planning and operations.

The US-NGO provides services to U.S. astronomers who propose to use one or both of the Gemini Observatory 8.2-meter telescopes located on Mauna Kea, HI, and Cerro Pachón in Chile. The US-NGO is a unit within NOAO, and the funding for the service functions is included in the NOAO base budget. The scope of the US-NGO and the funding for that scope are determined through discussion among Gemini management, NOAO, and NSF. It is expected that the US-NGO will continue to be supported at a level between $500,000 and $700,000 per year (to be determined between NSF and the managing organization) out of the NOAO base budget. The services currently include assisting community members with all phases of proposal preparation, understanding instrumental capabilities, planning observations, awarding of telescope time for the U.S. community, data acquisition, and data reduction.

O/IR system support activities are to be included in the NOAO Core. NOAO facilitates access to other U.S. ground-based O/IR telescopes whereby time on non-federal telescopes is made available to the community, most recently through NSF funding via the Telescope System Instrumentation Program (TSIP) and the Renewing Small Telescopes for Astronomical Research (ReSTAR) program. While both the TSIP and ReSTAR program are not currently active, a number of public access nights on non-federal telescopes made available through these programs remain to be assigned because of still pending instrumentation or telescope development. NOAO conducts merit reviews of proposals for such telescope time and assigns the time via their Time Allocation Committee (TAC) process.

Kitt Peak Operations are expected to be administered through the NOAO subunit Kitt Peak National Observatory (KPNO). KPNO is located approximately 56 miles (90 km) southwest of Tucson, Arizona, and situated on approximately 2,308 acres (935 hectares) of land on Kitt Peak leased to NSF by the Tohono O'odham Nation for as long as the "premises are used for astronomical study and research or related scientific purposes." NSF reaffirms a need to maintain the Kitt Peak infrastructure for astronomical research and public outreach for the foreseeable future.

NSF expects KPNO to be the steward of all astronomical research and public outreach activities on Kitt Peak that are within the geographic area of the lease that NSF has with the Tohono O'odham. In this capacity, KPNO will maintain the basic infrastructure for the tenants to carry out astronomical research on their facilities, be responsible for implementing environmental, safety, and health practices on the mountain, and maintain a working relationship with the Tohono O'odham. Services include water supply, utilities, telecommunications (including internet), physical plant and roads maintenance. To the extent practicable, the costs of these services will be reimbursed to KPNO through tenant fees. NOAO is currently preparing a Kitt Peak Mountain Operations Model in which all telescope facilities on the mountain will be considered to be tenants. The Model fully describes and costs all of the services to be provided to tenants. Tenant agreements for services will be posted on the Resource Library. The Mountain Operations Model will be part of the NOAO Transformation Plan, and it will be posted on the Resource Library. KPNO may also maintain a basic pool of on-staff engineering and technical expertise to be contracted to tenants, but only to the extent that full costs are recovered from tenant contracts. Although NSF/AST will not provide base operations support for any telescopes on Kitt Peak, it will retain title to telescopes it currently owns while their operating costs may be paid by non-NSF sources. If funds are available in the NOAO budget or from

other sources and if the demand is adequately justified, NOAO may arrange to cover the incremental operating costs to obtain observing time on any tenant telescope to be made available to the community as open access time. The Awardee will oversee KPNO's role in managing the Mountain Operations Model.

NSF estimates that funding at a target of $1,000,000 should be sufficient to carry out KPNO's baseline stewardship responsibilities, in which all facilities on Kitt Peak are considered to be tenants. There is one caveat to the funding target for KPNO. As described in section II.A.2, NSF may need to add some funding in support of Mayall operations through FY 2016 and possibly FY 2017 as a bridge to a non-NSF source of funding. The level of funding may not be known until 2015.

KPNO currently hosts the facilities of consortia which operate more than 20 telescopes (www.noao.edu/kpno/tenants). These tenants reimburse NOAO, on a cost-recovery basis, for infrastructure support as well as technical services.

The 4-m Mayall telescope is owned by NSF, but after 2016 it will no longer be operated solely as a community access telescope. NSF has received a letter from the Department of Energy (DOE) indicating that the Mayall telescope is their preferred site for hosting a Mid-Scale Dark Energy Spectroscopic Instrument. NSF and DOE currently are working to determine the terms and conditions under which the Mayall telescope may be made available for the DOE project. In this event, NSF would retain ownership of the telescope, the non-NSF funds would be used to provide support to NOAO for maintenance and operation of the telescope, and the Mayall would be treated as a tenant facility on Kitt Peak. NOAO may retain scientific and technical involvement in projects conducted on the Mayall and other telescopes on the mountain and in data obtained from projects, depending on availability of telescope time and funding (from NOAO or otherwise) and on community driven interest in open access time.

The other major telescope on Kitt Peak is the WIYN 3.5-m. The WIYN telescope is operated by a consortium comprising University of Wisconsin, Indiana University, Yale University, and NOAO. WIYN delivers excellent image quality, and its performance benefits from newer technology in telescope and dome design, and mirror support. Currently NOAO directly supports WIYN operations and has a 40% share in the WIYN telescope time, which is made available for community access through the NOAO Time Allocation Committee (TAC) process. However, it is expected no NSF funds will be used to support the base operation of WIYN during the new award period.

The 2.1-m telescope on Kitt Peak is owned by NSF and is currently operated for community access by NOAO with NSF funds. It is expected that during FY 2014 or 2015 the telescope will either be closed or operations taken over by non-NSF funding sources. NSF expects to retain ownership of the 2.1-m even if there is a non-NSF source of funding for operations.

Chilean Operations (CO) include a complex of astronomical telescopes, instruments, labs, and administrative offices. The facilities include offices and labs in La Serena, Chile (about 300 miles (500 km) north of Santiago), as well as astronomical observing sites on Cerro Tololo (Cerro Tololo Inter-American Observatory, CTIO) and on Cerro Pachón, approximately 37 miles (60 km) from La Serena. NOAO operates in Chile under Chilean law, through an Agreement with the University of Chile and under the auspices of the Ministry of Foreign Affairs of Chile. The Agreement is posted in the Resource Library.

All of the land on which NOAO's Chilean facilities reside is owned by the Association of Universities for Research in Astronomy (AURA), a U.S. non-profit corporation. The La Serena compound is approximately 32 acres (13 hectares), and the properties on Cerro Tololo and Cerro Pachón total approximately 91,500 acres (37,000 hectares). The current Cooperative Agreement (CA) between NSF and AURA stipulates:

> *In the event that AURA ceases to be the managing organization for the NOAO Project, AURA agrees that it shall enter into a lease agreement with a successor managing organization(s) designated by NSF . . . Such lease arrangement will be made available to the successor organization(s) at a rate of $1 per year for as long as such property is used and maintained for astronomical research.*

NSF anticipates an annual budget at a target of approximately $7,500,000 for Chilean Operations should be sufficient for NOAO's stewardship and telescope operations responsibilities in Chile. Chilean Operations is responsible for operating the 4-m Blanco Telescope on Cerro Tololo and the 4.1-m Southern Astrophysical Research (SOAR) telescope on Cerro Pachón, about 9 miles (15 km) from Cerro Tololo and the office and laboratory infrastructure in La Serena. The stewardship responsibilities are to maintain basic infrastructure and support services for the tenants. The costs to Chilean Operations of providing this support will be reimbursed by the users in the form of fees and contracts for services to the extent practicable, all according to agreements in place between NOAO and the tenants. Gemini Observatory and LSST project facilities are also located on the AURA owned property in La Serena and on Cerro Pachón, and NOAO Chilean Operations provides services on a cost reimbursable basis.

The Blanco telescope is primarily available for community open access time. Beginning in late 2013, 105 nights per year on the Blanco will be dedicated to the Dark Energy Survey for a five-year period. Outside of the time dedicated to the survey, there is community time available using the Dark Energy Survey camera and other instrumentation designed to exploit the capabilities of the telescope.

The SOAR telescope is operated by a partnership comprising NOAO, Michigan State University, the University of North Carolina at Chapel Hill, and the Ministério da Ciência e Tecnologia, e Inovação of the Federal Republic of Brazil. NOAO has a 30% share of the time on SOAR, which is made available to the astronomical community through the NOAO Telescope Allocation Committee (TAC) process. The SOAR partnership agreement runs through 2018. According to the provisions of the agreement, approximately $2,000,000 per year of the NOAO Chilean Operations budget goes to the operation of SOAR. The future of the SOAR partnership beyond 2018 will be the subject of discussions and negotiations among the current partners and NSF.

In addition to the telescopes it operates directly, NOAO's Chilean Operations provides services to more than 10 other telescopes and astronomical projects as tenants on a cost reimbursable basis. The list is included in the Resource Library. NOAO receives a modest amount of telescope time for community access on some of these telescopes. NOAO also hosts non-astronomical activities such as a seismic station of the University of Chile.

B. Description of Awardee Responsibilities

1. Responsibilities

The Awardee shall be responsible for the management, operation, and maintenance of the National Optical Astronomy Observatory (NOAO) in accordance with the proposal submitted in response to this solicitation and according to Annual Program Operating Plans submitted to NSF. The Awardee shall be responsible for the overall welfare of NOAO and for maximizing the benefits to the astronomical community of NOAO resources. Note that, as described below, the Awardee shall be the employer of NOAO base operations staff, including Chilean employees, in accordance with the labor laws of the country or state of the site of employment.

The Awardee shall be responsible for the planning, initiation, and execution of programs and activities designed to optimally serve the interests of the U.S. scientific community involved in ground-based O/IR astronomy. The Awardee will work closely with NSF and the astronomical and broader science community to ensure that the activities carried out at and by NOAO strongly reflect community needs and priorities. In discharging these responsibilities, the Awardee shall ensure that the character and reputation of NOAO as a

national resource are maintained, and that it enables first-rate visitor and archival research, while also pursuing leading community-based initiatives in the relevant disciplines.

More specifically the Awardee is responsible for:

a. Operating and maintaining the NOAO buildings and facilities, developing and incorporating new facilities, planning for future new initiatives, supporting a skilled and diverse work force and sustaining an innovative and vigorous program of basic and applied research in support of the astronomical and related sciences.

b. The overall performance of NOAO and for ensuring that, within the resources available, NOAO fulfills all aspects of its mission with a visionary and productive program of world-class services, infrastructure and research support in the interests of the U.S. astronomical and broader science community.

c. Activities at NOAO facilities that are funded by both NSF and NOAO's other program funding agencies and organizations. Non-NSF programs managed by the Awardee must be consistent with the NOAO mission, and complement and enhance activities funded and approved by NSF.

d. Establishing the necessary organization, including articles of incorporation, and obtaining all necessary licenses and permits that allow the Awardee to operate within Chile. The path proposed must be described fully in the proposal, but need not be completed by proposal submission.

2. Quality Objectives

In performing the Awardee's specific duties in support of the NOAO mission, the Awardee will be required to demonstrate continuing progress in the following areas:

- Implementation of effective programmatic and budgetary planning processes.
- Implementation of an effective workforce management plan, including continuing improvement in the representation of women and underrepresented groups;
- Development and use of effective performance measures for NOAO and for the managing organization.

3. Expectations of the Awardee

NSF intends that NOAO should serve as an exemplar of scientific, management, and operational excellence. The Awardee will meet the highest standards for service and delivery to the scientific community and demonstrate a proactive and effective approach to performance management. The Awardee will promote a culture of excellence in serving the scientific community. Working in close collaboration with NSF, the university and broader scientific community, the Awardee is expected to:

- operate with integrity and transparency, maintaining quality in administration and management in a cost-effect manner;
- develop and implement appropriate mechanisms for assessing and continuously improving the performance of NOAO;
- develop and use appropriate means to determine the effectiveness of the NOAO managing organization's performance;
- develop and use effective programmatic and budgetary planning processes;
- manage the implementation and maintenance of observational facilities, computational infrastructure, and databases, so they are accessible to the community;
- operate and maintain the NOAO buildings and facilities and manage the NOAO staff and all activities carried out at NOAO according to current best-practice and in full compliance with all relevant laws and regulations;
- serve as the employer of record of NOAO base operations staff, including Chilean employees, and maintain appropriate personnel policies that adhere to the labor laws of the country or state in which the employees are employed;
- develop and maintain a high quality, diverse scientific, engineering, technical, and administrative staff to operate NOAO as a national center and to enhance the community, within the defined programmatic scope;
- strengthen NOAO's role in increasing participation by under-represented groups in the staffing at NOAO and in the future workforce;
- operate within Chile so as not to endanger the rights and privileges of other U.S. astronomical interests within the country;
- serve as stewards of high-quality scientific data on behalf of the community, through maintenance, enhancement and curation;
- provide through the staff and facilities of NOAO the support necessary for the conduct of research by the community, assuring that the primary criterion for the utilization of facilities be the scientific merit of the proposed research, as judged through appropriate merit review mechanisms;
- develop and employ effective mechanisms for engaging NOAO's stakeholders in order to ensure that NOAO's facilities, services and programs best reflect the evolving needs and priorities of its users;
- develop and incorporate new capabilities, cutting-edge instruments, and on-line services as needed by the U.S. ground-based, O/IR astronomy community, within available resources, to ensure community access to state-of-the art facilities and support;
- support NOAO programs sponsored by other federal agencies, which may from time to time wish to utilize NOAO facilities or staff through interagency funding agreements with NSF.
- seek and implement strategic partnerships with U.S. universities, federal, non-federal and international entities that will enhance the scientific capabilities available to the entire astronomical community;
- maintain excellent relations with Chilean university astronomical groups, with the various bodies of the Chilean government, and with other Chilean institutions as required;
- carry out an Education and Public Outreach (EPO) program, as funding permits;
- actively support cultivating a world-class, broadly inclusive science and engineering workforce and expanding the scientific literacy of all citizens.

4. Important Considerations in Preparation of a Proposal

The Awardee is expected to implement a business plan for the management and operation of NOAO, that is described in the proposal and that will adhere to the highest standards for managing the general operations and workforce of a complex scientific organization. The business plan is expected to include descriptions of: the organizational structure and the lines of authority and responsibility within the organization; provisions for business and human resources services; staffing policies and the staffing required to operate the organization within the funding provided; a workforce management plan; procedures for budgeting within the organization; the accounting system with the procedures for auditing and oversight; and the process for planning future operations and initiatives.

Within the context of presenting a business plan for the management and operation of NOAO, proposers should give special consideration to the following areas of awardee responsibility. The Project Description section of the proposal should be structured to map the following items a. through e. Items a. through e. map to the Additional Solicitation Specific Review Criteria 1. through 5. in Section VI.A.2.

a. Management. The Awardee will define and implement an organizational structure for NOAO that will provide vision, leadership and service to manage NOAO as a vibrant, community-serving, multi-user facility that is an effective national resource. Models and approaches for observatory management should be consistent with the goals of serving the needs of the scientific community and meeting the requirements described in this solicitation. Organizational structures for NOAO management may include the establishment of new institutions, corporations or consortia, provided that the proposing organization(s) provide materials in support of the financial capability of the awardee(s), as required in Section V.B. The Awardee will establish and maintain business services procedures that adhere to best practice standards and that satisfy NSF review.

The Awardee will establish and maintain an effective governance and advisory structure to provide guidance, advice and oversight for all NOAO activities, consistent with its vision, goals, and objectives. The Awardee's advisory structure should enable diverse representation from all sectors served by NOAO, and should include mechanisms to assess and advise on all aspects of NOAO including management, research, education and outreach, technical capabilities, project management, and human resources.

The Awardee will establish processes within a structured framework for planning, review and performance management, including the development and use of appropriate mechanisms to aid both the managing organization and NOAO's stakeholders in assessing performance and identifying areas for improvement.

b. Operations, maintenance, environmental, safety, health, and security. The Awardee will be responsible for staffing and managing NOAO to ensure that community service functions, and NOAO telescope, instruments, and data facilities are able to operate in response to high-priority scientific research conducted by qualified scientists. To this end the Awardee will articulate a strategic plan for maintaining a viable, community-driven scope of observatory operations and will employ mechanisms for reviewing and scheduling user access through an open, merit-based process.

The Awardee will provide a data management plan that describes the acquisition, analysis, archiving and accessibility of all NOAO data, including the definition of proprietary periods and appropriate cyberinfrastructure and cybersecurity.

All parts of the NOAO infrastructure that are necessary to meet the proposed operations activities will be competently maintained to enable the attainment of program objectives and for the safety and security of staff and visitors. The Awardee will be responsible for budgeting, scheduling and tracking a comprehensive safety, environmental compliance, and maintenance plan for all parts of the NOAO infrastructure, including plans, as appropriate, to remove or dispose of those parts of the infrastructure deemed unnecessary for the proposed level of operations.

c. Budgeting, staffing, and workforce management. The Awardee will demonstrate competence in managing the budget of a complex organization through the business plan for managing and operating NOAO, a description of which is to be included in the proposal.

The Awardee will demonstrate the capability and authority to conduct operations in Chile, including employment of Chileans. Recognizing that obtaining the necessary authority may require an extended time period, the proposer must demonstrate knowledge of what is required to obtain the necessary authorities, if they do not already have such authority.

NOAO offers significant potential to enable the participation of traditionally underrepresented and underserved communities in the research and education mission of the Observatory and to strengthen the strategic growth of a scientific and technically trained workforce in the regions in which it operates. The Awardee will demonstrate leadership in employing best practices for broadening participation in science and engineering at all levels within NOAO's activities.

d. Science and facility planning. The Awardee will define a Long-Range Plan (typically 5-yr) and an annual Program Operating Plan for NOAO that demonstrates responsiveness to community-based scientific objectives, an innovative vision built on existing and potential capabilities of NOAO and O/IR system resources that NOAO coordinates, a well defined scope of high-priority activities, and a credible plan within available resources to support the proposed suite of activities.

As described by the proposed program and within available funds, the Awardee will ensure that NOAO has sufficient internal or external expertise to (1) support community users, (2) help guide decisions relating to current and future instrumentation and operating modes, (3) develop and maintain data acquisition, data management, and data processing systems, (4) develop and implement policies and strategies for data accessibility and data archiving, and (5) validate data of on-going research programs.

e. Education and Public Outreach. NOAO currently operates a vigorous program of education and community development activities that include collaborative partnerships with undergraduate and minority-serving institutions, student involvement in research, and a significant base of public visitors. The Awardee will be responsible to plan an integrated and dynamic program of research and education that is based in and builds evidence about learning in the context of frontier science, and that incorporates citizen science. The program should build on NOAO's programmatic and scientific strengths and on its local context to advance NSF strategic goals, and should be an exemplar of innovative and cutting-edge approaches to education and community involvement that draw on the unique scientific assets of the facility.

Other areas proposers should consider:

a. Partnerships. As appropriate, the Awardee may develop partnerships, collaborations, or arrangements with universities/colleges, national laboratories, research museums, private sector research laboratories and observatories, state and local government laboratories, and international collaborations that would enable NOAO to attain or exceed its strategic goals. Partner institutions may work collaboratively with the Awardee and NSF to ensure that non-NSF programs managed by the Awardee are consistent with the NOAO mission and are subject to prior approval by NSF. Partnership agreements that dedicate blocks of user time in exchange for financial or personnel contributions to NOAO must be consistent with the NOAO mission and justified in their overall benefit to the NOAO user community and the broader scientific research community and must be approved by NSF.

b. Open Skies. U.S. national telescope facilities are open to all astronomers regardless of institutional or national affiliation. Observing time is available on a competitive basis to qualified scientists after evaluation of research proposals on the basis of scientific merit, the capability of the instruments to do the work, and the availability of the telescope during the requested time. Proposers are cautioned about partnership agreements that may conflict with Open Skies provisions. During the course of this award, it is possible that the open skies or "open access" practices may be changed, upon instruction from the NSF.

C . General Information

For additional information on NOAO, the competition for its management, NSF practices and policies, and access to the Resource Library, please contact the Cognizant Program Officer (vpankoni@nsf.gov).

Proposing organizations should review documents which are being made available through an NSF- maintained Resource Library. The documents are grouped in categories that include:

- NOAO Transformation Plan;
- Cooperative Agreement, Annual Reports, Program Plans, Long Range Plans;

Master Site Infrastructure Plans;
- Ownership, Leases, Easements, and Related;
- Infrastructure Description and Costs of Each Site;
- Inventories of AURA and non-AURA owned Real and Personal Property;
- Non-NSF Investments in NOAO Facilities;
- Multi-year Contracts Greater than $250,000 per year;
- AURA Agreements in Chile;
- MOUs and Similar Agreements.

Access to the Resource Library will be provided to proposing organizations upon request to the Cognizant Program Officer. Any added and updated material and information relating to this solicitation, including NSF responses to frequently asked questions, will be made available through the Resource Library as appropriate.

Informational Site Visit

NSF intends to conduct site visits to NOAO operational sites in Chile and Arizona for representatives of potential proposing organizations. The visits are expected to take place in September 2013, and will be guided and managed by NSF staff. The visits are voluntary for proposers, but they will be an opportunity for potential proposers to view the facilities and to acquire information relevant to the development of a proposal. Attendees will be responsible for their own expenses. Additional detail about the site visits, such as dates, times, locations, number of participants, may be obtained from the Cognizant Program Officer.

Eligible organizations that are interested in submitting a proposal and wish to send representatives to the site visit should email the Cognizant Program Officer by 15 August 2013.

III. AWARD INFORMATION

Estimated program budget and award size/duration are subject to the availability of funds.

The successful proposal will be awarded as a cooperative agreement with an expected ten year duration. The initial award commitment will be for five years with continuation for an additional five years contingent on a successful performance review in the fourth year. NSF funding for NOAO baseline operations and management is anticipated at an initial level of $17,500,000 in FY 2016 with a projected escalation by 3% each year for the duration of the award. The escalation factor was derived from consideration of projections for U.S. inflation and including the complexities of planning operating costs in Chile with Chilean inflation, legal requirements for employee salary increases, and currency conversion. The escalation is intended to maintain a constant level of effort; it is not intended to accommodate any changes in scope.

The budgets for each year derived from the escalation formula are for planning purposes only. Actual annual funding increments will be determined on the basis of annual program operating plans submitted by the Awardee to NSF and approved by NSF, subject to the availability of appropriated funds and to the performance of both the Awardee and NOAO.

As described in the Program Description of the solicitation, NSF anticipates that it may be necessary to continue NSF funding for Mayall telescope operations through FY 2016 and possibly FY 2017 in order to facilitate a smooth transition to a new funding source. In this event, NSF will add supplementary funds to the Kitt Peak operations budget in 2016 and possibly 2017 that are targeted specifically to continue Mayall operations at a constant level of effort and to bridge the Mayall from NSF support to a new source of operating funds. If these funds are necessary, they will be an addition to the baseline O&M funding for NOAO.

If a new awardee is selected to replace the incumbent, NSF will fund appropriate transition costs through a cooperative support agreement with the new awardee for a transition period of up to four months preceding the main cooperative agreement. Relevant transition activities include interviewing and hiring personnel, assigning subcontracts, transferring data and property, and obtaining permits and licenses. During this transition period, the new awardee will have appropriate access to NOAO personnel and facilities.

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Universities and Colleges - Universities and two- and four-year colleges (including community colleges) accredited in, and having a campus located in, the US acting on behalf of their faculty members. Such organizations also are referred to as academic institutions.
- Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities.
- For-profit organizations: U.S. commercial organizations, especially small businesses with strong capabilities in scientific or engineering research or education.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization: 1

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

Additional Eligibility Info:

Collaborative proposals will not be accepted. Proposers can enter into subrecipient arrangements. However, the main proposing organization will be held responsible for full compliance with the scope of work mentioned in their

proposals and the terms and conditions of any resulting cooperative agreement.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Letters of Intent *(required)*:

Complete submission of a Letter of Intent (LOI) requires two separate components that must each be submitted prior to the LOI due date.

FastLane LOI Component-Via Fastlane, submit the following LOI information:

- Project Title
- Synopsis of the Proposed Program (a brief abstract of maximum 2,500 characters of plain text)
- Point of Contact for NSF inquiries
- Project PI Information
- Participating Organizations

Submission of this component via FastLane will produce an LOI ID that must be included in the PDF LOI Component described below.

PDF LOI Component-Via an email to the Cognizant Program Officer, submit a document of no more than 5 pages in Portable Document Format (PDF) that addresses the following:

- a description of the proposed organizational and governance structure for the NOAO managing organization, including the identification of all collaborating and partnering institutions and their roles in the managing organization;
- a list of proposed Key Personnel, including all PIs, Co-PIs and senior personnel, that identifies full names and affiliations;
- a description of the organization's overall management concept for NOAO;
- a description of the strategic vision for the organization's fulfillment of the NOAO mission;
- a brief synopsis of the organization's proposed approach to conducting business in Chile;
- an overview of the major elements of the organization's transition plan and estimated resource needs for assuming management of NOAO;
- a brief synopsis of the past performance history of the organization.

The PDF document should include the FastLane LOI ID in a running header and must be consistent with NSF Grant Proposal Guide formatting guidelines (NSF GPG Section II.B[VP1]).

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

- Sponsored Projects Office (SPO) Submission is not required by NSF when submitting Letters of Intent
- Other Participating Organizations are allowed
- Submission of multiple Letters of Intent is not allowed
- Subrecipients may participate in more than one letter of intent.

Letters of Intent will be used by NSF to ensure that the appropriate expertise is available for participation in the review and selection process, to foresee potential conflicts of interest, and to anticipate special award conditions that may be necessary to accommodate the proposed organizational and governance structure. The Letter of Intent is a statement of a proposer's preliminary plans, the senior personnel, and collaborating or partnering organizations. It is recognized that proposed plans may change between submission of the Letter of Intent and submission of the Full Proposal.

Full Proposals may be submitted only by organizations that have submitted a Letter of Intent by the due date.

Letter of Intent Preparation Instructions:

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

- Submission by an Authorized Organizational Representative (AOR) is not required when submitting Letters of Intent.
- Submission of multiple Letters of Intent is not allowed

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

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF Grant Proposal Guide (GPG). The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov. Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.
- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov. The complete text of the NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: (http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

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

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

The Full Proposal shall conform to the guidelines specified in the NSF Grant Proposal Guide or the NSF Grants.gov Application Guide, except where detailed below.

Proposers are reminded to review procedures under "Proprietary or Privileged Information" in Chapter 1, Section D.3 of the GPG and to mark only such information, including patentable ideas, trade secrets, privileged or confidential commercial or financial information, disclosure of which might harm the proposer, with the appropriate 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." Please also see the section entitled "Privacy Act and Public Burden Statements" below.

The following information is required for the Full Proposal:

1. PI/Co-I Information - This should follow the standard GPG or NSF Grants.gov Application Guide guidelines.
2. Cover Sheet - A cover sheet must be submitted and electronically signed by an Authorized Organizational Representative for all full proposals.
3. Project Summary - This section should provide a one-page summary of the key points of the proposal and should be understandable to a scientifically or technically literate lay reader. This section must follow the standard GPG or NSF Grants.gov Application Guide guidelines. Proposals that do not include an overview and separate statements on intellectual merit and broader impacts within the one-page Project Summary will not be accepted by FastLane or will be returned without review.
4. Project Description. Each proposal should describe the proposing organization's scientific, technical, and managerial qualifications to operate NOAO by addressing the areas described in Section II.B.4, Important Considerations in Preparation of a Proposal, items a. through e. of this solicitation. The Project Description section should be structured to map to items a. through e. in Section II.B.4. The Project Description is limited to no more than 80 pages. Where noted below, necessary resource material may be marked separately as an Appendix to the proposal and submitted as Supplementary Documentation (see below). Such material is not subject to, or included in, the 80-page limit.
5. References Cited - This section should follow the standard GPG or NSF Grants.gov Application Guide guidelines.
6. Transition Plan

   Proposing organizations, other than the incumbent, may be funded for an additional transition period of four to six months months preceding the transfer of operating authority. If a new awardee is selected to operate NOAO, the incumbent will cooperate with the successor to the extent necessary to facilitate uninterrupted support for NOAO during the transition period and will provide transfer of legal rights to relevant property and equipment. NSF will support appropriate transition costs incurred by a successor awardee if different from the current awardee.

   Organizations other than the incumbent should provide, as a Supplementary Document not to exceed 10 pages, a detailed transition plan and budget for a transition period of up to four months preceding the new award.

   The transition plan must include, at a minimum:

   - A proposed duration and schedule for the transition period;
   - Estimated resource needs for the transition period;
   - Plans for recruitment, orientation and training;
   - Plans for changes to staffing, facilities or operational modes;
   - A plan to acquire office infrastructure and manage the transfer of assets, inventory, commitments, plans and documents;
   - Identification of assumptions that underlie the transition plan.
7. Other Supporting Materials

   Within the 80-page limit, the proposing organization may provide additional material that it believes will be of assistance in evaluating the proposal but that does not fit into any of the defined sections above.

8. Biographical Sketches - A resumé, limited to 2 pages, should be provided for the PI, each co-PI, and all Key Personnel. At a minimum, each resumé should include a description of the individual's education and professional preparation, academic/professional appointments, relevant publications, and synergistic activities as required in GPG Section II.C.2.f.(i)a-d. Other GPG guidelines on order and format do not apply to this section of the proposal.
9. Budget - See the instructions in Section B, below.
10. Current and Pending Support - This section should follow the standard GPG or NSF Grants.gov Application Guide guidelines.
11. Supplementary Documentation - Except as specified in this solicitation (e.g., the required Transition Plan) and in the NSF Grant Proposal Guide (see GPG Section II.C.2.j), special information and related documentation must be included as part of the Project Description (or as part of the budget justification), if it is relevant to determining the quality of the proposed work. Exceptions include, but are not limited to, documentation of collaborative arrangements of significance to the proposal through letters of commitment, and the required submission of a Postdoctoral Researcher Mentoring Plan for each proposal that requests funding to support postdoctoral researchers.
12. Single Copy Documents - Information for the two items below should be entered via the Single Copy Documents section in Fastlane as "Additional Single Copy Documents." This information is required by NSF for determining conflicts of interest in the review process. The information includes the names of Project Personnel and the names of Collaborators and other Individuals with Conflicts. The information should be entered in the Single Copy Document section of FastLane "List of Personnel, Collaborators and Affiliates."

    Project Personnel: Provide the full names and affiliations of all Key Personnel.

    Collaborators/Individuals with Conflicts of Interest: Provide the names of all persons, participants and affiliates with potential conflicts of interest as specified in Section II.C.2.f.(i)e. of the NSF GPG . For each person, enter the first name, last name, and institutional affiliation(s). For each person listed on the project personnel list include all co-authors/editors and collaborators (within the past 48 months); list all graduate advisors and advisees; list individuals who would act as external

advisory committee members for NOAO; list all subcontractors who would receive funds through the award.

13. The following section is not required for the Full Proposal:

    Facilities, Equipment and Other Resources (all relevant information must be provided in the Project Description and Appendices).

    Proposers should insert text or upload a document in that section of the proposal that states, "Not Applicable for this Program Solicitation." Doing so will enable FastLane to accept your proposal.

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

Other Budgetary Limitations:

Proposing organizations may include a fixed annual management fee in their proposed budget, and must include a brief justification for the fee in the budget justification. The management fee must be clearly identified as such.

Budget Preparation Instructions:

The full proposal should include a budget on the budget form in FastLane or the R&R Budget Form in Grants.gov for each year of the ten-year period proposed (first five year period of an initial award plus another five years pending a successful performance review). The first year budget should total $17,500,000. Each subsequent year should be escalated by 3% per year. FastLane and Grants.gov will automatically provide a cumulative budget.

The proposal should provide all staffing and budgeting information needed to describe how the organization will fulfill the expectations in Sections I and II of this solicitation. Requested budget amounts for each year of the proposal should reflect the level considered necessary to perform the NSF-funded activities described in the proposal. Proposers should also be cognizant of budget constraints implied by the estimated funding levels provided under Section III. A budget justification shall be submitted with the budgets for the first two years only and shall be in sufficient detail to show how the proposer reached the amounts specified in the budget. NSF anticipates performing a detailed cost analysis of the successful proposal budget.

Enter the anticipated total level of subcontract support on line G5, Subawards, of the FastLane budget or line F5 of the R&R Budget Form in Grants.gov. Full proposals require the inclusion of separate budgets for subcontracts that exceed $250,000 per year. For subcontracts that would be less than $250,000 year, include the costs in the aggregate on the subaward line in the budget.

Proposing organizations other than the incumbent must also provide a detailed budget for a transition period of up to four months preceding the new award. This information must be provided in an Appendix labeled Transition Budget and submitted as Supplementary Documentation. The budget must be presented in the same style with all applicable budget line items as for the budget for each year of the proposal. If a new Awardee is selected to manage and operate NOAO, the incumbent will cooperate with the successor to the extent necessary to facilitate uninterrupted support for NOAO during the transition period and will provide transfer of legal rights to relevant property and equipment. NSF will support appropriate transition costs incurred by a successor awardee if different from the current awardee.

The transition budget should not include non-renewal costs of the incumbent. If a new operator is selected, the incumbent may submit to NSF costs related to the cooperative agreement non-renewal, and these costs will be considered separately.

In an Appendix labeled Financial Capability, proposing organizations must provide the following in support of the organization's financial condition and capability:

- A detailed structure and plan for implementing and monitoring business systems and internal controls for financial management and accounting, property standards, equipment standards, procurement standards, reporting and records management.
- Total compensation plan setting forth proposed salaries and fringe benefits for professional employees, with supporting information such as recognized national and regional compensation surveys, and studies of professional, public and private organizations used in establishing the total compensation structure.
- If available, the organization's annual audited financial statements (e.g. Balance Sheet, Profit and Loss Statement and Annual Reports) for the three most recent fiscal years and/or other documentation to clearly explain its current financial strength and resource capability.
- A current indirect cost rate proposal and supporting financial data. If the organization's indirect cost rates have been approved by another Federal agency, provide copies of such agreements.
- A current Cost Accounting Standards Board (CASB) Disclosure Statement or Cost Policy Statement.

Organizations that have not previously received NSF awards should review the NSF Prospective New Awardee Guide http://www.nsf.gov/pubs/2005/nsf0529/guide05_29.pdf for additional guidance in preparing their budget submission.

C. Due Dates

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

  October 18, 2013

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

  January 13, 2014

D. FastLane / Grants.gov Requirements

For Proposals Submitted Via FastLane:

To prepare and submit a proposal via FastLane, see detailed technical instructions available at: https://www.fastlane.nsf.gov/a1/newstan.htm. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

For Proposals Submitted Via Grants.gov:

Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. Comprehensive information about using Grants.gov is available on the Grants.gov Applicant Resources webpage: http://www.grants.gov/web/grants/applicants.html. In addition, the NSF Grants.gov Application Guide (see link in Section V.A) provides instructions regarding the technical preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: support@grants.gov. The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

Submitting the Proposal: Once all documents have been completed, the Authorized Organizational Representative (AOR) must submit the application to Grants.gov and verify the desired funding opportunity and agency to which the application is submitted. The AOR must then sign and submit the application to Grants.gov. The completed application will be transferred to the NSF FastLane system for further processing.

Proposers that submitted via FastLane are strongly encouraged to use FastLane to verify the status of their submission to NSF. For proposers that submitted via Grants.gov, until an application has been received and validated by NSF, the Authorized Organizational Representative may check the status of an application on Grants.gov. After proposers have received an e-mail notification from NSF, Research.gov should be used to check the status of an application.

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program for acknowledgement and, if they meet NSF requirements, for review. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF either as *ad hoc* reviewers, panelists, or both, who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that reviewers have no conflicts of interest with the proposal. In addition, Program Officers may obtain comments from site visits before recommending final action on proposals. Senior NSF staff further review recommendations for awards. A flowchart that depicts the entire NSF proposal and award process (and associated timeline) is included in the GPG as Exhibit III-1.

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

Proposers should also be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in *Investing in Science, Engineering, and Education for the Nation's Future: NSF Strategic Plan for 2014-2018*. These strategies are integrated in the program planning and implementation process, of which proposal review is one part. NSF's mission is particularly well-implemented through the integration of research and education and broadening participation in NSF programs, projects, and activities.

One of the strategic objectives in support of NSF's mission is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions must recruit, train, and prepare a diverse STEM workforce to advance the frontiers of science and participate in the U.S. technology-based economy. NSF's contribution to the national innovation ecosystem is to provide cutting-edge research under the guidance of the Nation's most creative scientists and engineers. NSF also supports development of a strong science, technology, engineering, and mathematics (STEM) workforce by investing in building the knowledge that informs improvements in STEM teaching and learning.

NSF's mission calls for the broadening of opportunities and expanding participation of groups, institutions, and geographic regions that are underrepresented in STEM disciplines, which is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

A. Merit Review Principles and Criteria

The National Science Foundation strives to invest in a robust and diverse portfolio of projects that creates new knowledge and enables breakthroughs in understanding across all areas of science and engineering research and education. To identify which projects to support, NSF relies on a merit review process that incorporates consideration of both the technical aspects of a proposed project and its potential to contribute more broadly to advancing NSF's mission "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes." NSF makes every effort to conduct a fair, competitive, transparent merit review process for the selection of projects.

1. Merit Review Principles

These principles are to be given due diligence by PIs and organizations when preparing proposals and managing projects, by reviewers when reading and evaluating proposals, and by NSF program staff when determining whether or not to recommend proposals for funding and while overseeing awards. Given that NSF is the primary federal agency charged with nurturing and supporting excellence in basic research and education, the following three principles apply:

- All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.
- NSF projects, in the aggregate, should contribute more broadly to achieving societal goals. These "Broader Impacts" may be accomplished through the research itself, through activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified.
- Meaningful assessment and evaluation of NSF funded projects should be based on appropriate metrics, keeping in mind the likely correlation between the effect of broader impacts and the resources provided to implement projects. If the size of the activity is limited, evaluation of that activity in isolation is not likely to be meaningful. Thus, assessing the effectiveness of these activities may best be done at a higher, more aggregated, level than the individual project.

With respect to the third principle, even if assessment of Broader Impacts outcomes for particular projects is done at an aggregated level, PIs are expected to be accountable for carrying out the activities described in the funded project. Thus, individual projects should include clearly stated goals, specific descriptions of the activities that the PI intends to do, and a plan in place to document the outputs of those activities.

These three merit review principles provide the basis for the merit review criteria, as well as a context within which the users of the criteria can better understand their intent.

2. Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board approved merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two merit review criteria are listed below. **Both** criteria are to be given **full consideration** during the review and decision-making processes; each criterion is necessary but neither, by itself, is sufficient. Therefore, proposers must fully address both criteria. (GPG Chapter II.C.2.d.i. contains additional information for use by proposers in development of the Project Description section of the proposal.) Reviewers are strongly encouraged to review the criteria, including GPG Chapter II.C.2.d.i., prior to the review of a proposal.

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

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

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

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

Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. NSF values the advancement of scientific knowledge and activities that contribute to achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.

Proposers are reminded that reviewers will also be asked to review the Data Management Plan and the Postdoctoral Researcher Mentoring Plan, as appropriate.

Additional Solicitation Specific Review Criteria

For Full Proposals, reviewers will be asked to identify and analyze the following:

- Strengths and weaknesses of the proposed management approach;
- Strengths and weaknesses of the proposed budgeting and financial plans;
- Opportunities and potential benefits that the proposed approach presents for NOAO;
- Risks to the future success of NOAO in the proposer's approach that are not satisfactorily addressed;
- Cost reasonableness and cost efficiency of the proposed approach.

In the process of formulating an overall assessment of the viability of the proposer's management and operations plan for NOAO, reviewers will consider each of the areas below.

1. Management: overall management and financial plans

Reviewers will consider:

- the strengths and weaknesses of the business plan for management and operation of NOAO as described in the proposal;
- the strengths and weaknesses of the activity-based budget breakdown in the proposal;
- correspondence of the staffing plan with available funding;
- the quality, relevance and extent of the proposing organization's strategic vision for fulfillment of the NOAO mission;
- the viability of the organization's management strategy to maintain and further develop NOAO's position as a world-class, multi-user facility;
- the role of the managing organization in relation to NOAO, NSF and the stakeholders;
- the relevance of proposed methods to support and reinforce the NOAO mission and programmatic scope with primary

stakeholders;
- the extent and quality of the plan to engage the multidisciplinary and multi-user community served by NOAO, with clear lines of communication, understanding of community needs and issues, and the means to engage the community in planning, research, education and development of relevant instruments and technology;
- the suitability, credibility and risks of proposed partnerships and their added value to NOAO and to NSF-supported science, education and outreach;
- the applicability of proposed methodologies for identifying, estimating and prioritizing future requirements, including demonstrated awareness of potential directions of the relevant sciences and responsiveness to stated community needs and ambitions.

2. Operations, maintenance, environmental, safety, health, and security

Reviewers will consider:

- the feasibility, relevance to NOAO stakeholders, and potential for success of the proposed approach, including organizational structure, resource integration, provision of space and equipment, logistics support for scientific initiatives, data management and information technology, and maintenance, safety and security of systems and facilities;
- the sufficiency, and potential for achieving effective results, of the proposed methodology for assessing and improving NOAO performance.

3. Budgeting, staffing, and workforce management

Reviewers will consider:

- the adequacy of the proposed methods and processes for managing the budget of a complex organization;
- the adequacy and appropriateness of the organization's named personnel and proposed labor categories for fulfilling the NOAO mission;
- the suitability and potential for success of the proposed methods for recruitment and retention, promoting diversity at all levels in the organization, invigorating and training the workforce, and infusing new ideas and approaches in NOAO programs and administration.

4. Science and facility planning

Reviewers will consider:

- the ability to respond to and prioritize evolving scientific and engineering needs and opportunities in the community, particularly in response to changing budgetary environments;
- the degree to which the proposed programs, priorities and technical capabilities reflect the needs of NOAO stakeholder communities and utilize the unique research capabilities provided and facilitated by NOAO; the scope, feasibility and innovation of the planned activities;
- the extent to which planning targets critical goals relevant to the NOAO strategic vision, identifies challenging scientific and technical questions or barriers to be overcome, identifies performance measures for the planning and delivery process, and reflects appropriate and effective use of resources where possible.

5. Education, public outreach, and open access

With due consideration of the funding limitations, reviewers will consider:

- the extent and quality of the proposed education and outreach programs, their potential for success, and the resulting impacts on identified target audiences;
- the relevance of the proposed plan to engage and develop intellectual talent, including groups underrepresented in the sciences, mathematics and engineering, in the conduct of NOAO research, education and operational support activities;
- the suitability of proposed mechanisms to ensure broad and equitable access to NOAO among the relevant scientific research communities.

6. Transition Plan: The Transition Plan will be evaluated to assess the proposing organization's ability to assume full responsibility for the management and operation of NOAO upon completion of the transition period without degradation of high-quality services, research efforts and facilities.

In addition, NSF will assess the organization's budgetary and financial information as requested as part of the merit review and as outlined under Section V.B of this solicitation. The organization will be assessed for the adequacy of its internal accounting and operational controls (including human resources, property control and procurement systems), potential for attracting qualified employees, and the adequacy of its financial resources for managing NOAO. The proposed fee (if any) and proposed total costs will be evaluated by NSF for reasonableness and potential impact on funding available for science and related activities. The impact of total costs and any proposed fee will be evaluated relative to other organizations' proposed total costs and fees. The business evaluation will be used to help inform the Program Officer's recommendation for award.

B. Review and Selection Process

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

Proposals will be reviewed with a combination of ad hoc reviews, panel review meetings, and reverse site visits. The panel review will have access to the ad hoc reviews, and with its own deliberations will formulate an overall evaluation of each proposal. The panel membership will include experts in business practices and management of scientific organizations.

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

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF is striving to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director accepts the Program Officer's recommendation. The proposal submitted in response to this solicitation that is recommended for award also must be

approved by the National Science Board, and that may require additional processing time.

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

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

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

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

B. Award Conditions

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

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

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

Special Award Conditions:

The award associated with this solicitation will be a cooperative agreement, not a standard grant or a contract. Individual cooperative support agreements will be issued under the terms and conditions of the overall agreement. Any special requirements not stated herein will be negotiated at time of award.

Programmatic Terms and Conditions: The cooperative agreement(s) awarded as a result of this competition will be administered by the NSF Division of Astronomical Sciences. The following measures will be employed in providing oversight for the cooperative agreement:

- Review of annual reports, program plans and performance metrics;
- Review of research and education activities and management performance approximately midway at the five-year point in award; Site visits annually, or as necessary.

Financial and Administrative Terms and Conditions: Costs to be reimbursed in accordance with 2 CFR 220 -- Cost Principles for Educational Institutions, 2 CFR 230 -- Cost Principles for Nonprofit Organizations, or Federal Acquisition Regulation (FAR) Part 31, as applicable.

The awardee will be required to submit to an NSF Business Systems Review at least once during the award period.

Standard cooperative agreement terms and conditions, including supplements for managers of FFRDCs, are available at:

http://www.nsf.gov/awards/managing/co-op_conditions.jsp?org=NSF. Specific terms and conditions will be negotiated at time of award.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer no later than 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). No later than 120 days following expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report, will delay NSF review and processing of

any future funding increments as well as any pending proposals for all identified PIs and co-PIs on a given award. PIs should examine the formats of the required reports in advance to assure availability of required data.

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

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

The managing organization will be required to provide planning documents such as annual program plans and long-range plans, for all programs at NOAO, along with reports as may be required by NSF. Under the Government Performance and Results Act (GPRA), NSF is required to report on the Federal Performance Goals for Facilities. Any and all facilities with an annual budget exceeding a specific threshold must report on their operations activities; and any and all construction/upgrade projects that exceed a total project cost of a specific threshold must report on their construction/upgrade activities. Therefore, the awardee will be required, upon request of the cognizant NSF program officer, to submit annual reports related to the GPRA performance goals. This may include the collection and submission of specific data related to the NSF GPRA requirements.

VIII. AGENCY CONTACTS

Please note that the program contact information is current at the time of publishing. See program website for any updates to the points of contact.

General inquiries regarding this program should be made to:

- Vernon L. Pankonin, 1030 S, telephone: (703) 292-4902, email: vpankoni@nsf.gov
- Elizabeth A. Pentecost, 1030 S, telephone: (703) 292-4907, email: epenteco@nsf.gov

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: fastlane@nsf.gov.

For questions relating to Grants.gov contact:

- Grants.gov Contact Center: If the Authorized Organizational Representatives (AOR) has not received a confirmation message from Grants.gov within 48 hours of submission of application, please contact via telephone: 1-800-518-4726; e-mail: support@grants.gov.

IX. OTHER INFORMATION

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

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

ABOUT THE NATIONAL SCIENCE FOUNDATION

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

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

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

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

regarding preparation of these types of proposals.

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

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

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

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

- **Location:** 4201 Wilson Blvd. Arlington, VA 22230
- **For General Information** (NSF Information Center)**:** (703) 292-5111
- **TDD (for the hearing-impaired):** (703) 292-5090
- **To Order Publications or Forms:**

  Send an e-mail to: nsfpubs@nsf.gov

  or telephone: (703) 292-7827
- **To Locate NSF Employees:** (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

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

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

Suzanne H. Plimpton
Reports Clearance Officer
Office of the General Counsel
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