Robert Noyce Teacher Scholarship Program

PROGRAM SOLICITATION
NSF 15-530

REPLACES DOCUMENT(S):
NSF 14-508

National Science Foundation

Directorate for Education & Human Resources
Division of Undergraduate Education

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

March 17, 2015

August 04, 2015

IMPORTANT INFORMATION AND REVISION NOTES

This solicitation

- Separates the previous TF/MTF track into two tracks and adds a research track:
  - Track 1: Scholarships & Stipends (S&S)
  - Track 2: NSF Teaching Fellowships (TF)
  - Track 3: NSF Master Teaching Fellowships (MTF)
  - Track 4: Research on the Preparation, Recruitment, and Retention of K-12 STEM Teachers
- Revises the previous additional budget limitation information to stipulate that:

  Budgets for Tracks 1, 2, and 3 must allocate at least 60% of the total requested Direct Costs to scholarships, stipends, fellowships, or salary supplements. This allocation must appear on budget line *F.1. STIPENDS* in FastLane (or Section E.2. on the Grants.gov R&R Budget Form).

  For more information see the Budget Limitations sections in each track.
- Makes Phase 2 projects in Tracks 1, 2, and 3 eligible (along with Phase 1 and Capacity Building) to request additional funds if the project involves a significant collaboration among two-year and four-year institutions. For more information see the Budget Limitations sections in each track.
- Eliminates the Phase 2 Monitoring and Evaluation project option.
- Includes a Definitions of Terms section.
- Establishes the full proposal due date for FY16 funded projects as August 4, 2015.
- Eliminates letters of intent (previously optional).

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised NSF Proposal & Award Policies & Procedures Guide (PAPPG) (NSF 15-1), which is effective for proposals submitted, or due, on or after December 26, 2014. The PAPPG is consistent with, and, implements the new Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance) (2 CFR § 200).

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Robert Noyce Teacher Scholarship Program

Synopsis of Program:

In this solicitation, the acronym *STEM* stands for science, technology, engineering, and mathematics; STEM includes computer science.

The **Robert Noyce Teacher Scholarship Program** seeks to encourage talented science, technology, engineering, and mathematics majors and professionals to become K-12 STEM teachers. **Track 1: The Robert Noyce Teacher Scholarships and Stipends Track** provides funds to support scholarships, stipends, and academic programs for undergraduate STEM majors and post-baccalaureate STEM professionals to become highly effective STEM teachers; these individuals commit to teaching for 2 years in high-need local educational agencies for every year of scholarship/stipend support. **Track 2: The NSF Teaching Fellowships Track** provides funds to support fellowships, academic programs, professional development, and salary supplements for STEM professionals, including retirees from STEM professions, who enroll in a master's degree program leading to

teacher certification or licensing; these individuals, referred to as NSF Teaching Fellows, commit to teaching for four years in high-need local educational agencies. **Track 3: The NSF Master Teaching Fellowships Track** provides funds to support professional development and salary supplements for K-12 STEM teachers, who are experienced and exemplary and who already have a master's degree in their field, to become NSF Master Teaching Fellows; these individuals commit to teaching for five years in high-need local educational agencies. Tracks 1, 2, and 3 welcome Phase 1, Phase 2, and Capacity Building proposals.

Track 4: Research on the Preparation, Recruitment, and Retention of K-12 STEM Teachers provides funds to support planning, exploratory research, and full scale research proposals that address (1) a set of research priorities identified by and stated in the 2010 National Research Council's report, *Preparing Teachers: Building Evidence for Sound Policy* and (2) issues identified in the literature on effective teachers and the retention of effective STEM teachers and teacher leaders. This track provides funding for two categories of proposals: Research Type A *Noyce Partnerships for Research on STEM Teacher Preparation* and Research Type B *Research on Preparing STEM Teachers for the Future*.

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.

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

- 47.076 --- Education and Human Resources

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 50 to 60

including 33-37 in Track 1 S&S (Phase 1, Phase 2, and Capacity Building), 7-9 in Track 2 TF (Phase 1, Phase 2, and Capacity Building), 7-9 in Track 3 MTF (Phase 1, Phase 2, and Capacity Building), and 3-5 in Track 4 Noyce Research.

Anticipated Funding Amount: $52,800,000

for new Noyce awards in FY 2015, pending availability of funding.

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Universities and two- or four-year colleges (including community colleges, tribal colleges, and minority-serving institutions) accredited in, and having a campus located in, the United States, or consortia of such institutions, or U.S. nonprofit entities that have established consortia among such institutions of higher education.
- In addition, for Track 4: Research on the Preparation, Recruitment, and Retention of K-12 STEM Teachers, professional societies and similar organizations that are directly associated with educational or research activities.

Who May Serve as PI:

The PI/Co-PI team must include at least one faculty member from a science, technology, engineering, or mathematics department and at least one education faculty member.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

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

There are no restrictions or limits.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not required
- **Preliminary Proposal Submission:** Not required
- **Full Proposals:**
  - Full Proposals submitted via FastLane: NSF Proposal and Award Policies and Procedures Guide, 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:** Cost Sharing is Required. For purposes of this solicitation, and in accordance with Federal requirements, the terms "matching" and "cost sharing" are synonymous. Please see the full text of this solicitation for further information.
- **Indirect Cost (F&A) Limitations:** Not Applicable
- **Other Budgetary Limitations:** Other budgetary limitations apply. Please see the full text of this solicitation for further information.

C. Due Dates

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

  March 17, 2015

  August 04, 2015

Proposal Review Information Criteria

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

Award Administration Information

Award Conditions: Standard NSF award conditions apply.

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

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I. INTRODUCTION

The **Robert Noyce Teacher Scholarship Program** seeks to encourage talented science, technology, engineering, and mathematics majors and professionals to become K-12 teachers of science, technology, engineering, and mathematics (STEM). This program responds to the critical need for highly effective K-12 STEM teachers by recruiting and preparing talented undergraduate STEM majors and STEM professionals to pursue teaching careers in elementary and secondary schools, especially in high-need schools. The program seeks to encourage institutions of higher education to develop and sustain a culture where undergraduate STEM majors, especially those of the highest achievement and ability, are encouraged and supported when they express a desire to pursue K-12 STEM teaching careers.

Track 1: The Robert Noyce Teacher Scholarships and Stipends Track provides funds to support scholarships, stipends, and academic programs for undergraduate STEM majors and post-baccalaureate STEM professionals to become highly effective STEM teachers; these individuals commit to teaching for 2 years in high-need local educational agencies for every year of scholarship/stipend support. **Track 2: The NSF Teaching Fellowships Track** provides funds to support fellowships, academic programs, professional development, and salary supplements for STEM professionals, including retirees from STEM professions who enroll in a master's degree program leading to teacher certification or licensing; these individuals, referred to as NSF Teaching Fellows, commit to teaching for four years in high-need local educational agencies. **Track 3: The NSF Master Teaching Fellowships Track** provides funds to support professional development and salary supplements for K-12 STEM teachers, who are experienced and exemplary and who already have a master's degree in their field, to become NSF Master Teaching Fellows; these individuals commit to teaching for five years in high-need local educational agencies. Tracks 1, 2, and 3 welcome Phase 1, Phase 2, and Capacity Building proposals.

Track 4: Research on the Preparation, Recruitment, and Retention of K-12 STEM Teachers provides funds to support planning, exploratory research, and full scale research proposals that address (1) a set of research priorities identified by and stated in the 2010 National Research Council's report, *Preparing Teachers: Building Evidence for Sound Policy* and (2) issues identified in the literature on effective teachers and the retention of effective STEM teachers and teacher leaders. This track provides funding for two categories of proposals: Research Type A *Noyce Partnerships for Research on STEM Teacher Preparation* and Research Type B *Research on Preparing STEM Teachers for the Future*.

The program was first authorized under the National Science Foundation Authorization Act of 2002 (P.L. 107-368), and reauthorized in 2007 under the America COMPETES Act (P.L. 110-69) and the America COMPETES Reauthorization Act of 2010 (P.L. 111-358). The Noyce program addresses the goal established by the President's Council of Advisors on Science and Technology, "of ensuring over the next decade the recruitment, preparation, and induction support of at least 100,000 new STEM middle and high school teachers who have strong majors in STEM fields and strong content-specific pedagogical preparation, by providing vigorous support for programs designed to produce such teachers."(PCAST, 2010). By supporting the recruitment and preparation of strong STEM teachers who will teach in high-need school districts, serving diverse student populations, the program supports the strategic objective (G1/O2) in the *NSF Strategic Plan for 2014-2018:* "Integrate education and research to support development of a diverse STEM workforce with cutting-edge capabilities." The Noyce Program supports the role of NSF as central to discovering, studying, and promoting pathways for STEM teacher education through research and development.

II. PROGRAM DESCRIPTION

The **Robert Noyce Teacher Scholarship Program** consists of four tracks of projects, including phases within the tracks:

Track 1: The Robert Noyce Teacher Scholarships and Stipends Track (S&S) offers awards to institutions to recruit and prepare K-12 STEM teachers and to provide scholarships to undergraduate STEM majors and stipends to STEM professionals to that end. This track provides funding for three categories of proposals: Phase 1, Phase 2, and Capacity Building.

Track 2: The NSF Teaching Fellowships Track (TF) offers awards to institutions to administer fellowships and programmatic support to STEM professionals, including recent STEM graduates and retirees from STEM professions. These individuals, referred to as NSF Teaching Fellows, enroll in a master's degree program leading to teacher certification or licensing to teach a STEM discipline in an elementary or secondary school. This track provides funding for three categories of proposals: Phase 1, Phase 2, and Capacity Building.

Track 3: The NSF Master Teaching Fellowships Track (MTF) offers awards to institutions to administer fellowships and programmatic support to experienced and exemplary K-12 STEM teachers who possess a master's degree in their field and who participate in a program for developing master teachers and teacher leaders. These selected individuals are referred to as NSF Master Teaching Fellows. This track provides funding for three categories of proposals: Phase 1, Phase 2, and Capacity Building.

Track 4: Research on the Preparation, Recruitment, and Retention of K-12 STEM Teachers (the Noyce Research Track) calls for research proposals that address a set of research priorities identified by and stated in the 2010 National Research Council's report, *Preparing Teachers: Building Evidence for Sound Policy*.This track provides funding for two categories of proposals: Research Type A: *Noyce Partnerships for Research on STEM Teacher Preparation* and Research Type B *Research on Preparing STEM Teachers for the Future*.

All eligible entities, including institutions with current Robert Noyce Teacher Scholarship Program awards, may submit proposals to any track. Partnerships between four-year institutions (including doctorate, masters, and baccalaureate granting) and two-year institutions, providing pathways leading to STEM teacher certification, are particularly encouraged. In such partnerships, the distribution of effort and funds between the four-year institution and the two-year institution and the participation of faculty from all partnering institutions should reflect a genuine collaboration. For additional details, see the Budget Limitations section under each track.

All proposals must provide evidence of genuine collaboration between faculty in STEM departments and education faculty. Furthermore, all proposals for **Tracks 1, 2, and 3** must provide evidence of exemplary teacher preparation and development efforts and must include evidence of an infrastructure that is supportive of new teachers, especially during their induction years. Proposals must include a description of the activities and support mechanisms that will be available to recipients to ensure they become highly effective STEM teachers in elementary/secondary schools and are able to fulfill their teaching service commitment (see Teaching Service Commitment section in each track).

Definitions of Terms

In this program solicitation

1. The acronym *STEM* stands for science, technology, engineering, and mathematics; STEM includes computer science.
2. The term *STEM teacher* means a science, technology, engineering, or mathematics teacher at the elementary school or secondary school level.
3. The term *STEM professional* means a person who holds a baccalaureate, master's, or doctoral degree within a specific discipline in science, technology, engineering, or mathematics and is working in or had a career in such field or a related area, including retirees from STEM professions.
4. The term *cost of attendance* has the meaning given such term in section 472 of the Higher Education Act of 1965 (20 U.S.C. 1087ll).
5. The term *scholarship* means funds awarded in the Scholarships and Stipends Track to:
    a. an undergraduate STEM major who has attained at least junior status in a baccalaureate degree program; or
    b. a post-baccalaureate student (when the program requires a fifth year to obtain teacher certification or licensing).
6. The term *stipend* means funds awarded in the Scholarships and Stipends Track to a *STEM professional* who enrolls in a teacher certification program.
7. The term *fellowship* means a title and funds awarded
    a. in the NSF Teaching Fellowships Track, to a STEM professional while that individual is enrolled in a master's degree program leading to teacher certification or licensing and while that individual is fulfilling the teaching service commitment (at which point the funds are also referred to as a *salary supplement*); or
    b. in the NSF Master Teaching Fellowships Track, to a STEM teacher (in which case the funds are also referred to as a *salary supplement*).
8. The term *high-need local educational agency* as defined in section 201 of the Higher Education Act of 1965 (20 U.S.C. 1021) means a local educational agency (for example, a school district) that serves an elementary or secondary school located in an area which is characterized by at least one of the following:
    a. a high percentage of individuals from families with incomes below the poverty line;
    b. a high percentage of secondary school teachers not teaching in the content area in which they were trained to teach; or
    c. a high teacher turnover rate.

TRACK 1: THE ROBERT NOYCE TEACHER SCHOLARSHIPS AND STIPENDS TRACK (S&S)

The **Robert Noyce Teacher Scholarships and Stipends Track (S&S)** of the Robert Noyce Teacher Scholarship Program offers awards to institutions to recruit and prepare *STEM teachers* and to provide scholarships to undergraduate STEM majors and stipends to STEM professionals to that end.

Required Partners for S&S Projects

In order to be eligible to receive a grant under the S&S Track, the project leadership team must include, as active and collaborating participants, specific faculty members from the STEM departments and specific faculty members from the teacher education departments. In addition, all proposals must provide evidence of agreements between the institution and the schools or local educational agencies that are identified as the locations at which clinical teaching experiences will occur. The partnership may also include master teachers in the development of the pedagogical content of the program and in the supervision of S&S recipients in their clinical teaching experiences.

Features of S&S Projects

S&S Projects are expected to develop and implement exemplary programs to recruit and prepare

1. undergraduate STEM majors to become qualified as STEM teachers by
    a. administering scholarships (see the Selection of S&S Recipients and S&S Amount and Duration sections below);
    b. offering academic courses and early clinical teaching experiences designed to prepare undergraduate STEM majors to teach STEM in elementary or secondary schools served by a high-need local educational agency, including the preparation necessary to meet requirements for teacher certification or licensing; and
    c. offering programs to undergraduate STEM majors, both before and after the students receive their baccalaureate degree, to enable the students to become highly effective STEM teachers, to fulfill the teaching service requirements of the S&S track (described in the S&S Teaching Service Commitment section below), and to exchange ideas with others in their fields

   and/or

2. STEM professionals (as defined in the Definitions of Terms section) to become qualified as STEM teachers by
    a. administering stipends (see Selection of S&S Recipients and S&S Amount and Duration sections below);
    b. offering academic courses and clinical teaching experiences designed to prepare STEM professionals to teach in elementary or secondary schools served by a high-need local educational agency, including the preparation necessary to meet requirements for teacher certification or licensing; and
    c. offering programs to STEM professionals, both upon and after matriculation in the program for which the stipend is received, to enable recipients to become highly effective STEM teachers, to fulfill the teaching service requirements of the S&S track (described in the S&S Teaching Service Commitment section below), and to exchange ideas with others in their fields.

Proposals may address the undergraduate scholarship component or the STEM professional component or both.

Project activities should be based on effective, evidence-based strategies. Recipients should be engaged in project activities throughout their participation in the program, including after they complete the preservice component. Project activities that follow the preservice component should facilitate the transition into teaching and aid retention during and beyond the obligatory teaching service period.

S&S proposals are expected to describe recruitment plans for scholarship/stipend recipients. Proposals should include support for internships for freshman and sophomore undergraduate students with the goal of increasing the number of declared or prospective STEM majors who enter K-12 STEM teaching as a career. Such experiences may occur in formal or informal STEM education settings such as summer STEM camps, summer school, STEM museums, nature centers, or STEM research laboratories.

Selection of S&S Recipients

Scholarship recipients and stipend recipients must be U.S. citizens or nationals, or permanent resident aliens.

Scholarship recipients are expected to be undergraduate students who have attained at least junior status in a STEM baccalaureate degree program. They are expected to be selected primarily on the basis of academic merit, with consideration given to financial need and the diversity of participants in the program. These students must graduate with a major in a STEM discipline and will obtain teacher certification or licensing. Efforts to attract undergraduate STEM majors who may not have previously considered a

career in K-12 STEM teaching are particularly encouraged.

Stipend recipients are expected to be STEM professionals who, while receiving the stipend, are enrolled in a program referred to in the Features of S&S Projects section above. They are expected to be selected primarily on the basis of academic merit and professional achievement, with consideration given to financial need and the diversity of participants in the program.

S&S Teaching Service Commitment

For each full-year of a scholarship award received, scholarship recipients are required to complete two years of service as a STEM teacher in a high-need local educational agency, with a maximum service requirement of six years. This teaching service commitment must be completed within eight years after graduation from the program for which the scholarship was awarded.

Stipend recipients are required to complete two years of service as a STEM teacher in a high-need local educational agency. This teaching service commitment must be completed within four years after graduation from the program for which the stipend was awarded.

See the **Institutional and Recipient Obligations for Projects in Tracks 1, 2, or 3** section below for details about repayment of scholarships/stipends that revert to loans.

S&S Amount and Duration

Scholarships awarded are to be at least $10,000 per year, not to exceed the cost of attendance at the institution. A full-time student may receive an annual scholarship through the completion of a baccalaureate degree program, not to exceed a maximum of three years (for students enrolled in institutions requiring a fifth year or post-baccalaureate program for teacher certification/licensing). A part-time student may receive scholarships that are prorated according to the student's enrollment status, not to exceed six years of scholarship support.

Stipends awarded are to be at least $10,000 per year, not to exceed the cost of attendance at the institution. Individuals may receive a maximum of one year of stipend support, unless the individual is enrolled in a part-time program, in which case the amount may be prorated according to the length of the program.

S&S Project Evaluation and Research

All projects are expected to include an evaluation plan for measuring the impact of the project and effectiveness of proposed activities in attracting, preparing, and retaining undergraduate STEM majors and STEM professionals in teaching careers. Project evaluation should also address the effectiveness of the Noyce scholarship/stipend recipients as teachers, especially (to the extent possible) in terms of the impact on student learning. The evaluation plan should include a mechanism for tracking the scholarship/stipend recipients as they fulfill their teaching service commitment and a method for collecting demographic data on these individuals. Individual project evaluation is expected to contribute to the knowledge base of strategies for attracting, preparing, and retaining effective teachers with strong STEM content knowledge.

Categories of S&S Proposals

The Robert Noyce Teacher Scholarship Program S&S Track provides funding for three categories of proposals: Phase 1, Phase 2, and Capacity Building.

See the Proposal Preparation Instructions section for more details.

S&S Phase 1 projects provide scholarships and/or stipends (as defined in the Definitions of Terms section). Proposals may address the undergraduate scholarship component or the STEM professional component or both. In addition, proposals that have an undergraduate scholarship component should also describe plans or programs designed to recruit declared or prospective STEM majors into K-12 STEM teaching as a career, with special attention to undergraduate STEM majors who might not otherwise have considered a career as a K-12 STEM teacher.

S&S Phase 2 awards provide funds for prior Noyce Program awardees to conduct longitudinal evaluation and research activities on existing cohorts of scholarship/stipend recipients, along with support for additional cohorts of scholarship/stipend recipients. Phase 2 proposals are expected to provide strong evidence of the success of, and what was learned from, the previous award that warrants additional funding. These proposals must include plans for conducting longitudinal evaluation and research studies of recipients supported under the previous Noyce Program award, as well as monitoring (including tracking) and evaluation of any new cohorts. Proposals must include plans for evaluating the impact of the program on recruitment and retention of STEM teachers, the impact on the institution, and the effectiveness of the Noyce scholarship/stipend recipients as K-12 STEM teachers. The original project should have met its goals in terms of recruitment and the proposal should provide evidence that the institution has the capacity to recruit and place additional cohorts of recipients in high-need local educational agencies.

S&S Capacity Building awards provide funds for institutions to develop evidence-based innovative models and strategies for recruiting, preparing, and supporting new teachers and to establish the infrastructure for implementing a future Noyce S&S project. Examples of possible project activities include, but are not limited to, conducting needs assessments to determine areas of teacher shortages and interest among STEM professionals; strengthening partnerships with high-need local educational agencies; strengthening collaborations among faculty in STEM departments and faculty in education; strengthening collaborations among institutions of higher education, including two-year colleges; designing/developing new courses as well as early field experiences, new degree requirements, and/or programs to support new teachers. Collaborations between currently funded successful Noyce projects and institutions seeking to develop capacity for recruiting and preparing STEM teachers are encouraged. Capacity Building projects are not intended to award scholarships, stipends, or internships.

S&S Project Budget Limitations

Cost sharing is neither required nor allowed for the S&S Track and therefore should not be included in the proposal.

The maximum total budget for **S&S Phase 1** proposals is $1,200,000 with a project duration of up to 5 years. S&S Phase 1 projects involving collaborations between two-year institutions and four-year institutions (including doctorate, masters, and baccalaureate granting) may request an additional $250,000 over 5 years, resulting in a total budget of up to $1,450,000.

The maximum total budget for **S&S Phase** 2 proposals is $800,000 with a project duration of up to 5 years. S&S Phase 2 projects involving collaborations between two-year institutions and four-year institutions (including doctorate, masters, and baccalaureate granting) may request an additional $250,000 over 5 years, resulting in a total budget of up to $1,050,000.

For **S&S Phase 1** and **S&S Phase 2** proposals, at least 60% of the proposed total Direct Costs must be allocated for support directly received by the participants in the form of scholarships or stipends as reported on budget line *F.1. STIPENDS* in FastLane (or Section E.2. on the Grants.gov R&R Budget Form). Funds requested specifically for other types of recipient support, such as

travel, should be entered in section *F. Participant Support Costs*, on lines 2., 3., or 4., in FastLane (or Section E.3., 4., or 5. on the Grants.gov R&R Budget Form) as appropriate, but are not included in the 60%.

The maximum total budget for **S&S Capacity Building** proposals is $75,000 with a project duration of up to 1 year. S&S Capacity Building projects involving collaborations between two-year institutions and four-year institutions (including doctorate, masters, and baccalaureate granting) may request an additional $50,000, resulting in a total budget of up to $125,000. S&S Capacity Building proposals should not include money for scholarships, stipends, or internships.

TRACK 2: THE NATIONAL SCIENCE FOUNDATION TEACHING FELLOWSHIPS TRACK (TF)

The **NSF Teaching Fellowships Track (TF)** of the Robert Noyce Teacher Scholarship Program offers awards to institutions to administer fellowships and programmatic support to STEM professionals (as defined in the Definitions of Terms section), including recent STEM graduates and retirees from STEM professions. These individuals, referred to as NSF Teaching Fellows, enroll in a master's degree program leading to teacher certification or licensing to teach a STEM discipline in an elementary or secondary school.

Required Partners for TF Projects

In order to be eligible to receive a grant under the TF Track, the partnership must include:

1. a department within an institution of higher education (IHE) that provides an advanced program of study within a specific discipline in mathematics or the sciences;
    a. a department or entity within an IHE that provides a teacher preparation program; or
    b. a two-year IHE that has a teacher preparation offering or a dual enrollment program with an IHE;
2. at least one high-need local educational agency and a public school or a consortium of public schools served by the agency; and
3. at least one nonprofit organization that has a demonstrated record of capacity to provide expertise or support to meet the goals of the proposed project.

Features of TF Projects

TF Projects are expected to develop and implement exemplary programs for National Science Foundation Teaching Fellows by:

1. administering fellowships, including providing the TF salary supplements (described in the TF Salary Supplements section below);
2. building on evidence-based strategies to offer:
    a. academic courses and clinical teaching experiences to enable TFs to complete a master's degree and to obtain teacher certification or licensing; and
    b. programs or activities, including mentoring, induction, and professional development activities, to enable TFs to become highly effective K-12 STEM teachers, to fulfill the teaching service requirements of the TF Track (described in the TF Teaching Service Commitment section below), and to exchange ideas with others in their fields.

Selection of Teaching Fellows

TF recipients must be U.S. citizens or nationals, or permanent resident aliens. TF recipients are expected to be selected primarily on the basis of professional achievement; academic merit; and STEM content knowledge, as demonstrated by their performance on rigorous, nationally recognized assessments used to determine whether individuals applying for fellowships have advanced STEM content knowledge.

TF Teaching Service Commitment and Leadership Role

An individual awarded a NSF Teaching Fellowship is expected:

1. to serve as a STEM teacher in an elementary school or secondary school served by a high-need local educational agency for four years, to be fulfilled within six years of completing the master's degree program; and
2. while fulfilling the teaching service commitment above and in addition to regular classroom activities, to take on a leadership role within their school or high-need local educational agency in which they are employed. Examples of leadership activity include serving as a mentor, participating in curriculum development, assisting in the planning and implementation of professional development experiences, and participating in preservice teacher education.

See the **Institutional and Recipient Obligations for Projects in Tracks 1, 2, or 3** section below for details about repayment of fellowships that revert to loans.

TF Salary Supplements

A key aspect of the NSF Teaching Fellowship Track, required under the America COMPETES Act (P.L. 111-358), is the provision of salary supplements to the TFs as they are fulfilling their teaching service commitment.

1. While enrolled full-time in the master's degree program, the TF will receive a one-year stipend of at least $10,000, not to exceed the cost of attendance. TFs enrolled part-time may receive a prorated stipend.
2. Following completion of the master's degree program and teacher certification or licensing, and while teaching in an elementary or secondary school served by a high-need local educational agency, the TF will receive an annual salary supplement of at least $10,000 per year for the four years of the teaching service commitment. The local educational agency must agree not to reduce the base salary of the NSF Teaching Fellow while the salary supplement is being received.

TF Project Evaluation and Research

All projects are expected to include an evaluation plan for measuring the impact of the project and effectiveness of proposed activities in attracting, preparing, and retaining STEM professionals in teaching careers. Project evaluation should also address the effectiveness of the NSF Teaching Fellowship recipients as teachers, especially (to the extent possible) in terms of the impact on student learning. The evaluation plan should include a mechanism for tracking the fellowship recipients as they fulfill their teaching service commitment and a method for collecting demographic data on these individuals. Individual project evaluation is expected to contribute to the knowledge base of strategies for attracting, preparing, and retaining effective teachers with strong STEM content knowledge.

Categories of TF Proposals

The Robert Noyce Teacher Scholarship Program TF Track provides funding for three categories of proposals: Phase 1, Phase 2, and Capacity Building.

See the Proposal Preparation Instructions section for more details.

TF Phase 1 projects provide fellowships (as defined in the Definition of Terms section) and teacher certification through a master's degree program for STEM professionals (as defined in the Definition of Terms section) seeking to become teachers.

TF Phase 2 awards provide funds for prior Noyce Program awardees to conduct longitudinal evaluation and research activities on existing cohorts of fellowship recipients, along with support for additional cohorts of fellowship recipients. Phase 2 proposals are expected to provide strong evidence of the success of, and what was learned from, the previous award that warrants additional funding. These proposals must include plans for conducting longitudinal evaluation and research studies of recipients supported under the previous Noyce Program award as well as monitoring (including tracking) and evaluation of any new cohorts. Proposals must include plans for evaluating the impact of the program on recruitment and retention of STEM teachers, the impact on the institution(s), and the effectiveness of the Noyce fellowship recipients as K-12 STEM teachers, including (to the extent possible) their impact on student learning. The original project should have met its goals in terms of recruitment of TFs and the proposal should provide evidence that the institution has the capacity to recruit and place additional cohorts of TFs in high-need local educational agencies.

TF Capacity Building awards provide funds for institutions to develop evidence-based innovative models and strategies for recruiting, preparing, and supporting new teachers and to establish the infrastructure for implementing a future Noyce TF project. Examples of possible project activities include, but are not limited to, conducting needs assessments to determine areas of teacher shortages and interest among STEM professionals; strengthening partnerships with high-need local educational agencies and non-profit organizations; strengthening collaborations among faculty in STEM departments and faculty in education; strengthening collaborations among institutions of higher education, including two-year colleges; in addition to the design/development of courses, early field experiences, new degree requirements, and/or programs to support new teachers. Activities related to TF capacity building may also include the identification of matching funds and securing agreements with high-need local educational agencies regarding salary supplements. Collaborations between currently funded successful Noyce projects and institutions seeking to develop capacity for recruiting and preparing NSF Teaching Fellows are encouraged. Capacity Building projects are not intended to award fellowships.

TF Project Budget Limitations

See section III Award Information and section V.B. for additional information.

In addition, as required by the America COMPETES Act (P.L. 111-358), an institution submitting a **Phase 1** or **Phase 2** proposal under the **NSF TF Track** must provide matching funds (cost sharing), from non-Federal sources, to support the activities of the project. Specifically these matching funds must be:

- In the case of grants in an amount of less than $1,500,000, an amount equal to at least 30 percent of the amount of the grant, at least one half of which must be in cash.
- In the case of grants in an amount of $1,500,000 or more, an amount equal to at least 50 percent of the amount of the grant, at least one half of which must be in cash.

For example, a proposal requesting NSF funds in the amount of $1,000,000 million must provide at least $300,000 in cost share. At least half of the match ($150,000 in this case) must be provided in cash; the remainder may be provided as in-kind support. As a second example, a proposal requesting NSF funds in the amount of $2,000,000 must provide at least $1,000,000 in cost share. At least half of the match ($500,000 in this case) must be provided in cash; the remainder may be provided as in-kind support.

Documentation of the availability of cost sharing must be included in the proposal. The proposed cost sharing must be shown on line M on the proposal budget; the budget narrative should explicitly identify the cash and in-kind portions of the match. Only items that would be allowable under the applicable cost principles, if charged to the project, may be included in the awardee's contribution to cost sharing. Contributions may be made from any non-Federal source, including non-Federal grants or contracts, and may be cash or in-kind (2 CFR § 200.306). It should be noted that contributions counted as cost sharing toward projects of another Federal agency may not be counted towards meeting the specific cost sharing requirements of the NSF award. All cost sharing amounts are subject to audit. Failure to provide the level of cost sharing reflected in the approved award budget may result in termination of the NSF award, disallowance of award costs, and/or refund of award funds to NSF.

The maximum total budget for **TF Phase 1** proposals is $3,000,000 with a project duration of up to 5 years (for proposals supporting one cohort of NSF Teaching Fellows) or 6 years (for proposals supporting two cohorts of NSF Teaching Fellows). TF Phase 1 projects involving collaborations between two-year institutions and four-year institutions (including doctorate, masters, and baccalaureate granting) may request an additional $250,000 over 5 years (or 6 years, as appropriate), resulting in a total budget of up to $3,250,000.

The maximum total budget for **TF Phase** 2 proposals is $1,800,000 with a project duration of up to 5 years. TF Phase 2 projects involving collaborations between two-year institutions and four-year institutions (including doctorate, masters, and baccalaureate granting) may request an additional $250,000 over 5 years, resulting in a total budget of up to $2,050,000.

For **TF Phase 1** and **TF Phase 2** proposals, at least 60% of the proposed total Direct Costs must be allocated for support directly received by the participants in the form of fellowships as reported on budget line *F.1. STIPENDS* in FastLane (or Section E.2. on the Grants.gov R&R Budget Form). Funds requested specifically for other types of NSF Teaching Fellow support, such as travel, should be entered in section *F. Participant Support Costs*, on lines 2., 3., or 4., in FastLane (or Section E.3., 4., or 5. on the Grants.gov R&R Budget Form) as appropriate, but are not included in the 60%.

The maximum total budget for **TF Capacity Building** proposals is $75,000 with a project duration of up to 1 year. TF Capacity Building projects involving collaborations between two-year institutions and four-year institutions (including doctorate, masters, and baccalaureate granting) may request an additional $50,000, resulting in a total budget of up to $125,000. TF Capacity Building proposals should not include money for stipends or salary supplements. Matching funds are neither required nor allowed for TF Capacity Building projects.

TRACK 3: THE NSF MASTER TEACHING FELLOWSHIPS TRACK (MTF)

The **NSF Master Teaching Fellowships Track (MTF)** of the Robert Noyce Teacher Scholarship Program offers awards to institutions to administer fellowships and programmatic support to experienced and exemplary K-12 STEM teachers who possess a master’s degree in their field and who participate in a program for developing master teachers and teacher leaders. These selected individuals are referred to as NSF Master Teaching Fellows.

Required Partners for MTF Projects

The list of required partners for MTF Projects is the same as the list for TF Projects, detailed in the Required Partners for TF Projects subsection in the description of Track 2: The NSF Teaching Fellowships Track.

Features of MTF Projects

MTF Projects are expected to develop and implement exemplary programs for NSF Master Teaching Fellows by:

1. administering fellowships, including providing the NSF Master Teaching Fellows' salary supplements (described in the MTF Salary Supplements section below);
2. building on evidence-based strategies to offer:
    a. academic courses and leadership development to prepare a NSF Master Teaching Fellow to become a master teacher and teacher leader in a high-need local educational agency; and
    b. programs or activities, including mentoring, induction, and professional development activities, to enable a NSF Master Teaching Fellow to become a master teacher and teacher leader, to fulfill the teaching service requirements of the MTF Track (described in the MTF Teaching Service Commitment section below), and to exchange ideas with others in their fields.

Selection of NSF Master Teaching Fellows

MTF recipients must be U.S. citizens or nationals, or permanent resident aliens. MTF recipients are expected to be selected primarily on the basis of professional achievement; academic merit; and STEM content knowledge, as demonstrated by their performance on rigorous, nationally recognized assessments used to determine whether individuals applying for fellowships have advanced STEM content knowledge. In addition, MTF recipients are expected to be selected on the basis of demonstrated success in improving student academic achievement in science, technology, engineering, or mathematics.

MTF Teaching Service Commitment and Leadership Role

A teacher awarded a NSF Master Teaching Fellowship is expected to:

1. serve as a STEM teacher in an elementary or secondary school served by a high-need local educational agency for five years, to be fulfilled within seven years of the start of participation in the program; and
2. while fulfilling the teaching service commitment above and in addition to regular classroom activities, take on a leadership role within their school or high-need local educational agency in which they are employed. Examples of leadership activity include serving as a mentor, participating in curriculum development, assisting in the planning and implementation of professional development experiences, and participating in preservice teacher education.

See the **Institutional and Recipient Obligations for Projects in Tracks 1, 2, or 3** section below for details about repayment of fellowships that revert to loans.

MTF Salary Supplements

A key aspect of the NSF Master Teaching Fellowship Track, required under the America COMPETES Act (P.L. 111-358), is the provision of salary supplements to the NSF Master Teaching Fellows as they are fulfilling their teaching service commitment. While participating in the program and teaching in an elementary or secondary school served by a high-need local educational agency, an NSF Master Teaching Fellow will receive a salary supplement of at least $10,000 per year for the five years of the teaching service commitment. The local educational agency must agree not to reduce the base salary of the NSF Master Teaching Fellow while the salary supplement is being received.

MTF Project Evaluation and Research

All projects are expected to include an evaluation plan for measuring the impact of the project and effectiveness of proposed activities in attracting, preparing, and retaining experienced and exemplary K-12 STEM teachers as master teachers and teacher leaders. Project evaluation should also address the effectiveness of the NSF Master Teaching Fellowship recipients as master teachers and as teacher leaders, especially (to the extent possible) in terms of the impact on student learning. The evaluation plan should include a mechanism for tracking the fellowship recipients as they fulfill their teaching service commitment and a method for collecting demographic data on these individuals. Individual project evaluation is expected to contribute to the knowledge base of strategies for attracting, preparing, and retaining effective teachers with strong STEM content knowledge.

Categories of MTF Proposals

The Robert Noyce Teacher Scholarship Program MTF Track provides funding for three categories of proposals: Phase 1, Phase 2, and Capacity Building.

See the Proposal Preparation Instructions section for more details.

MTF Phase 1 projects provide fellowships (as defined in the Definition of Terms section) and programs to support the development of experienced and exemplary K-12 STEM teachers as master teachers and teacher leaders in high-need local educational agencies.

MTF Phase 2 awards provide funds for prior Noyce Program awardees to conduct longitudinal evaluation and research activities on existing cohorts of fellowship recipients, along with support for additional cohorts of fellowship recipients. Phase 2 proposals are expected to provide strong evidence of the success of, and what was learned from, the previous award that warrants additional funding. These proposals must include plans for conducting longitudinal evaluation and research studies of recipients supported under the previous Noyce Program award as well as monitoring (including tracking) and evaluation of any new cohorts. Proposals must include plans for evaluating the impact of the program on the development of master teachers, the impact on the institution(s), and the effectiveness of the Noyce fellowship recipients as K-12 STEM teachers and teacher leaders, including (to the extent possible) their impact on student learning. The original project should have met its goals in terms of recruitment of NSF Master Teaching Fellows and the proposal should provide evidence that the institution has the capacity to recruit and place additional cohorts of NSF Master Teaching Fellows in high-need local educational agencies.

MTF Capacity Building awards provide funds for institutions to develop evidence-based innovative models and strategies for recruiting, preparing, and supporting STEM teachers and to establish the infrastructure for implementing a future Noyce MTF project. Examples of possible project activities include, but are not limited to, conducting needs; strengthening partnerships with high-need local educational agencies and non-profit organizations; strengthening collaborations among faculty in STEM departments and faculty in education; strengthening collaborations among institutions of higher education, including two-year colleges; in addition to the design/development of courses, early field experiences, new degree requirements, and/or programs to support new teachers. Activities related to MTF capacity building may also include the identification of matching funds and securing agreements with high-need local educational agencies regarding salary supplements. Collaborations between currently funded successful Noyce projects

and institutions seeking to develop capacity for recruiting and preparing NSF Master Teaching Fellows are encouraged. Capacity Building projects are not intended to award fellowships.

MTF Project Budget Limitations

See section III Award Information and section V.B. for additional information.

As required by the America COMPETES Act (P.L. 111-358), an institution submitting a **Phase 1** or **Phase 2** proposal under the **NSF MTF Track** must provide matching funds (cost sharing), from non-Federal sources, to support the activities of the project. Specifically, the cost share requirements for MTF Projects is identical to that for TF Projects, as detailed in the paragraphs about cost share in the TF Project Budget Limitations subsection in the description of Track 2: The NSF Teaching Fellowships Track.

The maximum total budget for **MTF Phase 1** proposals is $3,000,000 with a project duration of up to 5 years (for proposals supporting one cohort of NSF Master Teaching Fellows) or 6 years (for proposals supporting two cohorts of NSF Master Teaching Fellows). MTF Phase 1 projects involving collaborations between two-year institutions and four-year institutions (including doctorate, masters, and baccalaureate granting) may request an additional $250,000 over 5 years (or 6 years, as appropriate), resulting in a total budget of up to $3,250,000.

The maximum total budget for **MTF Phase** 2 proposals is $1,800,000 with a project duration of up to 5 years. MTF Phase 2 projects involving collaborations between two-year institutions and four-year institutions (including doctorate, masters, and baccalaureate granting) may request an additional $250,000 over 5 years, resulting in a total budget of up to $2,050,000.

For **MTF Phase 1** and **MTF Phase 2** proposals, at least 60% of the proposed total Direct Costs must be allocated for support directly received by the participants in the form of fellowships as reported on budget line *F.1. STIPENDS* in FastLane (or Section E.2. on the Grants.gov R&R Budget Form). Funds requested specifically for other types of NSF Master Teaching Fellow support, such as travel, should be entered in section *F. Participant Support Costs*, on lines 2., 3., or 4., in FastLane (or Section E.3., 4., or 5. on the Grants.gov R&R Budget Form) as appropriate, but are not included in the 60%.

The maximum total budget for **MTF Capacity Building** proposals is $75,000 with a project duration of up to 1 year. MTF Capacity Building projects involving collaborations between two-year institutions and four-year institutions (including doctorate, masters, and baccalaureate granting) may request an additional $50,000, resulting in a total budget of up to $125,000. MTF Capacity Building proposals should not include money for stipends or salary supplements. Matching funds are neither required nor allowed for MTF Capacity Building projects.

TRACK 4: RESEARCH ON THE PREPARATION, RECRUITMENT, AND RETENTION OF K-12 STEM TEACHERS (the Noyce Research Track)

All Track 4 projects should include substantive collaboration among STEM faculty, STEM Education faculty, and researchers in education (and/or the social, behavioral, and economic sciences). Projects are expected to be based in a research design that incorporates appropriate theory, methodologies and strategies and are expected to contribute to the knowledge base of scholarly research in STEM education. Studies that involve examination of only a single institution's teacher preparation program are discouraged unless the proposal provides a compelling argument that the results can be generalized to the larger community.

See the Proposal Preparation Instructions section for more details.

Noyce Research Priorities

In a recent National Research Council report, *Preparing Teachers; Building Evidence for Sound Policy* (2010), the Committee on the Study of Teacher Preparation Programs in the United States concluded that the "information about teacher preparation and its effectiveness is so limited, high-stakes policy debates about the most effective ways to recruit, train, and retain a high-quality teacher workforce remain muddled. If the base of empirical knowledge about teacher preparation is thin, the way forward is to build on what has been done by drawing on the professional consensus … for hypotheses about which features of teacher preparation are most promising and to subject those hypotheses to rigorous research" (NRC, 2010, pp. 5-6).

The report identifies a set of priorities for research into teacher preparation. Informed by these priorities, the Robert Noyce Teacher Scholarships Program seeks research proposals that investigate:

- features that make programs and/or pathways effective and attractive to academically accomplished teacher candidates in STEM fields;
- characteristics of clinical experiences that affect STEM outcomes (1) for teacher candidates and (2) for the students of those candidates;
- aspects/characteristics/components of induction programs that make them attractive and effective in retaining academically accomplished STEM teachers in high-need educational settings; and/or
- ways that teachers' knowledge (e.g., STEM content knowledge, STEM pedagogical competence, effectiveness of teacher candidates) and non-cognitive factors (e.g., commitment to teaching in high-need schools) affect outcomes for those preparing to be teachers and students who are taught by these new teachers.

The proposed research should be developed with the intent to "build a body of evidence, that is developed from multiple perspectives and using an array of research designs that may include studies ranging from research syntheses to experimental designs, to establish links between teacher preparation and learning – both teachers' learning and K-12 students' learning" (NRC, 2010, p. 6).

Categories of Research Track Proposals

The Robert Noyce Teacher Scholarship Program Research Track provides funding for two categories of proposals: Type A and Type B.

Projects in **Type A: Noyce Partnerships for Research on STEM Teacher Preparation** will involve genuine partnerships between researchers in teacher education (and/or the social, behavioral, and economic sciences) and Noyce projects with scholarship/stipend/fellowship cohorts and programs that are the subject of, and can be part of, the research plan. Such partnerships are intended to enable larger studies that will contribute to the knowledge base about high-quality programs that successfully attract, prepare, and retain undergraduate STEM majors and/or STEM professionals in teaching careers, especially in high-need schools. Projects may focus on one or more of the Noyce research priorities or may identify additional compelling research priorities generated by experience with Noyce projects.

Projects in **Type B: Research on Preparing STEM Teachers for the Future** need not involve interactions with Noyce projects, but must focus on at least one of the four Noyce research priorities. The proposal is expected to state explicit research questions and describe the methods to be used. The project results should provide convincing evidence of the relationship of factors/characteristics under study to the issues associated with gaps in the teacher preparation literature and described in the NRC (2010) report,

Preparing Teachers: Building Evidence for Sound Policy.

Noyce Research Project Budget Limitations

In **Noyce Research Type A, Noyce Partnerships for Research on STEM Teacher Preparation**, projects are expected to be led by a single eligible entity that administers subawards to support the partnering Noyce projects. A Noyce Research Type A project may have a duration of up to 3 years. The research project may request (up to) $450,000, plus an additional (up to) $50,000 for each participating Noyce project. For example, a project involving a lead institution and 5 Noyce projects may request a total of $700,000 ($450,000+5x$50,000). The subaward allocation to Noyce projects is intended to support their (1) leadership roles and responsibilities in the conceptualization, active participation, and review of the research and (2) research site management, including the logistics involved in executing the research (e.g., data collection, administrative support, travel, materials, and electronic devices dedicated to data collection).

In **Noyce Research Type B, Research on Preparing STEM Teachers for the Future**, proposals may request up to $800,000 total for a project duration of up to 3 years.

Institutional and Recipient Obligations for Projects in Tracks 1, 2, or 3 (S&S, TF, or MTF)

An institution (a grantee) receiving a grant under Track 1, 2, or 3 (S&S, TF, or MTF) of the Robert Noyce Teacher Scholarship Program agrees to:

1. ensure that scholarship/stipend/fellowship recipients accept the terms of the scholarship/stipend/fellowship and that the recipients provide annual certification of employment and current contact information;
2. monitor (including tracking) and report on the compliance of scholarship/stipend/fellowship recipients with their teaching service commitments (see the Teaching Service Commitment section in each track). In the event that a recipient is required to repay the scholarship/stipend/fellowship, the institution (the grantee) will:
    a. be responsible for determining the repayment amounts and for notifying the recipient and providing documentation in project reports; and
    b. collect such repayment amount, including interest, as determined by the repayment policy developed by the institution and agreed upon by the recipient.

   The institution (the grantee) may retain up to 5 percent of any repayment collected to defray administrative costs associated with the collection;
3. supply relevant statistical and demographic data on recipients as requested, including information on employment required under the track; and
4. cooperate with NSF third-party project monitoring that will require annual data collection.

As a condition of acceptance of a scholarship/stipend/fellowship, the recipient agrees to provide the institution with annual certification of employment and up-to-date contact information as well as to participate in activities (e.g., surveys) conducted as part of institution project-level and NSF program-level evaluation. In addition, the scholarship/stipend/fellowship may revert to a loan, meaning that the recipient will be required to repay all or a portion of the scholarship/stipend/fellowship, if the recipient:

- fails to maintain an acceptable level of academic standing in the program in which the individual is enrolled;
- is dismissed from the program or institution for disciplinary reasons;
- withdraws from the program before the completion of such program;
- declares that the individual does not intend to fulfill the teaching service commitment; or
- fails to fulfill the teaching service commitment.

For **Track 1: The Robert Noyce Teacher Scholarships and Stipends Track**, if such a circumstance occurs before the completion of one year of the teaching service commitment under this track, the total amount of scholarship or stipend received by the individual must be repaid. If the circumstance described occurs after the completion of one year of the teaching service commitment, the amount to be repaid is:

- for a scholarship recipient, a proportion of the total scholarship awards received by the individual, prorated appropriately to reflect partial service completed; or
- for a stipend recipient, one-half of the total amount of stipend received by the individual.

For **Track 2: The NSF Teaching Fellowships Track**, if such a circumstance occurs before the completion of one year of the teaching service commitment under this track, the total amount of fellowship received by the individual will be repaid. If the circumstance described occurs after the completion of one year of the teaching service commitment, the amount to be repaid will be the full amount of the fellowship awarded during enrollment in the master's degree program, reduced by one-fourth for each year of service completed plus one half of the total salary supplements received.

For **Track 3: The NSF Master Teaching Fellowships Track**, if such a circumstance occurs before the completion of one year of the teaching service commitment under this track, the total amount of fellowship received by the individual will be repaid. If the circumstance described occurs after the completion of one year of the teaching service commitment, the amount to be repaid will be half of the total amount of salary supplements received.

For all **Tracks 1, 2, and 3**, any such repayment will be returned to the Federal Government (the Treasury of the United States), consistent with the provisions of part B or D of Title IV of the Higher Education Act of 1965. These funds may not be re-used by the awardee institution.

The institution is expected to establish procedures that ensure compliance with the teaching service requirement, with allowances for extreme hardship or other circumstances for which it is not in the best interests of the school district or not feasible for the scholarship or stipend recipient to fulfill the teaching service commitment. The institution may establish procedures for waiving or suspending repayment of scholarships/stipends/fellowships in cases of extreme hardship or other circumstances that would preclude the fulfillment of the teaching service commitment.

Information about current awards funded under the Robert Noyce Teacher Scholarship Program can be found at the Division of Undergraduate Education website:

Additional resources can be found at http://www.nsfnoyce.org.

National Research Council (2002). *Scientific Research in Education.* Committee on Scientific Principals for Education Research. Washington DC: The National Academies Press.

National Research Council (2010). *Preparing Teachers: Building Evidence for Sound Policy.* Committee on the Study of Teacher Preparation Programs in the United States, Center for Education. Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press.

National Research Council (2011a). *Expanding Underrepresented Minority Participation: America's Science and Technology Talent at the Crossroads.* Committee on Science, Engineering, and Public Policy. Washington, DC: The National Academies Press.

National Research Council (2011b). *Successful K-12 STEM Education: Identifying Effective Approaches in Science, Technology, Engineering, and Mathematics*. Washington, DC: National Academy Press.

National Research Council (2012a). *Education for life and work: Developing transferable knowledge and skills in the 21st century.*

National Research Council (2012b). *Discipline-based education research: Understanding and improving learning in undergraduate science and engineering.* Committee on the Status, Contributions, and Future Directions of Discipline-Based Education Research. Board on Science Education, Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press.

National Research Council (2012c). *Monitoring progress toward successful K-12 STEM education: A nation advancing?* Committee on the Evaluation Framework for Successful K-12 STEM Education. Board on Science Education and Board on Testing and Assessment, Division of Behavioral and Social Sciences and Education.

National Science Foundation/National Science Board (2010). *Preparing the Next Generation of STEM Innovators: Identifying and Developing our Nation's Human Capital*.

National Science Foundation (2014). *Investing in Science, Engineering, and Education for the Nation's Future: NSF Strategic Plan for 2014 - 2018*.

National Science Foundation (2013). *Common Guidelines for Education Research and Development*. A Report from the Institute of Education Sciences, U.S. Department of Education and the National Science Foundation (NSF 13-126).

President's Council of Advisors on Science and Technology (2010). *Prepare and Inspire: K-12 Education in Science, Technology, Engineering, and Math (STEM) for America's Future.* Washington, DC: Executive Office of the White House.

President's Council of Advisors on Science and Technology (2012). *Engage to Excel: Producing One Million Additional College Graduates with Degrees in Science, Technology, Engineering, and Mathematics.* Washington, DC: Executive Office of the White House.

III. AWARD INFORMATION

Pending availability of funding, the anticipated funding amount is approximately $52,800,000 for new Noyce awards in FY 2015. Depending on the quality of submissions, NSF expects to make an estimated 50-60 Robert Noyce Teacher Scholarships Program awards under this solicitation, including 33-37 in Track 1 S&S (Phase 1, Phase 2, and Capacity Building), 7-9 in Track 2 TF (Phase 1, Phase 2, and Capacity Building), 7-9 in Track 3 MTF (Phase 1, Phase 2, and Capacity Building), and 3-5 in Track 4 Noyce Research.

For additional information, see the Budget Limitations section in the description of each track.

In **Track 1 S&S**:

- Phase 1 proposals may request up to $1,200,000 with a project duration of up to 5 years.
- Phase 2 proposals may request up to $800,000 with a project duration of up to 5 years.
- Capacity Building proposals may request up to $75,000 with a project duration of up to 1 year.

In **Track 2 TF** and **Track 3 MTF**:

- Phase 1 proposals may request up to $3,000,000 with a project duration of up to 5 years (for proposals supporting one cohort of NSF Teaching Fellows or NSF Master Teaching Fellows) or 6 years (for proposals supporting two cohorts of NSF Teaching Fellows or NSF Master Teaching Fellows).
- Phase 2 proposals may request up to $1,800,000 with a project duration of up to 5 years.
- Capacity Building proposals may request up to $75,000 with a project duration of up to 1 year.

In **Tracks 1, 2, and 3, Phase 1 and Phase 2** projects that involve a collaboration between two-year institutions and four-year institutions (including doctorate, masters, and baccalaureate granting), may request up to an additional $250,000 over 5 years (or 6, as appropriate). Capacity Building projects in these tracks may request up to an additional $50,000 over 1 year.

Cost sharing is required for and only for **TF Phase 1**, **TF Phase 2**, **MTF Phase 1**, and **MTF Phase 2**. For Track 2 NSF TF and Track 3 NSF MTF proposals requesting less than $1.5 million, cost sharing of at least 30% of the amount of the grant request is required, at least half of which must be in cash. Proposals requesting $1.5 million or more must provide matching funds of at least 50% of the amount of the request, at least half of which must be cash.

For **Track 2 TF and Track 3 MTF** proposals, the Director waived the cost sharing requirement for the additional $250,000 funds associated with partnerships between two-year institutions and four-year institutions (including doctorate, masters, and baccalaureate granting).

For **S&S Phase 1**, **S&S Phase 2**, **TF Phase 1**, **TF Phase 2**, **MTF Phase 1** and **MTF Phase 2** proposals, at least 60% of the total proposed total Direct Costs must be allocated for support directly received by the participants in the form of scholarship, stipends, or salary supplements as reported on budget line *F.1. STIPENDS* in FastLane (or Section E.2. on the Grants.gov R&R Budget Form). Funds requested specifically for other types of scholarship/stipend/fellowship recipient support, such as travel, should be entered in section *F. Participant Support Costs*, on lines 2., 3., or 4., in FastLane (or Section E.3., 4., or 5. on the Grants.gov R&R Budget Form) as appropriate, but are not included in the 60%.

The Robert Noyce Teacher Scholarship Program expects to award up to $5,000,000 total across 3-5 projects in **Track 4: Research on the Preparation, Recruitment, and Retention of K-12 STEM Teachers**.

In **Noyce Research Type A, Noyce Partnerships for Research on STEM Teacher Preparation**, projects are expected to be led by a single eligible entity that administers subawards to support the partnering Noyce projects. A Noyce Research Type A project may have a duration of up to 3 years. The research project may request (up to) $450,000, plus an additional (up to) $50,000 for each participating Noyce project. For example, a project involving a lead institution and 5 Noyce projects may request a total of $700,000 ($450,000+5x$50,000). The subaward allocation to Noyce projects is intended to support their (1) leadership roles and

responsibilities in the conceptualization, active participation, and review of the research and (2) research site management, including the logistics involved in executing the research (e.g., data collection, administrative support, travel, materials, and electronic devices dedicated to data collection).

In **Noyce Research Type B, Research on Preparing STEM Teachers for the Future**, proposals may request up to $800,000 total for a project duration of up to 3 years.

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Universities and two- or four-year colleges (including community colleges, tribal colleges, and minority-serving institutions) accredited in, and having a campus located in, the United States, or consortia of such institutions, or U.S. nonprofit entities that have established consortia among such institutions of higher education.
- In addition, for Track 4: Research on the Preparation, Recruitment, and Retention of K-12 STEM Teachers, professional societies and similar organizations that are directly associated with educational or research activities.

Who May Serve as PI:

The PI/Co-PI team must include at least one faculty member from a science, technology, engineering, or mathematics department and at least one education faculty member.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

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

There are no restrictions or limits.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

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

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF Grant Proposal Guide (GPG). The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov. Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov. The complete text of the NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: (http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

In determining which method to utilize in the electronic preparation and submission of the proposal, please note the following:

Collaborative Proposals. All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via the NSF FastLane system. Chapter II, Section D.5 of the Grant Proposal Guide provides additional information on collaborative proposals.

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

The following instructions supplement the guidelines in the GPG and NSF Grants.gov Application Guide.

Cover Sheet

On the cover sheet in FastLane, choose the Robert Noyce Teacher Scholarship Program solicitation number indicated on the cover of this document. Select Robert Noyce Teacher Scholarship Program from the list of programs in the "NSF Unit Consideration" section. This choice must be specified in order to have access to the DUE Project Data Form, which is required for Noyce Program proposals. If using Grants.gov, the program solicitation number will be prepopulated by Grants.gov on the NSF Grant Application Cover Page.

All proposals submitted to the Robert Noyce Teacher Scholarship Program must have the **HUMAN SUBJECTS** box checked and

the applicable IRB status of the project indicated. Under no circumstances should the HUMAN SUBJECTS box be left blank.

- Give the IRB approval date as “Pending” if an IRB is either (1) reviewing the project plan and has not yet determined a ruling of “approved” or “exempt”, or (2) the project plan has not been submitted to an IRB for review prior to proposal submission; or
- If IRB approval has been obtained, include the Human Subjects Assurance Number and IRB approval date; or
- If the project has been ruled exempt, include the exemption subsection and the date of the ruling.

If an IRB decision (approval or exemption) has been made prior to submission of the proposal, the indicated date of the IRB decision must be within one calendar year of the anticipated start date of the project and must be on or before the submission date of the proposal.

Projects involving research with human subjects, or the reporting of information gathered from human subjects, must ensure that subjects are protected in conformance with the relevant federal policy known as the Common Rule (*Federal Policy for the Protection of Human Subjects*, 45 CFR 690). All projects involving human subjects must either (1) have approval from the organization's Institutional Review Board (IRB) before issuance of an NSF award or, (2) must affirm that the IRB or an appropriate knowledgeable authority previously designated by the organization (not the Principal Investigator) has declared the research exempt from IRB review, in accordance with the applicable subsection, as established in section 101(b) of the Common Rule. If the box for "Human Subjects" is checked on the Cover Sheet along with either (1) the IRB approval date, or (2) the exemption subsection from the Common Rule identified, then no additional certification is required. In the event the proposal is recommended for funding and IRB review is pending, certification of IRB approval or exemption should be submitted to NSF in electronic form as soon as it is available. Delays in obtaining IRB certification may result in NSF being unable to make an award. For more information regarding the protection of human subjects, consult: http://www.nsf.gov/bfa/dias/policy/human.jsp

Project Summary

The first sentence of the Overview section of the Project Summary must:

- indicate the specific Track and category of the proposal (S&S Phase 1, S&S Phase 2, S&S Capacity Building, TF Phase 1, TF Phase 2, TF Capacity Building, MTF Phase 1, MTF Phase 2, MTF Capacity Building, Research Type A, or Research Type B); and
- name all institutions, including high-need local educational agencies and non-profit organizations as appropriate, that are involved in the proposal.

Project Description

Proposals in all tracks are expected to adhere to the guidelines presented in the Grant Proposal Guide (GPG).

Phase 1 and **Phase 2** proposals in **Track 1 (S&S)**, **Track 2 (TF)**, and **Track 3 (MTF)** are also expected to include the items listed below, not necessarily in the order presented here, but clearly identified. In addition, proposals should include evidence that the institution is committed to making the program a central institutional focus.

Phase 1 proposals in **Track 1 (S&S)**, **Track 2 (TF)**, and **Track 3 (MTF)** should include descriptions of the proposed:

1. Number and size of scholarships, internships, and stipends (for **S&S**) or fellowships (for **TF** and **MTF**); the rationale for the number and size of scholarships and/or stipends (for **S&S**) or fellowships (for **TF** and **MTF**); and projected cumulative number of new STEM teachers (for **S&S** and **TF**) or NSF Master Teaching Fellows (for **MTF**) to be produced over the duration of the program with a comparison to number of STEM teachers or master teachers currently produced by the proposing institution(s).
2. Teacher preparation program (for **S&S**) or the master's degree program (for **TF**) or the professional development program (for **MTF**) in which the scholarship/stipend or fellowship recipients will participate. This description should include a description of the academic requirements and other components of the program, the extent to which the proposed strategies reflect effective practices based on research, and description of any modifications or course revisions that will be developed and implemented. For proposals involving more than one institution, the proposal should describe the program at each participating institution and the role and responsibility of each institution in the project.
3. Recruitment activities and specific marketing strategies designed to attract a large and diverse pool of applicants.
4. Selection process that will ensure that the most qualified applicants are selected based on academic merit, with consideration given to financial need and increasing participation of minorities, persons with disabilities, and underrepresented genders relative to specific teaching areas.
5. Management and administrative structure and the capability for administering the program.
6. Plans to monitor and enforce compliance with the teaching service commitment. These plans should include mechanisms for tracking the recipients during the period in which they are fulfilling their teaching service commitment and a plan for collecting demographic data and statistics on recipients.
7. Evaluation plan that will assess the effectiveness of the project in attracting, preparing, and retaining STEM majors and/or STEM professionals in teaching careers (for **S&S** and **TF**) or developing and retaining NSF Master Teaching Fellows in teaching careers (for **MTF**), in high-need local educational agencies. The plan should include methodologies for measuring the effectiveness of the recipients as teachers and teacher leaders; measures of teaching effectiveness may include data related to teaching practice and student learning. The proposal should identify an independent evaluator with expertise to conduct an objective evaluation.
8. Plans for disseminating the results of the project and for contributing to the knowledge base about teacher preparation, recruitment, and retention, especially in high-need local educational agencies.
9. (For **TF** and **MTF** only) cost sharing, including source and amount.

In addition to the items listed above for Phase 1 proposals, **Phase 2** proposals in **Track 1 (S&S)**, **Track 2 (TF)**, and **Track 3 (MTF)** are expected to include:

1. As part of the description of Results from Prior NSF Support, a specific description of the outcomes of prior support under the previous Robert Noyce Teacher Scholarship grant, including the number of scholarship/stipend/fellowship recipients supported with the funding, their major fields of study and levels of teaching, the progress of the recipients toward meeting their teaching service commitment, and the number who continue to teach beyond that teaching service commitment. For **S&S** or **TF** proposals, the success of the prior project in increasing the number of STEM majors and/or STEM professionals who entered the teaching workforce should be a particular focus of the discussion.
2. Discussion of the impact of the prior project on STEM and education departments.
3. Discussion of how the proposed project builds on and expands activities established under the prior support, beyond simply continuing the work. The proposal should explain how the results of the prior work and evaluation findings have informed the proposed work.
4. Details of the plan to expand and extend the evaluation and research activities initiated under the prior award. The longitudinal study should measure the impact of the project on individuals supported under the first award in terms of their

performance as teachers and teacher leaders, their completion of the teaching service commitment, and their retention in the teaching profession. In addition, plans for monitoring and evaluating the impact of the project on new cohorts should be included. This study should go beyond the required tracking of recipients to include indicators of the effectiveness of the program in attracting STEM majors into teaching, the impact of the program on departments and the institution, and the effectiveness of the scholarship/stipend/fellowship recipients as measured by their performance in the classroom and their impact on student learning.
5. Discussion of plans to sustain activities and impact of the project beyond Phase 2 support.

Track 4: Noyce Research Track (Type A and Type B) proposals should address the following elements:

1. Linkages to theory, extant research in the field, and research priorities described in the solicitation: All research proposals should be located in a body of literature to which a contribution would be made and should be aligned with the set of research priorities described in the solicitation. The PIs should include a discussion of the theory or theories grounding the research and how the proposed research will add to this theoretical grounding.
2. Research plan: Proposals should include well-focused research questions and/or testable hypotheses that reflect the current state of knowledge in the area and the theory of conceptual framework being used. The proposal should discuss in detail the methods used to answer the research questions and/or test the hypotheses posed, along with the types of data to be collected and methods for data collection and analyses. Methods should be directly linked to the theory or theories being used, if a population sample is used, this sample should be described along with the rationale for sample selection, and the investigators' access to the sample. The proposal should address whether the design is premised on special needs and interest due to educational level, gender, race, ethnicity, economic status, or disability, and to what extent data will be disaggregated for multiple characteristics.
3. Contribution to implementation: Proposals should highlight implications for subsequent implementation of activities paying particular attention to subjects, measures, and settings/context.
4. Contribution to knowledge and theory: Proposals should include a coherent and persuasive chain of reasoning that shows how the research claims will be supported and how the results have the potential to add new evidence based insights to theory and practice.
5. Communication strategy: Proposals should include a set of strategies for reaching relevant audiences for the findings of the project, including where appropriate, researchers in education and other fields, practitioners, and the public. The potential results of the proposed research are expected to be of sufficient significance to merit peer-review and broader publication.
6. Objective external feedback: Proposals should include a strategy for ongoing objective external feedback. This objective external feedback can be provided through a number of vehicles: an advisory board or through a formal evaluation. A plan for soliciting objective external feedback should be documented in the proposal.

Additional Requirements for Proposals

The PI/Co-PI team must include at least one faculty member from a science, technology, engineering, or mathematics department and at least one education faculty member. Letters of collaboration from Deans of Arts & Sciences, Deans of Education, department chairs, school district superintendent(s), and comparable administrators should be submitted as evidence of institutional support for the proposal. School district letters submitted in support of a TF or a MTF proposal should specify that the district will support the award of salary supplements and will not lower the base salary of Fellows receiving the salary supplements. Letters should be uploaded into the Supplementary Documentation section in FastLane. For Grants.gov users, supplementary documents should be attached in Field 12 of the R&R Other Project Information Form.

A Project Data Form must be submitted as part of all proposals. The information on this form is used to direct proposals to appropriate reviewers and to determine the characteristics of projects supported by the Division of Undergraduate Education. In FastLane, this form will show up in the list of forms for your proposal only after you have (1) selected the "Noyce" program solicitation number on the Cover Sheet and (2) saved the Cover Sheet. Grants.gov users should refer to Section VI.5.2. of the NSF Grants.gov Application Guide for specific instructions on how to submit the DUE Project Data Form.

Supplementary Documents

In addition to Letters of Collaboration, the following documents should be included in the Supplementary Documents section of the proposal:

1. **Postdoctoral Researcher Mentoring Plan** (maximum 1 page): The NSF Proposal & Award Policies & Procedures Guide (PAPPG) includes guidelines implementing the mentoring provisions of the America COMPETES Act (ACA) (P.L. 111-358) As specified in the ACA, each proposal that requests funding to support postdoctoral researchers must include a description of the mentoring activities that will be provided for such individuals. This plan should be added to the Supplementary Documents Section and identified by subheading "Postdoctoral Researcher Mentoring Plan".
2. **Data Management Plan**. Provide a description of the project's data management plan, as a maximum 2-page supplementary document. This information should be clearly identified by the subheading "Data Management Plan" and should be placed in the Supplementary Documents section of the proposal. It should describe how the proposal will conform to NSF policy on the dissemination and sharing of research results (see AAG Chapter VI.D.4). Links to data management requirements and plans relevant to specific Directorates, Offices, Divisions, Programs, or other NSF units are available on the NSF website at: http://www.nsf.gov/bfa/dias/policy/dmp.jsp. See Chapter II.C.2.j of the GPG for further information about the implementation of this requirement.

B. Budgetary Information

Cost Sharing: Cost sharing is required.

An institution submitting a **Phase 1** or **Phase 2** proposal under the **TF Track** or **MTF Track** must provide matching funds, from non-Federal sources, to support the activities of the project. At least half of the amount of the required match must be provided in cash; the remainder may be provided as in-kind support. Cost sharing is neither required nor allowed for the **S&S Track** (any categories), **TF Capacity Building**, **MTF Capacity Building**, or the **Noyce Research Track** (either type) and therefore should not be included in the proposal. See the Budget Limitations section under each track for additional details.

The proposed cost sharing must be shown on Line M on the proposal budget. For purposes of budget preparation, the cumulative cost sharing amount must be entered on Line M of the first year's budget. Should an award be made, the organization's cost sharing commitment, as specified on the first year's approved budget, must be met prior to award expiration.

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

When mandatory cost sharing is included on Line M, and accepted by the Foundation, the commitment of funds becomes legally

binding and is subject to audit. When applicable, the estimated value of any in-kind contributions also should be included on Line M. An explanation of the source, nature, amount and availability of any proposed cost sharing must be provided in the budget justification. Contributions may be made from any non-Federal source, including non-Federal grants or contracts, and may be cash or in-kind. 2 CFR § 200.306 describes criteria and procedures for the allowability of cash and in-kind contributions in satisfying cost sharing and matching requirements. It should be noted that contributions derived from other Federal funds or counted as cost sharing toward projects of another Federal agency must not be counted towards meeting the specific cost sharing requirements of the NSF award.

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

Other Budgetary Limitations:

For **S&S Phase 1**, **S&S Phase 2**, **TF Phase 1**, **TF Phase 2**, **MTF Phase 1** and **MTF Phase 2** proposals, at least 60% of the proposed total Direct Costs must be allocated for support directly received by the participants in the form of scholarship, stipends, or salary supplements as reported on budget line *F.1. STIPENDS* in FastLane (or Section E.2. on the Grants.gov R&R Budget Form). Funds requested specifically for other types of scholarship/stipend/fellowship recipient support, such as travel, should be entered in section *F. Participant Support Costs*, on lines 2., 3., or 4. in FastLane (or Sections E.3., 4., or 5. on the Grants.gov R&R Budget Form) as appropriate, but are not included in the 60%. This limitation does not apply to **S&S Capacity Building**, **TF Capacity Building**, **MTF Capacity Building**, or the **Noyce Research Track** (either type).

Budget Preparation Instructions:

Scholarships, stipends, and fellowships should be indicated on budget line *F.1. STIPENDS* in FastLane (or Section E.2. on the Grants.gov R&R Budget Form). Enter the number of participants supported in each budget year in section F of the budget form in FastLane (or Section E. on the Grants.gov R&R Budget Form).

Funds should also be included for the PI or another member of the leadership team and one current or former Noyce Scholar, NSF Teaching Fellow, or NSF Master Teaching Fellow to attend meetings of grantees and other researchers that may be organized by community stakeholders such as professional societies or other scholarly interest groups.

The budget justification for a **Phase 1** or **Phase 2** proposal submitted under the **TF Track** or **MTF Track** should clearly identify the source and nature of matching funds. Proposals in these tracks being submitted through Grants.gov should enter the cost share amount on line *15.b. Total Non-Federal Funds* on the SF 424 (R&R) form, which will then be entered on Line M of the NSF budget when the proposal is transferred to the NSF FastLane System. In addition, **Phase 1** proposals in the **TF Track** or **MTF Track** requesting a six-year budget to support two cohorts of fellows will need to be submitted through FastLane because Grants.gov will not accommodate a six-year budget.

C. Due Dates

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

  March 17, 2015

  August 04, 2015

D. FastLane / Grants.gov Requirements

For Proposals Submitted Via FastLane:

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

For Proposals Submitted Via Grants.gov:

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

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

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

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program for acknowledgement and, if they meet NSF requirements,

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

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

Proposers should also be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in *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

In addition to the above criteria, for **Phase 1** and **Phase 2** proposals in **Track 1 (S&S)**, **Track 2 (TF)**, and **Track 3 (MTF)**, reviewers will be asked to consider the evidence of the following central issues (including results of prior Noyce awards, if applicable):

- The extent to which the proposed work attends to the expectations and requirements discussed in *Section II Program Description* relevant to the track to which the proposal is being submitted.
- The potential of the project to recruit, prepare, and retain STEM majors and/or STEM professionals (for **S&S** and **TF**) or develop and retain NSF Master Teaching Fellows (for **MTF**), in teaching careers in high-need local educational agencies.
- The quality of the academic requirements and other components of the program, the extent to which the proposed preparation, recruitment, and retention strategies reflect effective practices based on research.
- That the institution is committed to sustaining the program beyond the period of NSF funding (with the possible exception of funds for scholarships/stipends/fellowships).

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Panel Review.

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

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

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

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

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

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

B. Award Conditions

An NSF award consists of: (1) the award notice, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support

(or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award notice; (4) the applicable award conditions, such as Grant General Conditions (GC-1)*; or Research Terms and Conditions* and (5) any announcement or other NSF issuance that may be incorporated by reference in the award notice. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

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

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

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer at least 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). Within 90 days following expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report, will delay NSF review and processing of any future funding increments as well as any pending proposals for all identified PIs and co-PIs on a given award. PIs should examine the formats of the required reports in advance to assure availability of required data.

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

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

All projects will be required to participate in program monitoring (including tracking) and evaluation activities conducted by a third party as part of the Directorate for Education and Human Resources program evaluation efforts that will require annual data collection.

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:

- Kathleen B. Bergin, telephone: (703) 292-5171, email: kbergin@nsf.gov
- Teri J. Murphy, Lead Program Director, telephone: (703) 292-2109, email: tmurphy@nsf.gov
- Keith A. Sverdrup, Co-Lead Program Director, telephone: (703) 292-4653, email: ksverdru@nsf.gov
- Nicole Bennett, Co-Lead Program Director, telephone: (703) 292-5128, email: nbennett@nsf.gov
- V. Celeste Carter, telephone: (703) 292-4651, email: vccarter@nsf.gov
- Katherine J. Denniston, telephone: (703) 292-8496, email: kdennist@nsf.gov
- John Haddock, telephone: (703) 292-4643, email: jhaddock@nsf.gov
- Herbert H. Richtol, telephone: (703) 292-4648, email: hrichtol@nsf.gov
- Terry S. Woodin, telephone: (703) 292-4657, email: twoodin@nsf.gov
- Lidia C. Yoshida, telephone: (703) 292-4644, email: lyoshida@nsf.gov

For questions related to the use of FastLane, contact:

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

For questions relating to Grants.gov contact:

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

IX. OTHER INFORMATION

The NSF website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this website by potential proposers is strongly encouraged. In addition, "NSF Update" is an information-delivery system designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF Grants Conferences. Subscribers are informed through e-mail or the user's Web browser each time new publications are issued that match their identified interests. "NSF Update" also is available on NSF's website at https://public.govdelivery.com/accounts/USNSF/subscriber/new?topic_id=USNSF_179.

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

Related Programs:

STEM-C: MSP Partnerships

Louis Stokes Alliances for Minority Participation

Historically Black Colleges and Universities Undergraduate Program

Tribal Colleges and Universities Program

Investigators seeking to engage in more extensive research on foundational topics related to teacher preparation are encouraged to consider the Discovery Research K-12 (DRK-12), and Promoting Research and Innovation in Methodologies for Evaluation (PRIME) programs in the Division of Research on Learning in Formal and Informal Settings (DRL), and the EHR-wide EHR Core Research program.

Guidelines for Education Research and Development

The National Science Foundation and the Institute of Education Sciences in the U.S. Department of Education developed *Common Guidelines for Education Research and Development*. The *Guidelines* describe six types of research studies that can generate evidence about how to increase student learning. Research types include those that generate the most fundamental understandings related to education and learning; examinations of associations between variables; iterative design and testing of strategies or interventions; and assessments of the impact of a fully-developed intervention on an education outcome. For each research type, there is a description of the purpose and the expected empirical and/or theoretical justifications, types of project outcomes, and quality of evidence.

The *Guidelines* publication can be found on the NSF website with the number NSF 13-126 (http://www.nsf.gov/pubs/2013/nsf13126/nsf13126.pdf). A set of FAQs regarding the *Guidelines* are available with the number NSF 13-127 (http://www.nsf.gov/pubs/2013/nsf13127/nsf13127.pdf). Grant proposal writers and PIs are encouraged to familiarize themselves with both documents and use the information therein in the preparation of proposals to NSF.

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:

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Reports Clearance Officer
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