



U.S. NATIONAL SCIENCE FOUNDATION
2415 EISENHOWER AVENUE
ALEXANDRIA, VIRGINIA 22314

NSF 25-017

Frequently Asked Questions (FAQs) for NSF Trailblazer Engineering Impact Award (TRAILBLAZER) Program (NSF 24-600)

GENERAL INFORMATION

1. What type of projects and PIs will the NSF TRAILBLAZER Impact Award (TRAILBLAZER) support?
2. What makes a proposed TRAILBLAZER project different from a project submitted to an Engineering core program, especially since NSF already funds transformative work?
3. How different does the proposed TRAILBLAZER project need to be from the PI's past or current research?
4. Is there a threshold of preliminary data, publication, prior funding, or pending funding that will disqualify a project?
5. Will technology development be allowed or will only hypothesis-driven research be supported?
6. Does this program support translational research with commercialization goals?
7. Are there any preferred topics for FY25? What national/societal needs or grand challenges in engineering are considered responsive to the solicitation?

ELIGIBILITY REQUIREMENTS

8. Who is eligible to serve as PI?
9. If the PI is at the Assistant Professor rank at the time of proposal submission, but will be an Associate Professor by the time the project would start, are they eligible to submit?

PREPARATION & SUBMISSION

10. Why was the Letter of Intent required for FY25?
11. Why is the Preliminary Proposal required for FY25?

12. May I provide additional supplementary documents to support my proposal?
13. Are collaborators allowed on a TRAILBLAZER proposal?
14. May I provide letters of support or letters of collaboration as part of the proposal?

BUDGET

15. What are the guidelines for specifying the time commitment of the PI to the proposed TRAILBLAZER project?
16. How can a PI describe their proposed team structure without including co-PIs and/or sub-awards?
17. May a collaborator be funded by this award?
18. How do I put together a budget request?

REVIEW & SELECTION

19. What criteria will be used to evaluate TRAILBLAZER proposals?
 20. How does the review process differ from a proposal to an NSF core program?
 21. Will the expertise of the reviewers reflect the area of the PI's current areas of research, or the new areas proposed in their TRAILBLAZER proposal?
-

GENERAL INFORMATION

1. What type of projects and PIs will the NSF TRAILBLAZER Impact Award (TRAILBLAZER) support?

The NSF TRAILBLAZER Engineering Impact Award Program will only accept single Principal Investigator (PI) proposals to perform transformative research in engineering. The PI's research expertise and track record of creativity, innovation, and collaboration will be leveraged to propose bold new research directions distinct from previous or current research and convene and lead an effective team to conduct the proposed research activities.

The TRAILBLAZER program will support groundbreaking research projects that seek to significantly advance engineering research and innovation beyond what is currently being done in engineering and beyond the PI's recent and prior research activities. In the Project Description, PIs must describe how the proposed new research area involves the development of innovative approaches designed to evaluate

unconventional hypotheses. “Projects that are extensions of the PI's ongoing or previous research are not eligible under this program. Furthermore, prior or concurrent funding support for other projects that overlap with the proposed TRAILBLAZER project will preclude eligibility for a TRAILBLAZER award.”

2. What makes a proposed TRAILBLAZER project different from a project submitted to an Engineering core program, especially since NSF already funds transformative work?

The PI is expected to propose unconventional hypotheses leading to a paradigm shift or significant leap in fundamental engineering knowledge that addresses a national need and/or Grand Challenge, and advances U.S. leadership in science and engineering. The PI is expected to describe why the proposed research is suited to the TRAILBLAZER program rather than to an NSF core program. While, NSF-funded projects typically build directly on existing work, TRAILBLAZER projects do not require preliminary data nor an established research path.

3. How different does the proposed TRAILBLAZER project need to be from the PI's past or current research?

TRAILBLAZER PIs are expected to propose a new research direction that is distinct from any research currently or previously conducted by the proposer. TRAILBLAZER is not intended to expand the PI's previous or current research into the proposed area of research. Projects that are extensions or scale-up of the PI's ongoing or previous research are not eligible under this program. In the Project Description, proposers must provide a description of how this new area of research represents a distinct departure from the PI's current research areas into new areas with significant potential for innovation and disruptive advances in engineering and science. The change in research direction must be clearly defined and justified in the proposal to help the reviewers understand the Trailblazing Potential as defined under Solicitation-Specific Review Criteria #2 in the solicitation.

4. Is there a threshold of preliminary data, publication, prior funding, or pending funding that will disqualify a project?

The TRAILBLAZER program does not request preliminary data or detailed experimental plans. There is no established threshold of preliminary data or publication history that, if exceeded, would disqualify a project. However, reviewers will be asked to assess how the Preliminary Results substantiate, but do not duplicate, the proposed new research direction.

Reviewers will have access to the PI's current and pending support, as well as the PI's publication record. The reviewers will help NSF make the determination of whether the

proposed TRAILBLAZER project is already funded, and whether the proposed new research direction is an extension of prior or current research. Prior or concurrent funding support for other projects that overlap with the proposed TRAILBLAZER project will preclude eligibility for a TRAILBLAZER award. Pending proposals will also be factored into this determination.

5. Will technology development be allowed or will only hypothesis-driven research be supported?

Proposed projects can include hypothesis-driven research or the development of new tools and technologies, as long as the proposed research is relevant to the NSF mission.

6. Does this program support translational research with commercialization goals?

The proposed project can include translational research with the potential for commercialization; however, the focus of TRAILBLAZER is on innovation, impact, and the significant advancement of fundamental engineering research and knowledge.

7. Are there any preferred topics for FY25? What national/societal needs or grand challenges in engineering are considered responsive to the solicitation?

The NSF TRAILBLAZER program will consider all engineering topics. The proposed research must address a national/societal need and/or grand challenge in engineering. In the Project Description of the proposal, the national/societal need and/or grand challenge should be well articulated.

Does the proposed topic of the TRAILBLAZER project need to fit into a specific program or division within the Directorate for Engineering? The NSF TRAILBLAZER program will consider all engineering topics. A given topic may align with the priorities of a specific program or division within the Engineering Directorate at NSF or span multiple programs or divisions.

ELIGIBILITY REQUIREMENTS

8. Who is eligible to serve as PI?

At the time of proposal submission, the PI must hold a tenured or tenure-eligible faculty appointment at the Associate or Full Professor rank or equivalent at an organization that is eligible to submit as described under the "Who May Submit Proposals" section of the TRAILBLAZER solicitation. Additionally, the PI must have an appointment in an Engineering School or College and/or have earned an Engineering Doctorate degree.

Rank	Engineering School/College	Engineering Doctorate	Eligible?
-------------	-----------------------------------	------------------------------	------------------

	Appointment	Degree	
Associate/Full Professor	Yes	Yes	Yes
Associate/Full Professor	Yes	No	Yes
Associate/Full Professor	No	Yes	Yes
Associate/Full Professor	-	-	No

9. **If the PI is at the Assistant Professor rank at the time of proposal submission, but will be an Associate Professor by the time the project would start, are they eligible to submit?**

No - The PI must be of an eligible rank at the time of proposal submission.

PREPARATION & SUBMISSION

10. **Why was the Letter of Intent required for FY25?**

The Letter of Intent will be used to identify the range of engineering topics submitted to the TRAILBLAZER program so that subject matter experts for the proposal review process can be identified.

11. **Why is the Preliminary Proposal required for FY25?**

The Preliminary Proposal is used to identify which projects have the strongest potential for realizing the goals of the TRAILBLAZER program, particularly with regards to Intellectual Merit, Broader Impacts, and the Additional Solicitation-Specific Review Criteria #1-3.

12. **May I provide additional supplementary documents to support my proposal?**

All information submitted for the review of your proposal must be included in the allowed sections of the proposal, within the specified limits of space. The only Supplementary Documents that are allowed for the preliminary proposal and invited full proposal stages are described in the TRAILBLAZER Solicitation [NSF 24-600](#). No other materials will be accepted; proposals with additional materials will be returned without review.

13. **Are collaborators allowed on a TRAILBLAZER proposal?**

The TRAILBLAZER program is intended to support a single principal investigator. Collaborative proposals, or proposals containing sub-awards, co-PIs, or other Senior/Key Personnel are not allowed. However, it is recognized that the TRAILBLAZER PI may need a team to support the proposed activities. The invited full proposal should describe how a strong and effective team will be convened and led by the PI to conduct the proposed research, including team member expertise, team development, means of communication, management of personnel within the project group, management of intellectual property resulting from the project, and timeline of activities. Note however that submission of team member Biographical Sketches is not permitted.

14. May I provide letters of support or letters of collaboration as part of the proposal?

Letters of collaboration, as described in Chapter II.D.2 of the [NSF Proposal & Award Policies & Procedures Guide \(PAPPG\)](#), P, from potential team members are encouraged. Potential team members can also be discussed in the Project Description; however, letters of support and team member Biographical Sketches are not permitted. Proposals containing letters of support will be returned without review.

BUDGET

15. What are the guidelines for specifying the time commitment of the PI to the proposed TRAILBLAZER project?

The PI is expected to make a significant time commitment to the proposed TRAILBLAZER project that is reflected in the budget for PI salary. The NSF TRAILBLAZER solicitation for FY 25 allows up to six months' salary support. There is no lower limit to PI salary support, but two months' salary support would be a reasonable baseline to realize a TRAILBLAZER project.

16. How can a PI describe their proposed team structure without including co-PIs and/or sub-awards?

Proposers should use the budget justification and Management Plan to describe the contributions of potential team members. The Management plan will describe how a strong and effective team will be convened and how this team will be led to conduct the proposed research, including necessary team member expertise, team development, means of communication, management of personnel within the project group, management of intellectual property resulting from the project, and an initial timeline of activities. Proposers should not include budget lines for potential co-PIs or other senior/key personnel that will trigger the need for Biographical Sketch submission, as Biographical Sketches beyond the PI are not allowed. If a proposal is to be recommended for an award, the NSF TRAILBLAZER program officers will negotiate an

award budget with the PI prior to making the award recommendation.

17. May a collaborator be funded by this award?

TRAILBLAZER projects are to be submitted as single-PI proposals. TRAILBLAZER proposals with co-PIs and/or sub-awards will be returned without review. TRAILBLAZER projects are not meant to be conducted solely by an individual PI, therefore addition of personnel and/or sub-awards to a TRAILBLAZER project will be done through negotiations with an NSF TRAILBLAZER program officer prior to award recommendation and/or as a post-award action.

18. How do I put together a budget request?

A budget and a budget justification are required. Funds may be requested for proposed personnel, supplies, equipment, and other allowable costs. The budget justification can be used to describe contributions of potential team members, but budget lines for potential team members should not be included. "If a proposal is to be recommended for an award, the NSF TRAILBLAZER Program Director will negotiate a more detailed budget with the PI prior to award."

REVIEW & SELECTION

19. What criteria will be used to evaluate TRAILBLAZER proposals?

In addition to the two NSF review criteria (intellectual merit and broader impacts), the following criteria will be used in the review of all TRAILBLAZER proposals.

- Principal Investigator Research Expertise & Leadership - To what extent does the proposal demonstrate that the PI has a strong track record of creativity and impactful innovations, and to what extent does the PI provide evidence of their ability to form and lead a team appropriate for the proposed project?
- TRAILBLAZING Potential - To what extent does the proposed research project convincingly leverage the PI's capacity for creativity and innovation to achieve a significant leap or paradigm shift in fundamental engineering knowledge that is uniquely enabled by the PI's pivot to a distinctly new, bold, and potentially transformative area of research?
- National Need and/or Grand Challenge - To what extent does the proposed research have the potential to make significant progress on a national need and/or grand challenge?
- Broadening Participation Plan - To what extent does the plan actively promote, increase, and enhance the participation of the full spectrum of diverse talents in the field of engineering?
- Management Plan - To what extent does the plan describe how a strong and

effective team will be convened and led by the PI to conduct the proposed research?

20. How does the review process differ from a proposal to an NSF core program?

For FY25, a preliminary proposal is required. The preliminary proposal will be reviewed by a panel of subject matter experts. Based on the outcome of the preliminary proposal review process, full proposal submissions will be invited. The full proposal submissions will be reviewed by a panel of subject matter experts. Based on the outcome of the full proposal review process, selected PIs will be invited to a PI Interview panel composed of subject matter experts and panelists from academia, government, or the private sector. At the PI Interview Panel, each PI will make a presentation on the proposed activities, and then answer questions from the panelists.

21. Will the expertise of the reviewers reflect the area of the PI's current areas of research, or the new areas proposed in their TRAILBLAZER proposal?

Reviewer expertise will be in the research areas articulated in the TRAILBLAZER proposals. The reviewers will also be briefed by the TRAILBLAZER program officers on the intent and distinct features of the TRAILBLAZER program for FY25 as contained in solicitation [NSF 24-600](#). This briefing will include instruction on how to evaluate proposals against the Solicitation-Specific Review Criteria.