WEBINAR:
Smart and Connected Communities (S&CC) Program Solicitation (21-535)

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Smart and Connected Communities (S&CC): Welcome

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Who is involved with S&CC?

- NSF investments in S&CC includes participation from four NSF Directorates: Computer and Information Science and Engineering (CISE), Education and Human Resources (EHR), Engineering (ENG), and Social, Behavioral, and Economic Sciences (SBE).
- NSF is also working with other agencies across the federal government in the overall space of smart and connected communities.

S&CC: Program Contacts

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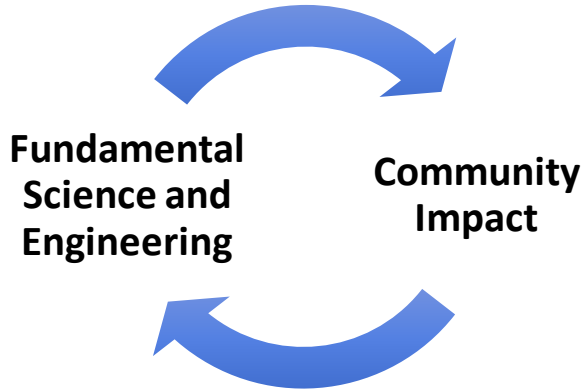
S&CC Program Overview

What is a "Smart and Connected Community"?

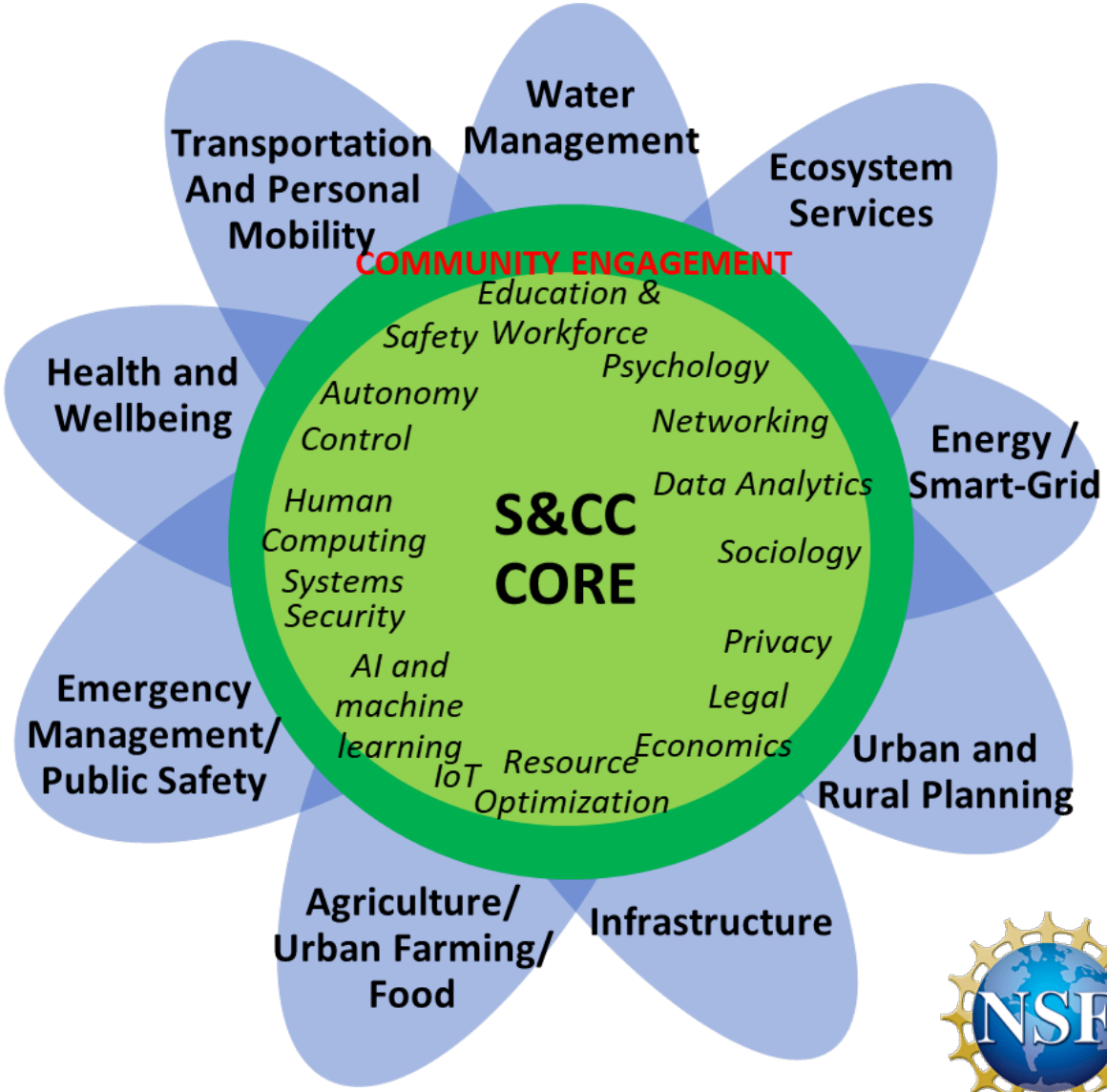
- **Communities:** geographically-delineated boundaries—such as towns, cities, counties, neighborhoods, community districts, rural areas, and tribal regions—consisting of various populations, with the structure and ability to engage in meaningful ways with proposed research activities.
- **A "smart and connected community":** a community that synergistically integrates intelligent technologies with the natural and built environments, including infrastructure, to improve the social, economic, and environmental well-being of those who live, work, learn, or travel within it.
- **Community stakeholders** may include some or all of the following: residents, neighborhood or community groups, nonprofit or philanthropic organizations, businesses, as well as municipal organizations such as libraries, museums, educational institutions, public works departments, and health and social services agencies.



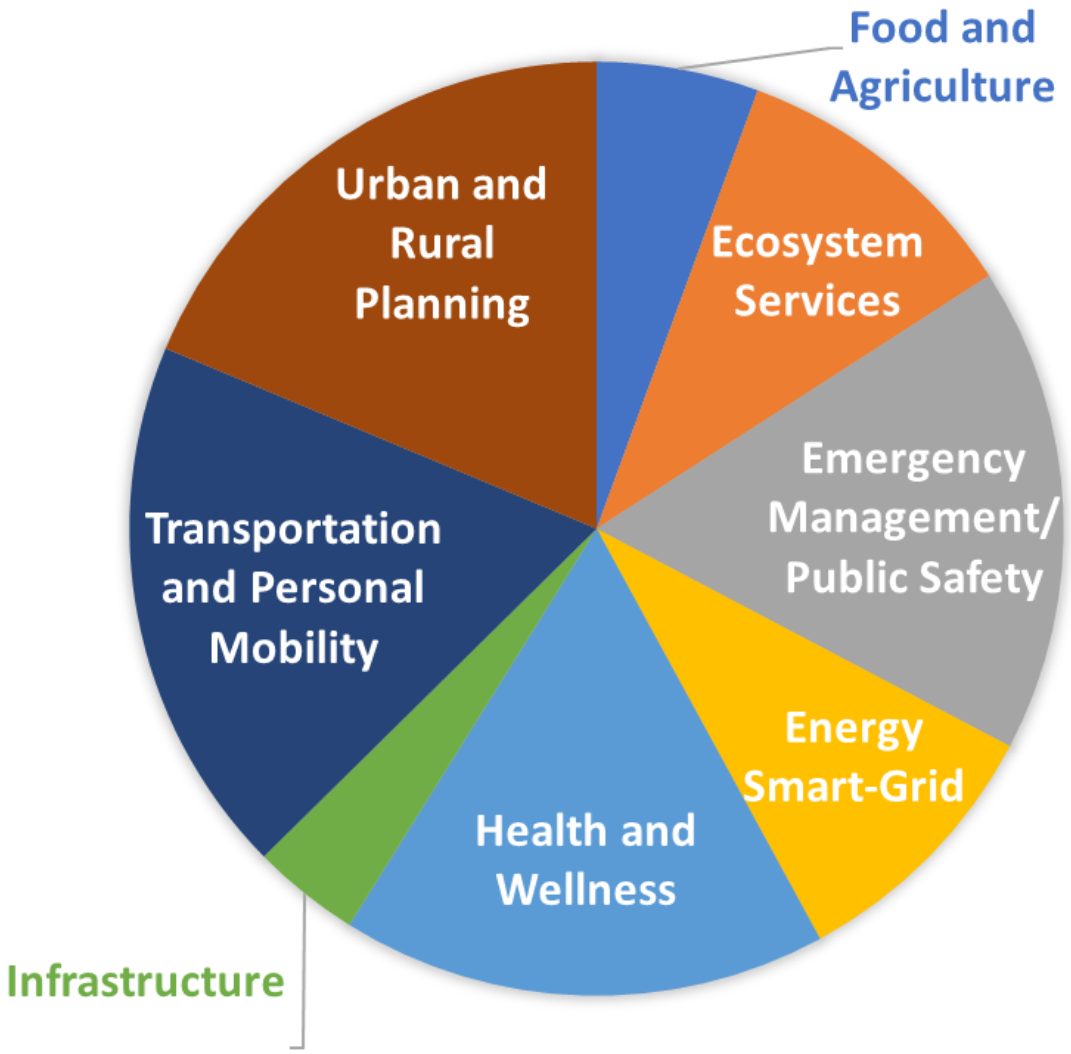
S&CC Program Goals and Motivation

- **Use-inspired, community-focused research** to improve quality of life.
- Fundamental **technological and social science dimensions** of smart and connected communities.
- **Pilot research activities** together with communities.
- **Scalability and transferability** of research outcomes; sustainability beyond the life of the NSF award.

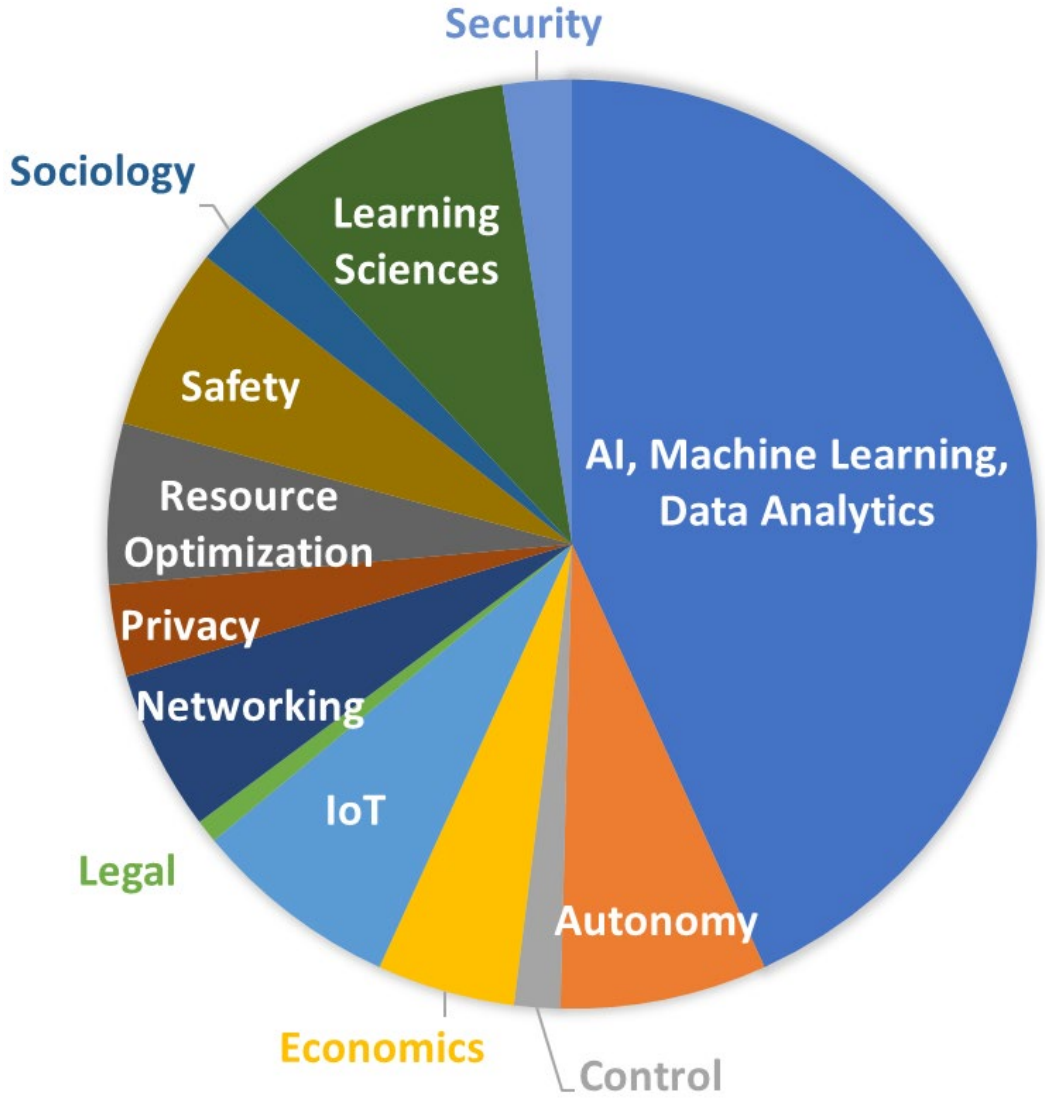
https://www.nsf.gov/cise/scc/.



S&CC has a portfolio of projects from three solicitations [FY2017-FY2020], https://www.nsf.gov/cise/scc



Application Sectors [% of projects}



Research Areas [% of projects]

NSF 21-535: S&CC Solicitation Overview

Funding and Award Types

- Anticipated Funding: $23,500,000
- Estimated Number of Awards: 20-30
  - The number of awards in each category will be dependent on the overall mix of proposals and the degree to which they meet the solicitation goals, NSF Merit Review Criteria and Solicitation Specific Review Criteria.

Proposal Category	Award Duration	Maximum Budget
Integrative Research Grants Track 1	Up to 4 years	$2.5M
Integrative Research Grants Track 2	Up to 3 years	$1.5M
Planning Grants	1 year	$150K
Virtual Organization	3 years	$250K/year

S&CC Proposal Category: Integrative Research Grants (IRG)

- Full awards, appropriate for teams will well developed concepts for (1) use-inspired, community-focused socio-technical research to improve quality of life and (2) piloting of solutions together with communities.
- Multi-disciplinary team in place of researchers ready to address the technological and social science components of those concepts.
- Clearly identified support and interest from community partners interested in co-development/participatory research around the project's research and piloting activities.
- Well-developed community partnerships and plans for community engagement– at both the level of the decision makers and end-users/residents.
- Awards are for either a maximum duration of 3 years with a maximum budget of $1.5M (Track 2) or a maximum duration of 4 years with a maximum budget of $2.5M (Track 1).

S&CC Proposal Category: Planning Grants (PG)

- Goal is to stimulate and enable future high-impact IRG projects.
- PGs are appropriate for project teams who require additional time to build their multi-disciplinary team of academic and community partners as well as refine their research concepts.
- Planning grants must address how local community engagement will inform the planning activities; limited research activities on the concept developed may be appropriate.
- Awards are for 1 year and must not exceed $150,000 for the total budget.

Joint Research Collaboration with the Japan Science and Technology Agency (JST): Sub-track Within IRG Track 2

- Project must focus on either recovery from COVID-19 and/or future resilience planning related to pandemics or other disasters.
- Examples of specific topic areas:
  - How the proposed research will enable community adjustment to life in the new normal of a post-COVID-19 society.
  - Resilience and emergency management planning for future pandemics.
  - The compound problem of other disasters occurring in the context of a pandemic.
- Proposals must be well integrated across the US and Japanese teams and proposals must be submitted to both NSF and JST.
- The maximum budget is $750K for the US and $750K for the Japanese team.

S&CC Proposal Category: Virtual Organization (SCC-VO)

- Goals of the Virtual Organization:
  - (i) Facilitate and foster interaction and exchanges among S&CC PIs and their teams, including community partners; and
  - (ii) Enable sharing of artifacts and knowledge generated by S&CC projects with the broader scientific and non-academic communities (e.g., local community stakeholders as described in this solicitation).

- No more than one S&CC-VO proposal will be funded. Funding of up to $250,000 per year for up to three years may be requested.

Additional Proposal Preparation Instructions

- Proposals in all categories must follow the most current version of Proposal & Award Policies & Procedures Guide (PAPPG; NSF 20-1) for guidance on the required sections for all proposals submitted to NSF.
- Project Description page lengths: 15 pages for Integrative Research Grants (IRGs) and Virtual Organization (VO); 5 pages for Planning Grants (PG).
- Proposals can be submitted through NSF FastLane system, Research.gov, or Grants.gov.
- Multi-institution proposals must be submitted by one lead institution using subawards for funding all other participating institutions.
- Project Personnel and Partner Institutions are a required supplementary document for all proposal types.

Additional Submission Considerations

- No more than two proposals per PI/co-PI/Senior Personnel/Consultant.
- No restrictions on who may serve as PI.
- No restrictions on the number of proposals per organization.
- Letters of Collaboration are strongly encouraged for all proposal types.
- Think about which institution will lead the submission.
- Start submission preparation early for PIs and institutions who have not previously submitted to NSF; obtaining NSF individual and institution IDs can take several weeks!

All IRG and PG proposals (but not Virtual Organization) require several additional labeled sections within the project description:

	Integrative Research	Community Engagement	Management Plan	Evaluation Plan	Scope and Scale
IRG	Required	Required	Required	Required	Required
PG	Required	Required			

S&CC Project Component: Integrative Research

- Encompasses innovation that addresses combined social and technological aspects of smart and connected communities and pilots solutions together with communities.
- Social Considerations
  - Attitudes, behaviors, and other characteristics of community inhabitants, groups and organizations within the community.
  - Relationships with other communities or the larger environment and institutions.
  - Processes of learning, adaptation, interaction, and collaboration.
  - Economic impacts on the community and future opportunities for growth.
- Technological Considerations
  - Data integration and management.
  - New algorithms and modeling frameworks for understanding and exploiting high volumes of diverse and complex data.
  - Security and privacy.
  - Innovations in the design and engineering of materials, sensors, structures, and systems.

S&CC Project Component : Community Engagement

- Essential component for both IRG and PG proposals.
- Refers to substantive interaction with individuals, institutions, and other organizations in target communities.
- Investigators and community partners are encouraged to work collaboratively to develop, shape, and evaluate creative approaches to achieving meaningful end results or outputs for mutual benefit.
- Participation from both stakeholders who are decision makers and end-users/residents.
- Community members must not solely be subjects of the research.

S&CC Project Component : Management Plan

- Each IRG proposal must contain a Management Plan that describes the specific roles and responsibilities of the collaborating PI, co-PIs, other Senior Personnel, paid consultants, and stakeholder participants.
- It must also describe the expertise of the team to address the technical and social sciences dimensions of the project, and to work with the selected communities.
- The plan must also address how the project will be managed across disciplines, institutions, and community entities, and should identify specific collaboration mechanisms that will enable cross-discipline and cross-sector integration of teams.
- The plan must also describe how tasks will be integrated over the course of the project and provide a timeline with principal tasks and associated interactions.

S&CC Project Component : Evaluation Plan

- The Evaluation Plan should be specific to the IRG proposal's goals and milestones and describe how progress will be iteratively improved and evaluated.
- For example, describe criteria, metrics, and methods for assessing progress and outcomes, appropriate to the proposal.
- Proposals should anticipate providing Institutional Review Boards (IRB)/Institutional Animal Care and Use Committees (IACUC) approvals as appropriate prior to award.

S&CC Project Component : Scope and Scale

- This section should **provide insight into the design of the research activities for the IRG proposal,** specifically addressing:
  - Why the research outcomes can be achieved only with the selected scope and scale.
  - How the proposed activities are commensurate with the proposed budget.
- In designing the appropriate scope and scale for their projects, proposers are strongly encouraged to consider:
  - The transferability and scalability of the proposed solutions to other communities.
  - The population size that will be **directly** affected by **the specific proposed project**.

Pointers for Organizations and PIs New to NSF

Note that this is not an exhaustive list

- The Proposal and Award Policies and Procedures Guide (https://www.nsf.gov/pubs/policydocs/pappg20_1/index.jsp) or PAPPG (NSF 20-1) is the essential document for understanding how to prepare and submit proposals to NSF, as well as how NSF makes awards, and administers and monitors grants.
- Prospective New Awardee Guide (https://www.nsf.gov/pubs/2020/nsf20032/nsf20032.pdf) - There are significant administrative and financial accountability requirements associated with federal grant awards and it is your responsibility as a prospective awardee to understand them. Read this guide in its entirety, as missing, incomplete, or inadequate information may result in your proposal being declined.
- NSF Merit Review Website (https://nsf.gov/bfa/dias/policy/merit_review/) - NSF's merit review process is intended to ensure that submitted proposals are reviewed in a fair, competitive, transparent, and in-depth manner. While the process is described in the PAPPG, this website offers a deeper dive and an interactive, graphical representation of the timeline.
  - This animated video (https://www.nsf.gov/news/mmg/mmg_disp.jsp?med_id=76467) illustrates the process.
  - You can also watch this video (https://www.nsf.gov/news/mmg/mmg_disp.jsp?med_id=81278) to get a sense of what really happens during a review panel.
  - A new Merit Review Process Digest (https://www.nsf.gov/nsb/publications/2020/nsb202013.pdf) was released in Fiscal Year 2018.

Consider the Perspective of the Reviewers, Who May Ask, For Example:

- Does the project have both social science and technological components that, together, will help to advance the project aims?
- What are the **innovations and research advances** in the proposed project? What is the current state of practice and state of the art and in what ways does the proposed project or approach go beyond these? The innovations and research advances can be on the technological side, social science side, or both.
- What would a successful end-result or outcome look like for the project from the perspective of the research team as well as the perceptive of the community?
  - If this project were successful, who would care about it?
  - How would it change the current state of practice?
  - Would the project result in a tangible end result or outcome that goes beyond development of a technology or platform or generation of data. For example, would the project lead to a change in process, behavior, policy by the community or, possibly, adoption of a new technology by the community?
- Is this project solely a push from academia, or is there interest and a true partnership with the identified community stakeholders to work together to shape, advance, and pilot the proposed idea(s)?
- For Planning Grants: is there a clear vision for a future, high impact Integrative Research Grant? What specific steps will be taken in the Planning Grant to prepare the team to submit an IRG?
- Is the proposed work appropriate for the budget size and length of time of the award? For example, what is possible and expected from a $150,000, one-year Planning Grant is very different than what would be expected from a $1.5 million, three-year Integrative Research Grant.

S&CC Solicitation (21-535): Due Date

Proposal Deadline:

February 24, 2021

*Proposals are due by 5 p.m. submitter's local time. This is based on where your organization is listed, which may be different from your location if you are working virtually!

Key Reminder

1. Read the solicitation carefully (NSF 21-535) and visit www.nsf.gov/scc for more information on what has been funded in S&CC.
2. S&CC is a very competitive solicitation.
3. Focus on **socio-technical research** along with a clear concept for piloting activities**.** Clearly identify the discoveries to be made!
4. Deep **community engagement** is critical**;** community should help to inform the research and activities and not solely be subjects of the research. Additionally, community members (a.k.a. people, not solely institutions) should receive clear impact from the proposed project.
5. Projects concepts/approaches should have aspects that are transferable to other communities, rather than solely point-solutions.
6. Consider the perspective of the reviewers.
7. Start early with proposal submissions, especially if you individuals or institution who has not previously submitted to NSF!
8. PIs are welcome to send 1-2 page concepts to a relevant program officer.

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S&CC FAQ

What is a community stakeholder, and who might be a community stakeholder for my research?

Community stakeholders are those collaborators who are directly linked to the community.

As described in the solicitation, examples of community stakeholder organizations and anchor institutions may include some or all of the following: residents, neighborhood or community groups, nonprofit or philanthropic organizations, businesses; as well as municipal organizations such as libraries, museums, educational institutions, public works departments, and health and social services agencies.

S&CC FAQ

When must a letter of collaboration be included in the proposal?

For all substantial collaborations and engagements (included or not included in the budget) with partner institutions including communities described in the Project Description, Letters of Collaboration are strongly encouraged. These should be provided in the Supplementary Documents section of the proposal and follow the format instructions specified in the NSF PAPPG(20-1).