OTHER TRANSACTION AGREEMENT SOLUTIONS OFFERING (OTASO) FOR THE NSF X-LABS INITIATIVE

1.0 Purpose:

The U.S. National Science Foundation (NSF) Directorate for Technology, Innovation and Partnerships (TIP) announces its intent to establish and solicit proposals for the NSF X-Labs initiative.

2.0 Rationale & Background:

NSF X-Labs represent a bold, flexible, and outcomes-driven initiative designed to build and accelerate novel platform technologies capable of unlocking entirely new sectors, including new fields of scientific inquiry. The program will support full-time research and development (R&D) teams focused on use-inspired scientific breakthroughs and foundational platform technologies that traditional university and industry labs cannot easily address. NSF X-Labs teams will benefit from ambitious R&D goals, operational autonomy, milestone-based funding, and the ability to engage across academia, industry, national laboratories, and nonprofit sectors.

The NSF X-Labs initiative responds to the urgent need for the United States to maintain global leadership in science and technology by enabling new pathways for R&D activities that are hard to pursue through traditional grants and laboratories. NSF X-Labs will build new R&D structures that can tackle large-scale scientific breakthroughs requiring interdisciplinary and inter-sector coordination. With this initiative, NSF will bet on ambitious, full-time teams working with urgency and purpose and will provide them with a level of autonomy rarely possible within traditional institutional structures. NSF X-Labs will provide the structure, resources, and flexibility necessary to cultivate early-stage platform technologies that will accelerate breakthroughs and unlock entirely new sectors of the economy.

This solicitation was developed using input from public responses to NSF's Request for Information on the Tech Labs Initiative.

3.0 Strategic Objectives:

The NSF X-Labs initiative is designed to achieve the following strategic objectives for the benefit of the nation and national competitiveness.

Build Sector-Defining Platforms – Develop novel platform technologies that can serve as the foundation for future innovations, novel engineering solutions, and/or scientific breakthroughs. These technologies should foster the transformation of scientific breakthroughs beyond traditional outputs like publications and datasets and accelerate innovations within relevant application domains.

Develop New Organizational Research Structures – Foster organizations with the structure, resources, and flexibility necessary to tackle large-scale scientific advancements. These organizations should lead and leverage novel partnerships across industry,

philanthropic, and academic sectors and tackle key research challenges that lack sufficient incentives within traditional academic and industry labs.

3.1 NSF X-Labs Topics and Missions

NSF will release specific Topic areas under the NSF X-Labs initiative via Topic Announcements. Topics will center on fields of research where breakthroughs could create or reshape entire scientific fields and technology sectors where U.S. competitiveness is a priority.

Proposing teams will specify their Mission, defined as the novel platform technology and key use-inspired research solutions that the proposed NSF X-Lab is uniquely suited to tackle. Missions must align with a current Topic released by NSF under this solicitation. Proposing teams should have a clear vision of how their Mission will result in an end-state that creates or reshapes an entire field of scientific research or sector of technology, and how their Mission is currently unmet by existing organizational structures and funding mechanisms.

4.0 Period and Place of Performance:

Subject to the availability of funds, NSF anticipates awarding teams a Phase 0 lasting approximately 9 to 12 months. After a Phase 1 Go/No Go selection, successful teams may proceed to Phase 1 lasting approximately 24 to 36 months, with potential renewal for Phase 2 based on performance. Only the most promising teams will be advanced. Any additional funding that NSF may wish to provide will be considered over time as various needed capabilities are identified for inclusion in the NSF X-Labs initiative. See Section 8.0: Programmatic Structure for further details.

The place of performance of any award made under this solicitation will be within the United States.

5.0 Instrument and Approach:

Through this solicitation, NSF contemplates the issuance of one or more Other Transaction (OT) contracts pursuant to NSF's statutory authority at 42 U.S.C. § 19116. An OT contract is a statutory instrument available to NSF which is neither a FAR-based procurement contract nor a financial assistance instrument. NSF intends to make one or more awards resulting from this solicitation. Any award resulting from this solicitation is anticipated to be administered through a base OT contract award and subsequent modification(s) (e.g., for funding adjustments, milestone revisions, and phase progression), as applicable. The award is anticipated to be milestone-based, with the milestone schedule finalized during negotiations.

This solicitation contemplates a competitive evaluation and award process. NSF will receive and evaluate Written Proposals from interested teams and perform a down select based on the evaluation factors identified in this solicitation. Entities that are selected as part of this review may be invited to submit an Oral Proposal Package and participate in oral presentations.

NSF anticipates awarding teams selected for Phase 0 no more than $1,500,000, and teams selected for Phase 1 no more than $50,000,000 per year. Teams must consider their own operational needs and organizational readiness prior to requesting Phase 0 funding.

6.0 Eligibility:

The NSF X-Labs initiative will offer sustained, multi-year support to innovative and institutionally independent organizational structures to fill a vital gap in the innovation ecosystem. Awards will support a dedicated NSF X-Labs team with substantial operational independence and the flexibility to adapt quickly to an evolving technology landscape. A team's focus and personnel may necessarily evolve over time as milestones are achieved and strategic or operational needs change.

Any domestic responsible entity may submit proposals for consideration for a Phase 0 award.

NSF anticipates awarding one OT contract per NSF X-Labs team, where a X-Labs team is defined as the OTASO offeror group within the lead organization responsible for conducting the contracted activities under the award. Throughout this solicitation, "lead organization" refers to the OT contractor. NSF will not dictate the composition of the X-Labs teams. However, NSF will only sign an OT contract with one lead organization. That lead organization may be composed of multiple entities and team members and may enter into subcontract/subcontractor agreements with partnering organizations during the period of performance. NSF will have no contractual relationship with a lead organization's subcontractors.

All lead organizations must be registered in the Federal Government's System for Award Management (SAM) prior to submitting a proposal (www.sam.gov). Organizations that have not yet registered in SAM and have not yet received a Unique Entity Identifier should expect that the registration process may take up to 10 days.

6.1 Autonomy and Flexibility of NSF X-Labs Teams

To be eligible for an NSF X-Labs Phase 1 award, teams are expected to operate with substantial independence in decision making, staffing, funding, partnerships, and day-to-day operations. Teams are expected to maintain the autonomy and flexibility necessary to execute their Mission. NSF will not dictate the specific organizational and institutional entities eligible for an NSF X-Labs Phase 1 award. Instead, NSF will apply a factor test to assess a team's independence during the review process and Phase 0.

Prior to and/or during Phase 0, it is anticipated that some teams may not yet have established an independent governance structure required of a Phase 1 NSF X-Lab. In such cases, NSF expects to issue a Phase 0 award to a lead organization that will act as a host for the team. NSF anticipates that some teams may change their lead organization during Phase 0 or Phase 1; when this occurs, NSF may choose to novate the award or issue a new OT contract without issuing a new solicitation if no substantial changes are made to the team's Mission, milestones and Senior/Key Personnel.

6.1.1 NSF X-Labs Autonomy Factor Assessment

An NSF X-Labs team is expected to demonstrate fidelity to the following objectives to meet the autonomy and independence standards required for the NSF X-Labs initiative:

- NSF X-Labs should have a leadership structure that allows teams to make decisions quickly and efficiently. Research, partnership, and organizational decisions should be made in days not weeks.
- NSF X-Labs should have broad internal autonomy over how funding is allocated to allow for rapid execution of the Mission.
- NSF X-Labs and their Senior/Key Personnel should retain broad control of research directions and partnership agreements, including the ability to shift their technical approach to achieve their Mission.
- NSF X-Labs should adopt an Intellectual Property (IP) framework that credibly prioritizes and enables technology proliferation, encourages broad use, and is not unnecessarily constrained by restrictive or rigid institutional ownership policies or constraints that are not required by law.
- NSF X-Labs should retain broad decisional authority over hiring, salary negotiation, and procurement and contracting as necessary to secure the talent, equipment, and partnerships necessary to pursue its Mission.
- NSF X-Labs governance structures should be structured to encourage Mission alignment, operational autonomy, and institutional independence.

These objectives, while not mutually exhaustive, serve as the basis for an operational autonomy factor assessment that NSF will conduct to determine if an NSF X-Labs proposal has sufficient fidelity to the program model. These factors are broad guidelines, rather than legalistic standards. It is anticipated that there will be significant variance in how institutions choose to meet these objectives across accepted proposals. NSF acknowledges many of these objectives will require long-term planning and negotiation, and anticipates that teams, if selected for a Phase 0 award, will continue to work on advancing and developing their model to further align their proposed NSF X-Labs model with these objectives in preparation for Phase 1.

NSF reserves the right to determine the extent to which a team functionally demonstrates the conditions described in the Autonomy Factor Assessment. During the Phase 0 review process, NSF will evaluate the extent to which the team's planned operating structure by Phase 1 is aligned with the intended autonomy and flexibility of the NSF X-Labs initiative. During the Phase 1 Go/No Go selection process, NSF will assess the extent to which the proposed legal and organizational structure presented in the Governance Structure Plan is appropriate for the proposed work and Mission and will use the Autonomy Factor Assessment to evaluate the extent to which the team structure reflects sufficient autonomy and flexibility to conform with the intent of the NSF X-Labs initiative.

The Autonomy Factor Assessment is *not* designed to wholly restrict institutional participation in the NSF X-Labs program and anticipates that there are several solutions to achieve alignment

with these objectives. NSF encourages institutional flexibility and creativity in meeting these objectives. Finally, the operational factor assessment does not preclude nor discourage institutional best practices, policies, and practices designed to eliminate fraud, waste, and abuse or broader legal compliance.

6.2 Senior/Key Personnel

Senior/Key Personnel include the individuals designated by the proposer/recipient organization and approved by NSF who contribute in a substantive, meaningful way to the development and execution of the proposed NSF X-Lab. Addition or substitution of Senior/Key Personnel requires NSF review/approval. Senior/Key personnel on an NSF X-Labs team may be listed on a maximum of one proposal per Topic Announcement.

Senior/Key personnel and/or members of an NSF X-Lab's core leadership team must be dedicated full-time to the team by the beginning of Phase 1, unless otherwise approved by NSF. Teams may retain the flexibility to hire part-time employees, vendors, subcontractors, and research organizations, and establish part-time appointments of personnel to an advisory council.

6.3 Research Security Requirements

In compliance with the CHIPS and Science Act of 2022, Section 10636 (person or entity of concern prohibition) (42 U.S.C. 19235) and Section 10632 (malign foreign talent program prohibition) (42 U.S.C. § 19232), the following are not eligible to serve as NSF X-Labs teams or otherwise participate under this solicitation:

- *U.S. proscribed parties*, which include the entities appearing in the following lists:
    - Sec. 1260H of the *National Defense Authorization Act* (NDAA) for FY2021 and
    - Sec. 1286 of the NDAA for FY2019, as amended
    - Annex of Executive Order 10432
    - U.S. Bureau of Industry and Security (BIS):
        - Entity List
        - Military End-User Entities
        - Denied Persons
    - U.S. Treasury Office of Foreign Assets Control (OFAC):
        - Non-SDN Chinese Military-Industrial Complex Companies
    - U.S. Department of State (DoS):
        - Debarred Parties
        - Nonproliferation Sanctions
    - U.S. Federal Communications Commission (FCC):
        - Equipment and Services Covered by Section 2 of The Secure Networks Act
- Any "foreign entities of concern" as defined in section 10638(3) of the CHIPS and Science Act of 2022, which includes, among others, entities owned by, controlled by, or subject to the jurisdiction or direction of the government of the Democratic People's Republic of North Korea, the People's Republic of China, the Russian Federation, or the Islamic Republic of Iran. Similarly, individuals who are citizens of the Democratic People's Republic of North Korea, the People's Republic of China, the Russian

Federation, or the Islamic Republic of Iran may not serve as Senior/Key Personnel, as defined in Section 6.2.
- Individuals who are a party to a *Malign Foreign Talent Recruitment Program*. The CHIPS and Science Act of 2022 defines a Malign Foreign Talent Recruitment Program as any program, position, or activity that is sponsored by a foreign country of concern that includes compensation in exchange for activities that may violate research security regulations. See full definition of a Malign Foreign Talent Recruitment Program here.

Initial and annual certifications of compliance with these research security requirements, and any additional requirements put into place by NSF or by law, may be required for all Senior/Key Personnel.

7.0 Performance Objectives for NSF X-Labs Teams:

Each NSF X-Labs team will execute upon their high-impact Mission to drive use-inspired research and develop novel platform technologies that can serve as the foundation for future innovation and breakthroughs. Successful teams will leverage new organizational research structures to greatly accelerate the emergence of new technologies and advance fields of use-inspired research. Examples of existing high-impact platform technologies include Very Large-Scale Integration (VLSI), the Internet, Polymerase Chain Reaction (PCR), brain-computing interfaces, next-generation sequencing, AI models for protein structure prediction, and Light-Emitting Diodes (LEDs).

NSF X-Labs teams are expected to achieve significant R&D outcomes beyond the generation of papers and scientific datasets. Such outcomes will be defined by the Mission of each team and the specific needs of each technology Topic area. Examples of high-impact outcomes may include:

- The development of foundational platform technologies that enable significant downstream breakthroughs in one or more sectors.
- Solving a specific technological challenge or bottleneck that creates or reshapes entire fields of scientific inquiry.
- Early-stage prototypes that are not otherwise funded by industry and that accelerate the emergence of novel technology capabilities.

The following performance objectives would **not** be considered within scope of the NSF X-Labs initiative.

- Advancement of multiple research arms of a technology sector without a clear and defined Mission for high-impact outcomes.
- Incremental advancement of the state of the art for a technology or platform.
- Advancement of technologies that already demonstrate substantial industry and/or venture capital investment.
- Development of testbeds or data centers as the primary focus of the proposal.
- Advancement of platform technologies where the sole challenges to be addressed are non-technical.

By the end of a Phase 2 period of performance, a successful NSF X-Labs team might be sustained by external support and/or have accomplished their core Mission and transformed into a different organizational structure. In some cases where continued NSF funding is in the best interests of the nation, NSF may choose to award a Phase 3.

8.0 Programmatic Structure:

The NSF X-Labs initiative will include a preparation phase (Phase 0) with a Phase 1 Go/No Go selection period beginning around the last quarter of Phase 0. NSF intends to award teams selected for Phase 1 an approximately 24 to 36-month period of performance with the intention of renewing high-performing teams for Phase 2 following subsequent Go/No Go selections. The durations of Phase 1 and Phase 2 are flexible, allowing teams to advance faster upon meeting Progress Milestones.

Phase 0 (9-12 months) – NSF will support teams through milestone-based OT contracts to further develop their concepts, refine milestones and budgets for Phase 1 and prepare to become fully-funded NSF X-Labs teams. Phase 0 teams will be expected to produce specific milestone deliverables, as outlined in Section 9.1.

Phase 1 Go/No Go Selection – Phase 1 teams will be selected following a review of their NSF X-Lab in the last quarter of Phase 0. NSF anticipates scheduling an in-person reverse site visit or virtual site visit with each team awarded a Phase 0 during the review period. During the Phase 1 Go/No Go selection, teams will be evaluated by their milestone deliverables produced during Phase 0 and any site visits that occur. NSF will use similar selection criteria as the Oral Proposal Package (see Section 13.0) for the Phase 1 Go/No Go selection; specific selection criteria will be provided to teams before or at the start of the Phase 0 period of performance. Only teams awarded a Phase 0 will be considered for Phase 1, with flexibility anticipated for Senior/Key Personnel who change their lead organization during the Phase 0 performance period.

Phase 1 (24-36 months) **–** Teams selected to advance to Phase 1 will execute upon their Mission and work towards achieving the milestones defined during Phase 0. Phase 1 teams are expected to scale and recruit primarily full-time team members. Teams will propose ambitious milestone-based timelines ranging from 24 to 36 months. If a team can achieve their milestones ahead of schedule, including earlier than 24 months, they may be encouraged to advance to Phase 2 early, subject to the availability of funds.

Phase 2 Go/No Go Selection – NSF will select Phase 2 teams following a review near the end of Phase 1, or earlier if ahead of schedule, at the discretion of NSF. Teams will be evaluated by their milestone deliverables produced during Phase 1 and any site visits that occur.

Phase 2 (variable duration) **–** NSF recognizes that continued support of excellent teams is crucial to supporting a national innovation ecosystem. NSF intends to award high-performing teams Phase 2 support to refine their technology solutions and/or spin off into

complementary initiatives. Teams selected to advance to Phase 2 will execute upon their mission and work towards achieving the milestones defined during Phase 1.

9.0 Milestones & Milestone-based Payments

Each team will develop milestones with associated tasks and deliverables for each phase. Invoices for milestones will only be paid following successful completion of items that are well documented in progress reports and accepted by NSF.

Milestones for a subsequent phase will be developed and proposed during the preceding phase, or during the proposal and negotiations stage for Phase 0. A team's Milestone Plan will be reviewed by NSF as part of each Go/No Go selection to progress to the next phase. Teams may request to renegotiate milestones during a performance phase to adapt to changes in the technology landscape.

9.1 Phase 0 Milestones

A Phase 0 Milestone Plan will be proposed by teams invited to participate in an oral presentation and submit an Oral Proposal Package (see Section 12.0). Additional guidance for the Milestone Plan will be provided to invited teams. Phase 0 Milestone Plans will be incorporated into a team's OT contracts, and NSF may enter negotiations with selected teams over the contents of the Phase 0 Milestone Plan prior to signing the OT contract.

The Milestone Plan will include all proposed milestones, tasks, deliverables, and the exit criteria required for NSF to consider the milestone complete. The Milestone Plan will include a timeline for milestone completion and associated milestone payments that sum to the total amount requested for Phase 0. Milestone payments should be scheduled quarterly.

NSF will require certain Phase 0 milestones from all teams to be submitted at or before the beginning of the Phase 1 Go/No Go selection. Additional Phase 0 milestones may be proposed by teams, and may include technical milestones planned for Phase 0, team set-up and operational milestones, and key partnership and engagement milestones, among others.

Milestones required during Phase 0 include:

Team Kickoff Meeting – Each team will meet with NSF in the first month of Phase 0 to clarify objectives, address any additional questions, and confirm next steps.

Data Management and Privacy Plan (limited to 2 pages) – Teams will describe their plans for data-sharing across their team, with NSF, and with the general public during the award.

IP Management Plan – Describes how IP controlled by the team and/or generated during the period of performance will be identified, protected, and managed throughout the period of performance. IP Management Plans should be structured to ensure the developed platform technologies are widely accessible and enabling of an IP approach that actively pursues adoption, commercialization, and ecosystem growth. Teams must explain how

their IP Management Plan supports their strategy for U.S. national competitiveness and broad technology adoption.

Research Security Management Plan – Describes how the team will safeguard project data, IP, trade secrets (if applicable), personnel, and systems against unauthorized access, foreign influence, and other security risks throughout the period of performance.

Governance Structure Plan – Describes how the team will structure and organize the NSF X-Lab. Plans must include the NSF X-Lab's legal entity type and a justification for how the NSF X-Lab meets the conditions of the Autonomy Factor Test (see Section 6.1.1), demonstrating the autonomy and independence required for the NSF X-Labs initiative. Plans may include existing or planned governance for the NSF X-Lab, including leadership team structure, advisory boards, and/or governance boards.

Proposed Phase 1 Milestone Plan - A milestone and deliverables table with a description of the milestone tasks the team will undertake during the Phase 1 award period.

Proposed Phase 1 Budget – Each team will submit three separate budget proposals to NSF to be considered for Phase 1: an essential (small), a mid-range (medium), and a comprehensive (large) budget. The purpose of a tiered budget proposal is to illuminate trade-offs between budgetary choices and high-impact outcomes. Each budget proposal will include a justification for major budget items. NSF X-Labs are encouraged to leverage complementary support from partners, including for equipment access.

Qualifications of Senior/Key Personnel – Teams must update Senior/Key Personnel information from their Phase 0 proposal.

9.2 Phase 1 Milestones

Phase 1 milestones will be categorized into two types: Reporting Milestones and Progress Milestones.

Reporting Milestones are intended to support basic operations of the NSF X-Lab. Deliverables will include quarterly reports and associated meetings with NSF on the activities of the team and advancements made towards Progress Milestones. Reporting Milestone payments are intended to serve as regular funding for the team, but are not intended to support all operations and salaries of a larger-scale NSF X-Lab without additional Progress Milestones

Progress Milestones will define significant progress to be demonstrated by the team. Milestones must be quantitative with clear, measurable, and verifiable exit criteria showing progress towards the Mission. Progress Milestones are intended to be primarily technical, but may include partnerships or other significant advances to the technology and/or Mission made by the team. Total Progress Milestone payments should substantially exceed total Reporting Milestone payments.

Teams are expected to propose high-risk, high-reward progress within their milestones, and NSF anticipates that even effective and productive teams may not achieve all high-risk Progress Milestones. Teams that demonstrate practical and technical progress by achieving significant Progress Milestones may use the associated milestones payments to scale their teams throughout Phase 1.

At the end of Phase 1, a team's demonstrated ability to achieve milestones and/or make significant progress towards achieving critical milestones will be evaluated. Teams that make substantial progress towards achieving their Progress Milestones and overall Mission will be considered competitive for Phase 2. Not all Progress Milestones are required to be completed to be considered competitive for Phase 2.

9.3 Milestones for Additional Phases

NSF anticipates that milestones for Phase 2 and beyond will include both Reporting and Progress Milestones, similar to Phase 1. Milestones for Phase 2 will be developed during Phase 1 and proposed during the Phase 2 Go/No Go selection. Additional guidance will be provided to Phase 1 teams to assist in the development of Phase 2 Milestone Plans.

10.0 Written Proposal Format

The NSF X-Labs initiative involves a two-step competitive evaluation. NSF will first solicit Written Proposals and then invite a smaller number of proposing teams to submit an Oral Proposal Package and deliver an oral presentation.

Written Proposals should be direct, concise, and must not exceed a total of 8 single-sided pages exclusive of the Conflicts of Interest (COI) statement. The Written Proposal shall be typed, single-spaced, using 12-point font, and printed on 8½" by 11" paper, with 1" margins on all sides. Tables/graphs may use a smaller font. Written Proposals shall be submitted as a PDF document without a cover letter. COI statements shall be submitted as a PDF document and have no page limit. Proposals that do not meet these format specifications may be removed from consideration.

Proposers are recommended to use the Written Proposal Template provided as Attachment A when preparing their Written Proposals for submission.

10.1 Written Proposal Content

The proposal must include concise, comprehensive information and details on how the team will support the efforts outlined in this solicitation. The proposal should address the following areas:

> **Mission** – Proposing teams must describe one or more novel platform technologies that the proposed NSF X-Lab is uniquely suited to advance. Successful teams will have a clear vision statement of how their work will result in an end-state that reshapes an entire field of scientific inquiry or a sector of technology, and how their Mission is currently unmet by existing organizational structures and funding mechanisms.

Technology Landscape – Provide an analysis of the current technology landscape that justifies how the proposed platform technology would accelerate the emergence of new technologies and lines of research. The Technology Landscape Analysis should compare current state-of-the-art technology and should provide a clear description of the team's goal to progress the technology and unlock fundamentally new capabilities. A plot or other figure to quantitatively depict the current technology landscape and desired goal(s) of the NSF X-Lab may be included here.

Outcomes – An NSF X-Lab is expected to deliver high-impact, measurable outcomes that advance a nascent platform technology, overcome critical bottlenecks, and realize the team's vision to reshape an entire area of technology or field of scientific research (see Section 7.0 for example outcomes). Phase 0 proposals should describe the team's ambitious target outcomes over a 5- to 7-year timescale to accomplish the stated Mission and the scientific and technical performance benchmarks needed to get there.

Senior/Key Personnel Qualifications – Provide a brief description of the qualifications of Senior/Key Personnel on the team. Include technical expertise, past efforts, and other qualifications that will contribute to achieving the team's Mission. Include information for all Senior/Key Personnel, including team members not currently affiliated with the lead organization.

Team Capabilities Statement – Provide a Team Capability Statement describing how the Senior/Key Personnel on the proposed leadership team bring together complementary expertise in strategic leadership, technical expertise, and/or entrepreneurship, as applicable. The statement should describe how, collectively, the team demonstrates the experience, adaptability, and collaborative approach necessary to execute the Mission. Briefly describe the team's intended governance structure and autonomy during Phase 0 and Phase 1. If applicable, include an overview of networks, partnerships, and capital resources your team currently has and how they will be deployed in support of the proposal.

10.2 Conflicts of Interest

The proposing team must include a Conflicts of Interest (COI) statement describing any potential financial interests of the lead organization and Senior/Key Personnel that could create conflicts with the work proposed. The proposing team must also describe how it will avoid, neutralize, or mitigate any potential or actual conflicts. This requirement applies to the lead organization, its employees, and any subcontractors/consultants proposed to perform work.

If, at any time, the contractor identifies an actual or potential organizational conflict of interest (OCI) (using FAR Subpart 9.5 as a framework) that has not been adequately disclosed and resolved (or waived in writing by NSF), the contractor must promptly provide full written disclosure to NSF. The disclosure must describe the conflict and the actions taken or proposed to resolve it.

This reporting requirement includes post-award OCIs for the contractor and its subcontractors. If a conflict arises after award, the contractor must notify NSF and provide a proposed mitigation plan describing how the team will address the conflict.

11.0 Written Proposal Selection Criteria

All Written Proposals will be evaluated using the selection criteria listed below. Both criteria will be given full consideration during review and as such both must be addressed. When evaluating Written Proposals, the NSF will weigh "Team Qualifications and Structure", and "Mission Clarity and Outcomes" roughly equally.

11.1 Team Qualifications and Structure

- The extent to which the team's Senior/Key Personnel bring together necessary and complementary expertise in scientific, technical, interdisciplinary, and strategic leadership to execute their Mission; the extent to which the team's Senior/Key Personnel have demonstrated a record of success.
- The extent to which the team's intended governance structure in Phase 1 is appropriate for proposed work, is prepared to leverage novel partnerships across industry, government, academia, and philanthropy, and provides the structure, resources, autonomy, and flexibility necessary for the NSF X-Lab to tackle large-scale scientific advancements.

11.2 Mission Clarity and Outcomes

- The extent to which the proposed Mission and outcomes are appropriately ambitious, technically sound, and well-defined.
- The extent to which the technology landscape justifies a dedicated, full-time team to develop the proposed platform technology and achieve high-impact breakthroughs in the Mission area.
- The extent to which the Mission and outcomes are aligned with the strategic objectives of the NSF X-Labs initiative (see Section 3.0).

12.0 Oral Proposal Package (Invitation Only)

The NSF X-Labs initiative will solicit for Written Proposals only. NSF may respond to conforming Written Proposals with a Notice of Non-Selection or an invitation to submit an Oral Proposal Package and participate in an oral presentation. NSF may choose to distribute clarifying questions to proposing organizations selected to advance. Proposing teams may address these questions as part of the Oral Proposal Package and/or the oral presentation. Oral Proposal Packages will be due to NSF approximately 5 business days prior to scheduled oral presentations.

NSF will provide more detailed instructions on how to create the Oral Proposal Package to invited proposers. In the event that the instructions in the invitation to participate deviate from the following description, the instructions in the invitation to participate take precedence.

During the Oral Proposal stage, NSF will not consider any information contained in a proposer's Written Proposal. All technical and programmatic details of the proposed NSF X-Lab must be fully included in the Oral Proposal Package for review by the Evaluation Panel.

12.1 Oral Proposal Package Documents

An Oral Proposal Package is expected to consist of the following documents:

- **Oral Presentation Slides** – Slides should include the team Mission and outcomes, proposed Phase 0 and Phase 1 activities, a team overview and a budget summary.
- **Phase 0 Milestone Plan –** A milestone and deliverables table with a description of the milestone tasks the team will undertake during Phase 0.
- **Senior/Key Personnel Disclosures** – NSF requires a biographical sketch and current and pending (other) support document for each individual identified as Senior/Key Personnel. These forms are due to NSF approximately 48 hours after receipt of invitations to participate in an oral presentation. The provided disclosures will be reviewed by NSF's Office of the Chief of Research Security Strategy and Policy (OCRSSP) to screen Senior/Key Personnel and verify compliance with the requirements outlined in Section 6.3. Proposers must use SciENcv to prepare their biographical sketches and current and pending support documents. This frequently asked questions document provides step-by-step instructions and links to video tutorials.
- **Phase 0 Budget –** A budget and accompanying budget justification which sets forth the amount of funding requested from NSF, by budget category, for the period of performance of this effort. The budget justification provides a breakdown for each category and supporting rationale. Teams must assess their operational readiness for funding, bearing in mind that not all teams will require the maximum funding of $1,500,000.
- **Letters of Collaboration –** Signed one-page Letters of Collaboration from proposed collaborators, including proposed subcontractors.

12.2 Oral Presentation

The Government intends to hold oral presentations virtually. By participating in oral presentations, proposing teams acknowledge that they are in compliance with all solicitation rules and parameters, in accordance with applicable laws and statutes. NSF will provide more detailed instructions on how to prepare for the oral presentation to invited proposers.

13.0 Oral Proposal Package Selection Criteria

All Oral Proposal Packages and associated oral presentations will be evaluated using the selection criteria listed below. Both criteria will be given full consideration during review and as such both must be addressed. The Evaluation Panel will weigh "Team Qualifications and Structure", and "Mission Clarity and Outcomes" roughly equally.

13.1 Team Qualifications and Structure

- The extent to which the team's Senior/Key Personnel bring together necessary and complementary expertise in scientific, technical, interdisciplinary, and strategic leadership to execute their Mission.
- The extent to which the proposed legal and organizational structure in Phase 1 is appropriate for the proposed work and Mission, is prepared to leverage novel partnerships across industry, government, academia, and philanthropy, and provides the

structure, resources, autonomy, and flexibility necessary for the NSF X-Lab to tackle large-scale scientific advancements.
- The extent to which the proposed Phase 0 Budget reflects a reasonable allocation of resources necessary to successfully complete the proposed activities and a full understanding of the goals of the NSF X-Labs initiative.

13.2 Mission Clarity and Outcomes
- The extent to which the proposed Mission and outcomes are appropriately ambitious, technically sound, and well-defined.
- The extent to which the Mission and outcomes are aligned with the strategic objectives of the NSF X-Labs initiative (see Section 3.0).
- The extent to which the proposed Phase 0 and Phase 1 activities are well-defined and appropriately ambitious, and there exists a clear rationale for how activities will achieve the Mission outcomes.
- The extent to which the proposed Phase 0 Milestone Plan and Payment Schedule are appropriate and meaningfully address all required milestones to prepare for a Phase 1 team.

14.0 Review and Selection Process

This solicitation contemplates a competitive, two-step evaluation process as described herein. Regarding Written Proposals received in response to this solicitation, NSF will perform a compliance review to ensure that proposals (1) were submitted by eligible proposing teams and (2) are complete in accordance with the requirements described in this solicitation.

Following this initial compliance review, the merit review and selection process will occur in two phases: (1) evaluation of Written Proposals; and (2) evaluation of Oral Proposal Packages and oral presentations.

(1) Written Proposals received in response to this solicitation will be reviewed by NSF in accordance with the selection criteria listed in Section 11.0 of this solicitation. NSF may utilize one or more evaluation teams and may assign reviewers by evaluation criterion and/or other methods to manage proposal volume efficiently. NSF will establish the evaluation structure, including any use of multiple teams, prior to releasing proposals to evaluators. Based on the evaluation of Written Proposals, the Agreements Officer will perform a down selection to a smaller number of proposing teams that are determined to be the most highly qualified to become an NSF X-Lab.

(2) After completion of the evaluation of Written Proposals, the Agreements Officer will then invite the team(s) determined to be the most highly qualified based on their Written Proposals to submit an Oral Proposal Package and participate in oral presentations. NSF may limit the number of teams invited to the oral stage. NSF may, along with invitations to participate in oral presentations, distribute a set of questions to all proposing teams that received a favorable rating on their Written Proposal. Responses to these questions will be due prior to participation in oral presentations. See Sections 12.0 and 13.0 of this solicitation for Oral Proposal Package submission requirements, oral presentation instructions, and selection criteria. To review and evaluate Oral Proposal Packages and

oral presentations, NSF will convene a group of *ad hoc* reviewers consisting of leading experts in the fields and technologies that are the subject of a given NSF X-Labs Topic, including federal employees and external subject matter experts. *Ad hoc* reviewers will provide individual review summaries to NSF based on the selection criteria listed in Section 13.0. The NSF technical evaluation team will then create a rank listing of the prospective team(s) deemed to best satisfy the selection criteria and best qualified to perform the work.

Subsequently, the Agreements Officer will select the NSF X-Labs team(s) using feedback from the NSF technical evaluation team while also ensuring a balanced technical and programmatic cohort for NSF investment. NSF will enter negotiations with the selected Phase 0 team(s).