

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT			1. CONTRACT ID CODE	PAGE 1	OF 4	PAGES 4
2. AMENDMENT/MODIFICATION NUMBER 0001		3. EFFECTIVE DATE 04/16/2024		4. REQUISITION/PURCHASE REQUISITION NUMBER		5. PROJECT NUMBER (If applicable)
6. ISSUED BY NASA Shared Services Center (NSSC) Building 1111, Jerry Hlass Road Stennis Space, MS 39529-6000		CODE		7. ADMINISTERED BY (If other than Item 6)		CODE
8. NAME AND ADDRESS OF CONTRACTOR (Number, street, county, State and ZIP Code)				<input checked="" type="checkbox"/> 9A. AMENDMENT OF SOLICITATION NUMBER 80NSSC23SBIRIGNITE <input type="checkbox"/> 9B. DATED 04/16/2024 <input type="checkbox"/> 10A. MODIFICATION OF CONTRACT/ORDER NUMBER <input type="checkbox"/> 10B. DATED (SEE ITEM 13)		
CODE		FACILITY CODE				

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers is extended. is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or electronic communication which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by letter or electronic communication, provided each letter or electronic communication makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

**13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NUMBER AS DESCRIBED IN ITEM 14.**

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NUMBER IN ITEM 10A.
<input type="checkbox"/>	
<input checked="" type="checkbox"/>	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
<input type="checkbox"/>	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
<input type="checkbox"/>	D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor is not is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

NASA hereby amends its NASA SBIR Program 2023 Ignite Phase I Solicitation. This amendment changes the Phase II proposal submission process. Phase II Proposal will/shall be submitted via Box instead of Prosam. Updated solicitation is provided as part of this admendment.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Kenneth E. Albright	
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA (Sign)	16C. DATE SIGNED
_____ (Signature of person authorized to sign)		_____ signature of Contracting Office	

Previous edition unusable

National Aeronautics and Space Administration (NASA)

Small Business Innovation Research (SBIR) SBIR Ignite Solicitation Fiscal Year 2023

Complete Phase I Proposal Package Due Date and Time:

September 21st, 2023 by 5:00 p.m. ET

Complete Phase II Proposal Package Due Date and Time:

120th day of Phase I Period of Performance by 5:00 p.m. ET

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Welcome to the SBIR Ignite Solicitation

The SBIR Ignite solicitation is a limited pilot program focused on technologies with a strong commercial pull. There are several differences from the traditional NASA annual SBIR (Small Business Innovation Research) and STTR (Small Business Technology Transfer) solicitations.

The limited number of topic areas of interest for this solicitation have been specifically selected for their commercial relevance. Offerors must demonstrate their understanding of the market and provide a strong commercialization plan to be considered responsive.

Offerors familiar with the traditional NASA annual SBIR and STTR solicitations will notice significant differences in Section 3: Proposal Preparation Instructions and Requirements; Section 4: Method of Selection and Evaluation Criteria; Section 6: Submission of Proposals; and Section 8: Submission Forms. Be sure to read each of these sections carefully to ensure your proposal makes it through administrative screening to be considered.

Proposal submission will occur through the Proposal Submissions and Award Management System (ProSAMS) rather than the standard Electronic Handbook (EHB) platform used for the traditional NASA SBIR Phase I or II solicitation.

The technical proposal will be separated into 2 distinct parts:

- A white paper
- A slide deck

Firms may be invited to present to a panel made up of NASA subject matter experts and/or 3rd party reviewers.

Phase II proposals will be due 120 days from the start of the Phase I period of performance and will be submitted via Box. Firms will be notified of the exact date when they receive their Phase I award. The goal is to reduce the time between the end of Phase I and the beginning of the Phase II periods of performance.

The SBIR Ignite program aims to accelerate the advancement of technology to market. Firms are encouraged to propose the shortest Phase II period of performance that is required to reach their proposed milestones and not to default to the maximum 24-month period of performance. *Note: The Phase I period of performance is expected to be the standard 6 months.*

1. Program Description

1.1 Executive Summary

The SBIR Ignite Solicitation is a limited pilot program focused on technologies with a strong commercial pull. The topic areas of interest for this solicitation have been specifically selected for their commercial relevance. Offerors must demonstrate their understanding of the market and provide a strong plan for commercialization of the technology to be competitive for award. Companies with a significant history of operations and/or R&D funding will be evaluated based on their track record of prior technology development and commercialization and whether SBIR funding will be catalytic to their further development.

NASA requests Small Business Concerns (SBCs) to submit proposals for the SBIR Ignite solicitation during fiscal year (FY) 2023. This solicitation includes instructions for SBCs to submit complete proposal packages as well as background information, eligibility and certification requirements, evaluation criteria, and contracting considerations. Details on the research topic areas appear in section 9. Communication between NASA and the firm is through email during the solicitation period. **The SBIR Ignite proposal submission period begins on August 1st, 2023, and ends at 5 p.m. Eastern Time on September 21st, 2023.**

The NASA SBIR program focuses on transforming scientific discovery into products and services through innovations that have the potential for infusion into NASA programs and missions, the potential for commercialization into commercial markets, and societal benefits. Unlike fundamental research, the NASA SBIR program supports small businesses in the creation of innovative, disruptive technologies and enables the application of research advancements from concept to market. Unlike most investors, the NASA SBIR program provides non-dilutive funding at the earliest stages of company and technology development.

1.2 Legislative Authority and Background

The SBIR and STTR Extension Act of 2022 (Pub. L. 117-183.) amended the Small Business Act ([15 U.S.C. 638](#)) to extend the SBIR/STTR programs until September 30, 2025. Policy is provided by the Small Business Administration (SBA) through the combined SBIR and STTR programs' [Policy Directive](#). The main purpose of the legislation is to stimulate technological innovation in the Federal Research/Research and Development (R/R&D) sector and increase private sector commercialization in both the SBIR and STTR programs. Accordingly, the NASA SBIR program is in a unique position to meet both goals by transforming scientific discovery and innovation to be used in NASA programs and missions as well as emphasizing private sector commercialization.

The SBIR program is Congressionally mandated and intended to support scientific excellence and technological innovation through the investment of federal research funds to build a strong national economy by stimulating technological innovation in the private sector; strengthening the role of small businesses in meeting federal research and development needs; increasing the commercial application of federally supported research results; and fostering and encouraging participation by socially and economically disadvantaged and women-owned small businesses.

1.2.1 Due Diligence Program to Assess Security Risks

The SBIR and STTR Extension Act of 2022 requires NASA, in coordination with the SBA, to establish and implement a due diligence program to assess security risks presented by offerors seeking a Federally funded award. As noted above, the NASA SBIR/STTR Programs follow the policies and practices of the SBA SBIR/STTR Policy Directive. Revisions to the Policy Directive are in effect as of May 3, 2023, and the Federal Register Notice is available at: <https://www.federalregister.gov/documents/2023/04/03/2023-06870/small-business-innovation-researchprogram-and-small-business-technology-transfer-program-policy>. This revision is incorporated into this

solicitation, including Appendix III, “Disclosures of Foreign Affiliations or Relationships to Foreign Countries” as reflected in the Disclosures of Foreign Affiliations or Relationships to Foreign Countries form (see section 2.3.1).

In accordance with Section 4 of the SBIR and STTR Extension Act of 2022, NASA will review all proposals submitted in response to this solicitation to assess security risks presented by offerors seeking an SBIR award. NASA will use information provided by the offeror in response to the Disclosures of Foreign Affiliations or Relationships to Foreign Countries form, the proposal, and open-source analysis and analytical tools to conduct a risk-based due diligence review on the cybersecurity practices, patent analysis, employee analysis, and foreign ownership of a small business concern, including the financial ties and obligations (which shall include surety, equity, and debt obligations) of the offeror and its employees to a foreign country, foreign person, or foreign entity. NASA will also assess proposals and awards for the nondisclosures of the information set forth in 15 U.S.C. § 638(o)(17).

1.3 Program Management & Administration

NASA’s Space Technology Mission Directorate (STMD) provides overall policy direction for the implementation of the NASA SBIR program. The NASA SBIR/STTR Program Management Office (PMO), hosted at the NASA Ames Research Center (ARC), operates the program in conjunction with NASA mission directorates and field centers. For additional information on the mission directorates, see section 7.1. Additionally, the NASA Shared Services Center (NSSC) provides the overall procurement management for the programs.

1.4 Availability of Funds

There is no commitment by NASA to fund any proposal or to make a specific number of awards and NASA may elect to make several or no awards in any specific research topic. The number of awards will be based on the level of appropriated funding provided to the program. Currently, it is anticipated that the SBIR Ignite Phase I proposals will be selected in December 2023 for the negotiation of firm-fixed-price contracts. Awarded contracts will have a period of performance not to exceed six (6) months.

Due to the limited pilot nature of this solicitation, NASA will not accept more than one (1) complete proposal package from any one firm to ensure the broadest participation of the small business community.

This solicitation will be released prior to the passage of an appropriations act for FY 2024. Enactment of continuing resolutions or an appropriations act may affect the availability or level of funding for this program and may delay the award and start dates of Phase I contracts or impact the number of awards or maximum contract value levels.

1.5 Three-Phase Program

The standard three phases of the NASA SBIR/STTR program are described in detail on the NASA SBIR/STTR website: <https://sbir.nasa.gov/content/nasa-sbirsttr-basics>.

Phase I

Phase I projects should demonstrate the technical feasibility of the proposed innovation and the potential for infusion within a NASA program or mission and/or use in the commercial market. The maximum value of a Phase I award is \$150,000 and the period of performance is 6 months.

Phase II

Phase II proposals continue the R&D developed under Phase I to bring the innovation closer to infusion into a NASA program or mission and/or commercialization of the innovation. Only Phase I awardees are eligible to

submit a Phase II proposal at the conclusion of the Phase I contract. The maximum value of a Phase II award is \$850,000 and the maximum period of performance is 24 months.

Phase III

Phase III is the commercialization of innovative technologies, products, and services resulting from either a Phase I or Phase II contract. This includes further development of technologies for transition into NASA programs, other Government agencies, or the private sector. Phase III contracts are funded from sources other than the SBIR and STTR programs and may be awarded without further competition. Please refer to <https://sbir.nasa.gov/content/post-phase-ii-initiatives#Phase-III> for Phase III information.

Post-Phase II Opportunities for Continued Technology Development and Transition

NASA recognizes that Phase I and II awards may not be sufficient in either dollars or time for the firm to complete the total R/R&D and commercialization activities required to make the project ready for infusion or commercialization. Therefore, NASA has several initiatives for supporting its SBCs beyond their Phase I and Phase II awards. Firms are encouraged to line up funding commitments from investors early in the process to position themselves for NASA SBIR's Phase II-E and Civilian Commercialization Readiness Pilot Program (CCRPP) matched funding opportunities. Please refer to <https://sbir.nasa.gov/content/post-phase-ii-initiatives> for the most up-to-date information on eligibility, application deadlines, and matching requirements.

1.6 Eligibility Requirements

For additional information on eligibility requirements, please visit <https://www.sbir.gov/about>.

1.6.1 Small Business Concern (SBC) Certification

Each Phase I and Phase II offeror must submit a certification stating that it meets the size, ownership, and other requirements of the SBIR program at the time of a completed proposal package submission, award, and at any other time set forth in the regulations at [13 CFR §§ 121.701-121.705](#). Socially and economically disadvantaged, and women-owned SBCs are particularly encouraged to propose.

1.6.2 SBC Size

A Phase I offeror, combined with its affiliates, must not have more than 500 employees.

1.6.3 SBIR Restrictions on Level of Small Business Participation

The offeror must be the primary performer of the proposed research effort. To be awarded an SBIR Phase I contract, a minimum of two-thirds or 67% of the research or analytical effort must be carried out by the offeror during Phase I; correspondingly, a maximum of one-third or 33% of the effort may be performed by an outside party such as consultants or subcontractors. To be awarded an SBIR Phase II contract, a maximum of one-half or 50% of the research or analytical effort may be performed by an outside party such as consultants or subcontractors. *Occasionally, deviations from these SBIR requirements may occur. Any deviations must be approved in writing by the Contracting Officer after consultation with the agency SBIR Program Manager.*

1.6.4 Place of Performance and American-made Products and Equipment

All work shall be performed in the United States. When purchasing equipment or a product under the SBIR Funding Agreement, purchase only American-made items whenever possible. However, based on a rare and unique circumstance (for example, if a supply, material, or other item or project requirement is not available in the United States), NASA may allow a particular portion of the research or work to be performed or obtained in a country outside of the United States.

Completed proposal packages must clearly indicate if any work will be performed outside the United States, including subcontractor performance, and justification must be provided by downloading, completing, and uploading the “Request to Use a Foreign Vendor/Purchase of Items from a Foreign Vendor” form as directed in ProSAMS. ProSAMS requires firm registration and login. To access ProSAMS, go to <https://prosams.nasa.gov/>. For Phase II, submission of the form will be via Box. Prior to award, approval by the Contracting Officer for such specific condition(s) must be in writing.

Note: NASA will not approve purchases from or work with countries that appear on the Designated Country list. For reference, please see <https://www.nasa.gov/oiiir/export-control>.

1.6.5 Principal Investigator (PI) Employment Requirement

Requirements	SBIR
Primary Employment	PI shall be primarily employed with the SBC
Employment Certification	For both Phase I and Phase II, the primary employment of the Principal Investigator (PI) must be with the SBC at the time of award and during the conduct of the proposed project. Primary employment means that more than one-half of the PI’s employment time is spent in the employ of the SBC and precludes full-time employment with another organization.
Co-PIs	Not allowed
Deviation Request	Any deviation requests will be reviewed during the negotiation of the award and either approved or declined before the final award by the Funding Agreement officer
Misrepresentation of Qualifications	Shall result in rejection of the completed proposal package or termination of the contract
Substitution of PIs	An SBC may replace the PI on an SBIR/STTR Phase I or Phase II award, subject to approval in writing by the Contracting Officer.

Note: NASA considers full-time employment to include salaried employees and employees who regularly work a 40-hour workweek. NASA considers a 19.9-hour or more workweek elsewhere to conflict with this rule. In rare occasions, minor deviations from this requirement may be necessary; however, any minor deviation must be approved in writing prior to the award by the Contracting Officer after consultation with the NASA SBIR/STTR Program Manager.

1.6.5 Novated/Successor in Interest/Revised Funding Agreements

An SBIR awardee may include, and SBIR work may be performed by, those identified via a “novated” or “successor in interest” or similarly revised funding agreement. In addition, an SBIR awardee may include those that have merely reorganized with the same key staff, regardless of whether they have been assigned a different tax identification number. In cases where there is a novation or similarly revised funding agreement, agencies may require the original awardee to relinquish its rights and interests in an SBIR project in favor of another applicant as a condition for that applicant's eligibility to participate in the programs for that project.

1.6.6 Restrictions on Venture-Capital-Owned Businesses

At the current time, small businesses owned in majority part by multiple venture capital operating companies, hedge funds, or private equity firms are not eligible to submit a proposal package under this NASA SBIR Ignite solicitation.

1.6.7 Joint Ventures or Limited Partnerships

Both joint ventures and limited partnerships are permitted, provided the entity created qualifies as an SBC in accordance with the definition of an SBC here: <http://sbir.nasa.gov/content/nasa-sbirsttr-program-definitions>. A statement of how the workload will be distributed, managed, and charged must be included in the completed proposal package. See definitions for Joint Ventures along with examples at [13 CFR 121.103\(h\)](#).

A copy or comprehensive summary of the joint venture agreement or partnership agreement should be included when uploading the completed proposal package.

1.6.8 Required Benchmark Transition Rate

On June 1 of each year, the SBA assesses SBIR awardees using SBIR award information across all Federal agencies reported on <https://www.sbir.gov/> to determine if they meet the benchmark transition requirements. Companies will be notified by the SBA if they failed to meet the benchmark and can find their status at any time on <https://www.sbir.gov/>. More information on the transition rate requirements is available at <https://www.sbir.gov/faqs/performance-benchmarks>.

1.7 NASA Technology Available (TAV) for SBIR Use

Offerors have the option of using technology developed by NASA (Technology Available (TAV)) in their proposal. *Whether or not a firm proposes the use of a NASA patent or computer software within its proposed effort will not in any way be a factor in the selection for the award.*

While NASA scientists and engineers conduct breakthrough research that leads to innovations, the range of NASA's efforts does not extend to commercial product development. Additional work is often necessary to exploit these NASA technologies for either infusion or commercial viability and likely requires innovation on behalf of the private sector. NASA provides these technologies "as is" and makes no representation or guarantee that additional effort will result in infusion or commercial viability.

1.7.1 Use of NASA Software

NASA has over 1,000 available software applications/tools listed in its Software Catalog (<https://software.nasa.gov>). If an offeror intends to use NASA software, a Software Usage Agreement (SUA), on a nonexclusive, royalty-free basis, is necessary, and the clause at 48 C.F.R. 1852.227-88, Government-Furnished Computer Software and Related Technical Data will apply to the contract. The SUA shall be requested from the appropriate NASA Center Software Release Authority (SRA), after contract award.

1.7.2 Use of NASA Patent

NASA has over 1,400 patents available for licensing in its portfolio (<https://technology.nasa.gov/patents>). Offerors submitting a proposal that includes the use of a NASA patent must apply for a nonexclusive, royalty-free evaluation license through <https://technology.nasa.gov/license>. The Automated Licensing System (ATLAS) will direct them to finalize their license with the appropriate field center technology transfer office. The completed evaluation license application must be provided with the proposal package.

The grant of a nonexclusive evaluation license will be set forth in the successful offeror's SBIR contract and will automatically terminate at the end of the SBIR contract. License applications will be treated in accordance with Federal patent licensing regulations as provided in 37 CFR Part 404. In addition to an evaluation license, if the proposed work includes the making, using, or selling of products or services incorporating a NASA patent, successful awardees will be given the opportunity to negotiate a nonexclusive commercialization license or, if

available, an exclusive commercialization license to the NASA patent. Commercialization licenses are also provided in accordance with 37 CFR Part 404.

An SBIR awardee that has been granted a nonexclusive, royalty-free evaluation license to use a NASA patent may, if available and on a noninterference basis, also have access to NASA personnel knowledgeable about the NASA patent. Licensing Executives at the appropriate NASA center can assist awardees requesting information about a patent and, if available and on a noninterference basis, provide access to the inventor or surrogate for the purpose of knowledge transfer. *Note: Access to the inventor for the purpose of knowledge transfer will require the requestor to enter an agreement and the awardee may be required to reimburse NASA. For Phase I proposals, this can be a time-consuming process and is not recommended.*

1.8 I-Corps™

NASA has partnered with the National Science Foundation (NSF) to allow Phase I awardees the opportunity to participate in the NSF Innovation Corps (I-Corps™) program. Phase I awardees are encouraged to participate in this training which is designed to lower the market risk inherent in bringing a product or innovation to market, thereby improving the chances for a viable business. The NASA I-Corps program enables small businesses, including startup firms, to increase the odds of accelerating the process of developing their SBIR technologies into a repeatable and scalable business model. The program accomplishes this by putting the firms through a version of the Lean Launchpad/I-Corps process, which includes:

- Developing their business model hypotheses using the Business Model Canvas.
- Testing those hypotheses through the Customer Development Interview process.

The intended results of I-Corps are to enable firms to conduct customer discovery to learn their customers' needs, to obtain a better understanding of their company's value proposition as it relates to those customer needs, and to develop an outline of a business plan for moving forward. For more information on the NASA I-Corps program, see <https://sbir.nasa.gov/content/I-Corps>.

Offerors who are selected for Phase I contract negotiations will be provided the opportunity to participate in the NASA SBIR/STTR I-Corps program as indicated in Section 3.5.3.10. I-Corps awards will be made separately from the Phase I contract as a training grant. NASA will conduct an abbreviated competition for I-Corps after Phase I Offerors are selected for Phase I SBIR contracts. The amount of funding is up to \$10,000 for the shortened I-Corps version for SBIR firms.

1.9 Technical and Business Assistance (TABAs)

The [Small Business Act 15 U.S.C. 631, Section 9 \(q\) Discretionary Technical and Business Assistance](#) permits SBIR Phase I and II awardees to enter into agreements with one or more vendors to provide Technical and Business Assistance (TABAs). TABAs allow an additional supplement to the award (\$6,500 for Phase I and \$50,000 for Phase II) and is aimed at improving the commercialization success of SBIR awardees. TABAs may be obtained from entities such as public or private organizations, including an entity established or funded by a U.S. state that facilitates or accelerates the commercialization of technologies or assists in the creation and growth of private enterprises that are commercializing the technology.

In accordance with the Small Business Act, NASA may authorize the recipient of an SBIR award to purchase technical and business assistance services through one or more outside vendors. These services may, as determined appropriate, include access to a network of non-NASA scientists and engineers engaged in a wide range of technologies, assistance with product sales, intellectual property protections, market research, market

validation, and development of regulatory plans and manufacturing plans, or access to technical and business literature available through online databases, for the purpose of assisting such concerns in:

1. Making better technical decisions concerning such projects;
2. Solving technical problems that arise during the conduct of such projects;
3. Minimizing technical risks associated with such projects; or
4. Commercializing new commercial products and processes resulting from such projects, including intellectual property protections.

For information on how to request TABA, please see sections 3.5.3.8 or 3.6.3.7, Request for Use of Technical and Business Assistance Funds. Technical and business assistance does not count towards the maximum award amount of your contract. Approval of technical and business assistance is not guaranteed and is subject to review by the Contracting Officer and the SBIR/STTR Program Management Office. A description of any technical and business assistance obtained under this section and the benefits and results of the technical or business assistance provided will be a required deliverable of your contract.

1.10 Small Business Administration (SBA) Applicant Resources

The SBA oversees the Federal SBIR and STTR programs. The SBA has resources that small businesses can take advantage of in learning about each of the programs and obtaining help in developing a complete proposal package to submit to a Federal SBIR/STTR program. Offerors are encouraged to review the information that is provided at the following links: <https://www.sbir.gov/>, <https://www.sba.gov/local-assistance>, and <https://www.sbir.gov/resources>.

1.11 NASA Mentor-Protégé Program (MPP)

The purpose of the NASA Mentor-Protégé Program (MPP) is to provide incentives to NASA contractors, performing under at least one active approved subcontracting plan negotiated with NASA, to assist protégés in enhancing their capabilities to satisfy NASA and other contract and subcontract requirements. The NASA MPP established under the authority of Title 42, United States Code (U.S.C.) 2473(c)(1) and managed by the Office of Small Business Programs (OSBP), includes an Award Fee Pilot Program. Under the Award Fee Pilot Program, a mentor is eligible to receive an award fee at the end of the agreement period based upon the mentor's performance of providing developmental assistance to an active SBIR/STTR Phase II contractor in a NASA Mentor-Protégé agreement (MPA). For more information on the Mentor-Protégé Program, please visit <https://www.nasa.gov/osbp/mentor-protége-program>.

1.12 Fraud, Waste and Abuse and False Statements

Fraud is described as “any false representation about a material fact or any intentional deception designed to deprive the United States unlawfully of something of value or to secure from the United States a benefit, privilege, allowance, or consideration to which an individual or business is not entitled.”

Knowingly and willfully making any false, fictitious, or fraudulent statements or representations may be a felony under the Federal Criminal False Statement Act (18 U.S.C., section 1001), punishable by a fine and imprisonment of up to 5 years in prison. The Office of the Inspector General (OIG) has full access to all proposal packages submitted to NASA.

NASA reserves the right to decline any proposal packages that include plagiarism and false statements.

Pursuant to NASA policy, any company representative who observes a crime, fraud, waste, abuse, or mismanagement or receives an allegation of a crime, fraud, waste, abuse, or mismanagement from a Federal employee, contractor, grantee, grantee employee, or any other source will report such observation or allegation to the OIG. NASA contractor employees and other individuals are also encouraged to report crime, fraud, waste, and mismanagement in NASA's programs to the OIG. The OIG offers several ways to report a complaint:

NASA OIG Hotline: 1-800-424-9183 (TDD: 1-800-535-8134)

NASA OIG Cyber Hotline: <https://oig.nasa.gov/cyberhotline.html>

Or by mail:

NASA Office of Inspector General
P.O. Box 23089
L'Enfant Plaza Station
Washington, DC 20026

1.13 NASA Procurement Ombudsman Program

The NASA Procurement Ombudsman Program is available under this solicitation as a procedure for addressing concerns and disagreements concerning the terms of the solicitation, the processes used for the evaluation of complete proposal packages, or any other aspect of the SBIR procurement. The clause at NASA Federal Acquisition Regulation (FAR) Supplement (NFS) 1852.215-84 ("Ombudsman") is incorporated into this solicitation.

The cognizant ombudsman is:

Marvin Horne, Procurement Ombudsman
Office of Procurement
NASA Headquarters
Washington, DC 20546-0001
Telephone: 202-358-4483
Email: nhq-dl-op-comp-advocate-vendor-engagement@mail.nasa.gov

Offerors are advised that, in accordance with NFS 1852.215-84, the ombudsman does not participate in any way with the evaluation of complete proposal packages, the source selection process, or the adjudication of formal contract disputes. Therefore, before consulting with the ombudsman, Offerors must first address their concerns, issues, disagreements, and/or recommendations to the Contracting Officer for resolution. Offerors are further advised that the process set forth in this solicitation provision (and described at NFS 1852.215-84) does not augment their right to file a bid protest or otherwise toll or elongate the period in which to timely file such a protest.

1.14 Questions About This Solicitation and Means of Contacting NASA SBIR Program

To ensure fairness, questions relating to the intent and/or content of research topics in this solicitation cannot be addressed during the open solicitation period. Only questions requesting clarification of proposal package instructions and administrative matters will be addressed. **The cutoff date and time for receipt of procurement-related questions for this SBIR Ignite solicitation is September 14th, 2023 at 5:00 p.m. ET.**

Offerors that have questions requesting clarification of proposal package instructions and administrative matters should refer to the NASA SBIR/STTR website or contact the NASA SBIR/STTR help desk.

1. NASA SBIR/STTR Website: <https://sbir.nasa.gov/>
2. Help Desk: The NASA SBIR/STTR help desk can answer any questions regarding clarification of proposal package instructions and any administrative matters. The help desk may be contacted by:
 - a. Email: agency-sbir@mail.nasa.gov
 - b. The requestor must provide the name and telephone number of the person to contact, the organization name and address, and the specific questions or requests.

1.15 Definitions

A comprehensive list of definitions related to the programs is available at <https://sbir.nasa.gov/content/nasa-sbirsttr-program-definitions>. These definitions include those from the combined SBIR/STTR policy directives as well as terms specific to NASA. Offerors are strongly encouraged to review these prior to submitting a complete proposal package.

2. Certifications and Other Proposal Requirements

2.1 Small Business Administration (SBA) Company Registry

All SBCs that are applying to any SBIR solicitation are required to register with the SBIR Company Registry which is managed by the SBA. In addition, all SBCs must update their commercialization status at least annually through the SBIR Firm Registry. Information related to the steps necessary to register with the SBIR Firm Registry can be found at <https://www.sbir.gov/registration>.

After an SBC registers with SBA and/or updates its commercialization information, the offeror needs to obtain a PDF copy of the registration. The SBC must provide their unique SBC Control ID (assigned by the SBA upon completion of the Company Registry registration) and must upload the PDF copy of the SBC registration with the Firm Certifications Form. Additional information is in section 2.3 below.

Any proposal package submission that does not contain a PDF of the SBC's SBA Company Registry registration and the unique SBC Control ID will be considered non-compliant with the solicitation requirements and declined, resulting in no further evaluations. The offeror will be notified of NASA's decision to eliminate the proposal package from consideration and the reason(s) for the decision.

2.2 System for Award Management (SAM) Registration

Offerors are required to complete the registration process with SAM prior to submitting a completed proposal package. To be eligible for SBIR awards, firms must be registered under the applicable North American Industry Classification System (NAICS) codes for SBIR Phase I and II awards (codes 541713 or 541715). Offerors without an active SAM registration by the proposal due date will be ineligible for award. Offerors who started the registration process but did not complete the registration by the proposal due date will be ineligible for the award.

Offerors who are not registered should consider applying for registration immediately upon receipt of this solicitation. Typically, SAM registration and updates to SAM registration have required a processing period of several weeks. Offerors and contractors may obtain information on SAM registration and annual confirmation requirements at <https://www.sam.gov/SAM/pages/public/index.jsf> or by calling 866-606-8220.

SAM, maintained by the General Services Administration, is the primary repository for contractor information required to conduct business with NASA. To be registered in SAM, all mandatory information, including the Unique Entity Identifier (UEI) and a Commercial and Government Entity (CAGE) code, must be validated in SAM. *Note: It is recommended to list the Purpose of Registration as "All Awards" on your SAM Registration.*

2.3 Certifications

Offerors must complete the Firm and Proposal Certifications by answering "Yes" or "No" to certifications as applicable in the Proposal Submissions and Award Management System (ProSAMS). Firms should carefully read each of the certification statements. The Federal Government relies on the information to determine whether the business is eligible for an award. ProSAMS requires firm registration and login. To access ProSAMS, go to <https://prosams.nasa.gov/>. Note: For Phase II the submission of certifications will be via Box.

A similar certification will be used to ensure continued compliance with specific program requirements at the time of award and during the life of the Funding Agreement. The definitions for the terms used in this certification are set forth in the Small Business Act, SBA regulations (13 CFR Part 121), the SBIR/STTR Policy Directives, and any statutory and regulatory provisions referenced in those authorities.

For Phase I awards, in addition to invoice certifications and as a condition for payment, a life cycle certification shall be completed in [ProSAMS](#). The life cycle certification shall be completed along with the final invoice certification before uploading the final invoice to the Department of Treasury's Invoice Processing Platform (IPP).

For Phase II awards, two life cycle certifications shall be completed. A life cycle certification shall be completed along with the second invoice certification as a condition of payment of the second invoice. Another life cycle certification shall be completed along with the final invoice certification as a condition of payment of the final invoice.

If the Contracting Officer believes that the business may not meet certain eligibility requirements at the time of award, the business is required to file a size protest with the SBA, who will determine eligibility. At that time, SBA will request further clarification and supporting documentation to assist in the eligibility determination. Additionally, the Contracting Officer may request further clarification and supporting documentation regarding eligibility to determine whether a referral to SBA is required.

2.3.1 Disclosures of Foreign Affiliations or Relationships to Foreign Countries

Each offeror is required to complete the "Disclosures of Foreign Affiliations or Relationships to Foreign Countries" form as part of their proposal submission. Please note that even if you do not have any foreign relationships, you must complete this form to represent that such relationships do not exist. Failure to submit this form will result in the declination of your proposal during the administrative screening process and your proposal will not be evaluated. The disclosure of information related to foreign involvement or investment is required and will not automatically disqualify an offeror from consideration. However, failing to disclose such affiliations or relationships may provide a basis to deny an award.

The disclosures require the following information:

- (A) the identity of all owners and covered individuals of the small business concern who are a party to any foreign talent recruitment program of any foreign country of concern, including the People's Republic of China;
- (B) the existence of any joint venture or subsidiary of the small business concern that is based in, funded by, or has a foreign affiliation with any foreign country of concern, including the People's Republic of China;
- (C) any current or pending contractual or financial obligation or other agreement specific to a business arrangement, or joint venture-like arrangement with an enterprise owned by a foreign state or any foreign entity;
- (D) whether the small business concern is wholly owned in the People's Republic of China or another foreign country of concern;
- (E) the percentage, if any, of venture capital or institutional investment by an entity that has a general partner or individual holding a leadership role in such entity who has a foreign affiliation with any foreign country of concern, including the People's Republic of China;
- (F) any technology licensing or intellectual property sales to a foreign country of concern, including the People's Republic of China, during the five-year period preceding submission of the proposal; and
- (G) any foreign entity, offshore entity, or entity outside the United States related to the small business concern.

After reviewing the disclosures of the offeror, and if determined appropriate by NASA, the program may ask the offeror to provide true copies of any contractual or financial obligation or other agreement specific to a business arrangement or joint venture-like arrangement with an enterprise owned by a foreign state or any foreign entity in

effect during the five-year period preceding the submission of the proposal with respect to which the offeror made the disclosures.

Throughout the duration of the award, the awardee will be required to regularly report to NASA any changes to required disclosure.

2.4 Federal Acquisition Regulation (FAR) and NASA Certifications and Clauses

SAM contains required certifications offerors may access at <https://www.acquisition.gov/browsefar> as part of the required registration (see FAR 4.1102). ***Offerors must complete these certifications to be eligible for an award.***

Offerors should be aware that SAM requires all offerors to provide representations and certifications electronically via the website and to update the representations and certifications as necessary, but at least annually, to keep them current, accurate, and complete. NASA will not enter into any contract wherein the contractor is not compliant with the requirements stipulated herein.

In addition, there are clauses that offerors will need to be aware of if selected for a contract. For a complete list of FAR and NASA clauses see Appendix C.

2.5 Software Development Standards

Offerors proposing projects involving the development of software may be required to comply with the requirements of NASA Procedural Requirements (NPR) 7150.2A, NASA Software Engineering Requirements, available online at <https://nodis3.gsfc.nasa.gov/displayDir.cfm?t=NPR&c=7150&s=2>.

2.6 Human and/or Animal Subject

Offerors should be aware of the requirement that an approved protocol by a NASA review board is required if the proposed work includes human or animal subjects. An approved protocol shall be provided to the Contracting Officer prior to the initiation of any human and/or animal subject research. Offerors shall identify the use of human or animal subjects in the Proposal Certifications form. For additional information, contact the NASA SBIR/STTR Program Support Office at agency-sbir@mail.nasa.gov. Reference 14 CFR 1230 and 1232.

Due to the complexity of the approval process, the use of human and/or animal subjects is not allowed for Phase I contracts.

2.7 HSPD-12

Firms that require access to Federally controlled facilities or access to a Federal information system (Federally controlled facilities and Federal information systems are defined in FAR 2.101(b)(2) for 6 consecutive months or more must adhere to Homeland Security Presidential Directive 12 (HSPD-12), Policy for a Common Identification Standard for Federal Employees and Contractors, and Federal Information Processing Standards Publication (FIPS PUB) Number 201, Personal Identity Verification (PIV) of Federal Employees and Contractors, which require agencies to establish and implement procedures to create and use a Government-wide secure and reliable form of identification no later than October 27, 2005. See <https://nvlpubs.nist.gov/nistpubs/FIPS/NIST.FIPS.201-3.pdf>.

This is in accordance with FAR clause 52.204-9, Personal Identity Verification of Contractor Personnel, which states in part that the contractor shall comply with the requirements of this clause and shall ensure that individuals needing such access shall provide the personal background and biographical information requested by NASA. *Note: Additional information regarding PIV credentials can be found at <https://csrc.nist.gov/Projects/PIV>.*

3. Proposal Preparation Instructions and Requirements

3.1 Multiple Proposal Submissions (Not Allowed)

An offeror shall not submit more than one (1) proposal to this solicitation.

Note: Offerors are advised to be thoughtful in selecting a topic to ensure the proposal is responsive to the NASA need as defined by the topic. The NASA SBIR/STTR program will NOT move a proposal between topics.

3.2 Understanding the Patent Landscape

Offerors should indicate in the proposal that a comprehensive patent review has been completed to ensure that there is no existing patent or perceived patent infringement based on the innovation proposed. The U.S. Patent and Trade Office (USPTO) has an online patent search tool that can be found at <https://www.uspto.gov/patents-application-process/search-patents>.

3.3 Proprietary Information in the Proposal Submission

Information contained in unsuccessful proposals will remain the property of the applicant. However, the Government will retain copies of all proposals in accordance with its records retention schedule. Public release of information in any proposal submitted will be subject to existing statutory and regulatory requirements. If proprietary information is provided by an applicant in a proposal, which constitutes a trade secret, commercial or financial information, it will be treated in confidence, to the extent permitted by law, provided that the proposal is clearly marked by the applicant as follows:

(A) The following “italized” legend must appear on the title page of the proposal:

This proposal contains information that shall not be disclosed outside the Federal Government and shall not be duplicated, used, or disclosed in whole or in part for any purpose other than evaluation of this proposal unless authorized by law. The Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract if an award is made as a result of the submission of this proposal. The information subject to these restrictions is contained on all pages of the proposal except for pages [insert page numbers or other identification of pages that contain no restricted information]. (End of Legend); and

(B) The following legend must appear on each page of the proposal that contains information the applicant wishes to protect:

Use or disclosure of information contained on this sheet is subject to the restriction on the title page of this proposal.

3.4 Release of Certain Proposal Information

In submitting a proposal, the offeror agrees to permit the Government to disclose publicly the information contained in the Contacts form and the Proposal Summary form which includes the Technical Abstract. Other proposal data is considered the property of the offeror, and NASA will protect it from public disclosure to the extent permitted by law, including requests submitted under the Freedom of Information Act (FOIA).

3.5 Requirements to Submit a Complete Phase I Proposal Package

3.5.1 General Requirements

NASA will be using the Proposal Submissions and Award Management System (ProSAMS) for the submission of these proposal packages. All offerors must use ProSAMS for submitting a completed proposal package. This solicitation guides firms through the steps for submitting a complete proposal package. All submissions are through a secure connection and most communication between NASA and the firm is through email. ProSAMS requires firm registration and login. To access ProSAMS, go to <https://prosams.nasa.gov/>. Additional details are available in section 6.

The complete Phase I proposal package shall contain a slide deck, white paper, and all required forms as described in section 3.5.3 below.

3.5.2 Format Requirements

Note: The Government administratively screens all elements of a completed proposal package and will reject any proposal that does not conform to the following formatting requirements:

Page Limitations and Margins

A Phase I technical proposal shall contain 2 elements:

- The Slide Deck:
 - Shall not exceed 15 slides.
- The White Paper:
 - Shall not exceed 7 standard 8.5- by 11-inch (21.6- by 27.9-cm) pages.
 - Margins must be 1.0 inches (2.5 cm). Offerors must ensure that the margins comply before uploading.

Technical proposal uploads with any page(s) going over the required page limits will not be accepted. The additional forms required in section 3.5.3 for a complete proposal package do not count against the page limits.

Type Size

No type size smaller than 10 points shall be used for text or tables, except for legends on reduced drawings in either the slide deck or white paper. Proposal packages prepared with smaller font sizes will be rejected during the administrative screening and will not be considered.

Header/Footer Requirements

Slide deck title bars and white paper headers must include the firm name and project title. Footers must include the page number and proprietary markings if applicable. Margins can be used for header/footer information.

Classified Information

NASA will reject any proposal package that contains classified information.

Project Title

The proposal project title shall be concise and descriptive of the proposed effort. The title should not use acronyms or words like "development of" or "study of". The NASA research topic title must not be used as the proposal title.

3.5.3 Complete Proposal Package

To be considered complete, each proposal package submitted shall contain the following items:

1. Proposal Information
2. Proposal Contacts
3. Proposal Certifications
4. Proposal Summary (must not contain proprietary data)
5. Proposal Budget (including letters of commitment for government resources and subcontractors/consultants, other direct costs, and the foreign vendor form, if applicable)
6. Slide Deck
7. White Paper
8. NASA Evaluation License Application (only if TAV is being proposed)
9. Technical and Business Assistance (TABAs) request (optional)
10. Letters indicating financial support/funding commitments
11. I-Corps Interest Form
12. Firm-Level Forms (completed once for all proposals submitted by a firm to a single solicitation)
 - a. Firm Information
 - b. Firm Certifications
 - c. Audit Information
 - d. Prior Awards Addendum (for firms with more than 15 Phase II awards in the past 5 years)
 - e. Disclosures of Foreign Affiliations or Relationships to Foreign Countries

Note: The program will not consider additional items such as relevant technical papers, product samples, videotapes, slides, or other ancillary item during the review process.

3.5.3.1 Proposal Information

The Offeror shall submit information for the proposed research and development effort, e.g. the proposal title and respective solicitation topic.

3.5.3.1.1 Proposal Contacts

The Offeror shall provide complete information for each contact person and submit the form as required. *Note: Contact Information is public information and may be disclosed.*

3.5.3.2 Proposal Certifications

The Offeror shall provide complete information for each question in the form and certify its accuracy as required.

3.5.3.3 Proposal Summary

The Offeror shall provide complete information for each section of the form as required. *Note: The Proposal Summary is public information and may be disclosed. Do not include proprietary information in this form.*

3.5.3.4 Proposal Budget Form

The offeror must complete the Proposal Budget form following the instructions provided. The total requested funding for the Phase I effort shall not exceed \$150,000 or \$156,500 (if requesting \$6,500 for TABAs, see sections 1.9 and 3.5.3.8).

Note:

- ***NASA is not responsible for any monies expended by the SBC before the award of any contract***
- ***NASA and the Office of Management and Budget (OMB) have issued a policy that requires a review of any request to purchase materials or supplies from foreign vendors. Due to the short timeframe to issue a Phase I contract, NASA is strongly encouraging offerors to consider purchasing materials and supplies from domestic vendors only. If a foreign vendor is proposed, the Phase I contract may be delayed or not awarded.***

In addition, the following information must be submitted in the Proposal Budget form, as applicable:

Proposal Budget Requirements for Use of Government Resources

In cases where an offeror seeks to use Government resources as described in Part 3 of section 3.5.3.5 Slide Deck instructions, the offeror shall provide the following:

1. Statement, signed by the appropriate Government official at the affected Federal department or agency, verifying that the resources should be available during the proposed period of performance.
2. A signed letter on company letterhead from the SBC's designated small business representative explaining why the SBIR research project requires the use of Government resources (such as, but not limited to, Federal services, equipment, or facilities, etc.) including data that verifies the absence of non-Federal facilities or personnel capable of supporting the research effort, a statement confirming that the facility proposed is not a Federal laboratory, if applicable, and the associated cost estimate.

Note: Use of Federal laboratories/facilities for Phase I contracts is highly discouraged as these arrangements will in most cases cause significant delays in making the final award. Approval for the use of Federal facilities and laboratories for a Phase I technical proposal requires a strong justification at the time of submission and will require approval by the Contracting Officer during negotiations if selected for award.

Use of Subcontractors and Consultants

Subject to the restrictions set forth in section 1.6 and below, the SBC may establish business arrangements with other entities or individuals to participate in the performance of the proposed R/R&D effort. Subcontractors' and consultants' work have the same place-of-performance restrictions as stated in section 1.6.4. See Part 6 of section 3.5.3.6 White Paper for additional information on the use of subcontractors and consultants.

Offerors that propose using subcontractors or consultants must submit the following:

1. List of consultants by name with the number of hours and hourly costs identified for each consultant.
2. The breakdown of the subcontractor budget should mirror the SBC's own breakdown in the Proposal Budget form and include breakdowns of direct labor, other direct costs, and profit, as well as indirect rate agreements.
3. A signed letter of commitment is required for each subcontractor and/or consultant. For educational institutions, the letter must be from the institution's Office of Sponsored Programs.

For the Phase I contract, the proposed subcontracted business arrangements, including consultants, must not exceed 33 percent of the research and/or analytical work [as determined by the total cost of the proposed subcontracting effort (to include the appropriate overhead (OH) and general and administrative expenses (G&A) in comparison to the total effort funded by the government (total contract price including cost sharing or less profit, if any)].

Occasionally, deviations from this SBIR requirement may occur and must be approved in writing by the Contracting Officer after consultation with the NASA SBIR PMO.

Travel in Phase I

Due to the intent and short period of performance of the Phase I contracts, along with their limited budget, travel during the Phase I contract is discouraged unless it is required to successfully complete the proposed effort. If the purpose of the meeting cannot be accomplished via videoconference or teleconference, the offeror must provide a rationale for the trip in the proposal budget form. All travel must be approved by the Contracting Officer and concurred by the Technical Monitor.

3.5.3.5 Slide Deck

The slide deck must address the three parts below:

Part 1: The Market Opportunity:

Description of the market opportunity should address the following key elements:

Commercial Potential—Quantitative Market Analysis

1. Describe the market segment and potential commercial total addressable market (TAM) that is appropriate to the proposed innovation.
2. Describe the proposed innovation in terms of target customers (e.g., NASA, other Federal agencies, or commercial enterprises).
3. Describe the competitive landscape by identifying potential competitors.

Commercial Intent—Value Proposition

1. Describe the commercial development.
2. Describe the risks to the commercial development plan and what mitigations, if any, can be taken over a reasonable period to lessen the risks.

Commercial Capability—How Will the Innovation Enter into a Market?

1. Describe the current and future company capitalization efforts.
2. As applicable, describe the approach, path to market, and revenues. (Companies with no SBIR/STTR awards or only fairly recent SBIR/STTR awards will not be penalized under past performance for the lack of past SBIR/STTR commercialization.)

Intellectual Property (IP)

1. Describe how you will protect the IP that results from your innovation.

Assistance and Mentoring

1. Describe the existing and future business relationships in terms of any formal partnerships, joint ventures, or licensing agreements with other companies/organizations.
2. Describe the plans for securing needed technical or business assistance through mentoring, partnering, or through arrangements with state assistance programs, Small Business Development Centers (SBDCs), Federally funded research laboratories, Manufacturing Extension Partnership centers, Federal programs, or other assistance providers.

Evidence of follow-on funding commitments:

1. A letter of commitment* for follow-on funding and/or product sales.
2. A letter of commitment* for matching funding is to be provided for a future Phase II-E application.
3. A letter of capital commitment, signed by the proper authority (CEO, CFO, etc.), that indicates a commitment to provide funding and/or product sales, should the Phase II project be successful, and the market need still exists.
4. Letter of intent to provide funding should the Phase II project be successful, and the market need still exists.
5. A specific plan to secure Phase III funding.

Note: The slide deck should only include a list of these letters/commitments. The actual letters should be uploaded separately.

Part 2: Key Personnel/Team

Identify key individuals involved and their directly related education, experience, and bibliographic information. Where vitae are extensive, summaries should focus on the most relevant experience/publications to meet proposal size limitations. *Note: The PI is considered key to the success of the effort and must make a substantial commitment to the project.*

Part 3: Facilities and Equipment

Provide a detailed description, availability, and location of instrumentation and physical facilities proposed. Items of equipment to be purchased must be fully justified under this section. **When purchasing equipment or a product under the SBIR funding agreement, small businesses should purchase only American-made items whenever possible.**

Government-furnished laboratory equipment, facilities, or services (collectively, “Government resources”) the offeror shall describe in this part why the use of such Government resources is necessary and not reasonably available from the private sector. See sections 3.5.3.4 and 5.13 for additional requirements when proposing the use of such Government resources. The narrative description of resources should support the proposed approach and documentation in the Proposal Budget form. *Note: Use of Federal laboratories/facilities for Phase I contracts is highly discouraged. Approval for the use of Federal facilities and laboratories for a Phase I completed proposal package requires the Contracting Officer’s approval during negotiations if selected for award.*

3.5.3.6 White Paper

This part of the submission should not contain any budget data and **must consist of all 7 parts listed below in the given order. All 7 parts of the white paper must be numbered and titled. A proposal package omitting any part will be considered non-responsive to this solicitation and rejected without further consideration. Parts that are not applicable must be included and marked “Not applicable.”**

The white paper shall provide all information described in the seven parts below. Evaluators will not seek additional information. Any pertinent references or publications should be noted in parts 5 or 6 of the white paper.

Part 1: Table of Contents

The white paper must begin with a brief table of contents indicating the page numbers of each of the parts.

Part Title	Page #
Part 1: Table of Contents	
Part 2: Identification and Significance of the Opportunity	
Part 3: Technical Objectives	
Part 4: Work Plan	
Part 5: Related R/R&D	
Part 6: Subcontractors/Consultants	
Part 7: Related, Essentially Equivalent, and Duplicate Proposals and Awards	

Part 2: Identification and Significance of the Opportunity

Succinctly describe:

- The proposed innovation.
- The relevance and significance of the proposed innovation to an interest, need, or needs, within a topic described in section 9.
- The proposed innovation is relative to the current state of the art.

Part 3: Technical Objectives

State the specific objectives of the Phase I R/R&D effort as it relates to the problem statement(s) posed in the topic description and the types of innovations being requested. Indicate the proposed deliverables at the end of the Phase I effort and how these align with the proposed topic deliverables described within a topic found in section 9.

Note: All offerors submitting proposals who are planning to use NASA TAV including Intellectual Property (IP) must describe their planned developments with the IP. The NASA Evaluation License Application should be added as an attachment to the Proposal Certifications form (see section 1.7).

Part 4: Work Plan

Include a detailed description of the Phase I R/R&D plan to meet the technical objectives. The plan shall indicate what will be done, where it will be done, and how the R/R&D will be carried out. Discuss in detail the methods planned to achieve each task or objective. The plan shall also include task descriptions, schedules, resource allocations, estimated task hours for each key personnel, and planned accomplishments (including project milestones). Offerors shall ensure that the estimated task hours provided in the work plan for key personnel are consistent with the hours reported in the Proposal Budget form. If the offeror is a joint venture or limited partnership, a statement of how the workload will be distributed, managed, and charged must be included here.

Part 5: Related R/R&D

Describe significant current and/or previous R/R&D that is directly related to the technical proposal including any conducted by the PI or by the offeror. Describe how it relates to the proposed effort and any planned coordination with outside sources. The offeror must persuade reviewers of his or her awareness of key recent R/R&D conducted by others in the specific subject area.

Part 6: Subcontractors/Consultants

Provide a detailed description, availability, and work to be done by subcontractors/consultants. The offeror must describe all subcontracting or other business arrangements and identify the relevant organizations and/or individuals with whom arrangements are planned. The expertise to be provided by the entities must be described in detail, as well as the functions, services, and number of hours. Offerors are responsible for ensuring that all organizations and individuals proposed to be utilized are available for the time periods proposed. Subcontract costs shall be documented in the Subcontractors/Consultants section of the Proposal Budget form and supporting documentation should be uploaded for each (appropriate documentation is specified in the form). The narrative description of subcontractors and consultants in the technical proposal should support the proposed approach and documentation in the Proposal Budget form.

Part 7: Related, Essentially Equivalent, and Duplicate Proposals and Awards

NOTE: While it is permissible with proper notification to submit identical proposals or proposals containing a significant amount of essentially equivalent work for consideration under numerous Federal program solicitations, it is unlawful to enter into funding agreements requiring essentially equivalent work.

If an offeror elects to submit identical proposals or proposals containing a significant amount of essentially equivalent work under other Federal program solicitations, a statement must be included in each proposal indicating the following:

1. The name and address of the agencies to which proposals were submitted or from which awards were received.
2. Date of proposal submission or date of award.
3. Title, number, and date of solicitations under which proposals were submitted or awards received.
4. The specific applicable research topics for each proposal submitted or award received.
5. Titles of research projects.
6. Name and title of the principal investigator or project manager for each proposal submitted or award received.

Offerors are at risk for submitting essentially equivalent proposals and therefore are strongly encouraged to disclose these issues to the soliciting agency to resolve the matter prior to award.

A summary of essentially equivalent work information, as well as related research and development on proposals and awards, is also required on the Proposal Certifications form (if applicable).

3.5.3.7 NASA Evaluation License Application, only if TAV is being proposed

If you have applied for TAV by following the instructions found at <https://technology.nasa.gov/>, upload the application of the TAV request with your complete proposal package. See section 1.7 for additional details.

3.5.3.8 Request for Use of Technical and Business Assistance (TABA) Funds at Phase I

Offerors may request TABA and can choose their own TABA vendor. NASA does not have a TABA-preferred vendor. All requests for TABA must be submitted with the complete proposal package. However, offerors are not required to request TABA at Phase I, and there is no prerequisite that an offeror must use Phase I TABA funding to obtain a Phase II award or to request TABA funding at Phase II.

Requests for TABA funding are not reviewed during the commercial or technical evaluation of the proposal, and the request for TABA funds will not be part of the decision to make an award. All TABA requests will be reviewed after a proposal is selected for award and during the contract negotiation process. Offerors selected for Phase I contract negotiations can receive up to \$6,500 as a TABA supplement to the Phase I award.

If requesting Phase I TABA funding, offerors are required to provide the following TABA information by following the directions found in the Budget form. The following information must be provided for each TABA vendor:

- Name of vendor
- Contact information of the vendor
- Vendor DUNS number
- Vendor website address
- Description of vendor(s) expertise and knowledge of providing technical and business assistance services to develop and complete a TABA Needs Assessment for a future Phase II submission, to develop a commercialization plan for a future Phase II submission or other TABA services. If requesting TABA for other services, the offeror must describe the vendor(s) expertise in providing the requested services
- An itemized list of services and costs the TABA vendor will provide. **This applies to all vendors.**
- Describe the deliverables the TABA vendor will provide and a plan to submit a deliverable summarizing the outcome of the TABA services with expected supporting information.
- TABA costs are reflected in the budget forms.

Note: All TABA vendors must be a legal business in the United States and NASA will review the U.S. Government-wide System for Award Management (SAM) excluded parties list to ensure the proposed TABA vendor can receive Federal funds. NASA will consider TABA requests that are missing any requested TABA information (e.g., DUNS number, etc.) as incomplete and will not review the TABA request or provide TABA approval under the award.

NASA reserves the right to withhold funds requested for TABA until a formal review and approval of the requested vendor is completed. In addition, reviewing the TABA request in the proposal package, NASA may also consider additional information, such as a review of the vendor's website, Dun and Bradstreet reports, and SAM.gov, to verify the existence of the vendor(s) and to assess the capability of the vendor(s). NASA will only approve TABA funding if the proposal is selected for a Phase I award and the offeror adequately demonstrates the existence and capability of the selected vendor(s) as determined at the sole discretion of NASA. Notification of the approval or denial of TABA funding will be provided to the offeror prior to the award.

Any TABA funding **will be in addition to the Phase I contract award value, is not subject to any profit or fee by the requesting firm, and cannot be used in the calculation of indirect cost rates or general and administrative expenses (G&A).** The TABA cost(s) and service(s) to be provided by each vendor will be based on the original Phase I period of performance. Requests for TABA funding outside of the Phase I period of performance or after a complete proposal package has been submitted will not be considered.

Schedule of Deliverables and Payments for TABA—offerors that are approved to receive TABA under a Phase I award will be reimbursed for TABA expenses. Reimbursement for TABA will be based on the awardee providing a TABA end-of-contract report at the end of the contract period of performance. Reimbursement will not be provided for any amounts incurred over the TABA funding amount approved by the Government prior to award.

3.5.3.9 Firm Level Forms

Form submissions shall be completed through ProSAMS and do not count toward the page limits for the slide deck or white paper. To access ProSAMS, go to <https://prosams.nasa.gov>.

A. Firm Information

Firm information must be completed once for each firm and are applicable across all proposal package submissions by the firm to this solicitation. The offeror shall provide identifying information for the firm.

B. Firm Certifications

Firm certifications must be completed once for each firm and are applicable across all proposal package submissions by the firm to this solicitation. The offeror shall answer “Yes” or “No” as applicable.

C. Disclosures of Foreign Affiliations or Relationships to Foreign Countries

Each offeror is required to complete the Disclosures of Foreign Affiliations or Relationships to Foreign Countries form as required in ProSAMS. See section 2.5 for additional information on these disclosures. The offeror shall answer “Yes” or “No” as applicable and provide the requested information related to each “yes” response.

Please note that even if you do not have any foreign relationships, you must complete the "Disclosures of Foreign Affiliations or Relationships to Foreign Countries form." to represent that such relationships do not exist. Failure to complete and include this form will result in the declination of your application during the administrative screening.

D. Audit Information

Although firms are not required to have an approved accounting system, the knowledge that a firm has an approved accounting system facilitates NASA’s determination that rates are fair and reasonable. To assist NASA, the SBC shall complete the questions in the Audit Information section of ProSAMS regarding the firm’s rates and upload the Federal agency audit report or related information that is available from the last audit, if applicable.

E. Prior Awards Addendum (for firms with more than 15 Phase II awards in the past 5 years)

If the SBC has received more than 15 Phase II awards in the prior 5 fiscal years, submit the name of the awarding agency, solicitation year, phase, date of award, Funding Agreement/contract number, and subtopic title for each Phase II.

3.5.3.10 I-Corps Interest Form

A complete proposal package will require Offerors to complete a short I-Corps interest form (see section 1.8 for additional information on the I-Corps program) as part of their submission. NASA uses this form to determine the level of interest from Phase I Offerors to participate in the NASA I-Corps program.

Based on the initial level of interest in the I-Corps program, NASA plans to open the opportunity to all Phase I awardees to ensure a successful cohort of teams participate in the program. Phase I awardees will receive information from the SBIR/STTR PMO during contract negotiations describing the process to provide a 5-page proposal to participate in the I-Corps program. Directions for completing the proposal including due dates, training dates, and available grant funding will be provided via email.

Additional details on the program can be found at <https://sbir.nasa.gov/content/I-Corps>.

The Government reserves the right to limit the number of Offerors to participate in the I-Corps program based on the assessment of the I-Corps proposals and funding availability.

3.6 Requirements to Submit a Complete Phase II Proposal Package

3.6.1 General Requirements

NASA will be using Box for the submission of the Phase II proposal packages. This solicitation guides firms through the steps for submitting a complete proposal package. All submissions will be completed through the Box URL provided to each firm and most communication between NASA and the firm is through email. Additional details are available in section 6.1.1.2.

Complete Phase II proposal packages must contain all documents as described in sections 3.6.3 below.

3.6.2 Format Requirements

Note: The Government administratively screens all elements of a proposal package and will reject any proposal package that does not conform to the following formatting requirements.

Page Limitations and Margins

Technical Proposal:

- Shall not exceed a total of 40 standard 8.5- by 11-inch (21.6- by 27.9-cm) pages.
- Margins must be 1.0 inches (2.5 cm). Offerors must ensure that the margins comply before uploading.

Proposal uploads with any page(s) going over the required page limits will not be accepted. The additional forms required for a complete proposal package do not count against the page limits.

Type Size

In the proposal, no type size smaller than 10 points shall be used for text or tables, except for legends on reduced drawings. Proposal packages prepared with smaller font sizes will be rejected during the administrative screening and will not be considered.

Header/Footer Requirements

Proposal headers must include the firm name and project title. Footers must include the page number and proprietary markings if applicable. Margins can be used for header/footer information.

Classified Information

NASA will reject any Phase II proposal package that contains classified information.

Project Title

The proposal project title shall be concise and descriptive of the proposed effort. The title should not use acronyms or words like "development of" or "study of." The NASA research topic title must not be used as the proposal title.

3.6.3 Complete Phase II Proposal Package

To be considered complete, each Phase II proposal package submitted shall contain the following items:

1. Proposal Information
2. Proposal Contacts
3. Proposal Certifications
4. Proposal Summary (must not contain proprietary data)
5. Proposal Budget (including letters of commitment for government resources and subcontractors/consultants, other direct costs, and the foreign vendor form, if applicable)
6. Phase II Proposal Narrative
7. NASA Evaluation License Application, only if TAV is being proposed
8. Technical and Business Assistance (TABAs) request (optional)
9. Letters indicating financial support/funding commitments
10. Firm-Level Forms
 - a. Firm Certifications
 - b. Audit Information
 - c. Prior Awards Addendum (for firms with more than 15 Phase II awards in the past 5 years)
 - d. Disclosures of Foreign Affiliations or Relationships to Foreign Countries

Note: The program will not consider additional items such as relevant technical papers, product samples, videotapes, slides, or other ancillary items during the review process.

3.6.3.1 Proposal Information

The Offeror shall provide complete information for each contact person and submit the form as required. *Note: Contact Information is public information and may be disclosed.*

3.6.3.1.1 Proposal Contacts

The Offeror shall provide complete information for each contact person and submit the form as required. *Note: Contact Information is public information and may be disclosed.*

3.6.3.2 Proposal Certifications Form

The Offeror shall provide complete information for each item and certify its accuracy as required.

3.6.3.3 Proposal Summary

The Offeror shall provide complete information for each item as required. *Note: The Proposal Summary is public information and may be disclosed. Do not include proprietary information in this form.*

3.6.3.4 Proposal Budget Form

Note: The Government is not responsible for any monies expended by the firm before the award of any contract. The offeror must complete the Proposal Budget form following the instructions provided. The total requested funding for the Phase II effort shall not exceed \$850,000 or \$900,000 (if requesting up to \$50,000 for TABAs, see sections 1.9 and 3.6.3.7). In addition, the following information must be submitted in the Proposal Budget form, as applicable:

Proposal Budget Requirements for Use of Government Resources

In cases where an offeror seeks to use Government resources as described in Part 8 of section 3.6.3.5 Phase II proposal narrative instructions, the offeror shall provide the following:

1. Statement, signed by the appropriate Government official at the affected Federal department or agency, verifying that the resources should be available during the proposed period of performance.
2. A signed letter on company letterhead from the SBC’s designated small business representative explaining why the SBIR research project requires the use of Government resources (such as, but not limited to, Federal services, equipment, or facilities, etc.) including data that verifies the absence of non-Federal facilities or personnel capable of supporting the research effort, a statement confirming that the facility proposed is not a Federal laboratory, if applicable, and the associated cost estimate.

Use of Subcontractors and Consultants

Subject to the restrictions set forth in section 1.6 and below, the SBC may establish business arrangements with other entities or individuals to participate in the performance of the proposed R/R&D effort. Subcontractors' and consultants' work have the same place-of-performance restrictions as stated in section 1.6.4. See Part 9 of section 3.6.3.5 Phase II proposal narrative instructions for additional information on the use of subcontractors and consultants.

Offerors that propose using subcontractors or consultants must submit the following:

1. List of consultants by name with the number of hours and hourly costs identified for each consultant.
2. The breakdown of the subcontractor budget should mirror the SBC’s own breakdown in the Proposal Budget form and include breakdowns of direct labor, other direct costs, and profit, as well as indirect rate agreements.
3. A signed letter of commitment is required for each subcontractor and/or consultant. For educational institutions, the letter must be from the institution’s Office of Sponsored Programs.

In Phase II, the proposed subcontracted business arrangements, including consultants, must not exceed 50 percent of the research and/or analytical work [as determined by the total cost of the proposed subcontracting effort (to include the appropriate overhead (OH) and general and administrative expenses (G&A) in comparison to the total effort funded by the government (total contract price including cost sharing or less profit, if any)]. Occasionally, deviations from this SBIR requirement may occur and must be approved in writing by the Contracting Officer after consultation with the NASA SBIR PMO.

3.6.3.5 Phase II Proposal Narrative

The proposal **must consist of all 10 parts listed below in the given order. All 10 parts of the proposal document must be numbered and titled.** The proposal must not contain budget data. **A proposal that omits any part will be considered non-responsive to this solicitation and rejected without further consideration. Parts that are not applicable must be included and marked “Not applicable.”**

Part 1: Table of Contents

The proposal must begin with a brief table of contents indicating the page numbers of each of the parts.

Part Title	Page #
Part 1: Table of Contents	
Part 2: Identification and Significance of the Opportunity	
Part 3: Technical Objectives	
Part 4: Work Plan	
Part 5: Related R/R&D	

Part 6: Key Personnel	
Part 7: Commercialization and Business Plan	
Part 8: Facilities and Equipment	
Part 9: Subcontractors/Consultants	
Part 10: Related, Essentially Equivalent, and Duplicate Proposals and Awards	

Any pertinent references or publications should be noted in parts 5 or 6 of the proposal.

Part 2: Identification and Significance of the Opportunity

Succinctly describe:

- The proposed innovation.
- The relevance and significance of the proposed innovation to an interest, need, or needs, within a topic described in section 9.
- The proposed innovation is relative to the current state of the art.

Part 3: Technical Objectives

State the specific objectives of the Phase II R/R&D effort as it relates to the problem statement(s) posed in the topic description and the types of innovations being requested. Indicate the proposed deliverables at the end of the Phase II effort and how these align with the proposed topic deliverables described within a topic found in section 9.

Note: All offerors submitting proposals who are planning to use NASA TAV including Intellectual Property (IP) must describe their planned developments with the IP. The NASA Evaluation License Application should be added as an attachment to the Proposal Certifications form (see section 1.7).

Part 4: Work Plan

Include a detailed description of the Phase II R/R&D plan to meet the technical objectives. The plan shall indicate what will be done, where it will be done, and how the R/R&D will be carried out. Discuss in detail the methods planned to achieve each task or objective. The plan shall also include task descriptions, schedules, resource allocations, estimated task hours for each key personnel, and planned accomplishments (including project milestones). Offerors shall ensure that the estimated task hours provided in the work plan for key personnel are consistent with the hours reported in the Proposal Budget form. If the offeror is a joint venture or limited partnership, a statement of how the workload will be distributed, managed, and charged must be included here.

Note: The SBIR Ignite program aims to accelerate the advancement of technology to market. Because of this, the program encourages Phase II proposals with periods of performance less than the standard 24 months in a regular Phase II award.

Part 5: Related R/R&D

Describe significant current and/or previous R/R&D that is directly related to the technical proposal including any conducted by the PI or by the offeror. Describe how it relates to the proposed effort and any planned coordination with outside sources. The offeror must persuade reviewers of his or her awareness of key recent R/R&D conducted by others in the specific subject area.

Part 6: Key Personnel and Biographical Information of Directly Related Work

Identify all key personnel involved in Phase II activities whose expertise and functions are essential to the success of the project. Provide biographical information, including directly related education and experience. Where resume/vitae are extensive, summaries that focus on the most relevant experience or publications are desired and

may be necessary to meet the proposal size limitation. *Note: If the Phase II key personnel are different than the key personnel under Phase I, please provide a rationale for the change.*

Part 7: Commercialization and Business Plan

This part should provide the following information to communicate and validate that the firm has the knowledge and ability to commercialize the innovation being proposed and to validate the company's future viability and financial viability.

Commercial Potential—Quantitative Market Analysis

1. Describe the market segment and potential commercial total addressable market (TAM) that is appropriate to the proposed innovation.
 - a. Indicate how the market was validated and what assumptions were used in the analysis.
 - b. Indicate the market size by providing the scope in dollars if possible.
 - c. Indicate market segmentation and/or TAM in dollars if possible.
 - d. Indicate the projected percentage of the offeror's market share in 2 to 3 years after entry into the identified market.
2. Describe the proposed innovation in terms of target customers (e.g., NASA, other Federal agencies, or commercial enterprises).
3. Describe the competitive landscape by identifying potential competitors.
 - a. Indicate potential competitors by company name within the identified market.
 - b. Discuss the barriers to entry and how many years it would take a competitor to enter this segment in terms of capitalization, technology, and people.
 - c. Describe how the proposed innovation is different from current and future competitors.

Commercial Intent—Value Proposition

1. Describe the commercial development.
 - a. Include the development timeline to bring the innovation to market.
 - b. Describe the applicable business model (spin-out, license, original equipment manufacturer (OEM), etc.) the offeror would use to bring the innovation to market.
 - c. Indicate the channels of distribution (direct sales, distributors, etc.) that would be used in bringing the innovation into the identified market.
 - d. Indicate the pro forma 2- to 3-year revenue dollar projections based on the proposed innovation's penetration of the identified market.
 - e. Describe any follow-on development (long term > 5 years) plans to expand your proposed innovation's market presence.
2. Describe the risks to the commercial development plan and what mitigations, if any, can be taken over a reasonable period to lessen the risks.

Commercial Capability—How Will the Innovation Enter into a Market?

1. Describe the current and future company capitalization efforts.
 - a. Provide a pro forma forecast based on income statements, balance sheet(s), and statement of cash flows. These forecasts should indicate current and projected revenues, expenses, and other items that are calculated as a percentage of future sales.
 - b. Discuss the operations/manufacturing and business staff conducting the project and how they will be utilized to achieve commercialization.
 - c. Describe the physical plant, including facilities and the capital equipment, tooling, and test equipment used to conduct the investigation and how they will be utilized to achieve commercialization.

- d. Discuss consultants, incubators, and research institutions that will be utilized to achieve commercialization.
 - e. Indicate how the innovation will enter production (i.e., in-house or through a licensee or other means) and what changes (if any) will be made to company capitalization for commercialization.
2. As applicable, describe the approach, path to market, and revenues from past commercialization(s) resulting from SBIR/STTR awards disclosed in the Commercial Metrics Survey (CMS). (Companies with no SBIR/STTR awards or only recent SBIR/STTR awards will not be penalized under past performance for the lack of past SBIR/STTR commercialization.)

Intellectual Property (IP)

1. Describe how you will protect the IP that results from your innovation.
 - a. Note any actions you may consider for at least a temporary competitive advantage.
 - b. Describe your company's prior IP record.
 - c. Comment on the company's strategy to build a sustainable business through the protection of IP.

Assistance and Mentoring

1. Describe the existing and future business relationships in terms of any formal partnerships, joint ventures, or licensing agreements with other companies/organizations.
2. Describe the plans for securing needed technical or business assistance through mentoring, partnering, or through arrangements with state assistance programs, Small Business Development Centers (SBDCs), Federally funded research laboratories, Manufacturing Extension Partnership centers, Federal programs, or other assistance providers.

Identify if any assistance and mentoring is being requested under your TABA needs assessment and provide details in this section. The TABA needs assessment is reviewed separately from the proposal.

Evidence of follow-on funding commitments:

1. A letter of commitment for follow-on funding and/or product sales with actual dollar amounts
2. A letter of commitment with the matching funding dollar amount is to be provided for a future Phase II-E application.
3. A letter of capital commitment, signed by the proper authority (CEO, CFO, etc.), that indicates the dollar amount of the commitment to provide funding and/or product sales, should the Phase II project be successful, and the market need still exists.
4. Any evidence of follow-on funding which references Phase I as being catalytic to encourage investment, commercial sales, contracts, etc.
5. A specific plan to secure Phase III funding.

Note: The proposal should only include a list of these letters/commitments. The actual letters should be uploaded separately. Letters expressing general technical interest are not required or desired and will not be considered during the review process. Letters of commitment are considered strong evidence of follow-on funding, while general letters of interest or support, e.g. lacking actual dollar amounts, are considered weaker forms of evidence.

Part 8: Facilities and Equipment

If an offeror requests to use Government-furnished laboratory equipment, facilities, or services (collectively, "Government resources") the offeror shall describe in this part why the use of such Government resources is necessary and not reasonably available from the private sector. See sections 3.6.3.4 and 5.13 for additional requirements when proposing the use of such Government resources. The narrative description of resources should support the proposed approach and documentation in the Proposal Budget form.

Part 9: Subcontractors/Consultants

The offeror must describe all subcontracting or other business arrangements and identify the relevant organizations and/or individuals with whom arrangements are planned. The expertise to be provided by the entities must be described in detail, as well as the functions, services, number of hours, and labor rates. Offerors are responsible for ensuring that all organizations and individuals proposed to be utilized are actually available for the time periods proposed. Subcontract costs shall be documented in the Subcontractors/Consultants section of the Proposal Budget form and supporting documentation should be uploaded for each (appropriate documentation is specified in the form). The narrative description of subcontractors and consultants in the technical proposal should support the proposed approach and documentation in the Proposal Budget form.

Part 10: Related, Essentially Equivalent, and Duplicate Proposals and Awards

NOTE: While it is permissible with proper notification to submit identical proposals or proposals containing a significant amount of essentially equivalent work for consideration under numerous Federal program solicitations, it is unlawful to enter into funding agreements requiring essentially equivalent work.

If an applicant elects to submit identical proposals or proposals containing a significant amount of essentially equivalent work under other Federal program solicitations, a statement must be included in each such proposal indicating the following:

1. The name and address of the agencies to which proposals were submitted or from which awards were received.
2. Date of proposal submission or date of award.
3. Title, number, and date of solicitations under which proposals were submitted or awards received.
4. The specific applicable research topics for each proposal submitted for the award received.
5. Titles of research projects.
6. Name and title of the principal investigator or project manager for each proposal submitted or award received.

Offerors are at risk for submitting essentially equivalent proposals and therefore are strongly encouraged to disclose these issues to the soliciting agency to resolve the matter prior to award. A summary of essentially equivalent work information, as well as related research and development on proposals and awards, is also required on the Proposal Certifications form (if applicable).

3.6.3.6 NASA Evaluation License Application, only if TAV is being proposed

If you have applied for TAV by following the instructions found at <https://technology.nasa.gov/>, upload the application of the TAV request with your complete proposal package. See section 1.6 for additional details.

3.6.3.7 Request for Use of Technical and Business Assistance (TABAs) Funds at Phase II

Offerors may request TABA and can choose their own TABA vendor. NASA does not have a TABA-preferred vendor. All requests for TABA must be submitted with the complete proposal package.

Requests for TABA funding are not reviewed during the evaluation of the proposal, and the request for TABA funds will not be part of the decision to make an award. All TABA requests will be reviewed after a proposal is selected for award and during the contract negotiation process. Offerors selected for Phase II contract negotiations can receive up to \$50,000 as a TABA supplement to the Phase II award.

If requesting Phase II TABA funding, offerors are required to provide the following TABA information by following the directions found in the Budget form. The following information must be provided for each TABA vendor:

- Name of vendor
- Contact information of the vendor
- Vendor DUNS number
- Vendor website address
- Description of vendor(s) expertise and knowledge of providing technical and business assistance services.
- An itemized list of services and costs the TABA vendor will provide. **This applies to all vendors.**
- Describe the deliverables the TABA vendor will provide and a plan to submit a deliverable summarizing the outcome of the TABA services with expected supporting information.
- TABA costs are reflected in the budget forms.

Note: All TABA vendors must be a legal business in the United States and NASA will review the U.S. Government-wide System for Award Management (SAM) excluded parties list to ensure the proposed TABA vendor can receive Federal funds. NASA will consider TABA requests that are missing any requested TABA information (e.g., DUNS number, etc.) as incomplete and will not review the TABA request or provide TABA approval under the award.

NASA reserves the right to withhold funds requested for TABA until a formal review and approval of the requested vendor is completed. In addition, reviewing the TABA request in the proposal package, NASA may also consider additional information, such as a review of the vendor's website, Dun and Bradstreet reports, and SAM.gov, to verify the existence of the vendor(s) and to assess the capability of the vendor(s). NASA will only approve TABA funding if the proposal is selected for a Phase II award and the offeror adequately demonstrates the existence and capability of the selected vendor(s) as determined at the sole discretion of NASA. Notification of the approval or denial of TABA funding will be provided to the offeror prior to the award.

Any TABA funding **will be in addition to the Phase II contract award value, is not subject to any profit or fee by the requesting firm, and cannot be used in the calculation of indirect cost rates or general and administrative expenses (G&A).** The TABA cost(s) and service(s) to be provided by each vendor will be based on the original Phase I period of performance. Requests for TABA funding outside of the Phase II period of performance or after a complete proposal package has been submitted will not be considered.

Schedule of Deliverables and Payments for TABA—offerors that are approved to receive TABA under a Phase II award will be reimbursed for TABA expenses. Reimbursement for TABA will be based on the awardee providing a TABA end-of-contract report at the end of the contract period of performance. Reimbursement will not be provided for any amounts incurred over the TABA funding amount approved by the Government prior to award.

3.6.3.8 Firm Level Forms

Form submissions shall be completed in Box and do not count toward the page limits for the proposal. To access the firm-level and proposal-level forms, go to https://www.nasa.gov/sbir_sttr/sbir-ignite/.

A. Firm Certifications

Firm certifications must be completed once for each firm and are applicable across all proposal package submissions by the firm to this solicitation. The offeror shall answer "Yes" or "No" as applicable.

B. Audit Information

Although firms are not required to have an approved accounting system, the knowledge that a firm has an approved accounting system facilitates NASA's determination that rates are fair and reasonable. To assist NASA, the SBC shall complete the questions in the Audit Information form regarding the firm's rates and upload the Federal agency audit report or related information that is available from the last audit, if applicable.

C. Prior Awards Addendum (for firms with more than 15 Phase II awards in the past 5 years)

If the SBC has received more than 15 Phase II awards in the prior 5 fiscal years, submit the name of the awarding agency, solicitation year, phase, date of award, Funding Agreement/contract number, and topic/subtopic title for each Phase II in the Prior Awards Addendum.

D. Disclosure of Disclosures of Foreign Affiliations or Relationships to Foreign Countries

You must complete the “Disclosures of Foreign Affiliations or Relationships to Foreign Countries” form as part of your proposal submission. Even if you do not have any foreign relationships, you must complete this form to represent that such relationships do not exist. If you do not submit this form, NASA will decline your proposal during the administrative screening process, and it will not be evaluated. Foreign involvement or investment does not independently disqualify you but failing to disclose such affiliations or relationships may result in denial of an award.

The disclosures require the following information:

- the identity of all owners and covered individuals of the small business concern who are a party to any foreign talent recruitment program of any foreign country of concern, including the People’s Republic of China;
- the existence of any joint venture or subsidiary of the small business concern that is based in, funded by, or has a foreign affiliation with any foreign country of concern, including the People’s Republic of China;
- any current or pending contractual or financial obligation or other agreement specific to a business arrangement, or joint venture-like arrangement with an enterprise owned by a foreign state or any foreign entity;
- whether the small business concern is wholly owned in the People’s Republic of China or another foreign country of concern;
- the percentage, if any, of venture capital or institutional investment by an entity that has a general partner or individual holding a leadership role in such entity who has a foreign affiliation with any foreign country of concern, including the People’s Republic of China;
- any technology licensing or intellectual property sales to a foreign country of concern, including the People’s Republic of China, during the five-year period preceding submission of the proposal; and
- any foreign entity, offshore entity, or entity outside the United States related to the small business concern.

After reviewing the above listed disclosures, and if determined appropriate by NASA, the program may ask you to provide true copies of any contractual or financial obligation or other agreement specific to a business arrangement or joint venture-like arrangement with an enterprise owned by a foreign state or any foreign entity in effect during the five-year period before proposal submission.

During award, you must regularly report to NASA any changes to a required disclosure.

4. Method of Selection and Evaluation Criteria

The NASA SBIR Program does not make awards solely directed toward system studies, market research, routine engineering, development of existing product(s), proven concepts, or modifications of existing products without substantive innovation.

All Phase I and II proposals will be evaluated and judged on a competitive basis (as an “other competitive procedure” in accordance with FAR 6.102(d)(2) and FAR 35.016 (and the criteria and procedures set forth within this solicitation). Proposals will be initially screened for (1) compliance with the solicitation requirements and (2) responsiveness to the proposed topic. Proposals passing this initial screening will be evaluated by commercialization experts, engineers, or scientists to determine the most promising technologies. Offerors should not assume that evaluators are acquainted with the offeror, key individuals, or with any experiments or other information. Each proposal will be judged on its own merit in accordance with the criteria and procedures set forth within this solicitation and NASA will not conduct any tradeoff analyses between or among competed proposals. NASA is under no obligation to fund any proposal or any specific number of proposals on each topic. It also may elect to fund several or none of the proposed approaches to the same topic.

4.1 Phase I Evaluation Process and Evaluation Criteria

NASA will conduct a multi-stage review process of all completed Phase I proposal packages to determine if the proposal can be moved forward to be evaluated and ranked on a competitive basis:

4.1.1 Administrative Review

All completed proposal packages received by the published deadline will undergo an administrative screening to determine if the proposal package meets the requirements found in Chapter 3 (Proposal Preparation Instructions and Requirements), and Chapter 6 (Submission of Proposals). ***A proposal package that is found to be non-compliant with any requirements in Chapters 3 and 6 may be rejected and no further evaluations will occur.*** The offeror will be notified of NASA’s decision to eliminate the proposal package from consideration and the reason(s) for the decision. ***Incomplete proposal packages will be automatically rejected, and no further evaluations will occur.***

4.1.2 Proposal Responsiveness

All completed proposal packages received by the published deadline will undergo a responsiveness screening on the technical abstract and proposal to determine if the proposed research/research & development is responsive to the topic. ***Failure to adequately communicate how the proposal relates to the technical need posed in the topic will result in the proposal being rejected and no further evaluations will occur.*** Offerors are advised that this is a commercialization-focused solicitation. Offerors are also advised to be thoughtful in selecting a topic area to ensure the proposal is responsive to the need as defined by the topic. The NASA SBIR program will NOT evaluate a proposal under a topic that was not selected by the firm and will not switch a proposal package from one topic to another.

4.1.3 Evaluation Criteria

The following four evaluation factors will be used in the review of the proposal documents that have met the administrative and responsiveness requirements of this solicitation.

Factor 1: Commercial Potential

The assessment of the commercial potential of the Phase I proposal (as described in the slide deck and white paper) will be evaluated to determine its effectiveness in achieving the following:

- Description of the commercial potential through a quantitative market analysis to include the market segmentation and the commercial Total Addressable Market (TAM), the proposed innovation in terms of target customers, and the competitive landscape, by identifying potential competitors.
- Description of commercial intent to include the development timeline required to bring the innovation to market, the applicable business model (spin-out, license, OEM, etc.) the offeror would use, and the risks to the commercial development plan and what mitigations, if any, can be taken over a reasonable period of time to lessen the risks.
- Description of the commercial capability to include the current and future company capitalization efforts
- Description of the Offeror's approach to protecting any Intellectual Property that results from the innovation.
- Description of any assistance or mentoring the company intends to pursue.
- Evidence of follow-on funding support.
- Evidence that SBIR IGNITE support will serve as a catalyst to improve substantially the technical and commercial impact of the underlying commercial endeavor.
- Firms that have received more than \$10M of funding either from prior SBIRs across agencies and or VCs would have to justify why an additional \$1M from SBIR would be catalytic when the prior \$10M+ was not.

Factor 2: Scientific/Technical Merit and Feasibility

The Phase I proposal (as described in the slide deck and white paper) will be evaluated to determine its effectiveness in achieving the following criteria:

- The technical approach and the anticipated agency and commercial benefits may be derived from the research.
- The adequacy of the proposed effort, and its relationship to the fulfillment of requirements of the research topic.
- The soundness and technical merit of the proposed approach and its incremental progress toward a topic solution.
- The proposal should describe an innovative and feasible technical approach to the identified NASA problem area/topic. Specific objectives, approaches, and plans for developing and verifying the innovation must demonstrate a clear understanding of the problem and the current state of the art. The degree of understanding and significance of the risks involved in the proposed innovation must be presented.

Factor 3: Experience, Qualifications, and Facilities

The qualifications of the proposed Principal Investigators/Project Managers, supporting staff and consultants, and subcontractors, if any, will be evaluated for consistency with the research effort and their degree of commitment and availability. The proposed necessary instrumentation or facilities required to accomplish the proposed technical approach will be evaluated to determine if they are adequate. In addition, any proposed reliance on external sources, such as Government-furnished equipment or facilities (part 8 of section 3.5.3.5 Slide Deck), will be evaluated for the reasonableness of the need.

Factor 4: Effectiveness of the Proposed Work Plan

The proposed work plan should describe the methods planned to achieve each objective or task in detail. The work plan will be evaluated for comprehensiveness, including its proposed effective use of available resources and approach to labor distribution. In addition, the work plan's proposed schedule for meeting the Phase I objectives will be evaluated to make sure they are reasonable and consistent with the proposed technical approach.

4.1.4 Scoring of Factors and Weighting to Determine the Most Highly Rated Proposals

- Factor 1: Commercialization Potential is worth a maximum of 30 points.
- Factor 2: Scientific/Technical Merit and Feasibility is worth a maximum of 30 points.

- Factor 3: Experience, Qualifications, and Facilities are worth a maximum of 20 points.
- Factor 4: Effectiveness of the Proposed Work Plan is worth a maximum of 20 points.

The sum of the scores for Factors 1, 2, 3, and 4 will constitute the proposal's total score. The most highly rated proposals will be presented to the Panel (4.1.6) for additional review and consideration.

4.1.5 Price Evaluation

Utilizing the procedures set forth in FAR 15.404-1, the offeror's budget proposal form will be evaluated to determine whether the offeror's proposed pricing is fair and reasonable. NASA will only make an award when the price is fair and reasonable and approved by the NASA Contracting Officer. If a proposal is selected for an award, the Contracting Officer will review all the evaluations for the proposal and will address any pricing issues identified during the negotiation of the final award.

4.1.6 Panel Review

A panel made up of NASA subject matter experts and/or 3rd party reviewers will review the most highly rated proposals. The panel will assign adjectival ratings and rank the proposals considering the results of 4.1.4 and programmatic investment considerations (e.g., first-time awardee, portfolio balance across technologies, other strategic considerations, etc.). The most highly ranked proposals will be invited to present a slide deck and participate in a Question & Answer session. Specific details regarding the Question & Answer session will be provided with the invitation as well as a feedback summary form. Note that this feedback may form the basis for the questions asked at the Q&A session. Only Offerors invited to present at the Question & Answer may revise their slide decks. Revisions and resubmissions must occur within 5 calendar days of invitation notification. Revisions are not mandatory, therefore firms that choose not to revise their slide deck(s) will not be penalized but judged on the substance of the presentation(s). The questions will be tailored to the specifics of each Offeror's proposal.

Following the completion of the Question & Answer sessions, the panel will assign a final adjectival rating considering the proposal, the Offeror's slide deck presentation, and responses during the Question & Answer session and establish final rankings of the proposals in each topic area.

The possible adjectival ratings for the Panel Review are:

- Excellent: A thorough and compelling proposal of exceptional merit, with one or more significant strengths and no significant weaknesses, that fully responds to the objectives of the solicitation.
- Very Good: A competent proposal of high merit, with one or more significant strengths and where strengths outbalance any weaknesses that may exist, that fully responds to the objectives of the solicitation.
- Good: A proposal that represents a credible and reasonably sound response to the solicitation. As a whole, any weaknesses not offset by strengths do not significantly detract from the response.
- Fair: A proposal with weaknesses that are not offset by strengths.
- Poor: A proposal of low merit, with one or more major weaknesses that are expected to be difficult to correct or are not correctable, or that does not represent a credible response to the solicitation.

The panel's final rankings and rationale for the rankings will be presented to the Source Selection Official (SSO).

4.1.7 Selection

The SSO has the final authority for choosing specific proposals for contract negotiation. In making such a determination, the SSO, at their discretion, may consider additional programmatic balance factors such as portfolio balance across NASA programs, centers, and mission directorates, available funding, first-time

awardees/participants, historically underrepresented communities, and geographic distribution. Under this solicitation, NASA will not accept more than 1 complete proposal package from any one firm to ensure the broadest participation of the small business community. NASA does not plan to make more than one Phase I award to any offeror. The list of proposals selected for negotiation will be posted on the NASA SBIR/STTR website (<https://sbir.nasa.gov/>). All selected firms will receive a formal notification letter.

Each proposal package selected for negotiation by the SSO will be evaluated by the Contracting Officer to determine eligibility for an award. The terms and conditions of the contract will be negotiated based on the SBIR Small Business Act (15 U.S.C. 638), FAR, and NASA FAR requirements, and a responsibility determination will be made. The Contracting Officer will advise the SSO on matters pertaining to price analysis and responsibility determinations. A Contracting Officer will negotiate an appropriate contract to be signed by both parties before work begins.

4.2 Phase II Evaluation Process and Evaluation Criteria

Only Offerors selected for Phase I awards will be eligible to submit Phase II proposals. Phase II proposals will be evaluated and selected in accordance with the evaluation and selection criteria identified in Section 4.2 below. NASA will conduct a multi-stage review process of all complete Phase II proposal packages.

4.2.1 Administrative Review

All proposal packages received by the published deadline will undergo an administrative review to determine if the proposal package meets the requirements found in Chapter 3 (Proposal Preparation Instructions and Requirements), and Chapter 6 (Submission of Proposals). ***A proposal package that is found to be non-compliant with any requirements in Chapters 3 and 6 may be rejected and no further evaluations will occur.*** The offeror will be notified of NASA's decision to eliminate the proposal package from consideration and the reason(s) for the decision. ***Incomplete proposal packages will be automatically rejected, and no further evaluations will occur.***

4.2.2 Evaluation Criteria

The following four evaluation factors will be used in the review of the proposals that have met the administrative and responsiveness requirements of this solicitation.

Factor 1: Commercial Potential

The assessment of the commercial potential of the Phase II proposal will be evaluated to determine its effectiveness in achieving the following:

- Description of the commercial potential through a quantitative market analysis to include the market segmentation and the commercial Total Addressable Market (TAM), the proposed innovation in terms of target customers, and the competitive landscape, by identifying potential competitors.
- Description of commercial intent to include the development timeline required to bring the innovation to market, the applicable business model (spin-out, license, OEM, etc.) the offeror would use, and the risks to the commercial development plan and what mitigations, if any, can be taken over a reasonable period of time to lessen the risks.
- Description of the commercial capability to include the current and future company capitalization efforts.
- Description of the Offeror's approach to protecting any Intellectual Property that results from the innovation.
- Description of any assistance or mentoring the company intends to pursue.
- Evidence of follow-on funding support.

Factor 2: Scientific/Technical Merit and Feasibility

The Phase II proposal will be evaluated to determine its effectiveness in achieving the following criteria:

- The technical approach and the anticipated agency and commercial benefits may be derived from the research.
- The adequacy of the proposed effort, and its relationship to the fulfillment of requirements of the research topic.
- The soundness and technical merit of the proposed approach and its incremental progress toward a topic solution.
- The proposal should describe an innovative and feasible technical approach to the identified NASA problem area/topic. Specific objectives, approaches, and plans for developing and verifying the innovation must demonstrate a clear understanding of the problem and the current state of the art. The degree of understanding and significance of the risks involved in the proposed innovation must be presented.

Factor 3: Experience, Qualifications, and Facilities

The qualifications of the proposed Principal Investigators/Project Managers, supporting staff and consultants, and subcontractors, if any, will be evaluated for consistency with the research effort and their degree of commitment and availability. The proposed necessary instrumentation or facilities required to accomplish the proposed technical approach will be evaluated to determine if they are adequate. In addition, any proposed reliance on external sources, such as Government-furnished equipment or facilities (section 3.6.3.4 and part 8 of the technical proposal), will be evaluated for reasonableness.

Factor 4: Effectiveness of the Proposed Work Plan

The proposed work plan should describe the methods planned to achieve each objective or task in detail. The work plan will be evaluated for comprehensiveness, including its proposed effective use of available resources and approach to labor distribution. In addition, the work plan's proposed schedule for meeting the Phase I objectives will be evaluated to make sure they are reasonable and consistent with the proposed technical approach.

4.2.3 Scoring of Factors and Weighting to Determine the Most Highly Rated Proposals

- Factor 1: Commercialization Potential is worth a maximum of 30 points.
- Factor 2: Scientific/Technical Merit and Feasibility is worth a maximum of 30 points.
- Factor 3: Experience, Qualifications, and Facilities are worth a maximum of 20 points.
- Factor 4: Effectiveness of the Proposed Work Plan is worth a maximum of 20 points.

The sum of the scores for Factors 1, 2, 3, and 4 will constitute the proposal's total score.

4.2.4 Price Evaluation

Utilizing the procedures set forth in FAR 15.404-1, the offeror's budget proposal form will be evaluated to determine whether the offeror's proposed pricing is fair and reasonable. NASA will only make an award when the price is fair and reasonable and approved by the NASA Contracting Officer. If a proposal is selected for award, the Contracting Officer will review all the evaluations for the proposal and will address any pricing issues identified during the negotiation of the final award.

4.2.5 Panel Review

A panel made up of NASA subject matter experts and 3rd party reviewers will review the proposals in each topic area and assign adjectival ratings using the evaluation criteria outlined in 4.2.2 and programmatic investment considerations (e.g., first-time awardee, portfolio balance across technologies, other strategic considerations, etc.).

The possible adjectival ratings for the Panel Review are:

- Excellent: A thorough and compelling proposal of exceptional merit that fully responds to the objectives of the solicitation.
- Very Good: A competent proposal of high merit that fully responds to the objectives of the solicitation.
- Good: A competent proposal of moderate merit that represents a credible response to the solicitation. As a whole, any weaknesses not offset by strengths do not significantly detract from the response.
- Fair: A proposal with weaknesses that are not offset by strengths.
- Poor: A proposal of low merit, with one or more major weaknesses that are expected to be difficult to correct or are not correctable, or that does not represent a credible response to the solicitation.

The panel's final rankings and rationale for the rankings will be presented to the SSO.

4.2.6 Selection

The SSO has the final authority for choosing specific proposals for contract negotiation. In making such a determination, the SSO, at their discretion, may consider additional programmatic balance factors such as portfolio balance across NASA programs, centers, and mission directorates, available funding, first-time awardees/participants, historically underrepresented communities, and geographic distribution. The list of proposals selected for negotiation will be posted on the NASA SBIR/STTR website (<https://sbir.nasa.gov/>). All firms will receive a formal notification letter.

Each proposal package selected for negotiation by the SSO will be evaluated by the Contracting Officer to determine eligibility for an award. The terms and conditions of the contract will be negotiated based on the SBIR Small Business Act (15 U.S.C. 638), FAR, and NASA FAR requirements, and a responsibility determination will be made. The Contracting Officer will advise the SSO on matters pertaining to price analysis and responsibility determinations. A Contracting Officer will negotiate an appropriate contract to be signed by both parties before work begins.

4.3.1 Denial of Awards

Pursuant to the SBIR and STTR Extension Act of 2022, NASA will not make an award under the SBIR or STTR program to an offeror if NASA has determined that:

- The small business concern submitting the proposal or application
 - has an owner or covered individual that is a party to a malign foreign talent recruitment program;
 - has a business entity, parent company, or subsidiary located in the People's Republic of China or another foreign country of concern; or
 - has an owner or covered individual that has a foreign affiliation with a research institution located in the People's Republic of China or another foreign country of concern; and
- The relationships and commitments described above
 - interfere with the capacity for activities supported by NASA to be carried out;
 - create duplication with activities supported by NASA;
 - present concerns about conflicts of interest;
 - were not appropriately disclosed to NASA;
 - violate Federal law or terms and conditions of NASA; or
 - pose a risk to national security.

Note: Sections 4.3, 4.4, and 4.5 below apply to both the Phase I and Phase II evaluation process.

4.3 Technical and Business Assistance (TABA)

NASA conducts a separate review of all offeror requests for TABA after the SSO makes the final selection of projects to enter negotiation for a contract. The SBIR/STTR PMO conducts the initial evaluation of the TABA request to determine if the request meets the requirements found in sections 1.9, 3.5.3.8, and 3.6.3.7. The Contracting Officer makes the final determination to allow TABA funding under the contract.

The review of TABA requests will include the following:

- A review to determine if the awardee will use the funding for approved services;
- Verification of TABA vendors by reviewing the vendor information and websites;
- A review of the vendor(s) expertise and knowledge in providing technical and business assistance services;
- A review of the costs to be provided to the TABA vendor(s);
- Proposed plans to submit a deliverable summarizing the outcome of the TABA services with expected supporting information;
- Verification that TABA costs are reflected in the budget forms; and
- Verification that there is no evidence of Fraud, Waste, and Abuse of these funds.

4.4. Access to Proprietary Data by Non-NASA Personnel

4.4.1 Non-NASA Reviewers

In addition to utilizing Government personnel in the review process, NASA, at its discretion and in accordance with NFS section 1815.207-71, may utilize individuals from outside the Government with highly specialized expertise not found in the Government. Qualified experts outside of NASA (including industry, academia, and other Government agencies) may assist in performing evaluations as required to determine or verify the merit of a complete proposal package. Any decision to obtain an outside evaluation shall take into consideration requirements for the avoidance of organizational or personal conflicts of interest and any competitive relationship between the prospective contractor or subcontractor(s) and the prospective outside evaluator. Any such evaluation will be under agreement with the evaluator that the information (data) contained in the complete proposal package will be used only for evaluation purposes and will not be further disclosed.

4.4.2 Non-NASA Access to Confidential Business Information

In the conduct of processing proposal packages and potential contract administration, the Agency may find it necessary to provide access to the complete proposal package to other NASA contractors and subcontractor personnel. NASA will provide access to such data only under contracts that contain an appropriate NFS 1852.237-72 Access to Sensitive Information clause that requires the contractors to fully protect the information from unauthorized use or disclosure and where the contractor has implemented the appropriate processes and procedures to protect the information.

4.5 Notification and Feedback to Offerors

After selections for negotiation have been made, a notification will be sent to the designated Business Official identified in the complete proposal package according to the processes described below.

Note: Due to the competitive nature of the program and limited funding, recommendations to fund or not fund a proposal will be final. Any notification or feedback provided to the offeror is not an opportunity to reopen selection decisions or obtain additional information regarding the final decision. Feedback will be provided as-is

and will not be supplemented with additional feedback. Offerors are encouraged to use the written feedback to understand the outcome and review their proposal package and develop plans to strengthen future proposals.

Note: This final feedback is separate from the feedback that may be provided to firms selected for the Question & Answer session noted in section 4.1.6. Only Offerors invited to present at the Question & Answer may revise their slide decks after receiving that feedback.

4.5.1 Providing Feedback

NASA uses a two-stage process to notify offerors of the outcome of their completed proposal package.

1. At the time of the public selection announcement, the designated Business Official will receive an email indicating the outcome of the completed proposal package.
2. NASA will automatically email proposal feedback to the designated Business Official within 60 days of the announcement of selection for negotiation. If you have not received your feedback within 60 days after the announcement, contact the NASA SBIR/STTR Program Support Office at agency-sbir@mail.nasa.gov. If an offeror wants feedback at any time within this announcement window, the request should be submitted in writing within 5 calendar days of receipt of notification, and submitted to the SBIR help desk agency-sbir@mail.nasa.gov. **Due to the sensitivity of this feedback, NASA will only provide feedback to the designated Business Official and will not provide this to any other parties.**

5. Considerations

5.1 Requirement for Contracting

Upon award of a Funding Agreement, the awardee will be required to make certain legal commitments through acceptance of numerous clauses in Funding Agreements. The outline that follows is illustrative of the types of clauses to which the contractor would be committed. This list is not a complete list of clauses to be included in Funding Agreements and is not the specific wording of such clauses. Copies of the complete terms and conditions are available by following the links in Appendix C.

1. Standards of Work. Work performed under the Funding Agreement must conform to high professional standards.
2. Inspection. Work performed under the Funding Agreement is subject to Government inspection and evaluation at all times.
3. Examination of Records. The Comptroller General (or a duly authorized representative) must have the right to examine any pertinent records of the awardee involving transactions related to this Funding Agreement.
4. Default. The Federal Government may terminate the Funding Agreement if the contractor fails to perform the work contracted.
5. Termination for Convenience. The Funding Agreement may be terminated at any time by the Federal Government if it deems termination to be in its best interest, in which case the awardee will be compensated for work performed and for reasonable termination costs.
6. Disputes. Any dispute concerning the Funding Agreement that cannot be resolved by agreement must be decided by the contracting officer with the right of appeal.
7. Contract Work Hours. The awardee may not require an employee to work more than 8 hours a day or 40 hours a week unless the employee is compensated accordingly (for example, overtime pay).
8. Equal Opportunity. The awardee will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin.
9. Equal Opportunity for Veterans. The awardee will not discriminate against any employee or application for employment because he or she is a disabled veteran or veteran of the Vietnam era.
10. Equal Opportunity for People with Disabilities. The awardee will not discriminate against any employee or applicant for employment because he or she is physically or intellectually disabled.
11. Officials Not to Benefit. No Federal Government official may benefit personally from the SBIR Funding Agreement.
12. Covenant Against Contingent Fees. No person or agency has been employed to solicit or secure the Funding Agreement upon an understanding for compensation except bona fide employees or commercial agencies maintained by the awardee for the purpose of securing business.
13. Gratuities. The Funding Agreement may be terminated by the Federal Government if any gratuities have been offered to any representative of the Government to secure the award.
14. Patent Infringement. The awardee must report each notice or claim of patent infringement based on the performance of the Funding Agreement.
15. American-Made Equipment and Products. When purchasing equipment or a product under the SBIR Funding Agreement, purchase only American-made items whenever possible.

To simplify making contract awards and to reduce processing time, all contractors selected for contracts will ensure that:

1. All information in your complete proposal package is current (e.g., your address has not changed, the proposed PI is the same, etc.). If changes have occurred since the submittal of your proposal, notify the Contracting Officer immediately.
2. Your firm is registered with System for Award Management (SAM) (section 2.2).
3. Your firm complies with the FAR 52.222-37 Employment Reports on Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans (VETS-4212) requirement (See Appendix D). Confirmation that a

VETS-4212 report has been submitted to the Department of Labor, and is current, shall be provided to the Contracting Officer within 10 business days of the notification of selection for negotiation.

4. Your firm HAS NOT proposed a Co-Principal Investigator.
5. Your firm will provide timely responses to all communications from the NSSC Contracting Officer.
6. Budget form items:
 - All proposed cost is supported with documentation, such as a quote, previous purchase order, published price lists, etc.
 - All letters of commitment are dated and signed by the appropriate person with contact information.
 - If a university is proposed as a subcontractor, the signed letter shall be on the university letterhead from the Office of Sponsored Programs.
 - If an independent consultant is proposed, the signed letter should not be on university letterhead.
 - If the use of Government facilities or equipment is proposed, your firm shall submit a signed letter from the Government facility authorizing the use of the facility and stating the availability and the cost, if any, together with a signed letter from your firm justifying the need to use the facility.

From the time of notification of selection for contract negotiation until the award of a contract, all communications shall be submitted electronically to NSSC-SBIR-STTR@nasa.gov.

Note: Costs incurred prior to and in anticipation of the award of a contract are entirely the risk of the contractor. If a contract is not subsequently awarded. Notification of selection for negotiation is not to be misconstrued as an award notification to commence work.

5.2 Awards

5.2.1 Anticipated number of Awards

For this pilot effort, it is anticipated that a limited number of proposals will be selected for negotiation. The program is anticipating selecting 12 Phase I proposals for contract negotiation with successful Phase I awards being selected for Phase II contract negotiation.

5.2.2 Award Conditions

NASA awards are electronically signed by a NASA Contracting Officer and transmitted electronically to the organization via email. NSSC will distribute the NASA SBIR award with the following items.

- SF26—Contract Cover Sheet
- Contract Terms and Conditions—to include reference to the complete proposal package
- Attachment 1: Contract Distribution List
- Attachment 2: Template of the Final Summary Chart
- Attachment 3: IT Security Management Plan Template
- Attachment 4: Applicable Documents List
- Negotiation Confirmation
- Frequently Asked Questions (FAQs)

5.2.3 Type of Contract

NASA SBIR Phase I and Phase II awards are made as firm fixed-price contracts.

5.2.4 [Reserved]

5.3 Reporting and Required Deliverables

An IT Security Management Plan is required at the beginning of the contract. Contractors interested in doing business with NASA and/or providing IT services or solutions to NASA should use the list found on the website of the Office of the Chief Information Officer (OCIO) as a reference for information security requirements: <https://www.nasa.gov/content/cybersecurity-policies>. For more information, see NASA FAR Supplement clause 1852.204-76.

All contracts shall require the delivery of technical reports that present (1) the work and results accomplished; (2) the scientific, technical, and commercial merit and feasibility of the proposed innovation and project results; (3) the proposed innovation's relevance and significance to one or more NASA interests (section 9); and (4) the strategy for development and transition of the proposed innovation and project results into products and services for NASA mission programs and other potential customers. Deliverables may also include the demonstration of the proposed innovation and/or the delivery of a prototype or test unit, product, or service for NASA testing and utilization if requested.

The technical reports and other deliverables are required as described in the contract and are to be provided to NASA. These reports shall document progress made on the project and activities required for completion. Periodic certification for payment will be required as stated in the contract. A final report must be submitted to NASA upon completion of the Phase I R/R&D effort in accordance with applicable contract provisions. ***Note: because the Phase II proposal is due 120 days from the start of the Phase I period of performance, firms are advised that the milestones reported in the interim/mid-term report should demonstrate sufficient progress to warrant selection for a Phase II award.***

A final New Technology Summary Report (NTSR) is due at the end of the contract, and New Technology Report(s) (NTR) are required if technology(ies) is/are developed under the award prior to submission of the final invoice. For additional information on NTSR and NTR requirements and definitions, see section 5.9.

If TABA is requested, contracts will require TABA deliverables that summarize the outcome of the TABA services with expected supporting information.

Report deliverables shall be submitted electronically via the EHB. For any reports that require an upload, NASA requests the submission in PDF or Microsoft Word format.

Note: To access contract management in the EHB, you will be required to have an identity in the NASA Access Management System (NAMS). This is the Agency's centralized system for requesting and maintaining accounts for NASA IT systems and applications. The system contains user account information, access requests, and account maintenance processes for NASA employees, contractors, and remote users such as educators and foreign users. A basic background check and completion of NASA IT Security Training is required for this account. Instructions to create an identity in NAMS will be provided during contract negotiations. It is recommended that you begin this process immediately upon notification, as this access will be required to submit deliverables and invoices.

5.4 Payment Schedule

All NASA SBIR contracts are firm-fixed-price contracts. The exact payment terms will be included in the contract.

Although invoices are submitted electronically through the Department of Treasury's Invoice Processing Platform (IPP), as a condition for payment, invoice certifications shall be completed in the EHB for each individual invoice.

The certification is preset in the EHB, and it shall be completed before uploading each invoice in IPP. Upon completion of the certification, a link to IPP is automatically provided in the EHB.

If TABA is requested, awardees will be required to submit TABA vendor invoices for reimbursement per the payment schedule in section 3.5.3.8 or 3.6.3.7.

5.5 Profit or Fee

Contracts may include a reasonable profit. The reasonableness of the proposed profit is determined by the Contracting Officer during contract negotiations. Reference [FAR 15.404-4](#).

5.6 Cost Sharing

Cost sharing is permitted for proposal packages under this program solicitation; however, cost sharing is not required. Cost sharing will not be an evaluation factor in consideration of your proposal package nor will it be used in the determination of the percentage of Phase I work to be performed on the contract.

5.7 Rights in Data Developed Under SBIR Funding Agreements

The SBIR program provides specific rights for data developed under SBIR awards. Please review the full text at the following [FAR 52.227-20 Rights in Data-SBIR Program](#) and [PCD 21-02 FEDERAL ACQUISITION REGULATION \(FAR\) CLASS DEVIATION – PROTECTION OF DATA UNDER THE SMALL BUSINESS INNOVATIVE RESEARCH/SMALL TECHNOLOGY TRANSFER RESEARCH \(SBIR/STTR\) PROGRAM](#).

5.8 Copyrights

The contractor may copyright and publish (consistent with appropriate national security considerations, if any) material developed with NASA support. NASA receives a royalty-free license for the Federal Government and requires that each publication contain an appropriate acknowledgment and disclaimer statement.

5.9 Invention Reporting, Election of Title, Patent Application Filing, and Patents

Awardees under the SBIR program are required to provide New Technology Reports (NTR) for any new subject inventions, and the New Technology Summary Reports (NTSR) for the interim and final contract periods. Please review the full text at the following https://www.sbir.gov/sites/default/files/SBA_SBIR_STTR_POLICY_DIRECTIVE_OCT_2020_v2.pdf to understand these requirements.

5.10 Export Control

The contractor shall comply with all U.S. export control laws including Export Administration Regulations (EAR) and International Traffic in Arms Regulations (ITAR). Offerors are responsible for ensuring that all employees who will work on this contract are eligible under export control laws, EAR, and ITAR. Any employee who is not a U.S. citizen or a permanent resident may be restricted from working on this contract if the technology is restricted under export control laws, ITAR, or EAR unless the prior approval of the Department of State or the Department of Commerce is obtained via a technical assistance agreement or an export license. Violations of these regulations can result in criminal or civil penalties.

For additional information on ITAR, please visit the Code of Federal Regulations at https://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title22/22cfr120_main_02.tpl. For additional information on EAR, please

visit <https://www.bis.doc.gov/index.php/regulations/export-administration-regulations-ear>. For additional training, refer to <https://www.sbir.gov/tutorials/itar/>.

5.11 Government-Furnished and Contractor-Acquired Property

In accordance with the SBIR/STTR Policy Directive, the Federal Government may transfer title to the property provided by the SBIR Participating Agency to the awardee or acquired by the awardee for the purpose of fulfilling the contract, where such transfer would be more cost-effective than recovery of the property.

5.12 Essentially Equivalent Awards and Prior Work

If an award is made pursuant to a complete proposal package submitted under a SBIR solicitation, the firm will be required to certify with every invoice that it has not previously been paid nor is currently being paid for essentially equivalent work by any agency of the Federal Government. **Failure to report essentially equivalent or duplicate efforts can lead to the termination of contracts and/or civil or criminal penalties.**

5.13 Additional Information

5.13.1 Precedence of Contract Over this Solicitation

This program solicitation reflects current planning. If there is any inconsistency between the information contained herein and the terms of any resulting SBIR contract, the terms of the contract take precedence over the solicitation.

5.13.2 Evidence of Contractor Responsibility

The Government may request the offeror to submit certain organizational, management, personnel, and financial information to establish the responsibility of the offeror. Contractor responsibility includes all resources required for contractor performance (e.g., financial capability, workforce, and facilities).

5.14 Use of Government Resources

Federal Departments and Agencies

Use of SBIR funding for unique Federal/non-NASA resources from a Federal department or agency that does not meet the definition of a Federal laboratory as defined by U.S. law and in the SBA Policy Directive on the SBIR program requires a waiver from the SBA. Proposal packages requiring waivers must include an explanation of why the waiver is appropriate. NASA will provide the offeror's request, along with an explanation to SBA, during the negotiation process. NASA cannot guarantee that a waiver can be obtained from SBA. Specific instructions to request the use of Government Resources are in sections 3.5 or 3.6 of the solicitation. *Note: NASA facilities qualify as Federal laboratories.*

Support Agreements for the Use of Government Resources

Note: Use of Federal laboratories/facilities for Phase I contracts is highly discouraged as these arrangements will in most cases cause significant delays in making the final award. Approval for the use of Federal facilities and laboratories for a Phase I technical proposal requires a strong justification at the time of submission and will require approval by the Contracting Officer during negotiations if selected for award.

All offerors selected for the award who require the use of any Federal facility shall, within 20 business days of notification of selection for negotiations, provide to the NSSC Contracting Officer an agreement by and between

the Contractor and the appropriate Federal facility/laboratory, executed by the Government official authorized to approve such use. The agreement must delineate the terms of use, associated costs, and facility responsibilities and liabilities. Having a signed agreement for the use of Government resources is a requirement for the award.

For the proposed use of NASA resources, a NASA SBIR/STTR Support Agreement template is available in the Resources section (https://nasa-sbir-firm-library.gsfc.nasa.gov/sbir/firm_library/templates/SBIR_STTR_SupportAgreement.docx) and must be executed before a contractor can use NASA resources. Offerors shall only include a signed letter of commitment from an authorized NASA point of contact in the complete proposal packages. NASA expects selected offerors to finalize and execute their NASA SBIR Support Agreement during the negotiation period with the NSSC.

Contractor Responsibilities for Costs

In accordance with FAR Part 45, it is NASA's policy not to provide services, equipment, or facilities (resources) (capital equipment, tooling, test, computer facilities, etc.) for the performance of work under SBIR contracts. Generally, any contractor will furnish its own resources to perform the proposed work on the contract.

In all cases, the contractor shall be responsible for any costs associated with services, equipment, or facilities provided by NASA or another Federal department or agency, and such costs shall result in no increase in the price of this contract.

5.15 Agency Recovery Authority and Ongoing Reporting

1) require a small business concern receiving an award under its SBIR program to repay all amounts received from the Federal agency under the award if—

(A) the small business concern makes a material misstatement that the Federal agency determines poses a risk to national security; or

(B) there is a change in ownership, change to entity structure, or other substantial change in circumstances of the small business concern that the Federal agency determines poses a risk to national security; and

2) require a small business concern receiving an award under its SBIR program to regularly report to the Federal agency and the SBA throughout the duration of the award on—

(A) any change to a disclosure required under subparagraphs (A) through (G) of section 2.3.1 above;

(B) any material misstatement made under section 5.15 paragraph (A) above; and

(C) any change described in section 5.15 paragraph (B) above.

6. Submission of Proposals

6.1 How to Submit Your Proposal Package

NASA uses electronically supported business processes for the SBIR program. An offeror must have internet access and an email address. Paper submissions are not accepted.

To apply for a NASA SBIR contract, all SBCs are required to follow the steps found below.

6.1.1 Electronic Submission Requirements

6.1.1.1 Phase I Submission via ProSAMS

For Phase I, NASA will be using ProSAMS for the submission of these proposal packages. ProSAMS requires firm registration and login. To access ProSAMS, go to <https://prosams.nasa.gov/>.

It is recommended that the designated small business representative, or an authorized representative designated by the designated small business representative, be the person to complete the required proposal package forms and upload the proposal package to ProSAMS for the SBC.

For successful submission of a complete proposal package, SBCs shall complete all required and applicable forms, and upload the required documents per the submission requirements indicated in ProSAMS.

Due to the limited pilot nature of this solicitation, NASA will not accept more than one (1) complete proposal package from any one firm to ensure the broadest participation of the small business community.

Firms cannot submit security/password-protected files, as reviewers may not be able to open and read these files. Proposal packages containing security/password-protected files will be declined and not considered.

6.1.1.2 Phase II Submission via Box

For Phase II, NASA will be using Box for submission of these proposal packages. To access Box, the SBC business official will be provided a firm specific Box hyperlink via email. PDF forms are available for all firm-level and proposal-level forms required for a complete proposal package. To access the firm-level and proposal-level forms, go to https://www.nasa.gov/sbir_sttr/sbir-ignite/. All submissions are through a secure connection, and most communication between NASA and the firm is through email.

It is recommended that the designated small business representative, or an authorized representative designated by the designated small business representative, be the person to complete the required proposal package forms and upload the proposal package to Box for the SBC.

For successful submission of a complete proposal package, SBCs shall complete all required and applicable PDF forms, and upload their required documents as a ZIP folder to Box. Each complete proposal package should be one (1) ZIP folder and submitted separately to Box. The ZIP folder should follow the file naming convention: Firm Name_Proposal Title.

Due to the limited pilot nature of this solicitation, NASA will not accept more than one (1) complete proposal package from any one firm to ensure the broadest participation of the small business community.

Firms cannot submit security/password-protected files, as reviewers may not be able to open and read these files. Proposal packages containing security/password-protected files will be declined and not considered.

6.1.2 Deadlines for Submitting a Complete Proposal Package

6.1.2.1 Phase I

A complete proposal package for Phase I shall be received no later than 5:00 p.m. ET on September 21st, 2023, via ProSAMS. See Section 3. Proposal Preparation Instructions and Requirements for additional details on proposal package requirements.

Offerors are responsible for ensuring that all files constituting the complete proposal package be uploaded prior to the deadline. **If a complete proposal package is not received by the 5:00 p.m. ET deadline, the proposal package will be determined to be incomplete and will not be evaluated.** Offerors are strongly encouraged to start the submission process early to allow sufficient time to upload their complete proposal package. An offeror that waits to submit a proposal package near the deadline is at risk of not completing the required uploads and endorsements of their completed proposal package by the required deadline, resulting in the rejection of the proposal package.

6.1.2.2 Phase II

A complete proposal package for Phase II shall be received no later than 5:00 p.m. ET on the 120th day after the start of the Phase I period of performance. See Section 3: Proposal Preparation Instructions and Requirements for additional details on proposal package requirements.

Offerors are responsible for ensuring that all files constituting the complete proposal package be uploaded prior to the deadline. **If a complete proposal package is not received by the 5:00 p.m. ET deadline, the proposal package will be determined to be incomplete and will not be evaluated.** Offerors are strongly encouraged to start the submission process early to allow sufficient time to upload their complete proposal package. An offeror that waits to submit a proposal package near the deadline is at risk of not completing the required uploads and endorsements of their completed proposal package by the required deadline, resulting in the rejection of the proposal package.

6.1.3 Complete Proposal Package Submission

For successful submission of a complete proposal package, SBCs shall complete all required and applicable forms, and upload the required documents per the submission requirements indicated in ProSAMS for Phase I or Box for Phase II. All transactions are encrypted for security purposes.

A complete Phase I proposal package consists of online forms and associated documentation that must be submitted **via ProSAMS**. Below is what a complete proposal package includes. See Section 3 for additional information on how to complete each of these sections.

1. Proposal Information
2. Proposal Contacts
3. Proposal Certifications
4. Proposal Summary
5. Proposal Budget and associated forms
6. Slide Deck (15 slide maximum)
7. White Paper (7 page maximum)
8. NASA Evaluation License Application (only if TAV is being proposed)
9. Technical and Business Assistance (TABAs) Request, if applicable
10. I-Corps Interest Form
11. Firm-Level Forms (completed once for all complete proposal packages submitted by a firm to a single solicitation)
 - a. Firm Information
 - b. Firm Certifications
 - c. Audit Information
 - d. Prior Awards Addendum (for firms with more than 15 Phase II awards in the past 5 years)
 - e. Disclosures of Foreign Affiliations or Relationships to Foreign Countries

A complete Phase II proposal package consists of online forms and associated documentation that must be submitted **via Box**. Below is what a complete proposal package includes. See Section 3 for additional information on how to complete each of these sections.

1. Proposal Information
2. Proposal Contacts
3. Proposal Certifications
4. Proposal Summary
5. Proposal Budget and associated forms
6. Phase II Proposal
7. NASA Evaluation License Application (only if TAV is being proposed)
8. Technical and Business Assistance (TABAs) Request, if applicable
9. Firm-Level Forms (if the information has changed since the Phase I proposal submission)
 - a. Firm Certifications
 - b. Audit Information
 - c. Prior Awards Addendum (for firms with more than 15 Phase II awards in the past 5 years)
 - d. Disclosures of Foreign Affiliations or Relationships to Foreign Countries

Firms cannot submit security/password-protected PDF files, as reviewers may not be able to open and read these files. Proposal packages containing security/password-protected PDF files will be declined and not considered.

Offerors are responsible for virus-checking all files prior to submission. NASA may reject any complete proposal package that contains a file with a detected virus.

You may revise a slide deck, white paper, or proposal multiple times during the open solicitation period. The final uploaded version at the time the solicitation period closes will be considered for review. *Note: Embedded animation or video, as well as reference technical papers for "further reading," will not be considered for evaluation.*

6.1.4 Acknowledgment of Receipt of a Complete Proposal Package

NASA will acknowledge receipt of an electronically submitted complete proposal package by sending an email to the designated Business Official's email address as provided on the complete proposal package cover sheet. ***If the acknowledgment is not received within 24 hours (Monday – Friday) after submission of a complete proposal package, the offeror should immediately contact the NASA SBIR/STTR Program Support Office at agency-sbir@mail.nasa.gov.***

6.1.5 Withdrawal of Complete Proposal Packages

Prior to the close of submissions, complete proposal packages may be withdrawn. In order to withdraw a complete proposal package after the deadline, the designated small business representative must send written notification via email to agency-sbir@mail.nasa.gov.

6.1.6 Service of Protests

Protests, as defined in section [FAR 33.101](#) of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the Government Accountability Office (GAO), shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from:

Kenneth Albright
NASA Shared Services Center
Building 1111, Jerry Hlass Road
Stennis Space Center, MS 39529
Agency-SBIR-STTRsolicitation@mail.nasa.gov

A copy of any protest shall be received in the office designated above within one day of filing a protest with the GAO.

7. Scientific and Technical Information Sources

7.1 NASA Organizational and Programmatic Information

General sources relating to organizational and programmatic information at NASA are available via the following websites:

NASA Budget Documents, Strategic Plans, and Performance Reports:

<https://www.nasa.gov/about/budget/index.html>

NASA Organizational Structure: <https://www.nasa.gov/centers/hq/organization/index.html>

NASA SBIR/STTR Programs: <https://sbir.nasa.gov/>

Information regarding the 2020 NASA Technology Taxonomy and the NASA Strategic Integration Framework can be obtained at the following websites:

Office of the Chief Technologist	
2020 NASA Technology Taxonomy	https://www.nasa.gov/offices/oct/taxonomy/index.html

NASA Mission Directorates	
Aeronautics Research	https://www.aeronautics.nasa.gov/
Exploration Systems Development Mission Directorate (ESDMD)	https://www.nasa.gov/directorates/exploration-systems-development
Space Operations Mission Directorate (SOMD)	https://www.nasa.gov/directorates/space-operations-mission-directorate
Science	https://nasascience.nasa.gov/
Space Technology	https://www.nasa.gov/directorates/spacetech/home/index.html

NASA Centers	
Ames Research Center (ARC)	https://www.nasa.gov/centers/ames/home/index.html
Armstrong Flight Research Center (AFRC)	https://www.nasa.gov/centers/armstrong/home/index.html
Glenn Research Center (GRC)	https://www.nasa.gov/centers/glenn/home/index.html
Goddard Space Flight Center (GSFC)	https://www.nasa.gov/centers/goddard/home/index.html
Jet Propulsion Laboratory (JPL)	https://www.nasa.gov/centers/jpl/home/index.html
Johnson Space Center (JSC)	https://www.nasa.gov/centers/johnson/home/index.html
Kennedy Space Center (KSC)	https://www.nasa.gov/centers/kennedy/home/index.html
Langley Research Center (LaRC)	https://www.nasa.gov/centers/langley/home/index.html
Marshall Space Flight Center (MSFC)	https://www.nasa.gov/centers/marshall/home/index.html
Stennis Space Center (SSC)	https://www.nasa.gov/centers/stennis/home/index.html
NASA Shared Services Center (NSSC)	https://www.nssc.nasa.gov/

7.2 United States Small Business Administration (SBA)

The SBA oversees the Federal SBIR and STTR programs. The SBA has resources that small businesses can take advantage of in learning about the program and obtaining help in developing a proposal package to a Federal SBIR/STTR program. Offerors are encouraged to review the information that is provided at the following links: <https://www.sbir.gov/>, <https://www.sba.gov/local-assistance>, and <https://www.sbir.gov/resources>.

The SBA issues a SBIR/STTR Policy Directive which provides guidance to all Federal Agencies that have a SBIR/STTR program. The Policy Directives for the SBIR/STTR programs may be obtained from the SBA at <https://www.sbir.gov/> or at the following address:

U.S. Small Business Administration
Office of Technology – Mail Code 6470
409 Third Street, S.W.
Washington, DC 20416
Phone: 202-205-6450

7.3 National Technical Information Service

The National Technical Information Service (NTIS) is an agency of the Department of Commerce and is the Federal Government's largest central resource for Government-funded scientific, technical, engineering, and business-related information. For information regarding various NTIS services and fees, call or write:

National Technical Information Service
5301 Shawnee Road
Alexandria, VA 22312
URL: <https://www.ntis.gov/>
E-mail: NTRLHelpDesk@ntis.gov

8. Submission Forms

8.1 SBIR Phase I Checklist

For assistance in completing your Phase I proposal package, use the following checklist to ensure your submission is complete.

1. The slide deck and white paper for any innovation are submitted for one topic only.
2. The complete proposal package is submitted consistently with the requirements outlined in Section 3.
 - a. Proposal Information
 - b. Proposal Contacts
 - c. Proposal Certifications
 - d. Proposal Summary
 - e. Proposal Budget
 - Subcontractors/Consultants form (if applicable)
 - Other Direct Costs form (if applicable)
 - Foreign Vendor form (if applicable)
 - f. Slide Deck (15 slide maximum)
 - g. White Paper (7 page maximum)
 - h. NASA Evaluation License Application (only if TAV is being proposed)
 - i. Technical and Business Assistance (TABAs) Request, if applicable
 - j. I-Corps Interest Form
 - k. Firm-Level Forms (completed once for all complete proposal packages submitted by a firm to a single solicitation)
 - Firm Information
 - Firm Certifications
 - Audit Information
 - Prior Awards Addendum (for firms with more than 15 Phase II awards in the past 5 years)
 - Disclosures of Foreign Affiliations or Relationships to Foreign Countries
3. **The slide deck shall not exceed 15 slides and the white paper shall not exceed a total of 7 standard 8.5- by 11-inch pages with one-inch margins and shall follow the format requirements found in section 3.5.2.**
4. The slide deck and white paper contain all required parts in order (section 3.5.3).
5. Any additional required letters/documentation.
 - a. A letter of commitment from the appropriate Government official if the research or R&D effort requires the use of Government resources (sections 3.5 and 5.13).
 - b. Letters of commitment from subcontractors/consultants.
 - c. If the firm is an eligible joint venture or a limited partnership, a copy or comprehensive summary of the joint venture agreement or partnership agreement is included.
 - d. NASA Evaluation License Application if proposing the use of NASA technology (TAV).
 - e. Supporting documentation of budgeted costs.
6. Proposed funding does not exceed \$150,000 (section 1.5), and if requesting TABAs, the cost for TABAs does not exceed \$6,500 (sections 1.9 and 3.5.3.8).
7. The proposed project duration does not exceed six (6) months (section 1.5).
8. **Complete proposal packages shall be received no later than 5:00 p.m. ET on September 21st, 2023 (section 6.1.2).**

8.2 SBIR Phase II Checklist

For assistance in completing your Phase II proposal package, use the following checklist to ensure your submission is complete.

1. The proposal and innovation are submitted for one topic only.
2. The complete proposal package is submitted consistently with the requirements outlined in Section 3.
 - a. Proposal Information
 - b. Proposal Contacts
 - c. Proposal Certifications
 - d. Proposal Summary
 - e. Proposal Budget
 - Subcontractors/Consultants form (if applicable)
 - Other Direct Costs form (if applicable)
 - Foreign Vendor form (if applicable)
 - f. Phase II Proposal
 - g. NASA Evaluation License Application (only if TAV is being proposed)
 - h. Technical and Business Assistance (TABA) Request, if applicable
 - i. Firm-Level Forms (if the information has changed since the Phase I proposal submission)
 - Firm Certifications
 - Audit Information
 - Prior Awards Addendum (for firms with more than 15 Phase II awards in the past 5 years)
 - Disclosures of Foreign Affiliations or Relationships to Foreign Countries
3. **The proposal shall not exceed a total of 40 standard 8.5- by 11-inch pages with one-inch margins and shall follow the format requirements found in section 3.6.2).**
4. The proposal plan contains all required parts in order (section 3.6.3).
5. Any additional required letters/documentation.
 - a. A letter of commitment from the appropriate Government official if the research or R&D effort requires the use of Government resources (sections 3.6 and 5.13).
 - b. Letters of commitment from subcontractors/consultants.
 - c. If the firm is an eligible joint venture or a limited partnership, a copy or comprehensive summary of the joint venture agreement or partnership agreement is included.
 - d. NASA Evaluation License Application if proposing the use of NASA technology (TAV).
 - e. Supporting documentation of budgeted costs.
6. Proposed funding does not exceed \$850,000 (section 1.5), and if requesting TABA, the cost for TABA does not exceed \$50,000 (sections 1.9 and 3.6.3.7).
7. The proposed project duration does not exceed 24 months (section 1.5).
8. **Complete proposal packages shall be received no later than 5:00 p.m. ET on the 120th day after the start of the Phase I period of performance (section 6.1.2).**

9. Research Topics for the SBIR Ignite Solicitation

Introduction

Offerors are advised to be thoughtful in selecting a topic to ensure the proposal is responsive to the NASA need as defined by the topic. The NASA SBIR program will NOT move a completed proposal package between SBIR topics.

As stated in section 2.2, an Offeror shall not submit the same (or substantially equivalent) completed proposal packages to more than one topic. It is the Offeror's responsibility to select which topic to propose to.

Topic Title: Complete/Full Hybrid Electric Power Plants for 1500-5000 lb. Airplanes or Drones

Problem Statement:

NASA is seeking companies developing medium- to large-scale hybrid-electric power plants for testing and integration into a 1500 lb. drone. NASA's focus will be on companies that have near-term commercial readiness (TRL 4 and above) and solutions that are applicable to Unmanned Aerial Vehicles (UAVs) and Aircraft in the 1500 to 5000 lb. size class. Key performance attributes include high conversion of fuel energy to electrical power, low weight, and the ability to run on net zero-emission fuel. NASA will provide strong preference to companies that build full power plant systems (engines and associated electrical systems).

The goal of this topic is to increase U.S. small business participation in emerging aviation markets and reduce energy use and emissions for transport category aircraft. The proposals for this topic are focused on much smaller near-term entry into the Regional Air Mobility market (<https://sacd.larc.nasa.gov/ram/>) and potentially could be integrated into a 25% scale drone (approximately 1500 lbs.) configured similarly to NASA's Subsonic Single Aft Engine (SUSAN) Transport Aircraft Concept.) configured similarly to NASA's Subsonic Single Aft Engine (SUSAN) Transport Aircraft Concept.

Evaluation will be based on economic, environmental, and technical criteria and U.S.-based manufacturing. Companies should have an understanding of how their product reduces lifecycle aviation emissions and have a differentiating technology advantage which has been clearly shown through an evaluation of the power/weight and efficiency metrics.

Topic Title: Closing Capability Gaps to Accelerate In-Space Production Applications in LEO

Problem Statement:

NASA seeks multi-use manufacturing technologies and services for planned Commercial Low Earth Orbit (LEO) Destinations supporting semiconductor and bio-medical device manufacturing and products. Examples include:

- Creation of multi-use facilities (e.g., furnaces, glove boxes, printing/etching devices, etc.) and services (e.g., payload monitoring, in-space operations, etc.)
- Development of analytical tools (e.g., microscopy, thermal, material response, bubble creation, etc.) for in-situ monitoring and analysis of devices and manufacturing processes
- Development of a common cargo carrier and interfaces for manufacturing payload sorties on various launch systems, for use with different LEO platforms, and with return-to-earth capabilities

Background:

The purpose of this topic is to provide funding and technical support for the commercial development of in-space manufacturing capabilities. Research activities on the ISS have shown microgravity to be important for investigating materials, systems, and physical phenomena, as well as producing unique highly ordered, and homogeneous materials that benefit from the reduction in convection, buoyance, and sedimentation that microgravity provides.

[A recent finding](#) notes improved uniformity and structural quality and size when crystals and crystalline structures—including semiconductor materials—are produced or processed in microgravity. This then offers in-space fabricated materials and devices as an important new area for research, development, and manufacturing. This is very timely given the recent passing of the [CHIPS Act](#) which is a new \$200+B government program focused on re-establishing US preeminence in semiconductor research, development, and manufacturing, on US soil or facilities (including space facilities).

Topic Title: Earth Science Decision Apps with a Focus on the Mitigation of Climate Change Impacts in the Areas of Wildfires and Water Management

Problem Statement:

NASA Earth Science and Applied Sciences seek innovative and unique approaches for wildfire mitigation and/or water management to increase the use and extended benefit of Earth Science research and archived data. NASA has accumulated, created, and organized extensive and contemporary datasets including many forms of multispectral imaging that allow for a wide range of applications. Many of these datasets are updated intraday or daily and are available for public use.

NASA is looking to leverage NASA earth science data for predictive modeling for use by non-expert end users in the areas of:

- Wildfire forecasting/mitigation, including but not limited to wildfire severity prediction and burn extent/damage mapping, soil moisture modeling, power outage modeling, and real-time disaster mediation.
- Hydrologic applications, including but not limited to snow water equivalency (SWE), stream flow forecasting, flood hazard forecasting, and groundwater recharge and tracking.

We seek a diverse range of innovative solutions, from simple mobile applications and dashboard tools that integrate NASA earth science data with domain-specific contextual data, to sophisticated decision support software that merges deep analysis with powerful prediction capabilities to provide insights and the ability to explore “what if” scenarios.

Some of the key potential markets are the property & casualty insurance industry, land use planning/real estate development, federal/state/local fire and water management entities, forestry management, and agri-business.

Topic Title: Commercial Development of Active Debris Remediation (ADR) and Orbital Debris Tracking Services

Problem Statement:

NASA is supporting the development of commercial services that can reduce the risks associated with orbital debris. Specifically, we are seeking innovative systems or subsystems that can enable low-cost services to perform controlled reentry of large debris—greater than 1,000 kg—or to better track orbital debris of any size.

Preference will be given to proposals that do one or more of the following:

- Active Debris Remediation
 - Solutions providing an end-to-end capability that detects, approaches, detumbles, grasps and de-orbits the debris in a controlled manner.
 - Solutions that can scale to provide bulk removal services.
 - Spacecraft systems or low-cost disposable propulsion/maneuver subsystems that can be used for controlled reentry.
 - Systems for de-tumbling and gaining positive control of large objects with uncertain dynamical properties and high rotation rates.

- Novel methods for performing controlled reentry, such as those that do not need chemical propulsion to perform the reentry or enable a single vehicle to perform multiple controlled reentries.
- **Orbital Debris Tracking**
 - Provide order(s) of magnitude reduction in the uncertainties associated with predicted conjunctions of currently trackable objects.
 - Solutions that can track debris that is currently untracked—smaller than 10 cm in characteristic length—to enable conjunction analysis and collision avoidance in prioritized orbits.
 - Demonstrate a connection with potential debris remediation capabilities, such as just-in-time collision avoidance or removal of small debris.

Background:

The U.S. economy depends on space for critical infrastructure, from communications and financial exchanges to national security, transportation, and climate monitoring. Orbital debris such as abandoned vehicle stages, non-functional satellites, and fragments of launched materials impedes our ability to use space by increasing the cost of space operations; operators must monitor conjunctions with debris and maneuver to avoid potential collisions.

These pieces of debris are mostly trackable and can be avoided; however, they may also collide with each other to generate many pieces of smaller debris that are not tracked by our current methods of space situational awareness (SSA). These smaller pieces of debris can damage satellites and crewed spacecraft without warning. As described in the 2022 National Orbital Debris Implementation Plan^[1], there are three broad methods to reduce the risks associated with debris: 1) limit the generation of new debris; 2) better track and characterize debris; 3) and remediate debris that has already been created.

Active Debris Remediation

Debris remediation services are those that move, remove, or reuse extant debris to reduce the risks associated with it. While the risks associated with most trackable debris may be remediated by techniques such as just-in-time collision avoidance or removal via uncontrolled reentry, an important subset of large debris will need to be disposed of through a controlled reentry; this will reduce the risks posed to people and property on the ground for debris that does not fully disintegrate during reentry. However, there are a few major challenges with making this service cost-effective, such as the debris may be rotating in such a way that precludes contact or effective control of the object; electric propulsion may not be able to perform a controlled reentry due to its thrust being overpowered by aerodynamic drag; and difficulties associated with creating a system that can perform controlled reentries of multiple pieces of debris per mission (which likely requires a rapid reentry avoidance maneuver by the servicer/remover after the final deorbit burn and release of the debris object.)

Orbital Debris Tracking

Capabilities for space object tracking underpin effective orbital debris risk management. Accurate tracking of debris—small and large, both collectively and of individual objects—is vital to protecting spacecraft and enabling collision avoidance. Further, enhanced tracking capabilities are required for some of the most cost-effective methods of debris remediation. Challenges to improving the accuracy, resolution, and robustness of tracking include the following:

- Less than 1 percent of the debris objects that could cause damage are currently tracked;
- The uncertainties are high in tracking objects and propagating orbits. The uncertainty tends to grow with time due to the compounding effects of atmospheric drag, space weather, and other nongravitational perturbations that may be difficult to predict.
- There is difficulty in integrating heterogeneous data in real-time. Many different types of systems are used for object tracking, with different uncertainties, data formats, and possible proprietary restrictions.

^[1] Available at <https://www.whitehouse.gov/wp-content/uploads/2022/07/07-2022-NATIONAL-ORBITAL-DEBRIS-IMPLEMENTATION-PLAN.pdf>

Topic Title: Mining and Mineral Processing Technologies for Earth and Moon

Problem Statement:

NASA seeks mining and processing technologies that can be adapted to Earth's Moon. With new efforts to create a long-term presence there, extracting metals and feedstocks that can be used in manufacturing and construction is a necessity. The direct human operation will be extremely limited, creating a need for automation throughout the mineral production process.

NASA's interests include but are not limited to technologies that:

1. Reduce the mass of raw material (ore) transported from the mine to the processor.
2. Develop an economically feasible way to extract mineral resources, with a strong initial emphasis on silicon (Si) and aluminum (Al) from anorthite, but with a longer-term interest in iron and titanium from ilmenite, magnesium, and rare earth elements in mare regolith. Demonstrate longer-working life substitutes for current state-of-the-art carbon-rich electrodes for process metallurgy.
3. Reduce the mass of reagents used in mineral processing through increased processing and regeneration/recycling efficiency.

Important constraints to be considered in developing near-term technology for mining and processing mineral feedstocks on the Moon:

- The source material is the top two meters of the regolith (pre-comminuted rock) that covers the Moon's surface and could be in any state from tightly compacted to very loose. Its particles range from 1 micron to cobble size and up; the fines are angular and abrasive.
- The lunar regolith consists of four primary minerals: calcium-rich plagioclase (anorthite), pyroxene, olivine, and ilmenite. Lunar operations will start near the lunar south pole (primarily anorthite composition) and will progress to more equatorial locations with greater amounts of the other primary minerals. Refer to the Lunar Sourcebook (https://www.lpi.usra.edu/publications/books/lunar_sourcebook/) for regolith information.
- Equipment must be launched from Earth (~\$10,000/kilogram). Early subscale and component technology demonstration payloads will be limited to 100s of kg, while later large-scale production systems could be 10s of tons. The technology must scale appropriately to fit the system and production levels they are being designed for, but the mass is at a premium.
- Likewise, power is a major constraint for lunar operations. Power will scale as production and infrastructure increase. Early demonstrations are expected to be 100s of watts to a few kilowatts, increasing to 10s of kilowatts for early scale production scales. Available power levels may be constrained by day-night cycles, which are extremely irregular in polar regions (<http://lroc.sese.asu.edu/posts/991>).
- Operations will be limited to daylight (up to 120 degrees C) or will occur in very cold temperatures during the night (-130 degrees C near the equator, -250 degrees C near the poles). Equipment must be able to survive, though not necessarily operate in, such temperatures.
- Cooling is more difficult in a vacuum than in an atmosphere. Processes that rely on liquid water and other aspects of the thermal buffering of Earth's atmosphere must be modified or enclosed in an engineered environment.
- The lunar operating environment is exposed to hard radiation, meteorite impacts, and other space hazards not common on Earth. Gravity is 17% of Earth's standard.

Consideration will be given to technology for batch processes and for continuous processes, as appropriate for the technology.

Appendices

Appendix A: Technology Readiness Level (TRL) Descriptions

The Technology Readiness Level (TRL) describes the stage of maturity in the development process from observation of basic principles through final product operation. The exit criteria for each level document that principles, concepts, applications, or performance have been satisfactorily demonstrated in the appropriate environment required for that level. A relevant environment is a subset of the operational environment that is expected to have a dominant impact on operational performance. Thus, reduced gravity may be only one of the operational environments in which the technology must be demonstrated or validated to advance to the next TRL.

TRL	Definition	Hardware Description	Software Description	Exit Criteria
1	Basic principles observed and reported.	Scientific knowledge generated underpinning hardware technology concepts/applications.	Scientific knowledge generated underpinning basic properties of software architecture and mathematical formulation.	Peer-reviewed publication of research underlying the proposed concept/application.
2	Technology concept and/or application formulated.	Invention begins, practical application is identified but is speculative, and no experimental proof or detailed analysis is available to support the conjecture.	Practical application is identified but is speculative, no experimental proof or detailed analysis is available to support the conjecture. Basic properties of algorithms, representations, and concepts defined. Basic principles coded. Experiments performed with synthetic data.	Documented description of the application/concept that addresses feasibility and benefit.
3	Analytical and experimental critical function and/or characteristic proof of concept.	Analytical studies place the technology in an appropriate context and laboratory demonstrations, modeling and simulation validate analytical prediction.	Development of limited functionality to validate critical properties and predictions using non-integrated software components.	Documented analytical/experimental results validating predictions of key parameters.
4	Component and/or breadboard validation in a laboratory environment.	A low-fidelity system/component breadboard is built and operated to demonstrate basic functionality and critical test environments, and associated performance predictions are defined relative to the final operating environment.	Key, functionally critical, software components are integrated, and functionally validated, to establish interoperability and begin architecture development. Relevant Environments are defined and performance in these environments is predicted.	Documented test performance demonstrating agreement with analytical predictions. Documented definition of relevant environment.
5	Component and/or breadboard validation in a relevant environment.	A medium fidelity system/component breadboard is built and operated to demonstrate overall performance in a simulated operational environment with realistic support elements that	End-to-end software elements implemented and interfaced with existing systems/simulations conforming to the target environment. The end-to-end software system, tested in a relevant environment, meeting predicted performance.	Documented test performance demonstrating agreement with analytical predictions. Documented definition of scaling requirements.

		demonstrates overall performance in critical areas. Performance predictions are made for subsequent development phases.	Operational environment performance predicted. Prototype implementations developed.	
6	System/sub-system model or prototype demonstration in a relevant environment.	A high-fidelity system/component prototype that adequately addresses all critical scaling issues is built and operated in a relevant environment to demonstrate operations under critical environmental conditions.	Prototype implementations of the software demonstrated on full-scale realistic problems. Partially integrated with existing hardware/software systems. Limited documentation is available. Engineering feasibility fully demonstrated.	Documented test performance demonstrating agreement with analytical predictions.
7	System prototype demonstration in an operational environment.	A high-fidelity engineering unit that adequately addresses all critical scaling issues is built and operated in a relevant environment to demonstrate performance in the actual operational environment and platform (ground, airborne, or space).	Prototype software exists having all key functionality available for demonstration and testing. Well integrated with operational hardware/software systems demonstrating operational feasibility. Most software bugs were removed. Limited documentation available.	Documented test performance demonstrating agreement with analytical predictions.
8	The actual system was completed and "flight qualified" through test and demonstration.	The final product in its final configuration is successfully demonstrated through testing and analysis for its intended operational environment and platform (ground, airborne, or space).	All software has been thoroughly debugged and fully integrated with all operational hardware and software systems. All user documentation, training documentation, and maintenance documentation are completed. All functionality was successfully demonstrated in simulated operational scenarios. Verification and Validation (V&V) completed.	Documented test performance verifying analytical predictions.
9	Actual system flight has been proven through successful mission operations.	The final product is successfully operated in an actual mission.	All software has been thoroughly debugged and fully integrated with all operational hardware/software systems. All documentation has been completed. Sustaining software engineering support is in place. The system has been successfully operated in the operational environment.	Documented mission operational results.

Definitions

Brassboard: A medium-fidelity functional unit that typically tries to make use of as much operational hardware/software as possible and begins to address scaling issues associated with the operational system. It does not have the engineering pedigree in all aspects but is structured to be able to operate in simulated operational environments in order to assess the performance of critical functions.

Breadboard: A low-fidelity unit that demonstrates function only, without respect to form or fit in the case of hardware, or platform in the case of software. It often uses commercial and/or ad hoc components and is not intended to provide definitive information regarding operational performance.

Engineering Unit: A high-fidelity unit that demonstrates critical aspects of the engineering processes involved in the development of the operational unit. Engineering test units are intended to closely resemble the final product (hardware/software) to the maximum extent possible and are built and tested so as to establish confidence that the design will function in the expected environments. In some cases, the engineering unit will become the final product, assuming proper traceability has been exercised over the components and hardware handling.

Laboratory Environment: An environment that does not address in any manner the environment to be encountered by the system, subsystem, or component (hardware or software) during its intended operation. Tests in a laboratory environment are solely for the purpose of demonstrating the underlying principles of technical performance (functions), without respect to the impact of the environment.

Mission Configuration: The final architecture/system design of the product that will be used in the operational environment. If the product is a subsystem/component, then it is embedded in the actual system in the actual configuration used in operation.

Operational Environment: The environment in which the final product will be operated. In the case of spaceflight hardware/software, it is space. In the case of ground-based or airborne systems that are not directed toward spaceflight, it will be the environments defined by the scope of operations. For software, the environment will be defined by the operational platform.

Proof of Concept: Analytical and experimental demonstration of hardware/software concepts that may or may not be incorporated into subsequent development and/or operational units.

Prototype Unit: The prototype unit demonstrates form, fit, and function at a scale deemed to be representative of the final product operating in its operational environment. A subscale test article provides fidelity sufficient to permit the validation of analytical models capable of predicting the behavior of full-scale systems in an operational environment

Relevant Environment: Not all systems, subsystems, and/or components need to be operated in the operational environment in order to satisfactorily address performance margin requirements. Consequently, the relevant environment is the specific subset of the operational environment that is required to demonstrate critical "at risk" aspects of the final product performance in an operational environment. It is an environment that focuses specifically on "stressing" the technological advance in question.

Appendix B: SBIR and the Technology Taxonomy

NASA's technology development activities expand the frontiers of knowledge and capabilities in aeronautics, science, and space, creating opportunities, markets, and products for U.S. industry and academia. Technologies that support NASA's missions may also support science and exploration missions conducted by the commercial space industry and other Government agencies. In addition, NASA technology development results in applications for the general population, including devices that improve health, medicine, transportation, public safety, and consumer goods.

The 2020 NASA Technology Taxonomy is an evolution of the technology roadmaps developed in 2015. The 2020 NASA Technology Taxonomy provides a structure for articulating the technology development disciplines needed to enable future space missions and support commercial air travel. The 2020 revision is composed of 17 distinct technical-discipline-based taxonomies (TX) that provide a breakdown structure for each technology area. The taxonomy uses a three-level hierarchy for grouping and organizing technology types. Level 1 represents the technology area that is the title of that area. Level 2 is a list of the subareas in the taxonomy is a foundational element of NASA's technology management process. NASA's mission directorates reference the taxonomy to solicit proposals and to inform decisions on NASA's technology policy, prioritization, and strategic investments.

Details on the 2015 NASA Technology Roadmaps remain accessible here:

(<https://www.nasa.gov/offices/oct/home/roadmaps/index.html>), and information on the new 2020 NASA Technology Taxonomy can be found at:

(https://www.nasa.gov/sites/default/files/atoms/files/2020_nasa_technology_taxonomy_lowres.pdf).

The research and technology topics for the SBIR program are identified annually by mission directorates and center programs. The directorates identify high-priority research and technology needs for respective programs and projects.

Appendix C: List of NASA SBIR Phase I Clauses, Regulations, and Certifications

Introduction

Offerors who plan to submit a completed proposal package to this solicitation will be required to meet specific rules and regulations as part of the submission and if awarded a contract. Offerors should ensure that they understand these rules and requirements before submitting a completed proposal package to NASA.

Below are all the clauses, regulations, and certifications that apply to Phase I submissions and contracts. Each clause, regulation, and certification contain a hyperlink to the webpages from the NASA FAR Supplement, SBIR/STTR Policy Directive, and www.acquisition.gov where you can read about the requirements.

Federal Acquisition Regulations (FAR) Clauses

[52.203-19 PROHIBITION ON REQUIRING CERTAIN INTERNAL CONFIDENTIALITY AGREEMENTS OR STATEMENTS.](#)

[52.204-6 UNIQUE ENTITY IDENTIFIER.](#)

[52.204-7 SYSTEM FOR AWARD MANAGEMENT.](#)

[52.204-8 ANNUAL REPRESENTATIONS AND CERTIFICATIONS \(DEVIATION 20-02A\)](#)

[52.204-10 REPORTING EXECUTIVE COMPENSATION AND FIRST-TIER SUBCONTRACT AWARDS.](#)

[52.204-13 SYSTEM FOR AWARD MANAGEMENT MAINTENANCE.](#)

[52.204-16 COMMERCIAL AND GOVERNMENT ENTITY CODE REPORTING.](#)

[52.204-18 COMMERCIAL AND GOVERNMENT ENTITY CODE MAINTENANCE.](#)

[52.204-19 INCORPORATION BY REFERENCE OF REPRESENTATIONS AND CERTIFICATIONS.](#)

[52.204-22 ALTERNATIVE LINE ITEM PROPOSAL.](#)

[52.204-23 PROHIBITION ON CONTRACTING FOR HARDWARE, SOFTWARE, AND SERVICES DEVELOPED OR PROVIDED BY KASPERSKY LAB AND OTHER COVERED ENTITIES.](#)

[52.204-24 REPRESENTATION REGARDING CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT](#)

[52.204-25 PROHIBITION ON CONTRACTING FOR CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT.](#)

[52.204-26 COVERED TELECOMMUNICATIONS EQUIPMENT OR SERVICES - REPRESENTATION.](#)

[52.204-27 PROHIBITION ON A BYTEDANCE COVERED APPLICATION](#)

[52.209-6 PROTECTING THE GOVERNMENT'S INTEREST WHEN SUBCONTRACTING WITH CONTRACTORS DEBARRED, SUSPENDED, OR PROPOSED FOR DEBARMENT.](#)

[52.215-1 INSTRUCTIONS TO OFFERORS—COMPETITIVE ACQUISITION.](#)

[52.215-8 ORDER OF PRECEDENCE—UNIFORM CONTRACT FORMAT.](#)

[52.216-1 TYPE OF CONTRACT.](#)

[52.219-6 NOTICE OF TOTAL SMALL BUSINESS SET-ASIDE](#)

[52.219-28 POST-AWARD SMALL BUSINESS PROGRAM REPRESENTATION.](#)

[52.222-3 CONVICT LABOR.](#)

[52.222-21 PROHIBITION OF SEGREGATED FACILITIES.](#)

[52.222-26 EQUAL OPPORTUNITY.](#)

[52.222-36 EQUAL OPPORTUNITY FOR WORKERS WITH DISABILITIES.](#)

[52.222-50 COMBATING TRAFFICKING IN PERSONS.](#)

[52.223-6 DRUG-FREE WORKPLACE.](#)

[52.223-18 ENCOURAGING CONTRACTOR POLICIES TO BAN TEXT MESSAGING WHILE DRIVING.](#)

[52.223-99 ENSURING ADEQUATE COVID-19 SAFETY PROTOCOLS FOR FEDERAL CONTRACTORS \(DEVIATION 21-03\)](#)

[52.225-13 RESTRICTIONS ON CERTAIN FOREIGN PURCHASES.](#)

[52.227-1 AUTHORIZATION AND CONSENT.](#)

[52.227-11 PATENT RIGHTS—OWNERSHIP BY THE CONTRACTOR.](#)

[52.227-20 RIGHTS IN DATA—SBIR PROGRAM.](#)

[52.232-2 PAYMENTS UNDER FIXED-PRICE RESEARCH AND DEVELOPMENT CONTRACTS.](#)

[52.232-9 LIMITATION ON WITHHOLDING OF PAYMENTS.](#)

[52.232-12 ADVANCE PAYMENTS.](#)

[52.232-23 ASSIGNMENT OF CLAIMS.](#)

[52.232-25 PROMPT PAYMENT.](#)

[52.232-33 PAYMENT BY ELECTRONIC FUNDS TRANSFER—SYSTEM FOR AWARD MANAGEMENT.](#)

[52.232-39 UNENFORCEABILITY OF UNAUTHORIZED OBLIGATIONS.](#)

[52.232-40 PROVIDING ACCELERATED PAYMENTS TO SMALL BUSINESS SUBCONTRACTORS. \(DEVIATION 20-03A\)](#)

[52.233-1 DISPUTES.](#)

[52.233-3 PROTEST AFTER AWARD.](#)

[52.233-4 APPLICABLE LAW FOR BREACH OF CONTRACT CLAIM.](#)

[52.242-15 STOP-WORK ORDER.](#)

[52.243-1 CHANGES—FIXED PRICE.](#)

[52.246-7 INSPECTION OF RESEARCH AND DEVELOPMENT—FIXED PRICE.](#)

[52.246-16 RESPONSIBILITY FOR SUPPLIES.](#)

[52.244-6 SUBCONTRACTS FOR COMMERCIAL ITEMS. \(DEVIATION 20-03A\)](#)

[52.249-1 TERMINATION FOR CONVENIENCE OF THE GOVERNMENT \(FIXED-PRICE\) \(SHORT FORM\).](#)

[52.252-1 SOLICITATION PROVISIONS INCORPORATED BY REFERENCE.](#)

[52.252-5 AUTHORIZED DEVIATIONS IN PROVISIONS.](#)

[52.253-1 COMPUTER GENERATED FORMS.](#)

[52.252-2 CLAUSES INCORPORATED BY REFERENCE.](#)

[52.252-6 AUTHORIZED DEVIATIONS IN CLAUSES.](#)

NASA Clauses

Phase I

[1852.216-78 FIRM FIXED PRICE.](#)

[1852.203-71 REQUIREMENT TO INFORM EMPLOYEES OF WHISTLEBLOWER RIGHTS](#)

[1852.204-76 SECURITY REQUIREMENTS FOR UNCLASSIFIED INFORMATION TECHNOLOGY RESOURCES.
\(DEVIATION 21-01\)](#)

[1852.215-84 OMBUDSMAN.](#)

[1852.219-80 LIMITATION ON SUBCONTRACTING – SBIR PHASE I PROGRAM. \(OCT 2006\)](#)

[1852.219-83 LIMITATION OF THE PRINCIPAL INVESTIGATOR – SBIR PROGRAM. \(OCT 2006\)](#)

[1852.225-70 EXPORT LICENSES](#)

[1852.225-71 RESTRICTION ON FUNDING ACTIVITY WITH CHINA](#)

[1852.225-72 RESTRICTION ON FUNDING ACTIVITY WITH CHINA – REPRESENTATION. \(DEVIATION 12-01A\)](#)

[1852.215-81 PROPOSAL PAGE LIMITATIONS.](#)

[1852.227-72 DESIGNATION OF NEW TECHNOLOGY REPRESENTATIVE AND PATENT REPRESENTATIVE.](#)

[1852.232-80 SUBMISSION OF VOUCHERS FOR PAYMENT.](#)

[1852.233-70 PROTESTS TO NASA.](#)

[1852.235-70 CENTER FOR AEROSPACE INFORMATION.](#)

[1852.239-74 INFORMATION TECHNOLOGY SYSTEM SUPPLY CHAIN RISK ASSESSMENT. \(DEVIATION 15-03D\)](#)

[1852.235-73 FINAL SCIENTIFIC AND TECHNICAL REPORTS.](#)

[1852.235-74 ADDITIONAL REPORTS OF WORK - RESEARCH AND DEVELOPMENT.](#)

[1852.237-73 RELEASE OF SENSITIVE INFORMATION.](#)

[PCD 21-02 FEDERAL ACQUISITION REGULATION \(FAR\) CLASS DEVIATION – PROTECTION OF DATA UNDER THE SMALL BUSINESS INNOVATIVE RESEARCH/SMALL TECHNOLOGY TRANSFER RESEARCH \(SBIR/STTR\) PROGRAM](#)

Additional Regulations

[SOFTWARE DEVELOPMENT STANDARDS](#)

[HUMAN AND/OR ANIMAL SUBJECT](#)

[HOMELAND SECURITY PRESIDENTIAL DIRECTIVE 12 \(HSPD-12\)](#)

[RIGHTS IN DATA DEVELOPED UNDER SBIR FUNDING AGREEMENT](#)

[INVENTION REPORTING, ELECTION OF TITLE, PATENT APPLICATION FILING, AND PATENTS](#)

SBA Certifications required for Phase I

(1) [CERTIFICATIONS.](#)

(2) [PERFORMANCE OF WORK REQUIREMENTS.](#)

(3) [EMPLOYMENT OF THE PRINCIPAL INVESTIGATOR/PROJECT MANAGER.](#)

(4) [LOCATION OF THE WORK.](#)

(5) [NOVATED/SUCCESSOR IN INTERESTED/REVISED FUNDING AGREEMENTS.](#)

(6) [MAJORITY-OWNED BY MULTIPLE VCOCS, HEDGE FUNDS OR PRIVATE EQUITY FIRMS \[SBIR ONLY\].](#)

(7) [AGENCY BENCHMARKS FOR PROGRESS TOWARDS COMMERCIALIZATION.](#)

(8) [LIFE CYCLE CERTIFICATIONS.](#)