

DEPARTMENT OF DEFENSE
SMALL BUSINESS TECHNOLOGY TRANSFER (STTR) PROGRAM
STTR 23.C Program Broad Agency Announcement (BAA)

August 23, 2023: DoD BAA issued for pre-release

September 20, 2023: DoD begins accepting proposals

October 18, 2023: Deadline for receipt of proposals no later than **12:00 p.m. ET**

Participating DoD Components:

- Department of Air Force (Air Force)
- Defense Health Agency (DHA)
- Defense Microelectronics Activity (DMEA)
- Missile Defense Agency (MDA)
- Office of the Secretary of Defense – National Geospatial-Intelligence Agency (OSD – NGA)

IMPORTANT

This BAA incorporates MANDATORY foreign disclosure requirements and other important programmatic changes as required by the SBIR and STTR Extension Act of 2022 (Pub. L. 117-183). These updates can be found in sections 2.2, 2.5, 3.0, 4.2.e., 4.3, 6.0, 8.2, and Attachment 2. Proposals that do not include the completed Attachment 2 in Volume 5 will be deemed noncompliant and will not receive an evaluation. Small business concerns are highly encouraged to review the full BAA to remain apprised of any additional recent programmatic changes.

Deadline for Receipt: Complete proposals must be certified and submitted in DSIP no later than **12:00 PM ET on October 18, 2023**. Proposals submitted after 12:00 p.m. ET will not be evaluated. The final proposal submission includes successful completion of all firm level forms, all required volumes, and electronic corporate official certification. Please plan to submit proposals as early as possible in order to avoid unexpected delays due to high volume of traffic during the final hours before the BAA close. DoD is not responsible for missed proposal submission due to system latency.

Classified proposals will not be accepted under the DoD SBIR Program.

This BAA and the Defense SBIR/STTR Innovation Portal (DSIP) sites are designed to reduce the time and cost required to prepare a formal proposal. DSIP is the official portal for DoD SBIR/STTR proposal submission. Proposers are required to submit proposals via DSIP; proposals submitted by any other means will be disregarded. Proposers submitting through this site for the first time will be asked to register. Proposing Small Business Concerns are required to register for a Login.gov account and link it to their DSIP account. See section 4.16 for more information regarding registration.

The Small Business Administration (SBA), through its SBIR/STTR Policy Directive, purposely departs from normal Government solicitation formats and requirements, thus authorizing agencies to simplify the SBIR/STTR award process and minimize the regulatory burden on small business. Therefore, consistent with the SBA SBIR/STTR Policy Directive, the Department of Defense is soliciting proposals as a Broad Agency Announcement (BAA). The DoD SBIR/STTR Programs follow the policies and practices of the SBA SBIR/STTR Policy Directive, current version. The guidelines presented in this BAA incorporate and make use of the flexibility of the SBA SBIR/STTR Policy Directive to encourage proposals based on scientific and technical approaches most likely to yield results important to the DoD and the private sector. The SBIR/STTR Policy Directive is available [HERE](#).

SBIR/STTR Updates and Notices: To be notified of SBIR/STTR opportunities and to receive e-mail updates on the DoD SBIR and STTR Programs, you are invited to subscribe to our Listserv by visiting <https://www.dodsbirstr.mil/submissions/login> and clicking “DSIP Listserv” located under Quick Links.

Questions: Please refer to the DSIP [Customer Support Document](#) for general information regarding the DoD SBIR/STTR process in DSIP. For additional assistance with the DSIP application, please visit the Learning & Support section of the DSIP at <https://www.dodsbirstr.mil/submissions/learning-support/>. Email DSIP Support at DoDSBIRSupport@reisystems.com only for further assistance with issues pertaining directly to the DSIP application. Questions submitted to DSIP Support will be addressed in the order received during normal operating hours (Monday through Friday, 9:00 a.m. to 5:00 p.m. ET). **See section 4.15 for further information on where to direct questions regarding instructions and topics in this BAA.**

TABLE OF CONTENTS

1.0 INTRODUCTION.....	4
2.0 PROGRAM DESCRIPTION.....	4
2.1 Objectives	4
2.2 Due Diligence Program to Assess Security Risks.....	4
2.3 OUSD(R&E) Critical Technology Areas.....	5
2.4 Three Phase Program	6
2.5 Program on Innovation Open Topics	7
3.0 DEFINITIONS	7
4.0 PROPOSAL FUNDAMENTALS	15
4.1 Introduction.....	15
4.2 Proposing Small Business Concern Eligibility and Performance Requirements	15
4.3 Disclosures Regarding Ties to People's Republic to China and Other Foreign Countries.....	16
4.4 Joint Ventures	17
4.5 Majority Ownership in Part.....	17
4.6 Conflicts of Interest.....	18
4.7 Organizational Conflicts of Interest	18
4.8 Classified Proposals	19
4.9 Research Involving Human Subjects	19
4.10 Research Involving Animal Subjects	20
4.11 Research Involving Recombinant DNA Molecules	20
4.12 Debriefing/Technical Evaluation Narrative	20
4.13 Pre-Award and Post Award BAA Protests.....	20
4.14 Phase I Award Information	21
4.15 Questions about this BAA and BAA Topics.....	21
4.16 Registrations and Certifications	23
4.17 Promotional Materials.....	24
4.18 Prior, Current, or Pending Support of Similar Proposals or Awards	24
4.19 Fraud and Fraud Reporting	24
4.20 State and Other Assistance Available	25
4.21 Discretionary Technical and Business Assistance (TABAs).....	25
5.0 PHASE I PROPOSAL	25
5.1 Introduction.....	25
5.2 Marking Proprietary Proposal Information.....	277
5.3 Phase I Proposal Instructions	27
6.0 PHASE I EVALUATION CRITERIA.....	35
7.0 PHASE II PROPOSAL INFORMATION.....	35
7.1 Introduction.....	35
7.2 Proposal Provisions.....	36
7.3 Commercialization Strategy.....	366
7.4 Phase II Evaluation Criteria	377
7.5 Phase II Award Information.....	37
7.6 Adequate Accounting System	37
7.7 Phase II Enhancement Policy.....	37
7.8 Commercialization Readiness Program (CRP).....	37

8.0 CONTRACTUAL REQUIREMENTS	388
8.1 Additional Contract Requirements.....	38
8.2 Agency Recovery Authority and Ongoing Reporting.....	40
8.3 Basic Safeguarding of Covered Contractor Information Systems	42
8.4 Prohibition on Contracting with Persons that have Business Operations with the Maduro Regime .	42
8.5 Copyrights.....	42
8.6 Patents	42
8.7 Invention Reporting	43
8.8 Technical Data Rights	43
8.9 Final Technical Reports - Phase I through Phase III.....	43

ATTACHMENTS

Contractor Certification Regarding Provision of Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment	45
Disclosures of Foreign Affiliations or Relationships to Foreign Countries.....	50
Verification of Eligibility of Small Business Joint Ventures	55
Disclosure of Funding Sources	60
Department of Air Force (Air Force)	63
Defense Health Agency (DHA)	79
Defense Microelectronics Activity (DMEA)	92
Missile Defense Agency (MDA)	100
Office of the Secretary of Defense– National Geospatial-Intelligence Agency (OSD – NGA)	113

1.0 INTRODUCTION

Air Force, DHA, DMEA, MDA, and OSD – NGA, hereafter referred to as DoD Components, invite proposing small business concerns and research institutions to jointly submit proposals under this BAA for the Small Business Technology Transfer (STTR) Program. Proposing Small Business Concerns with the capability to conduct research and development (R&D) in any of the defense-related topic areas described in this BAA and to commercialize the results of that R&D are encouraged to participate.

The STTR Program, although modeled substantially after the Small Business Innovation Research (SBIR) Program, is a separate program and is separately financed. Subject to availability of funds, DoD Components will support high quality cooperative research and development proposals of innovative concepts to solve the listed defense-related scientific or engineering problems, especially those concepts that also have high potential for commercialization in the private sector. Partnerships between small businesses and Historically Black Colleges and Universities (HBCUs) or Minority Institutions (MIs) are encouraged, although no special preference will be given to STTR proposals from such proposers.

This BAA is for Phase I proposals only. A separate BAA will not be issued requesting Phase II proposals, and unsolicited proposals will not be accepted. All proposing small business concerns that receive a Phase I award originating from this BAA will be eligible to participate in Phase II competitions and potential Phase III awards. DoD Components will notify Phase I awardees of the Phase II proposal submission requirements. Submission of Phase II proposals will be in accordance with instructions provided by individual Components. The details on the due date, content, and submission requirements of the Phase II proposal will be provided by the awarding DoD Component either in the Phase I award or by subsequent notification. If a proposing small business concern submits their Phase II proposal prior to the dates provided by the individual Components, it may be rejected without evaluation.

DoD is not obligated to make any awards under Phase I, Phase II, or Phase III, and all awards are subject to the availability of funds. DoD is not responsible for any monies expended by the proposing small business concern before the issuance of any award.

2.0 PROGRAM DESCRIPTION

2.1 Objectives

The objectives of the DoD STTR Program include stimulating technological innovation, strengthening the role of small business in meeting DoD research and development needs, fostering and encouraging participation by minority and disadvantaged persons in technological innovation, and increasing the commercial application of DoD-supported research or research and development results.

2.2 Due Diligence Program to Assess Security Risks

The SBIR and STTR Extension Act of 2022 (Pub. L. 117-183) requires the Department of Defense, in coordination with the Small Business Administration, to establish and implement a due diligence program to assess security risks presented by small business concerns seeking a Federally funded award. The full text of the SBIR and STTR Extension Act of 2022 is available at <https://www.congress.gov/117/plaws/publ183/PLAW-117publ183.pdf>.

As previously stated, the DoD SBIR/STTR Programs follow the policies and practices of the Small Business Administration (SBA) [SBIR/STTR Policy Directive](#). The Policy Directive was revised effective May 3, 2023, to incorporate requirements of the SBIR and STTR Extension Act of 2022. This revision is incorporated into this BAA, including the utilization of the Appendix III, Disclosure Questions, as

Attachment 2 “Disclosures of Foreign Affiliations or Relationships to Foreign Countries”. **Proposals that do not include the completed Attachment 2 in Volume 5 of the proposal submission will be deemed noncompliant and will not receive an evaluation.**

In accordance with Section 4 of the SBIR and STTR Extension Act of 2022, the Department of Defense will review all proposals submitted in response to this BAA to assess security risks presented by small business concerns seeking a Federally funded award. The Department will use information provided by the small business concern in response to the Disclosures of Foreign Affiliations or Relationships to Foreign Countries (Attachment 2) and the proposal 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 small business concern and employees of the small business concern to a foreign country, foreign person, or foreign entity. The Department will also assess proposals utilizing open-source analysis and analytical tools, for the nondisclosures of the information set forth in 15 U.S.C. 638(g)(13).

DoD has partnered with Project Spectrum to provide an online course on Understanding Foreign Ownership, Control, or Influence (FOCI). This course defines FOCI, explains what it means to be under FOCI, and details FOCI's effect on a company seeking initial or continued eligibility for access to a federally funded award. Small business concerns can register and access this course by following the instructions below:

1. Go to projectspectrum.io
2. Click “Profile/Dashboard” in the top right and then click “Sign Up” from the dropdown menu.
3. Follow the instructions to sign up for an account. Descriptions of the account types are provided below each option.
4. Verify your email by entering the code sent to the email address you provided when signing up.
5. Log in to Project Spectrum by clicking “Profile/Dashboard > Login” in the top right.
6. Find the Training Course on “Understanding Foreign Ownership, Control, or Influence (FOCI)” by clicking “Courses > Training Courses”
7. Copy the provided password.
8. Click on the course and log in to Encite.io using your email address and the copied password.
9. Enroll in the course and click “Enter” to begin.

For assistance with registration or access to the Project Spectrum website, please contact support@projectspectrum.io.

2.3 OUSD(R&E) Critical Technology Areas

Although each DoD Component develops SBIR and STTR topics that are mission-oriented to their programs, topics generally align with the OUSD(R&E) Critical Technology Areas. While many technologies may cross between these categories, these areas represent the broad and different approaches that are required to advance technologies crucial to the Department. By focusing efforts and investments into these critical technology areas, the Department will accelerate transitioning key capabilities to the Military Services and Combatant Commands.

OUSDR(R&E) Critical Technology Areas:

- FutureG
- Trusted AI and Autonomy
- Biotechnology
- Advanced Computing and Software
- Integrated Sensing and Cyber
- Directed Energy (DE)
- Hypersonics
- Microelectronics
- Integrated Network Systems-of-Systems
- Quantum Science
- Space Technology
- Renewable Energy Generation and Storage
- Advanced Materials
- Human-Machine Interfaces

Below are additional technology areas supporting DoD Component-specific mission-critical areas:

- Advanced Infrastructure & Advanced Manufacturing
- Combat Casualty Care
- Emerging Threat Reduction
- Military Infectious Diseases
- Military Operational Medicine
- Mission Readiness & Disaster Preparedness
- Nuclear
- Sustainment & Logistics

Full descriptions of the above technology areas can be reviewed here:

https://media.defense.gov/2023/Mar/21/2003183351/-1/-1/1/1/1/OUSDR_E_SBIR_STTR_CRITICAL_TECH_AREAS.PDF.

2.4 Three Phase Program

The SBIR Program is a three-phase program. Phase I is to determine, to the extent possible, the scientific, technical, and commercial merit and feasibility of ideas submitted under the SBIR Program. Phase I awards are made in accordance with the SBA Policy Directive guidelines, current version. The period of performance is generally between six to twelve months with twelve months being the maximum period allowable. Proposals should concentrate on research or research and development which will significantly contribute to proving the scientific and technical feasibility, and commercialization potential of the proposed effort, the successful completion of which is a prerequisite for further DoD support in Phase II. Proposing small business concerns are encouraged to consider whether the research or research and development being proposed to DoD Components also has private sector potential, either for the proposed application or as a base for other applications.

Phase II awards will be made to proposing small business concerns based on results of their Phase I effort and/or the scientific merit, technical merit, and commercialization potential of the Phase II proposal. Phase II awards are made in accordance with the SBA Policy Directive guidelines, current version. The period of performance is generally 24 months. Phase II is the principal research or research and development effort and is expected to produce a well-defined deliverable prototype. A Phase II contractor may receive up to one additional, sequential Phase II award for continued work on the project.

Under Phase III, the Proposer is required to obtain funding from either the private sector, a non-SBIR Government source, or both, to develop the prototype into a viable product or non-R&D service for sale in military or private sector markets. SBIR Phase III refers to work that derives from, extends, or completes an effort made under prior SBIR funding agreements, but is funded by sources other than the SBIR Program. Phase III work is typically oriented towards commercialization of SBIR research or technology.

2.5 Program on Innovation Open Topics

Section 7 of the SBIR and STTR Extension Act of 2022 requires the Department of Defense to establish innovation open topic activities in order to—

- (A) increase the transition of commercial technology to the Department of Defense;
- (B) expand the small business nontraditional industrial base;
- (C) increase commercialization derived from investments of the Department of Defense; and
- (D) expand the ability for qualifying small business concerns to propose technology solutions to meet the needs of the Department of Defense.

Unlike conventional topics, which specify the desired technical objective and output, open topics can use generalized mission requirements or specific technology areas to adapt commercial products or solutions to close capability gaps, improve performance, or provide technological advancements in existing capabilities.

A small business concern may only submit one (1) proposal to each open topic. If more than one proposal from a small business concern is received for a single open topic, only the most recent proposal to be certified and submitted prior to the submission deadline will receive an evaluation. All prior proposals submitted by the small business concern for the same open topic will be marked as nonresponsive and will not receive an evaluation.

Open topics released under this BAA will be clearly identified as such in the title and objective of the topic. Proposal preparation instructions for open topics may vary significantly across DoD Components. Proposing small business concerns are advised to carefully read and follow all instructions from the DoD Component for the open topic of interest. Unless specifically noted in the Component instructions, all requirements outlined in this BAA remain in effect for open topics.

3.0 DEFINITIONS

The following definitions from the SBA SBIR/STTR Policy Directive, the Federal Acquisition Regulation (FAR), and other cited regulations apply for the purposes of this BAA:

Commercialization

The process of developing products, processes, technologies, or services and the production and delivery (whether by the originating party or others) of the products, processes, technologies, or services for sale to or use by the Federal government or commercial markets.

Cooperative Research and Development

Research and development conducted jointly by a small business concern and a research institution. For purposes of the STTR Program, 40% of the work is performed by the small business concern, and not less than 30% of the work is performed by the single research institution. For purposes of the SBIR Program, this refers to work conducted by a research institution as a subcontractor to the small business concern. At least two-thirds of the research and/or analytical work in Phase I must be conducted by the proposing small business concern.

Covered Individual

An individual who contributes in a substantive, meaningful way to the scientific development or execution of a research and development (R&D) project proposed to be carried out with a Federally funded award from DoD. DoD has further designated covered individuals as including all proposed key personnel.

Essentially Equivalent Work

Work that is substantially the same research, which is proposed for funding in more than one contract proposal or grant application submitted to the same Federal agency or submitted to two or more different Federal agencies for review and funding consideration; or work where a specific research objective and the research design for accomplishing the objective are the same or closely related to another proposal or award, regardless of the funding source.

Export Control

The International Traffic in Arms Regulations (ITAR), 22 CFR Parts 120 through 130, and the Export Administration Regulations (EAR), 15 CFR Parts 730 through 799, will apply to all projects with military or dual-use applications that develop beyond fundamental research, which is basic and applied research ordinarily published and shared broadly within the scientific community. More information is available at https://www.pmdrtc.state.gov/ddtc_public.

NOTE: Export control compliance statements found in the individual Component-specific proposal instructions are not meant to be all inclusive. They do not remove any liability from the submitter to comply with applicable ITAR or EAR export control restrictions or from informing the Government of any potential export restriction as fundamental research and development efforts proceed.

Federal Laboratory

As defined in 15 U.S.C. §3703, means any laboratory, any federally funded research and development center (FFRDC), or any center established under 15 U.S.C. §§ 3705 & 3707 that is owned, leased, or otherwise used by a Federal agency and funded by the Federal Government, whether operated by the Government or by a contractor.

Federally Funded Award

A Phase I, Phase II (including Direct to Phase II, sequential Phase II/subsequent Phase II and cross-agency Phase II), or Phase III SBIR or STTR award made using a funding agreement.

Foreign Affiliation

As defined in 15 U.S.C. § 638(e)(16), foreign affiliation means a funded or unfunded academic, professional, or institutional appointment or position with a foreign government or government-owned entity, whether full-time, part-time, or voluntary (including adjunct, visiting, or honorary). This includes appointments or positions deemed adjunct, visiting, or honorary with research institutions located in a foreign country of concern.

Foreign Country of Concern

As defined in 15 U.S.C. § 638(e)(17), foreign country of concern means the People's Republic of China, the Democratic People's Republic of Korea, the Russian Federation, the Islamic Republic of Iran, or any other country determined to be a country of concern by the DoD or the Secretary of State.

Foreign Entity

Foreign entity means any branch, partnership, group or sub-group, association, estate, trust, corporation or division of a corporation, non-profit, academic institution, research center, or organization established, directed, or controlled by foreign owners, foreign investors, foreign management, or a foreign government.

Foreign Government

Foreign government means any government or governmental body, organization, or instrumentality, including government owned-corporations, other than the United States Government or United States state, territorial, tribal, or jurisdictional governments or governmental bodies. The term includes, but is not limited to, non-United States national and subnational governments, including their respective departments, agencies, and instrumentalities.

Foreign Nationals

Foreign Nationals (also known as Foreign Persons) as defined by 22 CFR 120.16 means any natural person who is not a lawful permanent resident as defined by 8 U.S.C. § 1101(a)(20) or who is not a protected individual as defined by 8 U.S.C. § 1324b(a)(3). It also means any foreign corporation, business association, partnership, trust, society or any other entity or group that is not incorporated or organized to do business in the United States, as well as international organizations, foreign governments and any agency or subdivision of foreign governments (e.g., diplomatic missions).

“Lawfully admitted for permanent residence” means the status of having been lawfully accorded the privilege of residing permanently in the United States as an immigrant in accordance with the immigration laws, such status not having changed.

"Protected individual" means an individual who (A) is a citizen or national of the United States, or (B) is an alien who is lawfully admitted for permanent residence, is granted the status of an alien lawfully admitted for temporary residence under 8 U.S.C. § 1160(a) or 8 U.S.C. § 1255a(a)(1), is admitted as a refugee under 8 U.S.C. § 1157, or is granted asylum under Section 8 U.S.C. § 1158; but does not include (i) an alien who fails to apply for naturalization within six months of the date the alien first becomes eligible (by virtue of period of lawful permanent residence) to apply for naturalization or, if later, within six months after November 6, 1986, and (ii) an alien who has applied on a timely basis, but has not been naturalized as a citizen within 2 years after the date of the application, unless the alien can establish that the alien is actively pursuing naturalization, except that time consumed in the Service's processing the application shall not be counted toward the 2-year period.

Fraud, Waste and Abuse

- a. **Fraud** includes 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.

- b. **Waste** includes extravagant, careless or needless expenditure of Government funds, or the consumption of Government property, that results from deficient practices, systems, controls, or decisions.
- c. **Abuse** includes any intentional or improper use of Government resources, such as misuse of rank, position, or authority or resources.
- d. The STTR Program training related to Fraud, Waste and Abuse is available at: <https://www.sbir.gov/tutorials/fraud-waste-abuse/tutorial-1>. See Section 4.17 for reporting Fraud, Waste and Abuse.

Funding Agreement

Any contract, grant, or cooperative agreement entered between any Federal Agency and any small business concern for the performance of experimental, developmental, or research work, including products or services, funded in whole or in part by the Federal Government. Only contracts and other transaction authority (OTA) agreements will be used by DoD Components for all STTR awards.

Historically Black Colleges and Universities and Minority Institutions (HBCU/MI)

Listings for the Historically Black Colleges and Universities (HBCU) and Minority Institutions (MI) are available through the Department of Education Web site, <http://www.ed.gov/about/offices/list/ocr/edlite-minorityinst.html>.

Certified HUBZone Small Business Concern

An SBC that has been certified by SBA under the Historically Underutilized Business Zones (HUBZone) Program (13 C.F.R. § 126) as a HUBZone firm listed in the Dynamic Small Business Search (DSBS).

Malign Foreign Talent Recruitment Program

As defined in 42 U.S.C § 19237, the term “malign foreign talent recruitment program” means-

- (A) any program, position, or activity that includes compensation in the form of cash, in-kind compensation, including research funding, promised future compensation, complimentary foreign travel, things of non de minimis value, honorific titles, career advancement opportunities, or other types of remuneration or consideration directly provided by a foreign country at any level (national, provincial, or local) or their designee, or an entity based in, funded by, or affiliated with a foreign country, whether or not directly sponsored by the foreign country, to the targeted individual, whether directly or indirectly stated in the arrangement, contract, or other documentation at issue, in exchange for the individual-
 - (i) engaging in the unauthorized transfer of intellectual property, materials, data products, or other nonpublic information owned by a United States entity or developed with a Federal research and development award to the government of a foreign country or an entity based in, funded by, or affiliated with a foreign country regardless of whether that government or entity provided support for the development of the intellectual property, materials, or data products;
 - (ii) being required to recruit trainees or researchers to enroll in such program, position, or activity;
 - (iii) establishing a laboratory or company, accepting a faculty position, or undertaking any other employment or appointment in a foreign country or with an entity based in, funded by, or affiliated with a foreign country if such activities are in violation of the standard terms and conditions of a Federal research and development award;
 - (iv) being unable to terminate the foreign talent recruitment program contract or agreement except in extraordinary circumstances;

- (v) through funding or effort related to the foreign talent recruitment program, being limited in the capacity to carry out a research and development award or required to engage in work that would result in substantial overlap or duplication with a Federal research and development award;
- (vi) being required to apply for and successfully receive funding from the sponsoring foreign government's funding agencies with the sponsoring foreign organization as the recipient;
- (vii) being required to omit acknowledgment of the recipient institution with which the individual is affiliated, or the Federal research agency sponsoring the research and development award, contrary to the institutional policies or standard terms and conditions of the Federal research and development award;
- (viii) being required to not disclose to the Federal research agency or employing institution the participation of such individual in such program, position, or activity; or
- (ix) having a conflict of interest or conflict of commitment contrary to the standard terms and conditions of the Federal research and development award; and

(B) a program that is sponsored by-

- (i) a foreign country of concern or an entity based in a foreign country of concern, whether or not directly sponsored by the foreign country of concern;
- (ii) an academic institution on the list developed under section 1286(c)(8) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (10 U.S.C. 2358 note; 1 Public Law 115-232) ; or
- (iii) a foreign talent recruitment program on the list developed under section 1286(c)(9) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (10 U.S.C. 2358 note; 1 Public Law 115-232).

Performance Benchmark Requirements

Companies with multiple SBIR/STTR awards must meet minimum performance requirements to be eligible to apply for a new Phase I or Direct-to-Phase II award. The purpose of these requirements is to ensure that Phase I applicants that have won multiple prior SBIR/STTR awards are making progress towards commercializing the work done under those awards. The Phase I to Phase II transition rate addresses the extent to which an awardee progresses a project from Phase I to Phase II. The commercialization benchmark addresses the extent to which an awardee has moved past Phase II work towards commercialization.

The SBIR and STTR Extension Act of 2022 (Pub. L. 117-183) amended the application of these benchmarks for more experienced firms. Detailed information on benchmark calculations and increased performance standards for more experienced firms can be found at <https://www.sbir.gov/performance-benchmarks>.

Personal Conflict of Interest

A situation in which an individual has a financial interest, personal activity, or relationship that could impair the employee's ability to act impartially and in the best interest of the Government when performing under the contract. (A de minimis interest that would not "impair the employee's ability to act impartially and in the best interest of the Government" is not covered under this definition.)

Among the sources of personal conflicts of interest are-

- (i) Financial interests of the covered employee, of close family members, or of other members of the covered employee's household;

- (ii) Other employment or financial relationships (including seeking or negotiating for prospective employment or business); and
- (iii) Gifts, including travel.

Financial interests referred to in paragraph (1) of this definition may arise from-

- (i) Compensation, including wages, salaries, commissions, professional fees, or fees for business referrals;
- (ii) Consulting relationships (including commercial and professional consulting and service arrangements, scientific and technical advisory board memberships, or serving as an expert witness in litigation);
- (iii) Services provided in exchange for honorariums or travel expense reimbursements;
- (iv) Research funding or other forms of research support;
- (v) Investment in the form of stock or bond ownership or partnership interest (excluding diversified mutual fund investments);
- (vi) Real estate investments;
- (vii) Patents, copyrights, and other intellectual property interests; or
- (viii) Business ownership and investment interests.

Principal Investigator

The principal investigator/project manager is the one individual designated by the applicant to provide the scientific and technical direction to a project supported by the funding agreement.

For both Phase I and Phase II, the primary employment of the principal investigator must be with the proposing small business firm or research institution at the time of award and during the conduct of the proposed project. Primary employment means that more than one-half of the principal investigator's time is spent in the employ of the small business concern or research institution. This precludes full-time employment with another organization. Occasionally, deviations from this requirement may occur, and must be approved in writing by the contracting officer after consultation with the agency SBIR/STTR Program Manager/Coordinator. Further, a proposing small business concern or research institution may replace the principal investigator on an SBIR/STTR Phase I or Phase II award, subject to approval in writing by the contracting officer.

Proprietary Information

Proprietary information is any information that a small business concern considers to be non-public information that is owned by the small business concern and is marked accordingly.

Research Institution

Any organization located in the United States that is:

- a. A university.
- b. A nonprofit institution as defined in Section 4(5) of the Stevenson-Wydler Technology Innovation Act of 1980.
- c. A contractor-operated federally funded research and development center, as identified by the National Science Foundation in accordance with the government-wide Federal Acquisition Regulation issued in accordance with Section 35(c)(1) of the Office of Federal Procurement Policy Act. A list of eligible FFRDCs is available at: <https://www.nsf.gov/statistics/ffrdclist/>.

Research or Research and Development

Any activity that is:

- a. A systematic, intensive study directed toward greater knowledge or understanding of the subject studied.
- b. A systematic study directed specifically toward applying new knowledge to meet a recognized need; or
- c. A systematic application of knowledge toward the production of useful materials, devices, and systems or methods, including design, development, and improvement of prototypes and new processes to meet specific requirements.

Research Involving Animal Subjects

All activities involving animal subjects shall be conducted in accordance with DoDI 3216.01 “Use of Animals in DoD Programs,” 9 C.F.R. parts 1-4 “Animal Welfare Regulations,” National Academy of Sciences Publication “Guide for the Care & Use of Laboratory Animals,” as amended, and the Department of Agriculture rules implementing the Animal Welfare Act (7 U.S.C. §§ 2131-2159), as well as other applicable federal and state law and regulation and DoD instructions.

“Animal use” protocols apply to all activities that meet any of the following criteria:

- a. Any research, development, test, evaluation or training, (including experimentation) involving an animal or animals.
- b. An animal is defined as any living or dead, vertebrate organism (non-human) that is being used or is intended for use in research, development, test, evaluation or training.
- c. A vertebrate is a member of the subphylum Vertebrata (within the phylum Chordata), including birds and cold-blooded animals.

See DoDI 3216.01 for definitions of these terms and more information about the applicability of DoDI 3216.01 to work involving animals.

Research Involving Human Subjects

All research involving human subjects shall be conducted in accordance with 32 C.F.R. § 219 “The Common Rule,” 10 U.S.C. § 980 “Limitation on Use of Humans as Experimental Subjects,” and DoDI 3216.02 “Protection of Human Subjects and Adherence to Ethical Standards in DoD-Supported Research,” as well as other applicable federal and state law and regulations, and DoD component guidance. Proposing small business concerns must be cognizant of and abide by the additional restrictions and limitations imposed on the DoD regarding research involving human subjects, specifically as they regard vulnerable populations (DoDI 3216.02), recruitment of military research subjects (DoDI 3216.02), and informed consent and surrogate consent (10 U.S.C. § 980) and chemical and biological agent research (DoDI 3216.02). Food and Drug Administration regulation and policies may also apply.

“Human use” protocols apply to all research that meets any of the following criteria:

- a. Any research involving an intervention or an interaction with a living person that would not be occurring or would be occurring in some other fashion but for this research.
- b. Any research involving identifiable private information. This may include data/information/specimens collected originally from living individuals (broadcast video, web-use logs, tissue, blood, medical or personnel records, health data repositories, etc.) in which the identity of the subject is known, or the identity may be readily ascertained by the investigator or associated with the data/information/specimens.

See DoDI 3216.02 for definitions of these terms and more information about the applicability of DoDI 3216.02 to research involving human subjects.

Research Involving Recombinant DNA Molecules

Any recipient performing research involving recombinant DNA molecules and/or organisms and viruses containing recombinant DNA molecules shall comply with the National Institutes of Health Guidelines for Research Involving Recombinant DNA Molecules, dated January 2011, as amended. The guidelines can be found at: https://osp.od.nih.gov/wp-content/uploads/2016/05/NIH_Guidelines.pdf. Recombinant DNA is defined as (i) molecules that are constructed outside living cells by joining natural or synthetic DNA segments to DNA molecules that can replicate in living cells or (ii) molecules that result from the replication of those described in (i) above.

Service-Disabled Veteran-Owned Small Business (SDVOSB)

A small business concern owned and controlled by a Service-Disabled Veteran or Service-Disabled Veterans, as defined in Small Business Act 15 USC § 632(q)(2) and SBA's implementing SDVOSB regulations (13 CFR 125).

Small Business Concern (SBC)

A concern that meets the requirements set forth in 13 C.F.R. § 121.702 (available [here](#)).

An SBC must satisfy the following conditions on the date of award:

- a. Is organized for profit, with a place of business located in the United States, which operates primarily within the United States or which makes a significant contribution to the United States economy through payment of taxes or use of American products, materials or labor;
- b. Is in the legal form of an individual proprietorship, partnership, limited liability company, corporation, joint venture, association, trust or cooperative, except that if the concern is a joint venture, each entity to the venture must meet the requirements set forth in paragraph (c) below;
- c. Is more than 50% directly owned and controlled by one or more individuals (who are citizens or permanent resident aliens of the United States), other small business concerns (each of which is more than 50% directly owned and controlled by individuals who are citizens or permanent resident aliens of the United States), or any combination of these; and
- d. Has, including its affiliates, not more than 500 employees. (For explanation of affiliate, see www.sba.gov/size.)

Subcontract

A subcontract is any agreement, other than one involving an employer-employee relationship, entered into by an awardee of a funding agreement calling for supplies or services for the performance of the original funding agreement. This includes consultants.

Subcontractor

Subcontractor means any supplier, distributor, vendor, firm, academic institution, research center, or other person or entity that furnishes supplies or services pursuant to a subcontract, at any tier.

United States

"United States" means the fifty states, the territories and possessions of the Federal Government, the Commonwealth of Puerto Rico, the Republic of the Marshall Islands, the Federated States of Micronesia, the Republic of Palau, and the District of Columbia.

Women-Owned Small Business Concern

An SBC that is at least 51% owned by one or more women, or in the case of any publicly owned business, at least 51% of the stock is owned by women, and women control the management and daily business operations.

4.0 PROPOSAL FUNDAMENTALS

4.1 Introduction

The proposal must provide sufficient information to demonstrate to the evaluator(s) that the proposed work represents an innovative approach to the investigation of an important scientific or engineering problem and is worthy of support under the stated criteria. The proposed research or research and development must be responsive to the chosen topic, although it need not use the exact approach specified in the topic. Anyone contemplating a proposal for work on any specific topic should determine:

- a. The technical approach has a reasonable chance of meeting the topic objective,
- b. This approach is innovative, not routine, with potential for commercialization and
- c. The proposing small business concern has the capability to implement the technical approach, i.e., has or can obtain people and equipment suitable to the task.

4.2 Proposing Small Business Concern Eligibility and Performance Requirements

- a. Each proposing small business concern must qualify as a small business concern as defined by 13 CFR §§ 701-705 at time of award and certify to this in the Cover Sheet section of the proposal. The eligibility requirements for the SBIR/STTR programs are unique and do not correspond to those of other small business programs (see Section 3 of this BAA). Proposing small business concern must meet eligibility requirements for Small Business Ownership and Control (see 13 CFR § 121.702 and Section 4.4 of this BAA).
- b. A minimum of 40% of each STTR project must be conducted by the small business concern and a minimum of 30% of the effort performed by the single research institution, as defined in Section 3. The percentage of work is measured by both direct and indirect costs. Deviations from these STTR requirements are not allowed, as the performance of work requirements are specified in statute at 15 USC 638(e). For more information on the percentage of work calculation during proposal submission, refer to section 5.3.
- c. For both Phase I and II, the primary employment of the principal investigator must be with the small business firm or the research institution at the time of award and during the conduct of the proposed effort. At the time of award of a Phase I or Phase II contract, the small business concern must have at least one employee in a management position whose primary employment is with the small business and who is not also employed by the research institution. Primary employment means that more than one half of the principal investigator's time is spent with the small business. Primary employment with a small business concern precludes full-time employment at another organization.
- d. For both Phase I and Phase II, all research or research and development work must be performed by the small business concern and its subcontractors in the United States.

- e. **Benchmarks.** Proposing small business concern with prior SBIR/STTR awards must meet two performance benchmark requirements as determined by the Small Business Administration (SBA) on June 1 each year.
 - (1) Phase I to Phase II Transition Rate: For all proposing small business concerns with greater than 20 Phase I awards over the past five fiscal years excluding the most recent year, the ratio of Phase II awards to Phase I awards must be at least 0.25.
 - (2) Commercialization Benchmark: For all proposing small business concerns with greater than 15 Phase II awards over the last 10 fiscal years excluding the last two years, the proposing small business concern must have received, to date, an average of at least \$100,000 of sales and/or investments per Phase II award received or have received a number of patents resulting from the SBIR work equal to or greater than 15% of the number of Phase II awards received during the period.

The SBIR and STTR Extension Act of 2022 (Pub. L. 117-183) amended the application of these benchmarks for more experienced firms. Detailed information on benchmark calculations, increased performance standards for more experienced firms and consequence of failure to meet benchmarks can be found at <https://www.sbir.gov/performance-benchmarks>.

As defined by the SBIR/STTR Policy Directive, Department of the Army, Department of the Navy, and Department of the Air Force each constitute its own Federal agency, and the remaining DoD Components fall under the executive agency of the Department of Defense. Companies that fail to meet either of the benchmarks under the Increased Performance Standards for more Experienced Firms may not receive more than an overall total of 80 awards from DoD, as detailed in the breakdown below:

- Army – 20 total Phase I and Direct to Phase II awards
- Navy – 20 total Phase I and Direct to Phase II awards
- Air Force – 20 total Phase I and Direct to Phase II awards
- All other DoD Components - 20 Phase I and Direct to Phase II awards, combined

- f. A small business concern must negotiate a written agreement between the small business and the research institution allocating intellectual property rights and rights to carry out follow-on research, development, or commercialization (see [Model Agreement for the Allocation of Rights](#)).

4.3 Disclosures Regarding Ties to People’s Republic of China and Other Foreign Countries

Each proposing small business concern is required to complete Attachment 2 of this BAA, “Disclosures of Foreign Affiliations or Relationships to Foreign Countries” and upload the form to Volume 5, Supporting Documents. **Proposals that do not include the completed Attachment 2 in Volume 5 of the proposal submission will be deemed noncompliant and will not receive an evaluation.** The disclosure requires 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 above listed disclosures of the proposing small business concern, and if determined appropriate by the DoD, the Department may ask the small business concern may 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 submission of the proposal with respect to which the small business concern made the disclosures.

4.4 Joint Ventures

Joint ventures and limited partnerships are permitted, provided that the entity created qualifies as a small business in accordance with the Small Business Act, 13 U.S.C. § 121.701. Proposing small business concern must disclose joint ventures with existing (or planned) relationships/partnerships with any foreign entity or any foreign government-controlled companies.

A small business joint venture entity must submit, with its proposal, the representation required in paragraph (c) of FAR solicitation provision 52.212-3, Offeror Representations and Certifications-Commercial Products and Commercial Services, and paragraph (c) of FAR solicitation provision 52.219-1, Small Business Program Representations, in accordance with 52.204-8(d) and 52.212-3(b) for the following categories:

- (A) Small business;
- (B) Service-disabled veteran-owned small business;
- (C) Women-owned small business (WOSB) under the WOSB Program;
- (D) Economically disadvantaged women-owned small business under the WOSB Program; or
- (E) Historically underutilized business zone small business.

These representations can be found as Attachment 3 to this BAA and must be uploaded to Volume 5, Supporting Documents of the proposal submission, if applicable.

4.5 Majority Ownership in Part by Multiple Venture Capital, Hedge Fund, and Private Equity Firms

Unless otherwise noted in the participating Component instructions, proposing small business concerns that are owned in majority part by multiple venture capital operating companies (VCOs), hedge funds, or private equity funds are ineligible to submit applications or receive awards for opportunities in this BAA. Component instructions will specify if participation by a small business majority owned in part by

VCOCs, hedge funds, or private equity funds is allowable for a specific topic in the BAA. If a Component authorizes such participation, any proposing small business concern that is owned, in whole in or in part, by any VCOc, hedge fund, and/or private equity fund must identify each foreign national, foreign entity, or foreign government holding or controlling greater than a 5% equity stake in the proposing small business concern, whether such equity stake is directly or indirectly held. The proposing small business concern must also identify any and all of its ultimate parent owner(s) and any other entities and/or individuals owning more than a 5% equity stake in its chain of ownership.

4.6 Conflicts of Interest

Contract awards to proposing small business concern owned by or employing current or previous Federal Government employees could create conflicts of interest for those employees, which may be a violation of federal law.

4.7 Organizational Conflicts of Interest (OCI)

FAR 9.5 Requirements

In accordance with FAR 9.5, proposing small business concerns are required to identify and disclose all facts relevant to potential OCIs involving the proposing small business concern's organization and any proposed team member (sub-awardee, consultant). Under this Section, the proposing small business concern is responsible for providing this disclosure with each proposal submitted to the BAA. The disclosure must include the proposing small business concern's, and as applicable, proposed team member's OCI mitigation plan. The OCI mitigation plan must include a description of the actions the proposing small business concern has taken, or intends to take, to prevent the existence of conflicting roles that might bias the proposing small business concern's judgment and to prevent the proposing small business concern from having unfair competitive advantage. The OCI mitigation plan will specifically discuss the disclosed OCI in the context of each of the OCI limitations outlined in FAR 9.505-1 through FAR 9.505-4.

Agency Supplemental OCI Policy

In addition, DoD Components may have a supplemental OCI policy that prohibits contractors/performers from concurrently providing Scientific Engineering Technical Assistance (SETA), Advisory and Assistance Services (A&AS) or similar support services and being a technical performer. As part of the FAR 9.5 disclosure requirement above, a proposing small business concern must affirm whether the proposing small business concern or any proposed team member (sub-awardee, consultant) is providing SETA, A&AS, or similar support to any DoD Component office(s) under: (a) a current award or sub-award; or (b) a past award or sub-award that ended within one calendar year prior to the proposal's submission date.

If SETA, A&AS, or similar support is being or was provided to any DoD Component office(s), the proposal must include:

- The name of the DoD Component office receiving the support;
- The prime contract number;
- Identification of proposed team member (sub-awardee, consultant) providing the support; and
- An OCI mitigation plan in accordance with FAR 9.5.

Government Procedures

In accordance with FAR 9.503, 9.504 and 9.506, the Government will evaluate OCI mitigation plans to avoid, neutralize or mitigate potential OCI issues before award and to determine whether it is in the

Government's interest to grant a waiver. The Government will only evaluate OCI mitigation plans for proposals that are determined selectable under the BAA evaluation criteria and funding availability.

The Government may require proposing small business concerns to provide additional information to assist the Government in evaluating the proposing small business concern's OCI mitigation plan.

If the Government determines that a proposer failed to fully disclose an OCI; or failed to provide the affirmation of Government support as described above; or failed to reasonably provide additional information requested by the Government to assist in evaluating the proposer's OCI mitigation plan, the Government may reject the proposal and withdraw it from consideration for award.

4.8 Classified Proposals

Classified proposals will not be accepted under the DoD STTR Program. If topics will require classified work during Phase II, the proposing small business concern must have a facility clearance in order to perform the Phase II work. For more information on facility and personnel clearance procedures and requirements, please visit the Defense Counterintelligence and Security Agency (DCSA) website at: <https://www.dcsa.mil/mc/ctp/fc/>.

4.9 Research Involving Human Subjects

All research involving human subjects, to include use of human biological specimens and human data, shall comply with the applicable federal and state laws and agency policy/guidelines for human subject protection (see Section 3).

Institutions to be awarded funding for research involving human subjects must provide documentation of a current Federal Assurance of Compliance with Federal regulations for human subject protection, for example a Department of Health and Human Services, Office for Human Research Protections Federal-wide Assurance (<http://www.hhs.gov/ohrp>). Additional Federal Assurance documentation may also be requested by the awarding DoD Component. All institutions engaged in human subject research, to include subcontractors, must also have a valid Assurance. In addition, personnel involved in human subjects research must provide documentation of completing appropriate training for the protection of human subjects. Institutions proposing to conduct human subject research that meets one of the exemption criteria in 32 CFR 219.101 are not required to have a Federal Assurance of Compliance. proposing small business concerns should clearly segregate research activities involving human subjects from other research and development activities in their proposal.

If selected, institutions must also provide documentation of Institutional Review Board (IRB) approval or a determination from an appropriate official in the institution that the work meets one of the exemption criteria with 32 CFR 219. As part of the IRB review process, evidence of appropriate training for all investigators should accompany the protocol. The protocol, separate from the proposal, must include a detailed description of the research plan, study population, risks and benefits of study participation, recruitment and consent process, data collection and data analysis.

The amount of time required for the IRB to review and approve the protocol will vary depending on such things as the IRB's procedures, the complexity of the research, the level of risk to study participants and the responsiveness of the Investigator. The average IRB approval process can last between one and three months. Once the IRB has approved the research, the awarding DoD Component will review the protocol and the IRB's determination to ensure that the research will be conducted in compliance with DoD and DoD Component policies. The DoD review process can last between three to six months. Ample time should be allotted to complete both the IRB and DoD approval processes prior to recruiting subjects.

No funding can be used towards human subject research until ALL approvals are granted. Submitters proposing research involving human and/or animal use are encouraged to separate these tasks in the technical proposal and cost proposal in order to avoid potential delay of contract award.

4.10 Research Involving Animal Subjects

All research, development, testing, experimentation, education or training involving the use of animals shall comply with the applicable federal and agency rules on animal acquisition, transport, care, handling, and use (see Section 3).

For submissions containing animal use, proposals should briefly describe plans for their Institutional Animal Care and Use Committee (IACUC) review and approval.

All Recipients must receive their IACUC's approval as well as secondary or headquarters-level approval by a DoD veterinarian who is trained or experienced in laboratory animal medicine and science. **No animal research may be conducted using DoD funding until all the appropriate DoD office(s) grant approval. Submitters proposing research involving human and/or animal use are encouraged to separate these tasks in the technical proposal and cost proposal in order to avoid potential delay of contract award.**

4.11 Research Involving Recombinant DNA Molecules

All research involving recombinant DNA molecules shall comply with the applicable federal and state law, regulation and any additional agency guidance. Research shall be approved by an Institutional Biosafety Committee.

4.12 Debriefing/Technical Evaluation Narrative

After final award decisions have been announced, the technical evaluations of the submitter's proposal may be provided to the submitter. Please refer to the Component-specific instructions of your topics of interest for Component debriefing processes.

4.13 Pre-Award and Post Award BAA Protests

Interested parties have the right to protest in accordance with the procedures in FAR Subpart 33.1.

Pre-award agency protests related to the terms of this BAA must be served to:

Ms. Tara Randolph
Contracting Officer

tara.j.randolph.civ@us.navy.mil & osd.ncr.ousd-r-e.mbx.SBIR-STTR-Protest@mail.mil

For the purposes of a protest related to a selection or award decision, protests should be served to the point-of-contact (POC) listed in the instructions of the DoD Component that authored the topic.

For protests filed with the Government Accountability Office (GAO), a copy of the protest shall be submitted to the Contracting Officer listed above (pre-award ONLY) or DoD Component POC (selection/award decision ONLY) within one day of filing with the GAO. Protests of small business status of a selected proposing small business concern may also be made to the Small Business Administration.

4.14 Phase I Award Information

All Phase I proposals will be evaluated and judged on a competitive basis in terms of technical capability and technical value. Proposals will be initially screened to determine responsiveness to the topic objective. Proposals passing this initial screening will be technically evaluated by engineers or scientists to determine the most promising technical and scientific approaches. As a common statement of work does not exist, each proposal will be assessed on the merit of the approach in achieving the technical objectives established in the topic. DoD is under no obligation to fund any proposal or any specific number of proposals in each topic. It also may elect to fund several or none of the proposed approaches to the same topic.

- a. **Number of Phase I Awards.** The number of Phase I awards will be consistent with the Component's RDT&E budget. No Phase I contracts will be awarded until evaluation of all qualified proposals for a specific topic is completed.
- b. **Type of Funding Agreement.** Each Phase I proposal selected for negotiation and possible award will be funded under negotiated contracts or purchase orders and will include a reasonable fee or profit consistent with normal profit margins provided to profit-making proposing small business concerns for R/R&D work. Firm-Fixed-Price, Firm-Fixed-Price Level of Effort, Labor Hour, Time & Material, or Cost-Plus-Fixed-Fee type contracts can be negotiated and are at the discretion of the Component Contracting Officer.
- c. **Dollar Value.** The Phase I contract value varies among the DoD Components; it is important for proposing small business concerns to review Component-specific instructions regarding award size.
- d. **Timing.** Proposing small business concerns will be notified of selection or non-selection status for a Phase I award by the DoD Component that originated the topic within 90 days of the closing date for this BAA. Please refer to the Component-specific instructions for details.

The SBA SBIR/STTR Policy Directive, Section 7(c)(1)(ii), states that agencies should issue the Phase I award no more than 180 days after the closing date of the BAA. Across DoD, the median time between the date that the STTR BAA closes and the award of a Phase I contract is approximately four months.

4.15 Questions about this BAA and BAA Topics

a. General SBIR Questions/Information.

(1) DSIP Support:

Email DSIP Support at DoDSBIRSupport@reisystems.com only for assistance with using the DSIP application. Questions regarding DSIP can be emailed to DSIP Support and will be addressed in the order received, during normal operating hours (Monday through Friday, 9:00 a.m. to 5:00 p.m. ET). Please include information on your small business concern, a proposal number (if applicable), and screenshots of any pertinent errors or issues encountered.

DSIP Support cannot provide updates to proposal status after submission, such as proposal selection/non-selection status or contract award status. Contact the DoD Component that

originated the topic in accordance with the Component-specific instructions given at the beginning of that Component's topics.

(2) **Websites:**

The Defense SBIR/STTR Innovation Portal (DSIP) at

<https://www.dodsbirsttr.mil/submissions/login>, which provides the following resources:

- SBIR and STTR Program Opportunities
- Topics Search Engine
- Topic Q&A
- All Electronic Proposal Submission for Phase I and Phase II Proposals. Proposing small business concerns submitting through this site for the first time will be asked to register on <https://www.dodsbirsttr.mil/submissions>.

DoD SBIR/STTR website at <https://www.defensesbirsttr.mil/>, which provides the following resources:

- [Customer Support Information](#)
- SBIR and STTR Program Opportunities
- Dates for Current and Upcoming Opportunities
- Past SBIR and STTR Program Opportunities

(3) **SBIR/STTR Updates and Notices:**

To be notified of SBIR/STTR opportunities and to receive e-mail updates on the DoD SBIR and STTR Programs, subscribe to the Listserv by selecting “DSIP Listserv” under Quick Links on the DSIP login page.

- b. **General Questions about a DoD Component.** Questions pertaining to a particular DoD Component or the Component-specific BAA instructions should be submitted in accordance with the instructions given at the beginning of that Component's topics.
- c. **Direct Contact with Topic Authors.** From **August 23, 2023 – September 20, 2023**, this BAA is issued for pre-release with the names of the topic authors and their phone numbers and e-mail addresses. During the pre-release period, proposing small business concerns have an opportunity to contact topic authors by telephone or e-mail to ask technical questions about specific BAA topics. Questions should be limited to specific information related to improving the understanding of a particular topic’s requirements. Proposing small business concerns may not ask for advice or guidance on solution approach and you may not submit additional material to the topic author. If information provided during an exchange with the topic author is deemed necessary for proposal preparation, that information will be made available to all parties through Topic Q&A. After this period questions must be asked through Topic Q&A as described below.
- d. **Topic Q&A.** Once DoD begins accepting proposals on **September 20, 2023**, no further direct contact between proposing small business concerns and topic authors is allowed unless the Topic Author is responding to a question submitted during the pre-release period. Proposing small business concerns may submit written questions through Topic Q&A at <https://www.dodsbirsttr.mil/submissions/login>. In Topic Q&A, all questions and answers are posted electronically for general viewing. Identifying information for the questioner and respondent is not posted.

Questions submitted through the Topic Q&A are limited to technical information related to improving the understanding of a topic’s requirements. Any other questions, such as those asking for advice or guidance on solution approach, or administrative questions, such as SBIR or STTR program

eligibility, technical proposal/cost proposal structure and page count, budget and duration limitations, or proposal due date WILL NOT receive a response. Refer to the Component-specific instructions given at the beginning of that Component's topics for help with an administrative question.

Proposing small business concerns may use the Topic Search feature on DSIP to locate a topic of interest. Then, using the form at the bottom of the topic description, enter and submit the question. Answers are generally posted within seven (7) business days of question submission (answers will also be e-mailed directly to the inquirer).

The Topic Q&A for this BAA opens on **August 23, 2023**, and closes to new questions on **October 4, 2023, at 12:00 PM ET**. Once the BAA closes to proposal submission, no communication of any kind with the topic author or through Topic Q&A regarding your submitted proposal is allowed.

Proposing small business concerns are advised to monitor Topic Q&A during the BAA period for questions and answers. Proposing small business concerns should also frequently monitor DSIP for updates and amendments to the topics.

4.16 Registrations and Certifications

Individuals from proposing small business concerns must be registered in the Defense SBIR/STTR Innovation Portal (DSIP) in order to prepare and submit proposals. **The DSIP application is only accessible from within the United States, which is defined as the fifty states, the territories and possessions of the Federal Government, the Commonwealth of Puerto Rico, the Republic of the Marshall Islands, the Federated States of Micronesia, the Republic of Palau, and the District of Columbia.** All users are required to have an individual user account to access DSIP. As DSIP user accounts are authenticated by Login.gov, all users, who do not already have a Login.gov account, will be required to create one. If you already have a Login.gov account, you can link your existing Login.gov account with your DSIP account. Job Aids and Help Videos to walk you through the process are in the Learning & Support section of DSIP, can be accessed here:

<https://www.dodsbirsttr.mil/submissions/learning-support/training-materials>.

Be advised that the sharing of accounts and passwords is a violation of the Terms of Use for Login.gov and DoD policy.

Please note that the email address you use for Login.gov should match the email address associated with your existing DSIP account. If you do not recall the email address associated with your DSIP account, or if you already have an existing Login.gov account using a different email address, you will need your Firm's UEI or DUNS number and your Firm PIN in order to link your Login.gov account with your DSIP account. If the email address associated with your existing DSIP account has been used for multiple DSIP accounts within your Firm, you will also need your Firm's UEI or DUNS number and your Firm PIN in order to link your Login.gov account with your DSIP account. The Firm PIN can be obtained from your Firm Admin. You can view the Firm Admin's contact information by entering your Firm's UEI or DUNS number when prompted. If you are the Firm Admin, please ensure that you contact all DSIP users in your Firm and provide them with the Firm PIN.

Users should complete their account registrations as soon as possible to avoid any delays in proposal submissions.

The System for Award Management (SAM) allows proposing small business concerns interested in conducting business with the Federal Government to provide basic information on business structure and capabilities as well as financial and payment information. Proposing small business concerns must be

registered in SAM. To register, visit www.sam.gov. A proposing small business concern that is already registered in SAM should login to SAM and ensure its registration is active and its representations and certifications are up-to-date to avoid delay in award.

On April 4, 2022, the DUNS Number was replaced by the Unique Entity ID (SAM). The Federal Government will use the UEI (SAM) to identify organizations doing business with the Government. The DUNS number will no longer be a valid identifier. If the proposing small business concern has an entity registration in SAM.gov (even if the registration has expired), a UEI (SAM) has already been assigned. This can be found by signing into SAM.gov and selecting the Entity Management widget in the Workspace or by signing in and searching entity information. **For proposing small business concerns with established Defense SBIR/STTR Innovation Portal (DSIP) accounts, update the small business concern profile with the UEI (SAM) as soon as possible.**

For new proposing small business concern registrations, follow instructions during SAM registration on how to obtain a Commercial and Government Entry (CAGE) code and be assigned the UEI (SAM). Once a CAGE code and UEI (SAM) are obtained, update the proposing small business concern's profile on the DSIP at <https://www.dodsbirsttr.mil/submissions/>.

In addition to the standard federal and DoD procurement certifications, the SBA STTR Policy Directive requires the collection of certain information from proposing small business concerns at time of award and during the award life cycle. Each proposing small business concern must provide this additional information at the time of the Phase I and Phase II award, prior to final payment on the Phase I award, prior to receiving 50% of the total award amount for a Phase II award, and prior to final payment on the Phase II award.

4.17 Promotional Materials

Promotional and non-project related discussion is discouraged, and additional information provided via Universal Resource Locator (URL) links or on computer disks, CDs, DVDs, video tapes or any other medium will not be accepted or considered in the proposal evaluation.

4.18 Prior, Current, or Pending Support of Similar Proposals or Awards

IMPORTANT -- While it is permissible, with proposal notification, to submit identical proposals or proposals containing a significant amount of essentially equivalent work (see Section 3) for consideration under numerous federal program BAAs or solicitations, it is unlawful to enter negotiation for contracts or grants requiring essentially equivalent effort. If there is any question concerning prior, current, or pending support of similar proposals or awards, it must be disclosed to the soliciting agency or agencies as early as possible. See Section 5.3.c(11).

4.19 Fraud and Fraud Reporting

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. Sec 1001), punishable by a fine of up to \$10,000, up to five years in prison, or both.

The Department of Defense, Office of Inspector General Hotline (“Defense Hotline”) is an important avenue for reporting fraud, waste, abuse, and mismanagement within the Department of Defense. The Office of Inspector General operates this hotline to receive and investigate complaints or information from contractor employees, DoD civilians, military service members and public citizens. Individuals who wish to report fraud, waste or abuse may contact the Defense Hotline at (800) 424-9098 between 8:00

a.m. and 5:00 p.m. Eastern Time or visit <https://www.dodig.mil/Components/Administrative-Investigations/DoD-Hotline/Hotline-Complaint/> to submit a complaint. Mailed correspondence should be addressed to the Defense Hotline, The Pentagon, Washington, DC 20301-1900, or e-mail addressed to hotline@dodig.mil.

4.20 State and Other Assistance Available

Many states have established programs to provide services to those proposing small business concerns and individuals wishing to participate in the Federal STTR Program. These services vary from state to state, but may include:

- Information and technical assistance;
- Matching funds to STTR recipients;
- Assistance in obtaining Phase III funding.

Contact your State SBIR/STTR Support office at https://www.sbir.gov/state_services?state=105813# for further information. Small business concerns may seek general administrative guidance from small and disadvantaged business utilization specialists located in various Defense Contract Management activities throughout the continental United States.

4.21 Discretionary Technical and Business Assistance (TAB A)

DoD has not mandated the use of TAB A pending further SBA guidance and establishment of a limit on the amount of technical and business assistance services that may be received or purchased by a small business concern that has received multiple Phase II SBIR or STTR awards for a fiscal year. The proposing small business concerns should carefully review individual component instructions to determine if TAB A is being offered and follow specific proposal requirements for requesting TAB A funding.

5.0 PHASE I PROPOSAL

5.1 Introduction

This BAA and the Defense SBIR/STTR Innovation Portal (DSIP) sites are designed to reduce the time and cost required to prepare a formal proposal. DSIP is the official portal for DoD SBIR/STTR proposal submission. Proposing small business concerns are required to submit proposals via DSIP; proposals submitted by any other means will be disregarded. Proposing small business concerns submitting through this site for the first time will be asked to register. It is recommended that proposing small business concerns register as soon as possible upon identification of a proposal opportunity to avoid delays in the proposal submission process.

This information in this section is applicable to Phase I proposals only. If the Component is participating in the **Direct to Phase II Program**, refer to the Component-specific Direct to Phase II instructions for more information on proposal preparation.

Guidance on allowable proposal content may vary by Component. A completed proposal submission in DSIP does NOT indicate that each proposal volume has been completed in accordance with the Component-specific instructions. Accordingly, it is the proposing small business concern's responsibility to consult the Component-specific instructions for detailed guidance, including required proposal documentation and structure, cost and duration limitations, budget structure, TAB A allowance and proposal page limits.

DSIP provides a structure for providing the following proposal volumes:

Volume 1: Proposal Cover Sheet

Volume 2: Technical Volume

Volume 3: Cost Volume

Volume 4: Company Commercialization Report

Volume 5: Supporting Documents

- a. Contractor Certification Regarding Provision of Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment (Attachment 1) MANDATORY
- b. Disclosures of Foreign Affiliations or Relationships to Foreign Countries (Attachment 2) MANDATORY
- c. Verification of Eligibility of Small Business Joint Ventures (Attachment 3), if applicable
- d. Disclosure of Funding Sources (Attachment 4) MANDATORY
- e. Other supporting documentation (Refer to Component-specific instructions for additional Volume 5 requirements)

A completed proposal submission in DSIP does NOT indicate that the mandatory supporting documents have been uploaded. It is the responsibility of the proposing small business concern to ensure that the mandatory documents listed above have been uploaded and included with the proposal submission.

Volume 6: Fraud, Waste and Abuse Training

All proposing small business concerns must complete the following:

- Volume 4: Company Commercialization Report (upload of CCR from SBIR.gov to DSIP is required for proposing small business concerns with prior Federal SBIR or STTR awards)
- Volume 5(a): Contractor Certification Regarding Provision of Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment (Attachment 1)
- Volume 5(b): Disclosures of Foreign Affiliations or Relationships to Foreign Countries (Attachment 2)
- Volume 5(c): Disclosure of Funding Sources (Attachment 4)
- Volume 6: Fraud, Waste and Abuse training.

Refer to Section 5.3 below for full details on these proposal requirements.

A Phase I Proposal Template is available to provide helpful guidelines for completing each section of your Phase I technical proposal. This can be found at <https://www.dodsbirsttr.mil/submissions/learning-support/firm-templates>.

Detailed guidance on registering in DSIP and using DSIP to submit a proposal can be found at <https://www.dodsbirsttr.mil/submissions/learning-support/training-materials>. If the proposal status is “In Progress” or “Ready to Certify” it will NOT be considered submitted, even if all volumes are added prior to the BAA close date. The proposing small business concern may modify all proposal volumes prior to the BAA close date.

Although signatures are not required on the electronic forms at the time of submission the proposal must be certified electronically by the corporate official for it to be considered submitted. If the proposal is selected for negotiation and possible award, the DoD Component program will contact the proposing small business concern for signatures prior to award.

5.2 Marking Proprietary Proposal Information

Proposing small business concerns that include in their proposals data that they do not want disclosed to the public for any purpose, or used by the Government except for evaluation purposes, shall:

(1) Mark the first page of each Volume of the proposal submission with the following legend:

"This proposal includes data that shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed-in whole or in part-for any purpose other than to evaluate this proposal. If, however, a contract is awarded to this proposing small business concern as a result of-or in connection with-the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the Government's right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained in pages [insert numbers or other identification of sheets]"; and

(2) Mark each sheet of data it wishes to restrict with the following legend:

"Use or disclosure of data contained on this page is subject to the restriction on the first page of this volume."

The DoD assumes no liability for disclosure or use of unmarked data and may use or disclose such data for any purpose.

Restrictive notices notwithstanding, proposals and final reports submitted through the Defense SBIR/STTR Innovation Portal (DSIP) may be handled, for administrative purposes only, by support contractors. All support contractors are bound by appropriate non-disclosure agreements.

5.3 Phase I Proposal Instructions

a. Proposal Cover Sheet (Volume 1)

On the Defense SBIR/STTR Innovation Portal (DSIP) at <https://www.dodsbirstr.mil/submissions/>, prepare the Proposal Cover Sheet.

The Cover Sheet must include a brief technical abstract that describes the proposed R&D project and a discussion of anticipated benefits and potential commercial applications. Each section should be no more than 200 words. **Do not include proprietary or classified information in the Proposal Cover Sheet.** If your proposal is selected for negotiation and possible award, the technical abstract and discussion of anticipated benefits may be publicly released on the Internet. Once the Cover Sheet is saved, the system will assign a proposal number. You may modify the cover sheet as often as necessary until the BAA closes.

Effective January 2023, the amounts listed in the Percentage of Work (POW) certification question on the Proposal Cover Sheet are derived from information entered by the proposing small business concern in the Cost Volume (Volume 3). Details on the calculation can be viewed in DSIP during proposal submission.

If the POW calculations fall below eligibility requirements, the small business concern will not be able to proceed with proposal submission. Deviations from the POW minimum requirements for STTR proposals are not allowed.

b. Format of Technical Volume (Volume 2)

- (1) **Type of file:** The Technical Volume must be a single Portable Document Format (PDF) file, including graphics. Perform a virus check before uploading the Technical Volume file. If a virus is detected, it may cause rejection of the proposal. **Do not lock or encrypt the uploaded file. Do not include or embed active graphics such as videos, moving pictures, or other similar media in the document.**
- (2) **Length:** It is the proposing small business concern's responsibility to verify that the Technical Volume does not exceed the page limit after upload to DSIP. Please refer to Component-specific instructions for how a technical volume is handled if the stated page count is exceeded. Some Components will reject the entire technical proposal if the proposal exceeds the stated page count.
- (3) **Layout:** Number all pages of your proposal consecutively. Those who wish to respond must submit a direct, concise, and informative research or research and development proposal (no type smaller than 10-point on standard 8-1/2" x 11" paper with one-inch margins). The header on each page of the Technical Volume should contain your proposing small business concern name, topic number, and proposal number assigned by the Defense SBIR/STTR Innovation Portal (DSIP) when the Cover Sheet was created. The header may be included in the one-inch margin.

c. Content of the Technical Volume (Volume 2)

The Technical Volume should cover the following items in the order given below:

- (1) **Identification and Significance of the Problem or Opportunity.** Define the specific technical problem or opportunity addressed and its importance.
- (2) **Phase I Technical Objectives.** Enumerate the specific objectives of the Phase I work, including the questions the research and development effort will try to answer to determine the feasibility of the proposed approach.
- (3) **Phase I Statement of Work (including Subcontractors' Efforts)**
 - a. Provide an explicit, detailed description of the Phase I approach. If a Phase I option is required or allowed by the Component, describe appropriate research activities which would commence at the end of Phase I base period should the Component elect to exercise the option. The Statement of Work should indicate what tasks are planned, how and where the work will be conducted, a schedule of major events, and the final product(s) to be delivered. The Phase I effort should attempt to determine the technical feasibility of the proposed concept. The methods planned to achieve each objective or task should be discussed explicitly and in detail. This section should be a substantial portion of the Technical Volume section.
 - b. This BAA may contain topics that have been identified by the Program Manager as research or activities involving Human/Animal Subjects and/or Recombinant DNA. If Phase I performance includes performance of these kinds of research or activities, please identify the applicable protocols and how those protocols will be followed during Phase I. Please note that funds cannot be released or used on any portion of the

project involving human/animal subjects or recombinant DNA research or activities until all the proper approvals have been obtained (see Sections 4.9 - 4.11). **Small Business Concerns proposing research involving human and/or animal use are encouraged to separate these tasks in the technical proposal and cost proposal in order to avoid potential delay of contract award.**

- (4) **Related Work.** Describe significant activities directly related to the proposed effort, including any conducted by the principal investigator, the proposing small business concern, consultants, or others. Describe how these activities interface with the proposed project and discuss any planned coordination with outside sources. The technical volume must persuade reviewers of the proposing small business concern's awareness of the state-of-the-art in the specific topic. Describe previous work not directly related to the proposed effort but similar. Provide the following:
 - a. Short description,
 - b. Client for which work was performed (including individual to be contacted and phone number), and
 - c. Date of completion.
- (5) **Relationship with Future Research or Research and Development**
 - a. State the anticipated results of the proposed approach if the project is successful.
 - b. Discuss the significance of the Phase I effort in providing a foundation for Phase II research or research and development effort.
 - c. Identify the applicable clearances, certifications and approvals required to conduct Phase II testing and outline the plan for ensuring timely completion of said authorizations in support of Phase II research or research and development effort.
- (6) **Commercialization Strategy.** Describe in approximately one page your proposing small business concern's strategy for commercializing this technology in DoD, other Federal Agencies, and/or private sector markets. Provide specific information on the market need the technology will address and the size of the market. Also include a schedule showing the quantitative commercialization results from this STTR project that your proposing small business concern expects to achieve.
- (7) **Key Personnel.** Identify key personnel who will be involved in the Phase I effort including information on directly related education and experience. A concise technical resume of the principal investigator, including a list of relevant publications (if any), must be included (Please do not include Privacy Act Information). All resumes will count toward the page limitations for Volume 2.
- (8) **Foreign Citizens.** Identify any foreign citizens or individuals holding dual citizenship expected to be involved on this project as a direct employee, subcontractor, or consultant. For these individuals, please specify their country of origin, the type of visa or work permit under which they are performing and an explanation of their anticipated level of involvement on this project. Proposing small business concerns frequently assume that individuals with dual citizenship or a work permit will be permitted to work on an STTR project and do not report them. The proposal may be deemed nonresponsive if the requested information is not provided. The proposing small business concerns should report all individuals expected to be involved on this project that are considered a foreign national as defined in Section 3 of the BAA. You may be asked to provide additional information during negotiations in order to verify the foreign citizen's eligibility to

participate on a STTR contract. Supplemental information provided in response to this paragraph will be protected in accordance with the Privacy Act (5 U.S.C. 552a), if applicable, and the Freedom of Information Act (5 U.S.C. 552(b)(6)).

- (9) **Facilities/Equipment.** Describe available instrumentation and physical facilities necessary to carry out the Phase I effort. Justify equipment purchases in this section and include detailed pricing information in the Cost Volume. State whether the facilities where the proposed work will be performed meet environmental laws and regulations of federal, state (name), and local Governments for, but not limited to, the following groupings: airborne emissions, waterborne effluents, external radiation levels, outdoor noise, solid and bulk waste disposal practices, and handling and storage of toxic and hazardous materials.
- (10) **Subcontractors/Consultants.** Involvement of a research institution in the project is required and the institution should be identified and described to the same level of detail as the prime contractor costs. A minimum of 40% of the research and/or analytical work in Phase I, as measured by direct and indirect costs, must be conducted by the proposing firm, unless otherwise approved in writing by the Contracting Officer. STTR efforts may include subcontracts with Federal Laboratories and Federally Funded Research and Development Centers (FFRDCs). A waiver is no longer required for the use of federal laboratories and FFRDCs; however, proposers must certify their use of such facilities on the Cover Sheet of the proposal.
- (11) **Prior, Current, or Pending Support of Similar Proposals or Awards.** If a proposal submitted in response to this BAA is substantially the same as another proposal that was funded, is now being funded, or is pending with another Federal Agency, or another or the same DoD Component, you must reveal this on the Proposal Cover Sheet and provide the following information:
- a. Name and address of the Federal Agency(s) or DoD Component to which a proposal was submitted, will be submitted, or from which an award is expected or has been received.
 - b. Date of proposal submission or date of award.
 - c. Title of proposal.
 - d. Name and title of principal investigator for each proposal submitted or award received.
 - e. Title, number, and date of BAA(s) or solicitation(s) under which the proposal was submitted, will be submitted, or under which award is expected or has been received.
 - f. If award was received, state contract number.
 - g. Specify the applicable topics for each STTR proposal submitted or award received.

Note: If this does not apply, state in the proposal "No prior, current, or pending support for proposed work."

d. **Content of the Cost Volume (Volume 3)**

Complete the Cost Volume by using the on-line cost volume form on the Defense SBIR/STTR Innovation Portal (DSIP). Some items in the cost breakdown may not apply to the proposed project. There is no need to provide information on each individual item. What matters is that enough information be provided to allow us to understand how you plan to use the requested funds if a contract is awarded.

- (1) List all key personnel by name as well as by number of hours dedicated to the project as direct labor.

- (2) While special tooling and test equipment and material cost may be included under Phases I, the inclusion of equipment and material will be carefully reviewed relative to need and appropriateness for the work proposed. The purchase of special tooling and test equipment must, in the opinion of the Component Contracting Officer, be advantageous to the Government and should be related directly to the specific topic. These may include such items as innovative instrumentation or automatic test equipment. Title to property furnished by the Government or acquired with Government funds will be vested with the DoD Component, unless it is determined that transfer of title to the contractor would be more cost effective than recovery of the equipment by the DoD Component.
- (3) Cost for travel funds must be justified and related to the needs of the project.
- (4) Cost sharing is permitted for proposals under this BAA; cost sharing is not required, nor will it be an evaluation factor in the consideration of a Phase I proposal.
- (5) A Phase I Option (if applicable) should be fully costed separately from the Phase I (base) approach.
- (6) All subcontractor costs and consultant costs, such as labor, travel, equipment, materials, must be detailed at the same level as prime contractor costs. Provide detailed substantiation of subcontractor costs in your cost proposal. Volume 5, Supporting Documents, may be used if additional space is needed.

When a proposal is selected for negotiation and possible award, you must be prepared to submit further documentation to the Component Contracting Officer to substantiate costs (e.g., an explanation of cost estimates for equipment, materials, and consultants or subcontractors). For more information about cost proposals and accounting standards, see <https://www.dcaa.mil/Guidance/Audit-Process-Overview/>.

e. Company Commercialization Report (Volume 4)

The Company Commercialization Report (CCR) allows companies to report funding outcomes resulting from prior SBIR and STTR awards. SBIR and STTR awardees are required by SBA to update and maintain their organization's CCR on SBIR.gov. Commercialization information is required upon completion of the last deliverable under the funding agreement. Thereafter, SBIR and STTR awardees are requested to voluntarily update the information in the database annually for a minimum period of 5 years.

The proposing small business concern has prior DoD and/or non-DoD Phase I and/or Phase II SBIR/STTR awards, regardless of whether the project has any commercialization to date, a PDF of the CCR must be downloaded from SBIR.gov and uploaded to the Firm Forms section of DSIP by the Firm Admin. Firm Forms are completed by the DSIP Firm Admin and are applied across all proposals the proposing small business concern submits. The DSIP CCR requirement is fulfilled by completing the following:

1. Log into the firm account at <https://www.sbir.gov/>.
2. Navigate to My Dashboard > My Documents to view or print the information currently contained in the Company Registry Commercialization Report.
3. Create or update the commercialization record, from the company dashboard, by scrolling to the "My Commercialization" section, and clicking the create/update

Commercialization tab under “Current Report Version”. Please refer to the “Instructions” and “Guide” documents contained in this section of the Dashboard for more detail on completing and updating the CCR. **Ensure the report is certified and submitted.**

4. Click the “Company Commercialization Report” PDF under the My Documents section of the dashboard to download a PDF of the CCR.
5. Upload the PDF of the CCR (downloaded from SBIR.gov in previous step) to the Company Commercialization Report in the Firm Forms section of DSIP. This upload action must be completed by the Firm Admin.

This version of the CCR, uploaded to DSIP from SBIR.gov, is inserted into all proposal submissions as Volume 4.

During proposal submission, the proposing small business concern will be prompted with the question: “Do you have a new or revised Company Commercialization Report to upload?”. There are three possible courses of action:

- a. If the proposing small business concern has prior DoD and/or non-DoD Phase I and/or Phase II SBIR/STTR awards, and **DOES have a new or revised CCR from SBIR.gov to upload to DSIP**, select YES.
 - If the user is the Firm Admin, they can upload the PDF of the CCR from SBIR.gov directly on this page. It will also be updated in the Firm Forms and be associated with all new or in-progress proposals submitted by the proposing small business concern. If the user is not the Firm Admin, they will receive a message that they do not have access and must contact the Firm Admin to complete this action.
 - **WARNING:** Uploading a new CCR under the Firm Forms section of DSIP or clicking “Save” or “Submit” in Volume 4 of one proposal submission is considered a change for ALL proposals under any open BAAs or CSOs. If a proposing small business concern has previously certified and submitted any Phase I or Direct to Phase II proposals under *any* BAA or CSO **that is still open**, those proposals will be automatically reopened. Proposing small business concerns will have to recertify and resubmit such proposals. If a proposing small business concern does not recertify or resubmit such proposals, they will not be considered fully submitted and will not be evaluated.
- b. If the proposing small business concern has prior DoD and/or non-DoD Phase I and/or Phase II SBIR/STTR awards, and **DOES NOT have a new or revised CCR from SBIR.gov to upload to DSIP**, select NO.
 - If a prior CCR was uploaded to the Firm Forms, the proposing small business concern will see a file dialog box at the bottom of the page and can view the previously uploaded CCR. This read-only access allows the proposing small business concern to confirm that the CCR has been uploaded by the Firm Admin.
 - If no file dialog box is present at the bottom of the page that is an indication that **there is no previously uploaded CCR in the DSIP Firm Forms**. To fulfill the DSIP CCR requirement the Firm Admin must follow steps 1-5 listed above to download a PDF of the CCR from SBIR.gov and upload it to the DSIP Firm Forms to be included with all proposal submissions.
- c. If the proposing small business concern has **NO** prior DoD and/or non-DoD Phase I and/or Phase II SBIR/STTR awards, the upload of the CCR from SBIR.gov is not

required and small business concern will select NO. The CCR section of the proposal will be marked complete.

While all proposing small business concerns with prior DoD and/or non-DoD Phase I and/or Phase II SBIR/STTR awards must report funding outcomes resulting from these awards through the CCR from SBIR.gov and upload a copy of this report to their Firm Forms in DSIP, **please refer to the Component-specific instructions for details on how this information will be considered during proposal evaluations.**

f. **Supporting Documents (Volume 5)**

Volume 5 is provided for proposing small business concerns to submit additional documentation to support the Coversheet (Volume 1), Technical Volume (Volume 2), and the Cost Volume (Volume 3).

All proposing small business concerns are REQUIRED to submit the following documents to Volume 5:

1. Contractor Certification Regarding Provision of Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment (Attachment 1)
2. Disclosures of Foreign Affiliations or Relationships to Foreign Countries (Attachment 2)
3. Disclosure of Funding Sources (Attachment 4)

A completed proposal submission in DSIP does NOT indicate that the mandatory supporting documents have been uploaded. It is the responsibility of the proposing small business concern to ensure that the mandatory documents listed above have been uploaded and included with the proposal submission.

The following documents may be included in Volume 5 if applicable to the proposal. Refer to Component-specific instructions for additional Volume 5 requirements.

1. Letters of Support
2. Additional Cost Information
3. Funding Agreement Certification
4. Technical Data Rights (Assertions)
5. Lifecycle Certification
6. Allocation of Rights
7. Verification of Eligibility of Small Business Joint Ventures (Attachment 3)
8. Other

g. **Contractor Certification Regarding Provision of Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment**

The DoD must comply with Section 889(a)(1)(B) of the National Defense Authorization Act (NDAA) for Fiscal Year 2019 and is working to reduce or eliminate contracts with entities that use any equipment, system, or service that uses covered telecommunications equipment or services (as defined in BAA Attachment 1) as a substantial or essential component of any system, or as critical technology as part of any system.

All proposals must include certifications in Defense Federal Acquisition Regulation Supplement (DFARS) provisions 252.204-7016, 252.204-7017, and clause 252.204-7018, executed by the proposing small business concern's authorized proposing small business

concern representative. The DFARS provisions and clause may be found in BAA Attachment 1. **These certifications must be signed by the authorized proposing small business concern representative and uploaded as a separate PDF file in the supporting documents sections of Volume 5 for all proposal submissions.**

The effort to complete the required certification clauses includes the proposing small business concern and any contractors that may be proposed as a part of the submission including research partners and suppliers. The proposing small business concerns are strongly encouraged to review the requirements of these certifications early in the proposal development process. Failure to submit or complete the required certifications as a part of the proposal submission process may be cause for rejection of the proposal submission without evaluation.

h. Disclosures of Foreign Affiliations or Relationships to Foreign Countries

In accordance with Section 4 of the SBIR and STTR Extension Act of 2022 and the SBA SBIR/STTR Policy Directive, the Department of Defense will review all proposals submitted in response to this BAA to assess security risks presented by small business concerns seeking a Federally funded award. **Proposing small business concerns must complete Attachment 2: Disclosures of Foreign Affiliations or Relationships to Foreign Countries and upload to Volume 5. Proposals that do not include the completed Attachment 2 in Volume 5 will be deemed noncompliant and will not receive an evaluation.** For additional details, please refer to Section 2.2 and 4.3.

i. Certification Regarding Disclosure of Funding Sources

The proposing small business concern must comply with Section 223(a) of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021, which requires that covered individuals:

- (A) disclose the amount, type, and source of all current and pending research support received by, or expected to be received by, the individual as of the time of the disclosure;
- (B) certify that the disclosure is current, accurate, and complete; and
- (C) agree to update such disclosure at the request of the agency prior to the award of support and at any subsequent time the agency determines appropriate during the term of the award

Small business concerns must also certify that each covered individual who is employed by the small business and listed on the proposal has been made aware of the requirements listed above. **The disclosure and certification must be made by completing Attachment 4 of this BAA and uploading to Volume 5, Supporting Documents of the proposal submission in DSIP.**

j. Fraud, Waste and Abuse Training (Volume 6)

The Fraud, Waste and Abuse (FWA) training is **required** for Phase I and Direct to Phase II proposals. FWA training provides information on what represents FWA in the SBIR/STTR program, the most common mistakes that lead to FWA, as well as the penalties and ways to prevent FWA in your small business concern. This training material can be found in the Volume 6 section of the proposal submission module in DSIP and must be thoroughly reviewed once per year. Plan and leave ample time to complete this training based on the proposal submission deadline. FWA training must be completed by one DSIP firm user with

read/write access (Proposal Owner, Corporate Official or Firm Admin) on behalf of the proposing small business concern.

6.0 PHASE I EVALUATION CRITERIA

Proposals will be evaluated based on the criteria outlined below, unless otherwise specified in the Component-specific instructions. Selections will be based on a determination of the overall technical value of each proposal and an evaluation of the cost volume, with the appropriate method of analysis given the contract type to be awarded, for selection of the proposal(s) most advantageous to the Government, considering the following factors which are listed in descending order of importance:

- a. The soundness, technical merit, and innovation of the proposed approach and its incremental progress toward topic or subtopic solution.
- b. The qualifications of the proposed principal/key investigators, supporting staff, and consultants. Qualifications include not only the ability to perform the research and development but also the ability to commercialize the results.
- c. The potential for commercial (Government or private sector) application and the benefits expected to accrue from this commercialization.

Cost or budget data submitted with the proposals will be considered during evaluation.

Technical reviewers will base their conclusions only on information contained in the proposal. It cannot be assumed that reviewers are acquainted with the proposing small business concern or key individuals or any referenced experiments. Relevant supporting data such as journal articles, literature, including Government publications, etc., should be included based on requirements provided in Component-specific instructions.

Denial of Awards

The DoD will not make an award under the SBIR program if it determines that—

- (A) the small business concern submitting the proposal –
 - (i) has an owner or covered individual that is party to a malign foreign talent recruitment program;
 - (ii) has a business entity, parent company, or subsidiary located in the People’s Republic of China or another foreign country of concern; or
 - (iii) has an owner or covered individual that has a foreign affiliation with a foreign entity located in the People’s Republic of China or another foreign country of concern; and
- (B) the relationships and commitments described in clauses (i) through (iii) of subparagraph (A)—
 - (i) interfere with the capacity for activities supported by the DoD to be carried out;
 - (ii) create duplication with activities supported by the DoD;
 - (iii) present concerns about conflicts of interest;
 - (iv) were not appropriately disclosed to the DoD;
 - (v) violate Federal law or terms and conditions of contracts or other agreements awarded by the DoD; or
 - (vi) pose a risk to national security.

7.0 PHASE II PROPOSAL INFORMATION

7.1 Introduction

Unless the Component is participating in Direct to Phase II, Phase II proposals may only be submitted by Phase I awardees. Submission of Phase II proposals are not permitted at this time, and if submitted, may be rejected without evaluation. Phase II proposal preparation and submission instructions will be provided by the DoD Components to Phase I awardees. See Component-specific instructions for more information on Direct to Phase II Program preparation and submission instructions.

7.2 Proposal Provisions

IMPORTANT -- While it is permissible, with proposal notification, to submit identical proposals or proposals containing a significant amount of essentially equivalent work for consideration under numerous federal program BAAs and solicitations, it is unlawful to enter negotiation for contracts or grants requiring essentially equivalent effort. If there is any question concerning this, it must be disclosed to the soliciting agency or agencies as early as possible. If a proposal submitted for a Phase II effort is substantially the same as another proposal that was funded, is now being funded, or is pending with another Federal Agency, or another or the same DoD Component, you must reveal this on the Cover Sheet and provide the information required in Section 5.4.c(11).

Due to specific limitations on the amount of funding and number of awards that may be awarded to a particular proposing small business concern per topic using SBIR/STTR program funds, Head of Agency Determinations are now required before a different agency may make an award using another agency's topic. This limitation does not apply to Phase III funding. Please contact your original sponsoring agency before submitting a Phase II proposal to an agency other than the one who sponsored the original topic.

Section 4(b)(1)(i) of the SBIR/STTR Policy Directive provides that, at the agency's discretion, projects awarded a Phase I under a solicitation for SBIR may transition in Phase II to STTR and vice versa. A proposing small business concern wishing to transfer from one program to another must contact their designated technical monitor to discuss the reasons for the request and the agency's ability to support the request. The transition may be proposed prior to award or during the performance of the Phase II effort. Agency disapproval of a request to change programs shall not be grounds for granting relief from any contractual performance requirement. All approved transitions between programs must be noted in the Phase II award or award modification signed by the contracting officer that indicates the removal or addition of the research institution and the revised percentage of work requirements.

7.3 Commercialization Strategy

At a minimum, your commercialization strategy must address the following five questions:

- (1) What is the first product that this technology will go into?
- (2) Who will be the customers, and what is the estimated market size?
- (3) How much money will be needed to bring the technology to market, and how will that money be raised?
- (4) Does the proposing small business concern contain marketing expertise and, if not, how will that expertise be brought into the small business concern?
- (5) Who are the proposing small business concern's competitors, and what is the price and/or quality advantage over those competitors?

The commercialization strategy must also include a schedule showing the anticipated quantitative commercialization results from the Phase II project at one year after the start of Phase II, at the completion of Phase II, and after the completion of Phase II (i.e., amount of additional investment, sales revenue, etc.). After Phase II award, the proposing small business concern is required to report actual sales and investment data in its SBA Company Commercialization Report via "My Dashboard" on

SBIR.gov at least annually. For information on formatting, page count and other details, please refer to the Component-specific instructions.

7.4 Phase II Evaluation Criteria

Phase II proposals will be evaluated based on the criteria outlined above in section 6.0, unless otherwise specified in the Component-specific instructions.

7.5 Phase II Award Information

DoD Components will notify Phase I awardees of the Phase II proposal submission requirements. Submission of Phase II proposals will be in accordance with instructions provided by individual Components. The details on the due date, content, and submission requirements of the Phase II proposal will be provided by the awarding DoD Component either in the Phase I award or by subsequent notification.

7.6 Adequate Accounting System

To reduce risk to the small business and avoid potential contracting delays, companies interested in pursuing Phase II SBIR contracts and other contracts of similar size with the Department of Defense (DoD), have an adequate accounting system per General Accepted Accounting Principles (GAAP), Generally Accepted Government Auditing Standards (GAGAS), Federal Acquisition Regulation (FAR) and Cost Accounting Standards (CAS) in place. The accounting system will be audited by the Defense Contract Audit Agency (DCAA). DCAA's requirements and standards are available on their Website at <https://www.dcaa.mil/Guidance/Audit-Process-Overview/> and <https://www.dcaa.mil/Checklists-Tools/Pre-award-Accounting-System-Adequacy-Checklist/>.

7.7 Phase II Enhancement Policy

To further encourage the transition of STTR research into DoD acquisition programs as well as the private sector, certain DoD Components have developed their own Phase II Enhancement policy. Under this policy, the Component will provide a Phase II awardee with additional Phase II STTR funding if the proposing small business concern can match the additional STTR funds with non-STTR funds from DoD acquisition programs or the private sector.

See component instructions for more details on Phase II Enhancement opportunities.

7.8 Commercialization Readiness Program (CRP)

The SBIR/STTR Reauthorization Act of 2011 established the Commercialization Pilot Program (CPP) as a long-term program titled the Commercialization Readiness Program (CRP).

Each Military Department (Army, Navy, and Air Force) has established a Commercialization Readiness Program. Please check the Component instructions for further information.

The DoD SBIR/STTR Program has established the OSD Transitions SBIR Technology (OTST) Pilot Program. The OTST pilot program is an interim technology maturity phase (Phase II), inserted into the SBIR development.

For more information contact osd.ncr.ousd-r-e.mbx.sbir-sttr-tech-transition@mail.mil.

8.0 CONTRACTUAL REQUIREMENTS

8.1 Additional Contract Requirements

Upon award of a contract, the contractor will be required to make certain legal commitments through acceptance of Government contract clauses in the Phase I contract. The outline that follows is illustrative of the types of provisions required by the Federal Acquisition Regulation that will be included in the Phase I contract. This is not a complete list of provisions to be included in Phase I contracts, nor does it contain specific wording of these clauses. Copies of complete general provisions will be made available prior to award.

Examples of general provisions:

- a. **Standards of Work.** Work performed under the contract must conform to high professional standards.
- b. **Inspection.** Work performed under the contract is subject to Government inspection and evaluation at all reasonable times.
- c. **Examination of Records.** The Comptroller General (or a fully authorized representative) shall have the right to examine any directly pertinent records of the contractor involving transactions related to this contract.
- d. **Default.** The Government may terminate the contract if the contractor fails to perform the work contracted.
- e. **Termination for Convenience.** The contract may be terminated at any time by the Government if it deems termination to be in its best interest, in which case the contractor will be compensated for work performed and for reasonable termination costs.
- f. **Disputes.** Any dispute concerning the contract which cannot be resolved by agreement shall be decided by the contracting officer with right of appeal.
- g. **Contract Work Hours.** The contractor may not require an employee to work more than eight hours a day or forty hours a week unless the employee is compensated accordingly (receives overtime pay).
- h. **Equal Opportunity.** The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin.
- i. **Affirmative Action for Veterans.** The contractor will not discriminate against any employee or applicant for employment because he or she is a disabled veteran.
- j. **Affirmative Action for Handicapped.** The contractor will not discriminate against any employee or applicant for employment because he or she is physically or mentally handicapped.
- k. **Officials Not to Benefit.** No member of or delegate to Congress shall benefit from the contract.
- l. **Covenant Against Contingent Fees.** No person or agency has been employed to solicit or secure the contract upon an understanding for compensation except bona fide employees or commercial agencies maintained by the contractor for the purpose of securing business.
- m. **Gratuities.** The contract may be terminated by the Government if any gratuities have been offered to any representative of the Government to secure the contract.
- n. **Patent Infringement.** The contractor shall report each notice or claim of patent infringement based on the performance of the contract.
- o. **Military Security Requirements.** The contractor shall safeguard any classified information associated with the contracted work in accordance with applicable regulations.
- p. **American Made Equipment and Products.** When purchasing equipment or a product under the SBIR funding agreement, purchase only American-made items whenever possible.

Applicable Federal Acquisition Regulation (FAR) and/or Defense Federal Acquisition Regulation Supplement (DFARS) Clauses:

- q. **Unique Identification (UID).** If your proposal identifies hardware that will be delivered to the government, be aware of the possible requirement for unique item identification in accordance with DFARS 252.211-7003.
- r. **Disclosure of Information.** In accordance with FAR 252.204-7000, Government review and approval will be required prior to any dissemination or publication, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract except within and between the Contractor and any subcontractors, of unclassified and non-fundamental information developed under this contract or contained in the reports to be furnished pursuant to this contract.
- s. **Animal Welfare.** Contracts involving research, development, test, evaluation, or training on vertebrate animals will incorporate DFARS clause 252.235-7002.
- t. **Protection of Human Subjects.** Effective 29 July 2009, contracts that include or may include research involving human subjects in accordance with 32 CFR Part 219, DoD Directive 3216.02 and 10 U.S.C. 980, including research that meets exemption criteria under 32 CFR 219.101(b), will incorporate DFARS clause 252.235-7004.
- u. **E-Verify.** Contracts exceeding the simplified acquisition threshold may include the FAR clause 52.222-54 “Employment Eligibility Verification” unless exempted by the conditions listed at FAR 22.2803.
- v. **ITAR.** In accordance with DFARS 225.7901-4, Export Control Contract Clauses, the clause found at DFARS 252.225-7048, Export-Controlled Items (June 2013), must be included in all BAAs/solicitations and contracts. All awards resulting from this BAA will include DFARS 252.225-7048. Full text of the clause may be found at <https://www.govinfo.gov/content/pkg/CFR-2013-title48-vol3/pdf/CFR-2013-title48-vol3-sec252-225-7048.pdf>.
- w. **Cybersecurity.** Any small business concern receiving an SBIR/STTR award is required to provide adequate cybersecurity on all covered contractor information systems. Specific security requirements and cyber incident reporting requirements are listed in DFARS 252.204.7012. To learn about cybersecurity resources for your SBIR/STTR contract visit the Blue Cyber webpage: <https://www.safcn.af.mil/CISO/Small-Business-Cybersecurity-Information/>.
- x. **Safeguarding Covered Defense Information Controls.** As prescribed in DFARS 252.204-7008, for covered contractor information systems that are not part of an information technology service or system operated on behalf of the Government, the SBC represents that it will implement the security requirements specified by National Institute of Standards and Technology (NIST) Special Publication (SP) 800-171, “Protecting Controlled Unclassified Information in Nonfederal Information Systems and Organizations”.
- y. **Limitations on the Use or Disclosure of Third- Party Contractor Reported Cyber Incident Information.** As required in DFARS 252.204-7009, the Contractor must agree that certain conditions apply to any information it receives or creates in the performance of a resulting contract that is information obtained from a third-party's reporting of a cyber incident pursuant to DFARS clause 252.204-7012, Safeguarding Covered Defense Information and Cyber Incident Reporting (or derived from such information obtained under that clause).
- z. **Notice of NIST SP 800-171 DoD Assessment Requirements.** As prescribed by DFARS 252.204-7019, in order to be considered for award, the SBC is required to implement NIST SP 800-171. The SBC shall have a current assessment (see 252.204-7020) for each covered contractor information system that is relevant to the offer, contract, task order, or delivery order. The Basic, Medium, and High NIST SP 800-171 DoD Assessments are described in the NIST SP 800-171 DoD Assessment Methodology located at https://www.acq.osd.mil/dpap/pdi/cyber/strategically_assessing_contractor_implementation_of

[NIST SP 800-171.html](#). In accordance with DFARS 252.204-7020, the SBC shall provide access to its facilities, systems, and personnel necessary for the Government to conduct a Medium or High NIST SP 800-171 DoD Assessment, as described in NIST SP 800-171 DoD Assessment Methodology, linked above. Notification of specific requirements for NIST SP 800-171 DoD assessments and assessment level will be provided as part of the component instructions, topic, or award.

- aa. **Contractor Certification Regarding Provision of Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment.** In accordance with DFARS Subpart 204.21, DFARS provisions 252.204-7016, 252.204-7017, and clause 252.204-7018 are incorporated into this solicitation. This subpart implements section 1656 of the National Defense Authorization Act for Fiscal Year 2018 (Pub. L. 115-91) and section 889(a)(1)(A) of the National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232). Full text of the provisions and clause and required offeror representations can be found in Attachment 1 of this BAA.

8.2 Agency Recovery Authority and Ongoing Reporting

In accordance with Section 5 of the SBIR and STTR Extension Act of 2022, the DoD will –

- 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 Administration throughout the duration of the award on—
 - (A) any change to a disclosure required under subparagraphs (A) through (G) of section 4.3 above;
 - (B) any material misstatement made under section 8.2 paragraph (A) above; and
 - (C) any change described in section 8.2 paragraph (B) above.

8.3 Basic Safeguarding of Covered Contractor Information Systems

FAR 52.204-21, Basic Safeguarding of Covered Contractor Information Systems, is incorporated into this solicitation. In accordance with FAR 52.204-21, the contractor shall apply basic safeguarding requirements and procedures when the contractor or a subcontractor at any tier may have Federal contract information residing in or transiting through its information system.

FAR 52.204-21 Basic Safeguarding of Covered Contractor Information Systems (NOV 2021)

(a) **Definitions.** As used in this clause -

- (1) *Covered contractor information system* means an information system that is owned or operated by a contractor that processes, stores, or transmits Federal contract information.
- (2) *Federal contract information* means information, not intended for public release, that is provided by or generated for the Government under a contract to develop or deliver a product or service to the Government, but not including information provided by the Government to the public (such as on public websites) or simple transactional information, such as necessary to process payments.

- (3) *Information* means any communication or representation of knowledge such as facts, data, or opinions, in any medium or form, including textual, numerical, graphic, cartographic, narrative, or audiovisual (Committee on National Security Systems Instruction (CNSSI) 4009).
- (4) *Information system* means a discrete set of information resources organized for the collection, processing, maintenance, use, sharing, dissemination, or disposition of information (44 U.S.C. 3502).
- (5) *Safeguarding* means measures or controls that are prescribed to protect information systems.

(b) Safeguarding requirements and procedures.

(1) The Contractor shall apply the following basic safeguarding requirements and procedures to protect covered contractor information systems. Requirements and procedures for basic safeguarding of covered contractor information systems shall include, at a minimum, the following security controls:

- (i) Limit information system access to authorized users, processes acting on behalf of authorized users, or devices (including other information systems).
- (ii) Limit information system access to the types of transactions and functions that authorized users are permitted to execute.
- (iii) Verify and control/limit connections to and use of external information systems.
- (iv) Control information posted or processed on publicly accessible information systems.
- (v) Identify information system users, processes acting on behalf of users, or devices.
- (vi) Authenticate (or verify) the identities of those users, processes, or devices, as a prerequisite to allowing access to organizational information systems.
- (vii) Sanitize or destroy information system media containing Federal Contract Information before disposal or release for reuse.
- (viii) Limit physical access to organizational information systems, equipment, and the respective operating environments to authorized individuals.
- (ix) Escort visitors and monitor visitor activity; maintain audit logs of physical access; and control and manage physical access devices.
- (x) Monitor, control, and protect organizational communications (i.e., information transmitted or received by organizational information systems) at the external boundaries and key internal boundaries of the information systems.
- (xi) Implement subnetworks for publicly accessible system components that are physically or logically separated from internal networks.

- (xii) Identify, report, and correct information and information system flaws in a timely manner.
- (xiii) Provide protection from malicious code at appropriate locations within organizational information systems.
- (xiv) Update malicious code protection mechanisms when new releases are available.
- (xv) Perform periodic scans of the information system and real-time scans of files from external sources as files are downloaded, opened, or executed.

(2) Other requirements. This clause does not relieve the Contractor of any other specific safeguarding requirements specified by Federal agencies and departments relating to covered contractor information systems generally or other Federal safeguarding requirements for controlled unclassified information (CUI) as established by Executive Order 13556.

(c) Subcontracts. The Contractor shall include the substance of this clause, including this paragraph (c), in subcontracts under this contract (including subcontracts for the acquisition of commercial products or commercial services, other than commercially available off-the-shelf items), in which the subcontractor may have Federal contract information residing in or transiting through its information system.

(End of clause)

8.4 Prohibition on Contracting with Persons that have Business Operations with the Maduro Regime

DFARS 252.225-7055, Representation Regarding Business Operations with the Maduro Regime, is incorporated into this solicitation. In accordance with section 890 of the National Defense Authorization Act for Fiscal Year 2020 (Pub. L. 116-92), DoD is prohibited from entering into a contract for the procurement of products or services with any person that has business operations with an authority of the government of Venezuela that is not recognized as the legitimate government of Venezuela by the United States Government, unless the person has a valid license to operate in Venezuela issued by the Office of Foreign Assets Control of the Department of the Treasury.

8.5 Copyrights

With prior written permission of the Contracting Officer, the awardee may copyright (consistent with appropriate national security considerations, if any) material developed with DoD support. DoD receives a royalty-free license for the Federal Government and requires that each publication contain an appropriate acknowledgment and disclaimer statement.

8.6 Patents

Small business concerns normally may retain the principal worldwide patent rights to any invention developed with Government support. The Government receives a royalty-free license for its use, reserves the right to require the patent holder to license others in certain limited circumstances, and requires that anyone exclusively licensed to sell the invention in the United States must normally manufacture it domestically. To the extent authorized by 35 U.S.C. § 205, the Government will not make public any information disclosing a Government-supported invention for a period of five years to allow the awardee to pursue a patent. See also Section 8.7, Invention Reporting.

8.7 Invention Reporting

SBIR awardees must report inventions to the Component within two months of the inventor's report to the awardee. The reporting of inventions may be accomplished by submitting paper documentation, including fax, or through the Edison Invention Reporting System at www.iedison.gov for those agencies participating in iEdison.

8.8 Technical Data Rights

Rights in technical data, including software, developed under the terms of any contract resulting from proposals submitted in response to this BAA generally remain with the contractor, except that the Government obtains a royalty-free license to use such technical data only for Government purposes during the period commencing with contract award and ending twenty years after completion of the project under which the data were generated. This data should be marked with the restrictive legend specified in DFARS 252.227-7018 Class Deviation 2020-O0007. Upon expiration of the twenty-year restrictive license, the Government has Government Purpose Rights in the SBIR data. During the license period, the Government may not release or disclose SBIR data to any person other than its support services contractors except: (1) For evaluation purposes; (2) As expressly permitted by the contractor; or (3) A use, release, or disclosure that is necessary for emergency repair or overhaul of items operated by the Government. See [DFARS clause 252.227-7018 Class Deviation 2020-O0007](#) "Rights in Noncommercial Technical Data and Computer Software – Small Business Innovation Research (SBIR) Program."

If a proposing small business concern plans to submit assertions in accordance with DFARS 252.227-7017 Class Deviation 2020-O0007, those assertions must be identified and assertion of use, release, or disclosure restriction MUST be included with your proposal submission, at the end of the technical volume. The contract cannot be awarded until assertions have been approved.

8.9 Final Technical Reports - Phase I through Phase III

- a. **Content:** A final report is required for each project phase. The reports must contain in detail the project objectives, work performed, results obtained, and estimates of technical feasibility. A completed SF 298, "Report Documentation Page," will be used as the first page of the report. Submission resources are available at <https://discover.dtic.mil/submit-documents/>. In addition, monthly status and progress reports may be required by the DoD Component.
- b. **SF 298 Form "Report Documentation Page" Preparation:**
 - (1) If desirable, language used by the proposing small business concern in its Phase II proposal to report Phase I progress may also be used in the final report.
 - (2) For each unclassified report, the proposing small business concern submitting the report should fill in Block 12 (Distribution/Availability Statement) of the SF 298, "Report Documentation Page," with the following statement: "Distribution authorized to U.S. Government only; Proprietary Information, (Date of Determination). Other requests for this document shall be referred to the Component SBIR Program Office."

Note: Data developed under a STTR contract is subject to STTR Data Rights which allow for protection under DFARS 252.227-7018 Class Deviation 2020-O0007 (see Section 8.5, Technical Data Rights). The sponsoring DoD activity, after reviewing the proposing small business concern's entry in Block 12, has final responsibility for assigning a distribution statement.

For additional information on distribution statements see the following Defense Technical Information Center (DTIC) Web site: https://discover.dtic.mil/wp-content/uploads/2018/09/distribution_statements_and_reasonsSept2018.pdf

- (3) Block 14 (Abstract) of the SF 298, "Report Documentation Page" must include as the first sentence, "Report developed under STTR contract for topic [insert BAA topic number. [Follow with the topic title, if possible.]" The abstract must identify the purpose of the work and briefly describe the work conducted, the findings or results and the potential applications of the effort. **Since the abstract will be published by the DoD, it must not contain any proprietary or classified data and type "UU" in Block 17.**
 - (4) Block 15 (Subject Terms) of the SF 298 must include the term "STTR Report".
- c. **Submission:** In accordance with DoD Directive 3200.12 and DFARS clause 252.235-7011, a copy of the final report shall be submitted (electronically or on disc) to:
- Defense Technical Information Center
 - ATTN: DTIC-OA (SBIR/STTR)
 - 8725 John J Kingman Road, Suite 0944
 - Ft. Belvoir, VA 22060-6218

Delivery will normally be within 30 days after completion of the Phase I technical effort.

Other requirements regarding submission of reports and/or other deliverables will be defined in the Contract Data Requirements List (CDRL) of each contract. Special instructions for the submission of CLASSIFIED reports will be defined in the delivery schedule of the contract.

DO NOT E-MAIL Classified or controlled unclassified reports, or reports containing STTR Data Rights protected under DFARS 252.227-7018 Class Deviation 2020-O0007.

ATTACHMENT 1

**Department of Defense (DoD)
Small Business Innovation Research (SBIR) Program
Small Business Technology Transfer (STTR) Program**

**CONTRACTOR CERTIFICATION REGARDING
PROVISION OF PROHIBITION ON CONTRACTING FOR CERTAIN
TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR
EQUIPMENT (DFARS SUBPART 204.21)**

Contractor's Name	
Small Business Concern Name	
Office Tel #	
Mobile #	
Email	

Name of person authorized to sign: _____

Signature of person authorized: _____

Date: _____

The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

DFARS PROVISIONS INCORPORATED IN FULL TEXT:

**252.204-7016 Covered Defense Telecommunications Equipment or Services—
Representation**

**COVERED DEFENSE TELECOMMUNICATIONS EQUIPMENT OR SERVICES—
REPRESENTATION (DEC 2019)**

(a) *Definitions.* As used in this provision, “covered defense telecommunications equipment or services” has the meaning provided in the clause [252.204-7018](#) , Prohibition on the Acquisition of Covered Defense Telecommunications Equipment or Services.

(b) *Procedures.* The Offeror shall review the list of excluded parties in the System for Award Management (SAM) (<https://www.sam.gov/>) for entities excluded from receiving federal awards for “covered defense telecommunications equipment or services”.

(c) *Representation.* The Offeror represents that it does, does not provide covered defense telecommunications equipment or services as a part of its offered products or services to the Government in the performance of any contract, subcontract, or other contractual instrument.

252.204-7017 Prohibition on the Acquisition of Covered Defense Telecommunications Equipment or Services—Representation

PROHIBITION ON THE ACQUISITION OF COVERED DEFENSE TELECOMMUNICATIONS EQUIPMENT OR SERVICES—REPRESENTATION (MAY 2021)

The Offeror is not required to complete the representation in this provision if the Offeror has represented in the provision at [252.204-7016](#), Covered Defense Telecommunications Equipment or Services—Representation, that it “does not provide covered defense telecommunications equipment or services as a part of its offered products or services to the Government in the performance of any contract, subcontract, or other contractual instrument.”

(a) *Definitions.* “Covered defense telecommunications equipment or services,” “covered mission,” “critical technology,” and “substantial or essential component,” as used in this provision, have the meanings given in the [252.204-7018](#) clause, Prohibition on the Acquisition of Covered Defense Telecommunications Equipment or Services, of this solicitation.

(b) *Prohibition.* Section 1656 of the National Defense Authorization Act for Fiscal Year 2018 (Pub. L. 115-91) prohibits agencies from procuring or obtaining, or extending or renewing a contract to procure or obtain, any equipment, system, or service to carry out covered missions that uses covered defense telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system.

(c) *Procedures.* The Offeror shall review the list of excluded parties in the System for Award Management (SAM) at <https://www.sam.gov> for entities that are excluded when providing any equipment, system, or service to carry out covered missions that uses covered defense telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless a waiver is granted.

Representation. If in its annual representations and certifications in SAM the Offeror has represented in paragraph (c) of the provision at [252.204-7016](#), Covered Defense Telecommunications Equipment or Services—Representation, that it “does” provide covered defense telecommunications equipment or services as a part of its offered products or services to the Government in the performance of any contract, subcontract, or other contractual instrument, then the Offeror shall complete the following additional representation:

The Offeror represents that it will will not provide covered defense telecommunications equipment or services as a part of its offered products or services to DoD in the performance of any award resulting from this solicitation.

(e) *Disclosures*. If the Offeror has represented in paragraph (d) of this provision that it “will provide covered defense telecommunications equipment or services,” the Offeror shall provide the following information as part of the offer:

(1) A description of all covered defense telecommunications equipment and services offered (include brand or manufacturer; product, such as model number, original equipment manufacturer (OEM) number, manufacturer part number, or wholesaler number; and item description, as applicable).

(2) An explanation of the proposed use of covered defense telecommunications equipment and services and any factors relevant to determining if such use would be permissible under the prohibition referenced in paragraph (b) of this provision.

(3) For services, the entity providing the covered defense telecommunications services (include entity name, unique entity identifier, and Commercial and Government Entity (CAGE) code, if known).

(4) For equipment, the entity that produced or provided the covered defense telecommunications equipment (include entity name, unique entity identifier, CAGE code, and whether the entity was the OEM or a distributor, if known).

(End of provision)

252.204-7018 Prohibition on the Acquisition of Covered Defense Telecommunications Equipment or Services

PROHIBITION ON THE ACQUISITION OF COVERED DEFENSE TELECOMMUNICATIONS EQUIPMENT OR SERVICES (JAN 2021)

Definitions. As used in this clause—

“Covered defense telecommunications equipment or services” means—

(1) Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation, or any subsidiary or affiliate of such entities;

(2) Telecommunications services provided by such entities or using such equipment; or

(3) Telecommunications equipment or services produced or provided by an entity that the Secretary of Defense reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

“Covered foreign country” means—

- (1) The People’s Republic of China; or
- (2) The Russian Federation.

“Covered missions” means—

- (1) The nuclear deterrence mission of DoD, including with respect to nuclear command, control, and communications, integrated tactical warning and attack assessment, and continuity of Government; or
- (2) The homeland defense mission of DoD, including with respect to ballistic missile defense.

“Critical technology” means—

- (1) Defense articles or defense services included on the United States Munitions List set forth in the International Traffic in Arms Regulations under subchapter M of chapter I of title 22, Code of Federal Regulations;
- (2) Items included on the Commerce Control List set forth in Supplement No. 1 to part 774 of the Export Administration Regulations under subchapter C of chapter VII of title 15, Code of Federal Regulations, and controlled—
 - (i) Pursuant to multilateral regimes, including for reasons relating to national security, chemical and biological weapons proliferation, nuclear nonproliferation, or missile technology; or
 - (ii) For reasons relating to regional stability or surreptitious listening;
- (3) Specially designed and prepared nuclear equipment, parts and components, materials, software, and technology covered by part 810 of title 10, Code of Federal Regulations (relating to assistance to foreign atomic energy activities);
- (4) Nuclear facilities, equipment, and material covered by part 110 of title 10, Code of Federal Regulations (relating to export and import of nuclear equipment and material);
- (5) Select agents and toxins covered by part 331 of title 7, Code of Federal Regulations, part 121 of title 9 of such Code, or part 73 of title 42 of such Code; or
- (6) Emerging and foundational technologies controlled pursuant to section 1758 of the Export Control Reform Act of 2018 (50 U.S.C. 4817).

“Substantial or essential component” means any component necessary for the proper function or performance of a piece of equipment, system, or service.

(b) *Prohibition.* In accordance with section 1656 of the National Defense Authorization Act for Fiscal Year 2018 (Pub. L. 115-91), the contractor shall not provide to the Government any equipment, system, or service to carry out covered missions that uses covered defense telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless the covered defense telecommunication equipment or services are covered by a waiver described in Defense Federal Acquisition Regulation Supplement [204.2104](#) .

(c) *Procedures.* The Contractor shall review the list of excluded parties in the System for Award Management (SAM) at <https://www.sam.gov> for entities that are excluded when providing any equipment, system, or service, to carry out covered missions, that uses covered defense telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless a waiver is granted.

(d) *Reporting.*

(1) In the event the Contractor identifies covered defense telecommunications equipment or services used as a substantial or essential component of any system, or as critical technology as part of any system, during contract performance, the Contractor shall report at <https://dibnet.dod.mil> the information in paragraph (d)(2) of this clause.

(2) The Contractor shall report the following information pursuant to paragraph (d)(1) of this clause:

(i) Within 3 business days from the date of such identification or notification: the contract number; the order number(s), if applicable; supplier name; brand; model number (original equipment manufacturer number, manufacturer part number, or wholesaler number); item description; and any readily available information about mitigation actions undertaken or recommended.

(ii) Within 30 business days of submitting the information in paragraph (d)(2)(i) of this clause: any further available information about mitigation actions undertaken or recommended. In addition, the Contractor shall describe the efforts it undertook to prevent use or submission of a covered defense telecommunications equipment or services, and any additional efforts that will be incorporated to prevent future use or submission of covered telecommunications equipment or services.

(e) *Subcontracts.* The Contractor shall insert the substance of this clause, including this paragraph (e), in all subcontracts and other contractual instruments, including subcontracts for the acquisition of commercial items.

(End of clause)

ATTACHMENT 2

**Department of Defense (DoD)
Small Business Innovation Research (SBIR) Program
Small Business Technology Transfer (STTR) Program**

**DISCLOSURES OF FOREIGN AFFILIATIONS OR
RELATIONSHIPS TO FOREIGN COUNTRIES**

In accordance with the SBIR and STTR Extension Act of 2022 (Pub. L. 117-183) and the Small Business Administration (SBA) SBIR/STTR Policy Directive, small business concerns are required to disclose the information requested below about the small business’s investment and foreign ties.

Responses to disclosure questions may contain trade secrets or commercial or financial information that is privileged or confidential and is exempt from public disclosure. Such information shall be used or disclosed only for evaluation purposes or in accordance with an award between the submitter and the Government.

Relevant definitions can be found at the end of this document. An up-to-date list of countries determined to be countries of concern by the Secretary of State will be maintained and accessible on SBIR.gov.

Small Business Concern (SBC)	
SBC Unique Entity ID (UEI)	
Proposal # (assigned by DSIP when proposal is created)	
SBC Point of Contact (POC) Name	
SBC POC Phone #	
SBC POC Email	

The information provided in response to the Disclosure Questions listed below is certified to be accurate and complete. 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. Sec 1001), punishable by a fine of up to \$10,000, up to five years in prison, or both.

Name of person authorized to sign: _____

Signature of person authorized: _____

Date: _____

Disclosure Questions

1. Is any owner or covered individual of the applicant or awardee party to any malign foreign talent recruitment program?

Yes No

If yes, disclose the first and last name of each owner or covered individual, identify their role (i.e., owner or covered individual), and the malign foreign talent recruitment program.

2. Is there a parent company, joint venture, or subsidiary, of the applicant or awardee that is based in or receives funding from, any foreign country of concern?

Yes No

If yes, disclose the name, full address, applicant or awardee relationships (i.e., parent company, joint venture, or subsidiary) of each entity based in, or funded by, any foreign country of concern.

3. Does the applicant or awardee have 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?

Yes No

If yes, disclose the name of each enterprise or foreign entity, type of obligation, agreement, or arrangement (*i.e.*, contractual, financial, or other), description of obligation, agreement, or arrangement, and the foreign state(s) and/or the country of the foreign entity (or entities).

4. Is the applicant or awardee wholly owned in a foreign country?

Yes No

If yes, disclose the foreign country.

5. Does the applicant or awardee have any venture capital or institutional investment?

Yes No

If yes, proceed to question 5a. If no, proceed to question 6.

- 5a. Does the investing entity have a general partner or any other individual holding a leadership role who has a foreign affiliation with any foreign country of concern?

Yes No Unable to determine

If yes or unable to determine, disclose the venture capital or institutional investing entity's name, the percentage of ownership obtained by the investing entity, and the type of investment (i.e., equity, debt, or combination of equity and debt).

6. During the previous 5-year period, did the applicant or awardee have any technology licensing or intellectual property sales or transfers, to a foreign country of concern?

Yes No

If yes, disclose the name, address, and country, of the institution or entity that licensed, purchased, or received the technology or intellectual property.

7. Is there any foreign business entity, offshore entity, or entity outside the United States related to the applicant or awardee?

Yes No

If yes, disclose the entity name, relationship type (i.e., foreign business entity, offshore entity, entity outside the United States), description of the relationship to the applicant or awardee, and entity address and country.

8. Does the applicant or awardee have an owner, officer, or covered individual that has a foreign affiliation with a research institution located in a foreign country of concern?

Yes No

If yes, disclose the first and last name of each owner, officer, or covered individual that has a foreign affiliation with a foreign country of concern, identify their role (i.e., owner, officer, or covered individual), and the name of the foreign research institution and the foreign country of concern where it is located.

Relevant Definitions

Covered individual — An individual who contributes in a substantive, meaningful way to the scientific development or execution of a research and development (R&D) project proposed to be carried out with a Federally funded award from DoD. DoD has further designated covered individuals as including all proposed key personnel.

Federally funded award — A Phase I, Phase II (including Direct to Phase II, sequential Phase II/subsequent Phase II and cross-agency Phase II), or Phase III SBIR or STTR award made using a funding agreement.

Foreign affiliation — As defined in 15 U.S.C. § 638(e)(16), foreign affiliation means a funded or unfunded academic, professional, or institutional appointment or position with a foreign government or government-owned entity, whether full-time, part-time, or voluntary (including adjunct, visiting, or

honorary). This includes appointments or positions deemed adjunct, visiting, or honorary with research institutions located in a foreign country of concern.

Foreign country of concern — As defined in 15 U.S.C. § 638(e)(17), foreign country of concern means the People’s Republic of China, the Democratic People’s Republic of Korea, the Russian Federation, the Islamic Republic of Iran, or any other country determined to be a country of concern by the Secretary of State.

Malign foreign talent recruitment program — As defined in 42 U.S.C § 19237, the term “malign foreign talent recruitment program” means-

- (C) any program, position, or activity that includes compensation in the form of cash, in-kind compensation, including research funding, promised future compensation, complimentary foreign travel, things of non de minimis value, honorific titles, career advancement opportunities, or other types of remuneration or consideration directly provided by a foreign country at any level (national, provincial, or local) or their designee, or an entity based in, funded by, or affiliated with a foreign country, whether or not directly sponsored by the foreign country, to the targeted individual, whether directly or indirectly stated in the arrangement, contract, or other documentation at issue, in exchange for the individual-
 - (x) engaging in the unauthorized transfer of intellectual property, materials, data products, or other nonpublic information owned by a United States entity or developed with a Federal research and development award to the government of a foreign country or an entity based in, funded by, or affiliated with a foreign country regardless of whether that government or entity provided support for the development of the intellectual property, materials, or data products;
 - (xi) being required to recruit trainees or researchers to enroll in such program, position, or activity;
 - (xii) establishing a laboratory or company, accepting a faculty position, or undertaking any other employment or appointment in a foreign country or with an entity based in, funded by, or affiliated with a foreign country if such activities are in violation of the standard terms and conditions of a Federal research and development award;
 - (xiii) being unable to terminate the foreign talent recruitment program contract or agreement except in extraordinary circumstances;
 - (xiv) through funding or effort related to the foreign talent recruitment program, being limited in the capacity to carry out a research and development award or required to engage in work that would result in substantial overlap or duplication with a Federal research and development award;
 - (xv) being required to apply for and successfully receive funding from the sponsoring foreign government's funding agencies with the sponsoring foreign organization as the recipient;
 - (xvi) being required to omit acknowledgment of the recipient institution with which the individual is affiliated, or the Federal research agency sponsoring the research and development award, contrary to the institutional policies or standard terms and conditions of the Federal research and development award;
 - (xvii) being required to not disclose to the Federal research agency or employing institution the participation of such individual in such program, position, or activity; or
 - (xviii) having a conflict of interest or conflict of commitment contrary to the standard terms and conditions of the Federal research and development award; and
- (D) a program that is sponsored by-
 - (iv) a foreign country of concern or an entity based in a foreign country of concern, whether or not directly sponsored by the foreign country of concern;

- (v) an academic institution on the list developed under section 1286(c)(8) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (10 U.S.C. 2358 note; 1 Public Law 115–232) ; or
- (vi) a foreign talent recruitment program on the list developed under section 1286(c)(9) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (10 U.S.C. 2358 note; 1 Public Law 115–232).

ATTACHMENT 3

**Department of Defense (DoD)
Small Business Innovation Research (SBIR) Program
Small Business Technology Transfer (STTR) Program**

Verification of Eligibility of Small Business Joint Ventures

A small business joint venture offeror must submit, with its offer, the representation required in paragraph (c) of FAR solicitation provision 52.212-3, Offeror Representations and Certifications-Commercial Products and Commercial Services, and paragraph (c) of FAR solicitation provision 52.219-1, Small Business Program Representations, in accordance with 52.204-8(d) and 52.212-3(b) for the following categories:

- (A) Small business;
- (B) Service-disabled veteran-owned small business;
- (C) Women-owned small business (WOSB) under the WOSB Program;
- (D) Economically disadvantaged women-owned small business under the WOSB Program; or
- (E) Historically underutilized business zone small business

Contractor's Name	
Small Business Concern Name	
Office Tel #	
Mobile #	
Email	

Name of person authorized to sign: _____

Signature of person authorized: _____

Date: _____

FAR Provision Incorporated in Full Text:

52.219-1 Small Business Program Representations (Oct 2022)

(a) *Definitions.* As used in this provision-

Economically disadvantaged women-owned small business (EDWOSB) concern means a small business concern that is at least 51 percent directly and unconditionally owned by, and the management

and daily business operations of which are controlled by, one or more women who are citizens of the United States and who are economically disadvantaged in accordance with [13 CFR part 127](#), and the concern is certified by SBA or an approved third-party certifier in accordance with [13 CFR 127.300](#). It automatically qualifies as a women-owned small business concern eligible under the WOSB Program.

Service-disabled veteran-owned small business concern-

(1) Means a small business concern-

(i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and

(ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a service-disabled veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

(2) "Service-disabled veteran" means a veteran, as defined in [38 U.S.C.101\(2\)](#), with a disability that is service-connected, as defined in [38 U.S.C.101\(16\)](#).

Small business concern—

(1) Means a concern, including its affiliates, that is independently owned and operated, not dominant in its field of operation, and qualified as a small business under the criteria in [13 CFR part 121](#) and the size standard in paragraph (b) of this provision.

(2) *Affiliates*, as used in this definition, means business concerns, one of whom directly or indirectly controls or has the power to control the others, or a third party or parties control or have the power to control the others. In determining whether affiliation exists, consideration is given to all appropriate factors including common ownership, common management, and contractual relationships. SBA determines affiliation based on the factors set forth at 13 CFR 121.103.

Small disadvantaged business concern, consistent with 13 CFR 124.1002, means a small business concern under the size standard applicable to the acquisition, that-

(1) Is at least 51 percent unconditionally and directly owned (as defined at 13 CFR 124.105) by-

(i) One or more socially disadvantaged (as defined at 13 CFR 124.103) and economically disadvantaged (as defined at 13 CFR 124.104) individuals who are citizens of the United States, and

(ii) Each individual claiming economic disadvantage has a net worth not exceeding \$750,000 after taking into account the applicable exclusions set forth at 13 CFR 124.104(c)(2); and

(2) The management and daily business operations of which are controlled (as defined at 13 CFR 124.106) by individuals who meet the criteria in paragraphs (1)(i) and (ii) of this definition.

Veteran-owned small business concern means a small business concern-

(1) Not less than 51 percent of which is owned by one or more veterans (as defined at [38 U.S.C.101\(2\)](#)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and

(2) The management and daily business operations of which are controlled by one or more veterans.

Women-owned small business concern means a small business concern-

(1) That is at least 51 percent owned by one or more women; or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and

(2) Whose management and daily business operations are controlled by one or more women.

Women-owned small business (WOSB) concern eligible under the WOSB Program (in accordance with [13 CFR part 127](#)) means a small business concern that is at least 51 percent directly and unconditionally owned by, and the management and daily business operations of which are controlled by, one or more women who are citizens of the United States, and the concern is certified by SBA or an approved third-party certifier in accordance with [13 CFR 127.300](#).

(b) (1) The North American Industry Classification System (NAICS) code for this acquisition is _____ [*insert NAICS code*].

(2) The small business size standard is _____ [*insert size standard*].

(3) The small business size standard for a concern that submits an offer, other than on a construction or service acquisition, but proposes to furnish an end item that it did not itself manufacture, process, or produce (*i.e.*, nonmanufacturer), is 500 employees if the acquisition—

(i) Is set aside for small business and has a value above the simplified acquisition threshold;

(ii) Uses the HUBZone price evaluation preference regardless of dollar value, unless the offeror waives the price evaluation preference; or

(iii) Is an 8(a), HUBZone, service-disabled veteran-owned, economically disadvantaged women-owned, or women-owned small business set-aside or sole-source award regardless of dollar value.

(c) *Representations.*

(1) The offeror represents as part of its offer that—

(i) it is, is not a small business concern; or

(ii) It is, is not a small business joint venture that complies with the requirements of [13 CFR 121.103\(h\)](#) and [13 CFR 125.8\(a\)](#) and (b). [*The offeror shall enter the name and unique entity identifier of each party to the joint venture: __.*]

(2) [Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.] The offeror represents that it is, is not, a small disadvantaged business concern as defined in 13 CFR 124.1002.

(3) [Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.] The offeror represents as part of its offer that it is, is not a women-owned small business concern.

(4) *Women-owned small business (WOSB) joint venture eligible under the WOSB Program.* The offeror represents as part of its offer that it is, is not a joint venture that complies with the requirements of [13 CFR 127.506\(a\)](#) through [\(c\)](#). [The offeror shall enter the name and unique entity identifier of each party to the joint venture: __.]

(5) *Economically disadvantaged women-owned small business (EDWOSB) joint venture.* The offeror represents as part of its offer that it is, is not a joint venture that complies with the requirements of 13 CFR 127.506(a) through (c). [The offeror shall enter the name and unique entity identifier of each party to the joint venture: __.]

(6) [Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.] The offeror represents as part of its offer that it is, is not a veteran-owned small business concern.

(7) [Complete only if the offeror represented itself as a veteran-owned small business concern in paragraph (c)(6) of this provision.] The offeror represents as part of its offer that

(i) It is, is not a service-disabled veteran-owned small business concern; or

(ii) It is, is not a service-disabled veteran-owned joint venture that complies with the requirements of [13 CFR 125.18\(b\)\(1\)](#) and [\(2\)](#). [The offeror shall enter the name and unique entity identifier of each party to the joint venture: __.] Each service-disabled veteran-owned small business concern participating in the joint venture shall provide representation of its service-disabled veteran-owned small business concern status.

(8) [Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.] The offeror represents, as part of its offer, that-

(i) It is, is not a HUBZone small business concern listed, on the date of this representation, as having been certified by SBA as a HUBZone small business concern in the Dynamic Small Business Search and SAM, and will attempt to maintain an employment rate of HUBZone residents of 35 percent of its employees during performance of a HUBZone contract (see [13 CFR 126.200\(e\)\(1\)](#)); and

(ii) It is, is not a HUBZone joint venture that complies with the requirements of [13 CFR 126.616\(a\)](#) through [\(c\)](#). [The offeror shall enter the name and unique entity identifier of each party to the joint venture: __.] Each HUBZone small business concern participating in the HUBZone joint venture shall provide representation of its HUBZone status.

(d) *Notice.* Under [15 U.S.C.645\(d\)](#), any person who misrepresents a firm's status as a business concern that is small, HUBZone small, small disadvantaged, service-disabled veteran-owned small, economically disadvantaged women-owned small, or women-owned small eligible under the WOSB Program in order to obtain a contract to be awarded under the preference programs established pursuant to section 8, 9, 15, 31, and 36 of the Small Business Act or any other provision of Federal law that specifically references section 8(d) for a definition of program eligibility, shall-

- (1) Be punished by imposition of fine, imprisonment, or both;
- (2) Be subject to administrative remedies, including suspension and debarment; and
- (3) Be ineligible for participation in programs conducted under the authority of the Act.

(End of provision)

Attachment 4

**Department of Defense (DoD)
Small Business Innovation Research (SBIR) Program
Small Business Technology Transfer (STTR) Program**

DISCLOSURE OF FUNDING SOURCES

In accordance with Section 223 of the William M. (Mac) Thornberry National Defense Authorization Act (NDAA) for Fiscal Year 2021, DoD shall require, as part of any application for a research and development award—

- (1) that each covered individual listed on the application—
 - (A) disclose the amount, type, and source of all current and pending research support received by, or expected to be received by, the individual as of the time of the disclosure;
 - (B) certify that the disclosure is current, accurate, and complete; and
 - (C) agree to update such disclosure at the request of the agency prior to the award of support and at any subsequent time the agency determines appropriate during the term of the award; and
- (2) that any entity applying for such award certify that each covered individual who is employed by the entity and listed on the application has been made aware of the requirements under paragraph (1).

Full text of Section 223 of the FY21 NDAA, including relevant definitions, can be found on pages 84-86: <https://www.congress.gov/116/plaws/publ283/PLAW-116publ283.pdf>.

Small Business Concern (SBC)	
SBC Unique Entity ID (UEI)	
Proposal # (assigned by DSIP when proposal is created)	
SBC Point of Contact (POC) Name	
SBC POC Phone #	
SBC POC Email	

The SBC has been made aware of the requirements outlined in Section 223(a) of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 and certifies that the disclosures provided below are current, accurate, and complete. The SBC further agrees to update such disclosure at the request of DoD prior to the award of support and at any subsequent time DoD determines appropriate during the term of the award.

Name of person authorized to sign: _____

Signature of person authorized: _____

Date: _____

Covered individuals have no current or pending research support to disclose in accordance with Section 223 of the FY21 NDAA, as described above.

Disclosures

Covered Individual's Name: Covered Individual's Position: Current and Pending Funding Amount: Current and Pending Funding Type: Current and Pending Funding Source:	
Covered Individual's Name: Covered Individual's Position: Current and Pending Funding Amount: Current and Pending Funding Type: Current and Pending Funding Source:	
Covered Individual's Name: Covered Individual's Position: Current and Pending Funding Amount: Current and Pending Funding Type: Current and Pending Funding Source:	
Covered Individual's Name: Covered Individual's Position: Current and Pending Funding Amount: Current and Pending Funding Type: Current and Pending Funding Source:	
Covered Individual's Name: Covered Individual's Position: Current and Pending Funding Amount: Current and Pending Funding Type: Current and Pending Funding Source:	

[Additional space as needed]

DEPARTMENT OF THE AIR FORCE
23.C Small Business Technology Transfer (STTR) Phase I
Proposal Submission Instructions
Amendment 2

This Amendment adds language to the **AIR FORCE PROPOSAL EVALUATIONS** section of these Component-specific instructions:

In accordance with Section 4 of the SBIR and STTR Extension Act of 2022, the DAF will review all proposals submitted in response to this BAA to assess security risks presented by small business concerns seeking a Federally funded award. The DAF will use information provided by the small business concern in response to the Disclosure of Foreign Affiliations or Relationships to Foreign Countries and the proposal 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 small business concern and employees of the small business concern to a foreign country, foreign person, foreign affiliation, or foreign entity. The DAF will also assess proposals utilizing open-source analysis and analytical tools, for the nondisclosures of the information set forth in 15 U.S.C. 638(g)(13). If DAF assesses that a small business concern has security risk(s), DAF will review the proposal, the evaluation, and the security risks and may choose to either 1) create a plan to mitigate the risk(s) or 2) DAF may decide not to select the proposal for award based upon a totality of the review.

All other terms and provisions remain unchanged as a result of this Amendment.

DEPARTMENT OF THE AIR FORCE
23.C Small Business Technology Transfer (STTR) Phase I
Proposal Submission Instructions
Amendment 1

1. This Amendment modifies several of the topics associated with the DAF STTR Phase I offering. Topic numbers that are highlighted have been updated.
2. All other terms and provisions remain unchanged as a result of this Amendment.

DEPARTMENT OF THE AIR FORCE
23.C Small Business Technology Transfer (STTR) Phase I
Proposal Submission Instructions

The Air Force intends these Phase I proposal submission instructions to clarify the Department of Defense (DoD) Broad Agency Announcement (BAA) as it applies to the topics solicited herein.

Offerors must ensure proposals meet all requirements of the STTR 23.C BAA posted on the Defense SBIR/STTR Innovation Portal (DSIP) at the proposal submission deadline date/time.

Proposers are encouraged to thoroughly review the DoD Program BAA and register for the DSIP Listserv to remain apprised of important programmatic and contractual changes.

- The DoD Program BAA is located at: <https://www.defensesbirsttr.mil/SBIR-STTR/Opportunities/#announcements>. Be sure to select the tab for the appropriate BAA cycle.
- Register for the DSIP Listserv at: <https://www.dodsbirsttr.mil/submissions/login>.

Complete proposals **must** be prepared and submitted via <https://www.dodsbirsttr.mil/submissions/> (DSIP) on or before the date published in the DoD SBIR 23.C BAA. Applicants are responsible for ensuring proposals comply with the requirements in the most current version of this instruction at the proposal submission deadline date/time.

The DAF recommends early submission, as computer traffic gets heavy near the proposal submission date/time and could slow down the system. **Do not wait until the last minute.** The DAF is not responsible for incomplete proposal submission due to system lag or inaccessibility. Please ensure contact information, i.e., names/phone numbers/email addresses, in the proposal is current and accurate. The DAF is not responsible for ensuring notifications are received by firms for which this information changes after proposal submission without proper notification. Changes of this nature shall be sent to the Air Force SBIR/STTR One Help Desk.

Please ensure all e-mail addresses listed in the proposal are current and accurate. The DAF is not responsible for ensuring notifications are received by firms changing mailing address/e-mail address/company points of contact after proposal submission without proper notification to the AF. **If changes occur to the company mail or email addresses or points of contact after proposal submission, the information must be provided to the AF SBIR/STTR One Help Desk.** The message shall include the subject line, "23.C Address Change".

Points of Contact:

- General information related to the AF SBIR/STTR program and proposal preparation instructions, contact the AF SBIR/STTR One Help Desk at usaf.team@afsbirsttr.us.
- Questions regarding the DSIP electronic submission system, contact the DoD SBIR/STTR Help Desk at dodsbirsupport@reisystems.com.
- For technical questions about the topics during the pre-announcement and open period, please reference the DoD SBIR 23.C BAA.
- Air Force SBIR/STTR Contracting Officer (CO):
 - Mr. Daniel J. Brewer, Daniel.Brewer.13@us.af.mil

General information related to the AF Small Business Program can be found at the AF Small Business website, <http://www.airforcesmallbiz.af.mil/>. The site contains information related to contracting opportunities within the AF, as well as business information and upcoming outreach events. Other informative sites include those for the Small Business Administration (SBA), www.sba.gov, and the Procurement Technical Assistance Centers (PTACs), <http://www.ptacus.us.org>. These centers provide

Government contracting assistance and guidance to small businesses, generally at no cost.

PHASE I PROPOSAL SUBMISSION: The DoD STTR 23.C Broad Agency Announcement, <https://www.dodsbirsttr.mil/submissions/login>, includes all program requirements. Phase I efforts should address the feasibility of a solution to the selected topic's requirements.

The complete proposal must be submitted electronically through DSIP. Ensure the complete technical volume and additional cost volume information is included in this sole submission. The preferred submission format is Portable Document Format (.pdf). Graphics must be distinguishable in black and white. **VIRUS-CHECK ALL SUBMISSIONS.**

The System for Award Management (SAM) allows proposing small business concerns interested in conducting business with the Federal Government to provide basic information on business structure and capabilities as well as financial and payment information. Proposing small business concerns must be registered in SAM. To register, visit www.sam.gov. A proposing small business concern that is already registered in SAM should login to SAM and ensure its registration is active and its representations and certifications are up-to-date to avoid delay in award.

On April 4, 2022, the DUNS Number was replaced by the Unique Entity ID (SAM). The Federal Government will use the UEI (SAM) to identify organizations doing business with the Government. The DUNS number will no longer be a valid identifier. If the proposing small business concerns has an entity registration in SAM.gov (even if the registration has expired), a UEI (SAM) has already been assigned. This can be found by signing into SAM.gov and selecting the Entity Management widget in the Workspace or by signing in and searching entity information. For proposing small business concerns with established Defense SBIR/STTR Innovation Portal (DSIP) accounts, update the Small business concern profile with the UEI (SAM) as soon as possible.

For new proposing small business concern registrations, follow instructions during SAM registration on how to obtain a Commercial and Government Entry (CAGE) code and be assigned the UEI (SAM). Once a CAGE code and UEI (SAM) are obtained, update the Small business concern's profile on the DSIP at <https://www.dodsbirsttr.mil/submissions/>.

PHASE I PROPOSAL FORMAT

Complete proposals must include all of the following:

Volume 1: DoD Proposal Cover Sheet

Note: If selected for funding, the proposal's technical abstract and discussion of anticipated benefits will be publicly released. Therefore, do not include proprietary information in this section.

Volume 2: Technical Volume

Volume 3: Cost Volume

Volume 4: Company Commercialization Report

Volume 5: Supporting Documents

Volume 6: Fraud, Waste, and Abuse Training

DoD PROPOSAL COVER SHEET (VOLUME 1)

Complete the proposal Cover Sheet in accordance with the instructions provided via DSIP. The technical abstract should include a brief description of the program objective(s), a description of the effort, anticipated benefits and commercial applications of the proposed research, and a list of keywords/terms. The technical abstract of each successful proposal will be submitted to the Office of the Secretary of Defense (OSD) for publication and, therefore, must not contain proprietary or classified information.

TECHNICAL VOLUME (VOLUME 2):

The Technical Volume should include all graphics and attachments but should not include the Cover Sheet, which is completed separately as Volume 1. The Phase I technical volume (uploaded in Volume 2) shall contain the required elements found below. Ensure that all graphics are distinguishable in black and white.

The Phase I Technical Volume page/slide limits identified for the topics do not include the Cover Sheet, Cost Volume, Cost Volume Itemized Listing (a-h). The Technical Volume must be no smaller than 10-point on standard 8-1/2" x 11" paper with one-inch margins. Only the Technical Volume and any enclosures or attachments count toward the page limit. In the interest of equity, pages/slides in excess of the stated limits will not be reviewed. The documents required for upload into Volume 5, "Other", do not count toward the specified limits.

Key Personnel: Identify in the Technical Volume all key personnel who will be involved in this project; include information on directly related education, experience, and citizenship.

- A technical resume of the principal investigator, including a list of publications, if any, must be included
- Concise technical resumes for subcontractors and consultants, if any, are also useful.
- Identify all U.S. permanent residents to be involved in the project as direct employees, subcontractors, or consultants.
- Identify all non-U.S. citizens expected to be involved in the project as direct employees, subcontractors, or consultants. For all non-U.S. citizens, in addition to technical resumes, please provide countries of origin, the type of visa or work permit under which they are performing and an explanation of their anticipated level of involvement on this project, as appropriate. Additional information may be requested during negotiations in order to verify the foreign citizen's eligibility to participate on a contract issued as a result of this announcement. **Note:** Do not upload information such as Permanent Resident Cards (Green Cards), birth certificates, Social Security Numbers, or other PII to the DSIP system.

Phase I Work Plan Outline

NOTE: The DAF uses the work plan outline as the initial draft of the Phase I Statement of Work (SOW). Therefore, **do not include proprietary information in the work plan outline.** To do so will necessitate a request for revision, if selected, and may delay contract award.

Include a work plan outline in the following format:

Scope: List the effort's major requirements and specifications.

Task Outline: Provide a brief outline of the work to be accomplished during the Phase I effort.

Milestone Schedule

Deliverables

Progress reports

Final report with SF 298

COST VOLUME (VOLUME 3)

Cost information should be provided by completing the Cost Volume in DSIP and including the Cost Volume Itemized Listing specified below. The Cost Volume detail must be adequate to enable Air Force personnel to determine the purpose, necessity and reasonability of each cost element. Provide sufficient information (a.-g. below) regarding funds use. The DSIP Cost Volume and Itemized Cost Volume Information will not count against the specified page limit. The itemized listing also may be submitted in Volume 5 under the "Other" dropdown option.

- a. **Direct Cost Materials:** Justify costs for materials, parts, and supplies with an itemized list containing types, quantities, prices and where appropriate, purpose. Material costs may include the costs of such items as raw materials, parts, subassemblies, components, and manufacturing supplies.
- b. **Other Direct Costs:** This category includes, but is not limited to, specialized services such as machining, milling, special testing or analysis, and costs incurred in temporarily using specialized equipment. Proposals including leased hardware must include an adequate lease v. purchase justification.
- c. **Direct Labor:** Identify key personnel by name, if possible, or by labor category, if not. Direct labor hours, labor overhead and/or fringe benefits, and actual hourly rates for each individual are also necessary for the CO to determine whether these hours, fringe rates, and hourly rates are fair and reasonable.
- d. **Travel:** Travel costs must relate to project needs. Break out travel costs by trip, number of travelers, airfare, per diem, lodging, etc. The number of trips required, as well as the destination and purpose of each, should be reflected. Recommend budgeting at least one trip to the Air Force location managing the contract.
- e. **Subcontracts:** Involvement of consultant in the project's planning and/or research stages may be appropriate. If so, describe in detail and include information in the Cost Volume. A minimum of 40% of each STTR project must be conducted by the SBC and a minimum of 40% of the effort performed by the single partnering Research Institution. Deviations from these performance of work requirements are not permitted. The STTR funded work percentage calculation considers both direct and indirect costs after removal of the SBC's proposed profit. Support subcontract costs with copies of executed agreements. The documents must adequately describe the work to be performed. At a minimum, include a Statement of Work (SOW) with a corresponding detailed Cost Volume for each planned subcontract. Additionally, see DoD SBIR 23.3 BAA for more information regarding the required Allocation of Rights Agreement.
- f. **Special Tooling, Special Test Equipment, and Material:** The inclusion of equipment and materials will be carefully reviewed relative to need and appropriateness to the work proposed. Special tooling and special test equipment purchases must, in the CO's opinion, be advantageous to the Government and relate directly to the effort. These toolings or equipment should not be of a type that an offeror would otherwise possess in the normal course of business. These may include items such as innovative instrumentation and/or automatic test equipment.
- g. **Consultants:** Provide a separate agreement letter for each consultant. The letter should briefly state what service or assistance will be provided, the number of hours required, and the hourly rate.

NOTE: If no exceptions are taken to an offeror's proposal, the Government may award a contract without exchanges. Therefore, the offeror's initial proposal should contain the offeror's best terms from a cost or price and technical standpoint. If there are questions regarding the award document, contact the Phase I CO identified on the cover page. The Government reserves the right to reopen negotiations later if the CO determines doing so to be necessary.

COMPANY COMMERCIALIZATION REPORT (VOLUME 4)

Completion of the CCR as Volume 4 of the proposal submission in DSIP is required. Please refer to the DoD STTR 23.C BAA for full details on this requirement. Information contained in the CCR will not be considered by the Air Force during proposal evaluations.

SUPPORTING DOCUMENTS VOLUME (VOLUME 5)

The following documents are required for all proposal submissions:

1. Contractor Certification Regarding Provision of Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment (Attachment 1 to the DOD SBIR 23.C BAA)
2. Disclosures of Foreign Affiliations or Relationships to Foreign Countries (Attachment 2 to the DOD STTR 23.C BAA)
3. Disclosure of Funding Sources (Attachment 4 to the DOD STTR 23.C BAA)

The following documents may be required if applicable to your proposal:

1. DD Form 2345: For proposals submitted under export-controlled topics, either International Traffic in Arms or Export Administration Regulations (ITAR/EAR), a copy of the certified DD Form 2345, Militarily Critical Technical Data Agreement, or evidence of application submission must be included. The form, instructions, and FAQs may be found at the United States/Canada Joint Certification Program website, <http://www.dla.mil/HQ/InformationOperations/Offers/Products/LogisticsApplications/JCP/DD2315Instructions.aspx>. DD Form 2345 approval will be required if proposal is selected for award.
2. Verification of Eligibility of Small Business Joint Ventures (Attachment 3 to the DOD STTR 23.C BAA)
3. Technical Data Rights Assertions (if asserting data rights restrictions)

FRAUD, WASTE, AND ABUSE TRAINING (VOLUME 6)

Note that the FWA Training must be completed prior to proposal submission. When training is complete and certified, DSIP will indicate completion of the Volume 6 requirement. The proposal cannot be submitted until the training is complete.

DISCRETIONARY TECHNICAL AND BUSINESS ASSISTANCE (TAB A)

The Air Force does not participate in the Discretionary Technical and Business Assistance (TAB A) Program. Proposals submitted in response to DAF topics shall not include TAB A.

AIR FORCE PROPOSAL EVALUATIONS

Proposals will be evaluated for overall merit in accordance with the criteria discussed in the 23.C BAA.

In accordance with Section 4 of the SBIR and STTR Extension Act of 2022, the DAF will review all proposals submitted in response to this BAA to assess security risks presented by small business concerns seeking a Federally funded award. The DAF will use information provided by the small business concern in response to the Disclosure of Foreign Affiliations or Relationships to Foreign Countries and the proposal 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 small business concern and employees of the small business concern to a foreign country, foreign person, foreign affiliation, or foreign entity. The DAF will also assess proposals utilizing open-source analysis and analytical tools, for the nondisclosures of the information set forth in 15 U.S.C. 638(g)(13). If DAF assesses that a small business concern has security risk(s), DAF will review the proposal, the evaluation, and the security risks and may choose to either 1) create a plan to mitigate the risk(s) or 2) DAF may decide not to select the proposal for award based upon a totality of the review

DAF USE OF SUPPORT CONTRACTORS

Restrictive notices notwithstanding, proposals may be handled for administrative purposes only, by support contractors TEC Solutions, Inc., APEX, Oasis Systems, Riverside Research, Peerless Technologies, HPC-COM, Mile Two, Montech, Wright Brothers Institute, and MacB (an Alion Company). In addition, only Government employees and technical personnel from Federally Funded

Research and Development Centers (FFRDCs) MITRE and Aerospace Corporations working under contract to provide technical support to AF Life Cycle Management Center and Space and Missiles Centers may evaluate proposals. All support contractors are bound by appropriate non-disclosure agreements. Contact the AF SBIR/STTR CO Daniel J. Brewer (Daniel.Brewer.13@us.af.mil) with concerns.

PROPOSAL STATUS AND FEEDBACK

The Principal Investigator (PI) and Corporate Official (CO) indicated on the Proposal Cover Sheet will be notified by e-mail regarding proposal selection or non-selection. Small Businesses will receive a notification for each proposal submitted. Please read each notification carefully and note the Proposal Number and Topic Number referenced.

Automated feedback will be provided for Phase I proposals designated Not Selected. Additional feedback may be provided at the sole discretion of the DAF.

IMPORTANT: Proposals submitted to the DAF are received and evaluated by different organizations, handled by topic. Each organization operates within its own schedule for proposal evaluation and selection. Updates and notification timeframes will vary. If contacted regarding a proposal submission, it is not necessary to request information regarding additional submissions. Separate notifications are provided for each proposal.

The Air Force anticipates that all proposals will be evaluated and selections finalized within approximately 90 calendar days of solicitation close. Please refrain from contacting the BAA CO for proposal status before that time.

Refer to the DoD STTR 23.C BAA for procedures to protest the Announcement. As further prescribed in FAR 33.106(b), FAR 52.233-3, Protests after Award should be submitted to: Air Force SBIR/STTR Contracting Officer Daniel J. Brewer, Daniel.Brewer.13@us.af.mil.

AIR FORCE SUBMISSION OF FINAL REPORTS

All Final Reports will be submitted to the awarding DAF organization in accordance with Contract instructions. Companies will not submit Final Reports directly to the Defense Technical Information Center (DTIC).

PHASE II PROPOSAL SUBMISSIONS

DAF organizations may request Phase II proposals while technical performance is ongoing. This decision will be based on the contractor's technical progress, as determined by an DAF Technical Point of Contact review using the Phase II review criteria outlined above.

Phase II is the demonstration of the technology found feasible in Phase I. Only Phase I awardees are eligible to submit a Phase II proposal. All Phase I awardees will be sent a notification with the Phase II proposal submittal date and detailed Phase II proposal preparation instructions. If the physical or email addresses or firm points of contact have changed since submission of the Phase I proposal, correct information shall be sent to the AF SBIR/STTR One Help Desk. Phase II dollar values, performance periods, and proposal content will be specified in the Phase II request for proposal.

NOTE: The DAF primarily makes STTR Phase I and II awards as Firm-Fixed-Price contracts. However, awardees are strongly urged to work toward a Defense Contract Audit Agency (DCAA)-approved accounting system. If the company intends to continue work with the DoD, an approved accounting system will allow for competition in a broader array of acquisition opportunities, including award of

Cost-Reimbursement types of contracts. Please address questions to the Phase II CO, if selected for award.

All proposals must be submitted electronically via DSIP by the date indicated in the Phase II proposal instructions. Note: Only ONE Phase II proposal may be submitted for each Phase I award.

AIR FORCE SBIR/STTR PROGRAM MANAGEMENT IMPROVEMENTS

The DAF reserves the right to modify the Phase II submission requirements. Should the requirements change, all Phase I awardees will be notified. The DAF also reserves the right to change any administrative procedures that will improve management of the DAF SBIR/STTR Program at any time.

Air Force STTR 23.C Topic Index

Topic Number	Topic Name	Maximum Value*	Maximum Duration (in months)**	Technical Volume Page Limit***
AF23C-T001	Data-Centric AI in Multi Domain Awareness	\$200,000.00	6	20
AF23C-T002	Tunable, Integrated Electro-optic Frequency Comb for Space-based Communications and Precision, Navigation and Timing (PNT) Applications	\$200,000.00	6	20
AF23C-T003	Advanced Dynamic Inlet Distortion Generators	\$200,000.00	6	20

***Proposals that exceed this amount will be disqualified**

****Proposals that exceed this duration will be disqualified**

*****Pages in excess of this count will not be considered during evaluations**

AF23C-T001 TITLE: Data-Centric AI in Multi Domain Awareness

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Trusted AI and Autonomy

The technology within this topic is restricted under the International Traffic in Arms Regulation (ITAR), 22 CFR Parts 120-130, which controls the export and import of defense-related material and services, including export of sensitive technical data, or the Export Administration Regulation (EAR), 15 CFR Parts 730-774, which controls dual use items. Offerors must disclose any proposed use of foreign nationals (FNs), their country(ies) of origin, the type of visa or work permit possessed, and the statement of work (SOW) tasks intended for accomplishment by the FN(s) in accordance with the Announcement. Offerors are advised foreign nationals proposed to perform on this topic may be restricted due to the technical data under US Export Control Laws.

OBJECTIVE: Develop, test, and demonstrate a data-centric AI solution for processing Multi Domain Awareness data. Identify and illustrate the potential negative effects of insufficient training data in automated processing of multi-domain data streams.

DESCRIPTION: Enhanced situational awareness and flight safety support in the space domain within and beyond geosynchronous orbit (GEO) is achievable given sufficient data strategies. Observational evidence of spacecraft anomalies is manifest in multiple datatypes to include raw EO/IR imagery features, astrometric and photometric features, and features associated with their radio-frequency/RF payload. When this data is collected in great volume, from multiple modalities, and geographic locations, there is significant opportunity to enable reliable automated alerting. Today defining normal operations in space so that abnormal behavior can be flagged and more deeply observed is an area of research which addresses fundamental developments required to begin to define a baseline for real-time automated alerting for increasingly crowded orbit neighborhoods, as well as inform how this baseline may be extended to support missions in orbits beyond GEO. This is a significant need as new activities in cislunar space are planned for the coming years. This topic seeks to 1.) define data-driven methods to drive the development and testing of an ontology of automated alerts in support of government and commercial applications and 2.) develop foundational mathematical solutions needed to enable these mappings on multiple timescales and to properly quantify the uncertainty in these mappings to effectively support decision making. This includes mapping high frequency and geometrically diverse collection data to: a.) Specify/classify maneuver alerts as station-keeping or not, b. Specify observed anomaly types and classify them on the basis of astrometric, photometric and RF features observed, and c.) quantify confidence/uncertainty in the mapping from input data to selected alerts. To develop an explainable alert ontology, the offeror will develop a supervised learning approach which combines feedback from experts in space domain awareness with Generative Adversarial Networks (GANs) and Convolutional Neural Networks (CNNs). They will show the regrets associated with insufficient training of SDA models and compare the assessed results of their solution at different levels and qualities of training using available SDA data. Importantly the offeror will identify various forms of “data cascades” which can occur when insufficient data work is performed in the development of automated processing routines applied to the interpretation of SDA data. When do leaks and false alarms manifest into undesired downstream effects?

PHASE I: Conceive of, develop, and demonstrate multiple methods for automated processing of SDA data which result in meaningful conclusions regarding the observed operations of spacecraft. Exercise these algorithms using available SDA data.

PHASE II: Extend these methods to fuse multiple modalities and evaluate when and where errant conclusions can be made and what the underlying data conditions are that lead to these non-ideal conclusions.

PHASE III DUAL USE APPLICATIONS: Develop a strategy to transition prototype residual capabilities and incremental proliferation based on operational requirements.

REFERENCES:

1. <https://www-forbes-com.cdn.ampproject.org/c/s/www.forbes.com/sites/gilpress/2021/06/16/andrew-ng-launches-a-campaign-for-data-centric-ai/amp/> 2. <https://storage.googleapis.com/pub-tools-public-publication-data/pdf/0d556e45afc54afeb2eb6b51a9bc1827b9961ff4.pdf> 3. <https://towardsdatascience.com/data-centric-vs-model-centric-ai-the-answer-is-clear-4b607c58af67>

KEYWORDS: machine learning; artificial intelligence; data fusion; space domain awareness

AF23C-T002 TITLE: Tunable, Integrated Electro-optic Frequency Comb for Space-based Communications and Precision, Navigation and Timing (PNT) Applications

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Integrated Sensing and Cyber; Human-Machine Interfaces

~~The technology within this topic is restricted under the International Traffic in Arms Regulation (ITAR), 22 CFR Parts 120-130, which controls the export and import of defense-related material and services, including export of sensitive technical data, or the Export Administration Regulation (EAR), 15 CFR Parts 730-774, which controls dual use items. Offerors must disclose any proposed use of foreign nationals (FNs), their country(ies) of origin, the type of visa or work permit possessed, and the statement of work (SOW) tasks intended for accomplishment by the FN(s) in accordance with the Announcement. Offerors are advised foreign nationals proposed to perform on this topic may be restricted due to the technical data under US Export Control Laws.~~

OBJECTIVE: Design, fabricate, and demonstrate a photonic integrated electro-optic modulator capable of generating an optical frequency comb with 1-10 GHz spacing in the 1540-1560 nm band.

DESCRIPTION: Optical frequency combs, including electro-optic-generated optical frequency combs [1], have been a revolutionary technology across many areas, including a host of applications in spectroscopy, communications, and Position, Navigation and Timing (PNT). Photonic integrated electro-optic modulator platforms [2] offer the potential for robust, chip-scale, optical frequency comb generation with full electrical control, and the eventual deployment of comb technologies into mobile and space-based applications. The recent emergence of new integrated modulator material platforms, such as thin film lithium niobate [3] and barium titanate [4], as well as novel modulator designs offer the potential for enhanced efficiency, bandwidth, and packaging [5 - 7] to fully exploit the potential of optical frequency combs outside of the laboratory. These advances warrant further investigation into photonic integrated electro-optic modulators as well as their packaging, with an emphasis on a reduction in V_{pi} , high conversion efficiency, low waveguide propagation and insertion loss, and high optical and RF power handling.

PHASE I: Develop a platform fabrication and integration plan with supporting preliminary results (i.e., measurements, modeling/simulation, etc.) toward realizing the Phase II device specifications and deliverables. Material platform(s), pump-to-comb conversion efficiency and insertion losses with a full power budget should be included. Low RF power modulator driving requirements are desirable. Proposals should include a plan to either generate and characterize optical frequency comb performance or to provide full modulator characterization to predict comb performance. Phase I deliverables include a final report motivating the platform fabrication and integration plan.

PHASE II: Phase II will include fabrication and testing of prototype integrated modulator devices demonstrating:

- tunability of phase and amplitude to support frequency comb generation and control with 1 - 10 GHz line spacing;
- low V_{pi} (< 1 V) and RF power requirements (proposal should identify anticipated V_{pi} and modulator power requirements) across the 1 - 10 GHz tuning range supporting 5 nm broad electro-optic comb generation at 1 GHz repetition rate within the 1540 - 1560 nm band;
- low waveguide to modulator coupling losses (proposals should identify anticipated coupling losses);
- polarization maintaining fiber-coupled interconnects for coupling onto and off from the integrated chip-scale modulator platform;
- high optical power handling (>500 mW of input power) at desired wavelengths.

Phase II prototypes should include all necessary electronics to support modulator operation and thermal control. Electronics may reside off chip (on-chip integration is desirable); however, a path should be identified for full integration, including projected power budget improvements. Multiple

devices demonstrating modulator uniformity are desirable. At the completion of Phase II, four (4) prototype devices will be delivered to government laboratories of AFOSR's specification for characterization and integration with space-focused technology demonstrators. The final devices should be adequately packaged and integrated with all relevant supporting electronics for delivery to and operation by the test verification facility. Guidance/documentation for device operation should be provided for test facility personnel. Deliverables include a final technical report, at least four (4) prototype devices and supporting documentation. The Technology Readiness Level to be reached is 5: Component and/or bread-board validation in relevant environment.

PHASE III DUAL USE APPLICATIONS: Integrated optical frequency comb technology is anticipated to be broadly applicable across applications spanning the scientific, commercial, and defense domains, as evidenced by the impact of bulk-scale optical frequency comb technologies and the burgeoning impact of competing chip-scale comb technologies which currently offer less robustness, efficiency, and control. Many of the same applications revolutionized by bulk-scale laboratory optical frequency comb technology may be accessible to integrated comb generation technologies at a size, weight, and power (SWaP), robustness, and level of control which allows for operation outside of the laboratory and potentially for optimized comb parameters in applications including communications. There will be a need to demonstrate foundry level fabrication and robust packaging techniques for large scale production as well as testing long term performance in environments such as large temperature fluctuations, high shock and vibration, and vacuum compatibility.

REFERENCES:

1. Advances in Optics and Photonics, 12, 223 (2020);
2. Journal of Semiconductors, 42, 041301 (2021);
3. Nature Communications, 11, 4123 (2020);
4. Optics Express, 12, 5962 (2004);
5. Nature Photonics, 16, 679 (2022);
6. Optics Express, 30, 23177 (2022);
7. Optica 9, 408-411 (2022)

KEYWORDS: RF Integrated Photonics, Integrated Optical Modulator, Electro-optic Device, Frequency Comb

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Quantum Science;Microelectronics;Advanced Materials

The technology within this topic is restricted under the International Traffic in Arms Regulation (ITAR), 22 CFR Parts 120-130, which controls the export and import of defense-related material and services, including export of sensitive technical data, or the Export Administration Regulation (EAR), 15 CFR Parts 730-774, which controls dual use items. Offerors must disclose any proposed use of foreign nationals (FNs), their country(ies) of origin, the type of visa or work permit possessed, and the statement of work (SOW) tasks intended for accomplishment by the FN(s) in accordance with the Announcement. Offerors are advised foreign nationals proposed to perform on this topic may be restricted due to the technical data under US Export Control Laws.

OBJECTIVE: The objective of this topic is to develop an advanced dynamic inlet-distortion generator capable of producing time-varying pressure, swirl, or combined pressure and swirl flowfields in front of a turbine engine or fan rig for ground test evaluations. Phase I efforts shall focus on ideation of the concept and development of design parameters that scale to the application. Phase II shall focus on prototyping development and culminate with a rig demonstration with or without turbomachinery. Phase III efforts will focus on commercialization for the military application as well as the urban air mobility and next gen commercial airliner applications.

DESCRIPTION: Next generation air platform designs pose critical challenges to propulsion systems due to the complex integration of the engine into the airframe. The use of boundary-layer-ingesting inlets and integrated airframe-propulsion designs that eliminate podded propulsion in favor of drag-reducing streamlined designs can reduce the propulsion system performance and life.

Current practices for airframe-propulsion integration utilize advanced design tools and modeling software to predict performance and structural response of the propulsion system integrated with the airframe, but many conditions must be thoroughly tested to validate the predictions. Previous experience has shown the installation effects and the resulting inlet distortion ingested by the engine can lead to costly development efforts with sub-optimal results.

A broad spectrum of complex inlet distortions comprising non-uniform total pressures and velocities must be evaluated for performance and operability changes and aeromechanic responses of representative compression systems to fully understand the impact on conventional fan designs. Based on evaluation of component designs, design practices will be adjusted to account for complex total pressure and velocity fields.

Current methods for producing inlet distortion have mainly focused on producing total pressure distortions with porous screens. This method utilizes the natural pressure drop and velocity reduction that occurs as the inlet air passes through the screen [1-3]. Less common are inlet distortion generators designed for producing non-axial velocities, or swirl, at the inlet of the turbomachinery [4, 5]. These swirl generators have historically relied on turning vanes with prescribed placement such that the desired swirl profile is recreated at the face of the turbomachinery. In most cases, the resulting distortion pattern is assumed to be static, and may represent a time-averaged flowfield.

This SBIR/STTR topic aims to develop an advanced inlet distortion generator for turbine engine ground testing that can produce user-prescribed time-varying pressure, swirl, or both simultaneously within one-and-a-half-duct diameters downstream of the generating device. The distortion generator should be compatible with existing SAE ARP 1420 [6] best practices for distortion testing and evaluation as well as standard practices for engine and fan rig testing. The distortion generator should be capable of producing standard inlet distortion patterns as defined in SAE AIR 1419 [7] (pressure distortion) and SAE AIR 5686 [8] (swirl distortion) as well as capable of generating complex aircraft patterns. Design concepts should be scalable to accommodate various sizes of turbine engines as well as fan and compressor component rigs. The device should be able to reproduce an end user's defined pattern which may include localized areas with a time-varying reduction in total pressure and/or time-varying swirl flowfield. Knowledge of the flowfield interaction involving deficits of total pressure and non-uniform velocities

as it develops axially will be critical for the success of the distortion generator. The device may use fixed geometry to match desired flow fields at one condition or contain movable geometry capable of reproducing numerous flow fields. The device should have a mechanical design with low risk of failure and a low cost for research programs.

PHASE I: Develop methodology and feasibility of a low-cost concept for a novel distortion generator system capable of producing a user-prescribed time-varying total-pressure loss or time-varying non-uniform velocity field within one-and-a-half duct diameters downstream of the device. Methodology should be model-based and build upon fundamental concepts and literature. Governing equations and design parameters should be specified that show how the device can be scaled for different sizes, time scales, and magnitudes. Direct to Phase II proposals should demonstrate existing methodologies and concepts mature enough for prototype demonstration.

PHASE II: Develop proof of concept prototype using the methodology developed in Phase I and test under relevant conditions the ability to reproduce a complex flowfield with a time-varying component with localized pressure deficits of at least 10% at tunable frequencies up to 2x of the fan speed or with non-axial velocities equivalent to 10 degrees of swirl with a periodic variation at half the rotor speed. Continue development of design methodology to accurately predict and place complex flow features with a specified frequency up to one-and-a-half duct diameters downstream of the device. Continue development of the commercial merit of the device and its application to both civilian and military sectors.

PHASE III DUAL USE APPLICATIONS: Develop commercialization of the device, manufacturing methods, and finalize device form factor and capabilities. Evaluate market potential for military and civilian applications and assess required infrastructure for continued technology readiness level (TRL) and manufacturing readiness level (MRL) development. It is expected that this technology will be at a TRL of 4 at Phase III entry. AFRL/RQTT is a potential transition customer that may purchase a functional product. AFRL/RQTT plans to use this technology in a fan rig for Phase III efforts, demonstrating TRL of 6 for this planned technology.

REFERENCES:

1. Barlow, J. B., Rae, W. H. Jr., Pope, A., Low-Speed Wind Tunnel Testing, 3rd Edition, John Wiley & Sons, Inc., 1999.;
2. D. G. DeVahl, "The Flow of Air Through Wire Screens," *Hydraulics and Fluid Mechanics*, R. Sylvester, Pergamon, New York, 1964, pp. 191-212;
3. Pinker R.A., and Herbert M.V., "Pressure Loss Associated with Compressible Flow Through Square-Mesh Wire Gauzes," *Journal of Mechanical Engineering Science*, Vol 9, No 1, 1967;
4. Sanders D. D., Nessler, C. A., Copenhaver, W.W., List, M.G., and Janczewski, T.J., "Computational and Experimental Evaluation of a Complex Inlet Swirl Pattern Generation System", *AIAA Propulsion & Energy Exposition*, AIAA 2016-5008, Salt Lake City, UT, 2016.;
5. Nessler C. A, Sanders D. D., List M. G., Janczewski T. J., and Copenhaver W. W., "Axial Extent of Flowfield Variation from the StreamVane™ Swirl Pattern Generation System", *55th AIAA Aerospace Sciences Meeting*, AIAA 2017-1621, Grapevine, TX, 2017.;
6. SAE S-16 Committee, "Gas Turbine Engine Inlet Flow Distortion Guidelines," ARP 1420, Society of Automotive Engineers, 1998.;
7. SAE S-16 Committee, "Inlet Total-Pressure-Distortion Considerations for Gas-Turbine Engines", AIR 1419B, Society of Automotive Engineers, 2013.;
8. SAE S-16 Committee, "A Methodology for Assessing Inlet Swirl Distortion", AIR 5686, Society of Automotive Engineers, 2010

KEYWORDS: Inlet distortion generator; dynamic inlet distortion generator; time varying inlet distortion; embedded engine; turbine engine inlet distortion; distortion tolerant fans

**Defense Health Agency (DHA)
2023.C Small Business Technology Transfer (STTR)
Proposal Submission Instructions**

INTRODUCTION

The Defense Health Agency (DHA) SBIR/STTR Program seeks small businesses with strong research and development capabilities to pursue and commercialize medical technologies.

The Defense SBIR/STTR Innovation Portal (DSIP) is the official portal for DoD SBIR/STTR proposal submission. Proposers are required to submit proposals via DSIP; proposals submitted by any other means will be disregarded. Detailed instructions regarding registration and proposal format submission via DSIP are provided in the DoD STTR Program Broad Agency Announcement (BAA). Proposals not conforming to the terms of this BAA will not be considered.

DHA requirements in addition to or deviating from the DoD Program BAA are provided in the instructions below. Only Government personnel will evaluate proposals and provide technical analysis in the evaluation of proposals submitted against DHA topics.

Specific questions pertaining to the administration of the DHA SBIR/STTR Program and these proposal preparation instructions shall be directed to:

DHA SBIR Program Management Office (PMO) Email: usarmy.detrick.medcom-usamrmc.mbx.dhpsbir@health.mil

For technical questions about a topic during the pre-release period, contact the Topic Author(s) listed for each topic in the BAA. To obtain answers to technical questions during the formal BAA period, visit the Topic Q&A: <https://www.dodsbirsttr.mil/submissions/login>.

Proposers are encouraged to thoroughly review the DoD Program BAA and register for the DSIP Listserv to remain apprised of important programmatic and contractual changes.

- The DoD Program BAA is located at: <https://www.defensesbirsttr.mil/SBIR-STTR/Opportunities/#announcements>. Be sure to select the tab for the appropriate BAA cycle.
- Register for the DSIP Listserv at: <https://www.dodsbirsttr.mil/submissions/login>.

PHASE I PROPOSAL GUIDELINES

Technical Volume (Volume 2)

The technical volume is not to exceed **20 pages** and must follow the formatting requirements provided in the DoD STTR Program BAA. Do not duplicate the electronically-generated Cover Sheet or put information normally associated with the Technical Volume in other sections of the proposal as these will count toward the 20-page limit.

Only the electronically-generated Cover Sheet and Cost Volume are excluded from the 20-page limit. Technical Volumes that exceed the 20-page limit will be deemed non-compliant and will not be evaluated.

Cost Volume (Volume 3)

The Phase I amount must not exceed \$250,000 over a 6-month period of performance. Costs must be separated and clearly identified on the Proposal Cover Sheet (Volume 1) and in Volume 3.

Please review the updated Percentage of Work (POW) calculation details included in section 5.3 of the DoD Program BAA. Deviations from the POW requirements are not permitted.

Travel must be justified and relate to the project needs for direct Research Development Test & Evaluation (RDT&E) Technology Readiness Level (TRL) increasing costs. Travel costs must include the purpose of the trip(s), number of trips, origin and destination, length of trip(s), and number of personnel.

Company Commercialization Report (CCR) (Volume 4)

Completion of the CCR as Volume 4 of the proposal submission in DSIP is required. Please refer to the DoD STTR Program BAA for full details on this requirement. Information contained in the CCR will be considered by DHA during proposal evaluations.

Supporting Documents (Volume 5)

Volume 5 is provided for proposing small business concerns to submit additional documentation to support the submission. All proposing small business concerns are REQUIRED to submit the following documents to Volume 5:

1. Contractor Certification Regarding Provision of Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment (Attachment 1)
2. Disclosures of Foreign Affiliations or Relationships to Foreign Countries (Attachment 2)
3. Disclosure of Funding Sources (Attachment 4)

A completed proposal submission in DSIP does NOT indicate that the mandatory supporting documents have been uploaded. It is the responsibility of the proposing small business concern to ensure that the mandatory documents listed above have been uploaded and included with the proposal submission.

Fraud, Waste and Abuse Training Certification (Volume 6)

DoD requires Volume 6 for submission. Please refer to the Phase I Proposal section of the DoD STTR Program BAA for details.

PHASE II PROPOSAL GUIDELINES

Phase II proposals may only be submitted by Phase I awardees from this BAA. Phase II is the demonstration of the technology found feasible in Phase I. The details on the due date, content, and submission requirements of the Phase II proposal will be provided by the DHA STTR PMO typically in month five of the Phase I contract.

The DHA STTR Program will evaluate and select Phase II proposals using the evaluation criteria in the DoD STTR Program BAA. Due to limited funding, the DHA STTR Program reserves the right to limit awards under any topic and only proposals considered to be of superior quality will be funded. Small businesses submitting a proposal are required to develop and submit a Commercialization Strategy describing feasible approaches for transitioning and/or commercializing the developed technology in their Phase II proposal. This plan shall be included in the Technical Volume.

The Cost Volume must contain a budget for the entire 24-month Phase II period not to exceed the maximum dollar amount of \$1,300,000.

Budget costs must be submitted using the Cost Volume format (accessible electronically on the DoD submission site) and shall be presented side-by-side on a single Cost Volume Sheet.

DHA STTR Phase II Proposals have six Volumes: Proposal Cover Sheets, Technical Volume, Cost Volume, Company Commercialization Report, Supporting Documents, and Fraud, Waste, and Abuse. The Technical Volume has a 40-page limit including: table of contents, pages intentionally left blank, references, letters of support, appendices, technical portions of subcontract documents (e.g., statements of work and resumes) and any attachments.

Technical Volumes that exceed the 40-page limit will be deemed non-compliant and will not be evaluated.

DISCRETIONARY TECHNICAL AND BUSINESS ASSISTANCE (TABA)

The DHA STTR Program does not participate in the Technical and Business Assistance (formerly the Discretionary Technical Assistance Program). Contractors shall not submit proposals that include Technical and Business Assistance.

The DHA STTR Program has a Technical Assistance Advocate (TAA) who provides technical and commercialization assistance to small businesses that have Phase I and Phase II projects.

EVALUATION AND SELECTION

All proposals will be evaluated in accordance with the evaluation criteria listed in the DoD STTR Program BAA. Proposing firms will be notified via email to the Corporate Official of selection or non-selection status for a Phase I award within 90 days of the closing date of the BAA.

Non-selected companies may request feedback within 15 calendar days of the non-select notification. The Corporate Official identified in the firm's proposal shall submit the feedback request to the STTR Office at usarmy.detrick.medcom-usarmmc.mbx.dhpsbir@health.mil. Please note feedback is provided in an official PDF via email to the Corporate Official identified in the firm proposal within 60 days of receipt of the request. Requests for oral feedback will not be accommodated. If contact information for the Corporate Official has changed since proposal submission, a notice of the change on company letterhead signed by the Corporate Official must accompany the feedback request.

NOTE: Feedback is not the same as a FAR Part 15 debriefing. Acquisitions under this solicitation are awarded via "other competitive procedures". Therefore, offerors are neither entitled to nor will they be provided FAR Part 15 debriefs.

Refer to the DoD STTR Program BAA for procedures to protest the Announcement. As further prescribed in FAR 33.106(b), FAR 52.233-3, Protests after Award shall be submitted to:

Ms. Samantha L. Connors SBIR/STTR Chief, Contracts Branch 8
Contracting Officer
U.S. Army Medical Research Acquisition Activity
Email: Samantha.l.connors.civ@health.mil

AWARD AND CONTRACT INFORMATION

Phase I awards will total up to \$250,000 for a 6-month effort and will be awarded as Firm-Fixed-Price Purchase Orders.

Phase II awards will total up to \$1,300,000 for a 24-month effort and will typically be Firm-Fixed-Price contracts. If a different contracting type is preferred, such as cost-plus, the rationale as to why must be included in the proposal.

Phase I and II awardees will be informed of contracting and Technical Point of Contact upon award.

ADDITIONAL INFORMATION

RESEARCH INVOLVING HUMAN SUBJECTS, HUMAN SPECIMENS/DATA, OR ANIMAL RESEARCH

The DHA STTR Program highly discourages offerors from proposing to conduct Human Subjects, Human Specimens/Data, or Animal Research during Phase I due to the significant lead time required to prepare regulatory documentation and secure approval, which could substantially delay the performance of the Phase I award. While technical evaluations will not be negatively impacted, Phase I projects requiring Institutional Review Board approval may delay the start time of the Phase I award. If necessary regulatory approvals are not obtained within two months of notification of selection, the decision to award may be terminated.

Offerors are expressly forbidden to use, or subcontract for the use of, laboratory animals in any manner without the express written approval of the U.S. Army Medical Research and Development Command (USAMRDC) Animal Care and Use Review Office (ACURO). Written authorization to begin research under the applicable protocol(s) proposed for this award will be issued in the form of an approval letter from the USAMRDC ACURO to the recipient. Modifications to previously approved protocols require re-approval by ACURO prior to implementation.

Research under this award involving the use of human subjects, to include the use of human anatomical substances or human data, shall not begin until the USAMRDC's Office of Human and Animal Research Oversight (OHARO) provides formal authorization. Written approval to begin a research protocol will be issued from the USAMRDC OHARO, under separate notification to the recipient. Written approval from the USAMRDC OHARO is required for any sub-recipient using funds from this award to conduct research involving human subjects. If the Offeror intends to submit research funded by this award to the U.S. Food and Drug Administration, Offerors shall propose a regulatory strategy for review.

Non-compliance with any provision may result in withholding of funds and or termination of the award.

WAIVERS

The DHA STTR Program highly discourages offerors from proposing a federal facility use waiver during Phase I due to the significant lead time required to prepare documentation and secure approval, which could substantially delay the performance of the Phase I award.

In rare situations, the DHA STTR Program allows for a waiver to be incorporated allowing federal facility usage for testing/evaluation. A waiver will only be permitted when it has been determined that no applicable U.S. facility has the ability or expertise to perform the specified work. The DHA STTR Program has the right of refusal. If approved, the DHA STTR Program will assist in establishing the waiver for approval. If approved, the proposer will subcontract directly with the federal facility and not a third-party representative.

Transfer of funds between a company and a Military Lab must meet the following APAN 15-01 requirements (the full text of this notice can be found at <https://usamraa.health.mil/SiteAssets/APAN%2015-01%20Revised%20Feb%202018.pdf>):

- (1) The DoD Intramural Researcher must obtain a letter from his/her commanding officer or Military Facility director authorizing his/her participation in the Extramural Research project. This letter must be provided to the Extramural Organization for inclusion in the proposal or application.

- (2) The DoD Intramural Researcher must also coordinate with his/her local Resource Manager Office (or equivalent) to prepare a sound budget and justification for the estimated costs. Where there are no DoD-established reimbursement rates [e.g., institution review board (IRB) fees, indirect cost rates, etc.], the Military Facility's RM office (or equivalent) must provide details of how the proposed rates were determined. The DoD Intramural Researcher must use the budget and justification form enclosed in APAN 15-01 when developing the estimated costs and provide it to the Extramural Organization for inclusion in the proposal or application.
- (3) The Extramural Research proposal or application must include a proposed financial plan for how the Military Facility's Intramural Research costs will be supported [i.e., directly funded by DoD, resources (other than award funds) provided by the Awardee to the Military Facility, or award funds provided by the Awardee to the Military Facility (in accordance with the requirements below)].
- (4) The DoD Intramural Researcher should also coordinate with his/her technology transfer office.

International Traffic in Arms Regulation (ITAR)

For topics indicating ITAR restrictions or the potential for classified work, limitations are generally placed on disclosure of information involving topics of a classified nature or those involving export control restrictions, which may curtail or preclude the involvement of universities and certain non-profit institutions beyond the basic research level. Small businesses must structure their proposals to clearly identify the work that will be performed that is of a basic research nature and how it can be segregated from work that falls under the classification and export control restrictions. As a result, information must also be provided on how efforts can be performed in later phases, such as Phase III, if the university/research institution is the source of critical knowledge, effort, or infrastructure (facilities and equipment).

END

DHA STTR 23.C Topic Index

DHA23C-001	Multi-faceted mAb Development Program for Multi-Drug Resistant Wound Infections
DHA23C-002	Exosome Loaded Antibiotics for Bacterial Wound Infections
DHA23C-003	Development of an Exoskeleton Assistive Device that Augments Grip Strength for Seamless Mission Integration and Use in Military Casualty Transport Environment Scenarios

DHA23C-001 TITLE: Multi-faceted mAb Development Program for Multi-Drug Resistant Wound Infections

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Military Infectious Disease

OBJECTIVE: The objective of this topic would be to develop human monoclonal antibodies (mAbs) that have demonstrated efficacy and safety in a screening infected wound animal model against multi-drug resistant bacteria.

DESCRIPTION: Multi-drug resistant (MDR) infections have caused significant morbidity and mortality for US Service Members with battlefield wounds.¹ Among MDR bacteria, the ESKAPE pathogens (Enterococcus faecium, Staphylococcus aureus, Klebsiella pneumoniae, Acinetobacter baumannii, Pseudomonas aeruginosa, and Entrobacter spp.) have been identified as particularly problematic pathogens that complicate wounds of U.S. military casualties.² These species are commonly pan-resistant to most commercially available antibiotics. Monoclonal antibodies (mAbs) that specifically target and kill MDR are a promising alternative to antibiotics and vaccines. Passive immunotherapy with mAbs can provide protection against bacterial infection via multiple mechanisms, including neutralization, complement-mediated killing and opsonic phagocytosis. The use of biologics can also slow resistance development. Their long half-lives allow for minimal dosing which is optimal for prolonged field care. Typically mAbs storage conditions are minimal, (4oC) and have long shelf lives lasting 12 months or more allowing for reduced logistical challenges for deployed medical units. A targeted mAb would have utility at all roles of care within the military health spectrum. Utilizing the right techniques/methods, MDR specific mAbs can be generated significantly faster than small molecules or vaccines.

Thus far, development of therapeutic mAbs for use in bacterial infections have lagged behind other areas such as viral infections and cancer.³ Concentrated program efforts are needed instead of the typical use of a singular source through one development pathway. This program would require the combination of multiple sources and pathways with state of the art tools to maximize the efficiency and success rate.

This project would require a company to be able to draw from multiple sources of material for antibody generation: plasma cells from infected patients, Memory B cells from convalescent patients and plasma and Memory B cells from transgenic humanized animals. Each source of antibodies would undergo different screening and identification pathways using advanced methods such as single cell-based screening on Beacon instruments and the 10X Genomics Chromium system.

Combining multiple antibody sources from human and humanized animals with different pathways will enable high affinity antibodies that need no further modification to humanize them. The end product from this project will be at least 1 humanized antibody that has demonstrated in vitro and in vivo high affinity, safety and efficacy against one ESKAPE pathogen.

This approach to therapeutic antibody development will allow for a rapid, modifiable capability that should improve antibody therapeutic development timelines by months. This platform can be utilized for all the ESKAPE pathogens. In addition, it provides a mechanism for developing therapeutic antibodies for any emerging pathogen, greatly enhancing pandemic response capabilities.

PHASE I: This phase will be focused on antigen selection, synthesizing and purification. Based on available evidence, the most likely antigens to provide the most specific and robust immune response will be created and then purified. The company will need to demonstrate experience and capability in identifying ideal antigen candidates either through methods such as analysis of known surface protein sequences/structures or through antigen/phage library creation and down selection. Once candidates are selected, the synthesizing and purification of identified peptides will need to be demonstrated. The

company should have partners that they can collaborate with that has the ability to obtain human samples from infected patients. By the end of Phase 1 all necessary requirements to initiate human sample collection and animal immunization with target antigens will be performed.

PHASE II: This phase will focus on the development, purification, screening and testing of antibodies to generate at least 1 antibody specific for an ESKAPE pathogen. Antibodies that have undergone single cell screening and purification regardless of whether they came from human or transgenic animal sources will be further screened using rigorous in vitro tests. Any resulting antibody will be evaluated for efficacy and safety on a wound infection animal model validated for that ESKAPE pathogen. The resulting deliverable will be at least one antibody that has demonstrated in vitro and in vivo affinity, safety and efficacy in treating an ESKAPE pathogen. These antibodies will be ready for more advanced development. The multiple simultaneous approaches as part of this program allows for maximum opportunity for a successful antibody to be discovered and screened in a short time frame. A regulatory strategy that reflects a clinical Target Product Profile will need to be developed during this phase. It should include relevant in vitro/in vivo cross reactivity testing, immunogenicity, small and large animal toxicology studies and plans for pre-Investigational New Drug FDA meetings.

PHASE III DUAL USE APPLICATIONS: This phase would focus on in vivo and human research needed to obtain FDA approval. Starting with dose ranging and animal toxicology studies and progressing to the first in human Phase 1 study. Any company should have capabilities or partners with large scale Good Manufacturing Practices (GMP) manufacturing capabilities. Funding for further development efforts could be sought from such programs as the Joint Warfighter Medical Research Program, Biomedical Advanced Research and Development Authority or Medical Technology Enterprise Consortium. The end state would be an FDA approved therapeutic antibody to treat a multi-drug resistant ESKAPE pathogen. This would serve as a significant therapeutic tool to military and civilian caregivers. Once FDA approved, this product should have immediate interest from tertiary care civilian and military hospitals in treating highly resistant infections in intensive care or post-operative patients.

REFERENCES:

1. David R Tribble, MD, DrPH, Clinton K Murray, USA, MC, Bradley A Lloyd, USAF, MC, Anuradha Ganesan, MBBS, MPH, Katrin Mende, PhD, Dana M Blyth, USAF, MC, Joseph L Petfield, USA, MC, Jay McDonald, MD, After the Battlefield: Infectious Complications among Wounded Warriors in the Trauma Infectious Disease Outcomes Study, *Military Medicine*, Volume 184, Issue Supplement_2, November-December 2019, Pages 18–25, <https://doi.org/10.1093/milmed/usz027>
2. Katrin Mende, PhD, Kevin S Akers, MC, USA, Stuart D Tyner, MSC, USA, Jason W Bennett, MC, USA, Mark P Simons, USN, MSC, Dana M Blyth, USAF, MC, Ping Li, MS, Laveta Stewart, MSc, MPH, PhD, David R Tribble, MD, DrPH, Multidrug-Resistant and Virulent Organisms Trauma Infections: Trauma Infectious Disease Outcomes Study Initiative, *Military Medicine*, Volume 187, Issue Supplement_2, May-June 2022, Pages 42–51, <https://doi.org/10.1093/milmed/usab131>
3. Zurawski DV, McLendon MK. Monoclonal Antibodies as an Antibacterial Approach Against Bacterial Pathogens. *Antibiotics (Basel)*. 2020 Apr 1;9(4):155. doi: 10.3390/antibiotics9040155. PMID: 32244733; PMCID: PMC7235762

KEYWORDS: Monoclonal antibodies, multi-drug resistant organisms, bacterial infections, monoclonal antibody development, wound infections, ESKAPE pathogens

DHA23C-002 TITLE: Exosome Loaded Antibiotics for Bacterial Wound Infections

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Military Infectious Disease

OBJECTIVE: The objective of this topic would be to develop antibiotic loaded exosomes for topical application on wounds for prophylaxis or adjunct treatment indications.

DESCRIPTION: Multidrug-resistant bacterial infections increase mortality rates in wounded patients and are becoming a public health concern for both military and civilian patients worldwide.¹ As current antimicrobial therapies continue to lose efficacy against these pathogens, new countermeasures must be identified to maintain sufficient control of these infections. Among MDR bacteria, the ESKAPE pathogens (*Enterococcus faecium*, *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Acinetobacter baumannii*, *Pseudomonas aeruginosa*, and *Enterobacter* spp.) have been identified as particularly problematic pathogens that complicate wounds of U.S. military casualties.²

Topical application of antibiotics have long been evaluated as a potential route of administration as an adjunct or to prevent wound infections. In addition to the logistical advantages and ease of use of a topically applied antibiotic therapeutic, this route of administration affords the opportunity to decrease systemic absorption minimizing potential systemic toxicity that is common among many antibiotics given intravenously or orally to treat ESKAPE organisms. While its use in the surgical arena has demonstrated benefit, the efficacy of topical antibiotics in the field has been met with challenges such as poor tissue penetrance and local contact dermatitis side effects. A topical antibiotic product that could overcome these issues while demonstrating efficacy would have significant utilization potential as a prolonged field care tool as well as in the hospital setting. Current Tactical Combat Casualty Care Guidelines recommend the use of intravenous ertapenem for wound infections in soldiers that cannot take oral medications.³ While ertapenem's broad spectrum of activity and bacteriocidal activity make it a highly effective antibiotic, its systemic use as a prophylactic therapeutic, especially in the prolonged field care setting, create an ideal situation for resistance development. A topical ertapenem with similar efficacy in preventing infections would offer improvements in stability, storage, ease of use, decrease risk of resistance and dosing error. It could be utilized by medics or physicians at any level of care in the deployed setting.

Extracellular vesicles (EVs) are nanoscale, lipid bilayer delimited vesicles that serve as the fundamental intercellular communication system. As such, these vesicles are optimized to transport biomolecular cargo (e.g., amino acids, nucleic acids, small molecules) throughout biological systems. A subset of EVs called exosomes feature specific receptors and proteins that decorate the lipid bilayer of the vesicle and enable rapid uptake into target cells and signal for efficient processing of the delivered cargo. By themselves, exosomes have exhibited wound healing properties demonstrating free radical scavenging to enhance cell survival, recruitment and support of local tissue progenitor cells to rebuild tissue and promotion of neoangiogenesis to restore blood supply.⁴ Exosomes loaded with an antibiotic would provide a safe, targeted topical approach to treating or preventing wound infections. Repurposing already approved antibiotics will allow for a quicker regulatory pathway.

PHASE I: This phase will focus on exosome formulation with a broad spectrum antibiotic that could be used for prophylaxis topically on wounds or a narrow spectrum antibiotic targeted as an adjunct treatment for a multi-drug resistant ESKAPE pathogen. The exosome should be a reproducible, sterile, easily re-constituted and scalable product. Exosome size should be relatively uniform ranging from 100-400nm. The product should be stable at room temperature. The company should have or be able to develop a process through which maximum drug loading efficiency can be achieved while maintaining the integrity of the exosomes. They should be able to scale this process to a degree in which sufficient doses could be provided for clinical use. Appropriate quality control checks The deliverables of this phase will be the

manufacturing and quality control reports as well as a finished Current Good Manufacturing Practice (cGMP) product available for future use.

PHASE II: This phase will focus on pre-clinical evaluation of the antibiotic loaded exosome. Initial in vitro or ex vivo screening assays can be performed to further screen and refine prototypes. An in vitro biofilm model should be included with these assays. The next stage would involve evaluation of the exosome loaded antibiotic on an animal wound model. The wound model should be validated against whatever pathogen is to be tested against or prevented. In addition to safety and efficacy endpoints it should include a pharmacokinetic analysis to determine systemic exposure levels. End points such as time to wound closure, weight change, bacterial burden and clinical observations should be included. The deliverable for this phase would be an antibiotic loaded exosome that demonstrated safety and efficacy in a validated wound animal model with limited systemic exposure.

A regulatory strategy that reflects a clinical Target Product Profile (TPP) will need to be developed during this phase. This TPP should include information related to desired formulation, excipients, stability, quality control measures and manufacturing considerations. The regulatory strategy should include relevant in vitro release test and in vitro permeation test recommendations, small and large animal toxicology and pharmacokinetic/pharmacodynamics studies and plans for pre-Investigational New Drug FDA meetings.

PHASE III DUAL USE APPLICATIONS: This phase would focus on in vivo and human research needed to obtain FDA approval. Starting with dose ranging and animal toxicology studies and progressing to the first in human Phase 1 study. Similar exosome products have already undergone Phase 1 studies and by using already FDA approved antibiotics with a known safety profile the regulatory pathway may be shorter than traditional new molecular entities. Funding for further development efforts could be sought from such programs as the Joint Warfighter Medical Research Program, Biomedical Advanced Research and Development Authority or Medical Technology Enterprise Consortium. Once FDA approved, the use of a topical antibiotic that can be used to treat ESKAPE pathogens would have immediate utility and interest from civilian surgical centers for post-operative care and tertiary care inpatient and intensive care units as an adjunct for skin/wound infections.

REFERENCES:

1. Calhoun JH, Murray CK, Manring MM. Multidrug-resistant organisms in military wounds from Iraq and Afghanistan. *Clin Orthop Relat Res.* 2008 Jun;466(6):1356-62. doi: 10.1007/s11999-008-0212-9. Epub 2008 Mar 18. PMID: 18347888; PMCID: PMC2384049.
2. Katrin Mende, PhD, Kevin S Akers, MC, USA, Stuart D Tyner, MSC, USA, Jason W Bennett, MC, USA, Mark P Simons, USN, MSC, Dana M Blyth, USAF, MC, Ping Li, MS, Laveta Stewart, MSc, MPH, PhD, David R Tribble, MD, DrPH, Multidrug-Resistant and Virulent Organisms Trauma Infections: Trauma Infectious Disease Outcomes Study Initiative, *Military Medicine*, Volume 187, Issue Supplement_2, May-June 2022, Pages 42-51, <https://doi.org/10.1093/milmed/>
3. Committee on Tacticle Combat Casualty Care. *Tactical Combat Acsualty Care Guidelines for Medical Personnel.* 15 December 2021. <https://books.allogy.com/web/tenant/8/books/b729b76a-1a34-4bf7-b76b-66bb2072b2a7/>. Accessed 17 May 2023.
4. Shi A, Li J, Qiu X, Sabbah M, Boroumand S, Huang TC, Zhao C, Terzic A, Behfar A, Moran SL. TGF- β loaded exosome enhances ischemic wound healing in vitro and in vivo. *Theranostics.* 2021 Apr 30;11(13):6616-6631. doi: 10.7150/thno.57701. PMID: 33995680; PMCID: PMC8120220

KEYWORDS: Exosomes, topical antibiotics, multi-drug resistant organisms, bacterial infections, wound infections, ESKAPE pathogens

DHA23C-003 TITLE: Development of an Exoskeleton Assistive Device that Augments Grip Strength for Seamless Mission Integration and Use in Military Casualty Transport Environment Scenarios

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Combat Casualty Care

OBJECTIVE: Develop, demonstrate, and deliver an exoskeleton device that augments grip strength while using a litter in a military medical casualty transport environment without interfering in other mission requirements or medical transport device/equipment design and operation.

DESCRIPTION: Litter transport is a standard on-foot procedure for initial casualty evacuation from the point of injury to the tactical evacuation zone and at times the only mode of transportation to move the injured person. Using a litter is physically demanding for Service Members (SMs). During the evacuation, the litter team may be required to provide critical medical care while actively engaging in combat to protect themselves and the patient. A straightforward approach to the dilemma of litter bearer fatigue and injury is to develop a medical assistive device that lessens the physical demands on the litter bearer. Using an assistive device (e.g., exoskeleton) during litter transport could decrease fatigue and increase the litter bearer's ability to carry the litter, provide critical medical care, and sustain SM tasks.

Recently published recommendations by Madison (2022) are essential considerations for the development of a successful exoskeleton devices to maintain grip strength and dexterity of the SMs during dismounted litter load carriage tasks. Currently there are other available exoskeleton devices available for use however they do not meet the field medicine design requirements to specifically address grip strength augmentation while simultaneously allowing for dynamic movement over long distances. Designers should consider a possible solution to develop a quasi-passive, multi-joint, upper extremity exoskeleton for the medical user. The presence of a lower extremity exoskeleton would be beneficial to a litter bearer; however, grip strength is the first component to fatigue to exhaustion. This exhaustive state is why upper extremity exoskeletons take priority, but both can be beneficial to the SM. Thus, if lower extremity is included at any time during the design process, upper extremities must also be incorporated to assist with grip strength augmentation. Designers should consider using a combination of lighter actuators, such as pneumatic actuators or series elastic actuators, and passive actuators, such as springs or dampers. Combining these types of actuators may allow the exoskeleton to be lighter and consume less energy than if electric or hydraulic actuators were used. The use of passive actuators could also serve as a backup augmentation component if the exoskeleton runs on a limited power supply. The materials should be selected for durability in any terrain. The exoskeleton is required to withstand any environment in which they are employed and extreme temperatures (Crowell et al., 2019). Care must be taken to ensure the exoskeleton is adjustable to accommodate vast anthropometric variances among SMs. Exoskeletons should also easily be donned and doffed by the user to alleviate or reduce the possibility of improper fit (Gordon et al., 2014). The exoskeleton cannot require the litter team to surrender their weapons or remove body armor. The exoskeleton must not interfere with other current military medical equipment or weaponry (Crowell et al., 2019). The exoskeleton needs be easily integrated into the medical mission at hand and Army medics must also continue their care of the patient, which requires them to perform dexterity skills. For that reason, future exoskeletons must not interfere with patient evaluations, typical medical procedures, or any extra duties required of the SM (Blackbourne et al., 2012).

PHASE I: Develop device concepts and designs that address the desired capabilities and identified design requirements for an augmented grip strength exoskeleton to assist with casualty litter transport (Madison et al., 2022). Perform a technical trade assessment of the conceptual designs, to include improved combat performance following litter carry, a decrease in evacuation times, and decreasing the necessary four-person carry down to a two-person team. Work in Phase I should demonstrate the ability to integrate an exoskeleton device that augments grip strength during use in a military environment and during military

litter transport without interfering in other mission capabilities. Additionally, work in Phase I should demonstrate the field compatibility of the design by delivering documentation on the two most promising concept designs, anticipated developmental testing requirements, proposed test procedures and preliminary data to demonstrate functionality and compatibility of major design elements, working principles, and use. The performer will establish a work plan for subsequent development and prototyping. Along with the concept designs, the performer shall deliver breadboard mock-ups to the sponsor.

PHASE II: Government representatives will evaluate the proposed mock-up exoskeleton for use in simulated and real-world litter transport scenarios and provide feedback to the performer for development of a refined design for use in further testing. Performers will improve upon the selected design and refine the prototype design for wear by SM by additional testing and design improvements. The performer will deliver 6 functional prototypes (or 3 pairs if prototypes are developed as a singular side or separated into a left and right side) for use in testing and evaluation. The exoskeleton needs to be adjustable to work cohesively with the vast anthropometric variances among SMs as well as current and future field medical transport equipment and devices (e.g., litter systems, etc.). The prototype will also include any hardware/software interfaces that are required for system functionality (e.g., external power, charging capabilities, data download and processing, etc.). The Government representatives will evaluate the exoskeleton against the identified design requirements and engage subject matter experts for feedback on device design and use. Device feedback will be delivered to the performer, who will use the provided feedback in conjunction with the performer's identified deficiencies to refine the final design of the exoskeleton. After completion of the final design, 6 exoskeletons (or 3 pairs if design is developed as a singular side or separated into a left and right side) will be delivered along with design and validation testing documentation. The exoskeleton will be adjustable to work cohesively with the vast anthropometric variances among SMs. The final 6 prototypes (or 3 pairs as outlined above) will be evaluated in human volunteer research efforts to demonstrate their effectiveness in litter transport scenarios. The effects of the device on measures such as carry distance, grip strength, hand steadiness, marksmanship, and subjective user ratings will be evaluated.

PHASE III DUAL USE APPLICATIONS: A successful device will allow for litter bearers to transport casualties over greater distances with less fatigue, resulting in greater survivability for the Warfighter. Future and possible customers for a medical use exoskeleton intended to augment grip-strength are organizations with Search and Rescue responsibilities. Additionally, the device will be capable of integration with current and future-fielded civilian and military medical equipment/devices. Such organizations include local and State level first responders and the Department of Homeland Security Federal Emergency Management Agency during structural collapse in urban environments, the United States Department of Interior and National Park Services for inland-wilderness incidences and the Air Force Rescue Coordination Center, Air Education and Training Command, the Civil Air Patrol, the United States Navy, and United States Marine Corps helicopter squadrons during aeronautical search and rescues.

In several occupational fields, manual material handling tasks are still prevalent. Engineering an assistive device is one way to deal with these physically demanding jobs. The most common physically demanding activities performed by U.S. Army soldiers were found to be carrying and lifting. Conducting these tasks can cause injury, according to qualitatively analyzed evidence. Injuries to the musculoskeletal system are thought to cost the US economy at least \$7 billion and \$50 billion annually, respectively. Thus the exoskeleton could also find use in a number of industrial and commercial applications such as load carriage, tool handling, and manufacturing.

REFERENCES:

1. Blackbourne, L. H., Baer, D. G., Eastridge, B. J., Butler, F. K., Wenke, J. C., Hale, R. G., Kotwal, R. S., Brosch, L. R., Bebart, V. S., Knudson, M. M., Ficke, J. R., Jenkins, D., & Holcomb, J. B. (2012). Military medical revolution: Military trauma system. *Journal of Trauma and Acute Care Surgery*, 73(6), S388–S394.
https://journals.lww.com/jtrauma/Fulltext/2012/12005/Military_medical_revolution__Military_trauma.4.aspx
2. Crowell, H. P., Park, J.-H., Haynes, C. A., Neugebauer, J. M., & Boynton, A. C. (2019). Design, evaluation, and research challenges relevant to exoskeletons and exosuits: A 26-year perspective from the U.S. Army Research Laboratory. *IIEE Transactions on Occupational Ergonomics and Human Factors*, 7(3-4), 199–212.
<https://www.tandfonline.com/doi/abs/10.1080/24725838.2018.1563571>
3. Gordon, C. C., Blackwell, C. L., Bradtmiller, B., Parham, J. L., Barrientos, P., Paquette, S. P., Corner, B. D., Carson, J. M., Venezia, J. C., Rockwell, B. M., Mucher, M., & Kristensen, S. (2014). 2012 anthropometric survey of us army personnel: Methods and summary statistics (Report No. NATICK/TR-15/007). Army Natick Soldier Research Development and Engineering Center MA. <https://apps.dtic.mil/sti/citations/ADA611869>
4. Madison, A. M., Chambers, T. T., Stewart, A. S., & Chancey, V. C. (2022, Sept.). Evaluation of Litter Carriage Performance and Post-Carry Fatigue Effects in Prolonged Combat Field Care Environments (Part 1): Preliminary Design Considerations, Specifications, and Recommendations for Exoskeleton Feasibility, Suitability, and Efficacy in Dismounted Military Casualty Transport Scenarios. (Report No. USAARL-TECH-FR--2022-43). U.S. Army Aeromedical Research Laboratory, Fort Rucker, AL. <https://apps.dtic.mil/sti/trecms/pdf/AD1182730.pdf>

KEYWORDS: Litter carry, Casualty transport, Exoskeleton, Grip strength, Military casualty evacuation, Tactical evacuation, Medical evacuation, Assistive devices

**Defense Microelectronics Activity (DMEA)
23.C Small Business Technology Transfer (STTR) Open Topic
Proposal Submission Instructions**

INTRODUCTION

The Defense Microelectronics Activity (DMEA) SBIR/STTR Program is implemented, administrated, and managed by the DMEA Office of Small Business Programs (OSBP). Proposers responding to a topic in this BAA must follow all general instructions provided in the Department of Defense (DoD) STTR Program BAA. DMEA requirements in addition to or deviating from the DoD Program BAA are provided in the instructions below.

Proposers are encouraged to thoroughly review the DoD Program BAA and register for the DSIP Listserv to remain apprised of important programmatic and contractual changes.

- The DoD Program BAA is located at: <https://www.defensesbirstr.mil/SBIR-STTR/Opportunities/#announcements>. Be sure to select the tab for the appropriate BAA cycle.
- Register for the DSIP Listserv at: <https://www.dodsbirstr.mil/submissions/login>.

Specific questions pertaining to the administration of the DMEA SBIR/STTR Program and these proposal preparation instructions should be directed to the DMEA Acting SBIR/STTR Program Manager (PM), Mr. Tien Dang, at osd.mcclellan-park.dmea.list.smbus@mail.mil.

This release contains an open topic. As outlined in section 7 of the SBIR and STTR Extension Act of 2022, innovation open topic activities—

- (A) Increase the transition of commercial technology to the Department of Defense;
- (B) Expand the small business nontraditional industrial base;
- (C) Increase commercialization derived from investments of the Department of Defense; and
- (D) Expand the ability for qualifying small business concerns to propose technology solutions to meet the needs of the Department of Defense.

Unlike conventional topics, which specify the desired technical objective and output, open topics can use generalized mission requirements or specific technology areas to adapt commercial products or solutions to close capability gaps, improve performance, or provide technological advancements in existing capabilities.

A small business concern may only submit one (1) proposal to each open topic. If more than one proposal from a small business concern is received for a single open topic, only the most recent proposal to be certified and submitted prior to the submission deadline will receive an evaluation. All prior proposals submitted by the small business concern for the same open topic will be marked as nonresponsive and will not receive an evaluation.

PHASE I PROPOSAL GUIDELINES

The Defense SBIR/STTR Innovation Portal (DSIP) is the official portal for DoD SBIR/STTR proposal submission. Proposers are required to submit proposals via DSIP; proposals submitted by any other means will be disregarded. Detailed instructions regarding registration and proposal submission via DSIP are provided in the DoD STTR Program BAA.

DMEA intends for Phase I to be only an examination of the merit of the concept or technology that still involves technical risk, with a cost not exceeding \$ 98,642.00. The technical period of performance for the Phase I effort shall be no more than three (3) months.

A list of the topics currently eligible for proposal submission is included in this section followed by full topic descriptions. These are the only topics for which proposals will be accepted at this time. The topics are directly linked to DMEA's core research and development requirements.

Please ensure that your e-mail address listed in your proposal is current and accurate. DMEA cannot be responsible for notification to companies that change their mailing address, e-mail address, or company official after proposal submission.

Technical Volume (Volume 2)

The technical volume is not to exceed 10 pages and must follow the formatting requirements provided in the DoD STTR Program BAA. Technical volumes exceeding 10 pages will be deemed non-compliant and will not be evaluated.

Content of the Technical Volume

Read the DoD STTR Program BAA for detailed instructions on proposal format and program requirements. When you prepare your proposal submission, keep in mind that Phase I should address the feasibility of a solution to the topic. Only UNCLASSIFIED proposals will be accepted.

DMEA will evaluate and select Phase I proposals using the evaluation criteria contained in Section 6.0 of the DoD STTR Program BAA. Due to limited funding, DMEA reserves the right to limit awards under any topic, and only proposals considered to be of superior quality will be funded.

Cost Volume (Volume 3)

The Phase I Base amount must not exceed \$98,642.00. DMEA will conduct a price analysis to determine whether cost proposals, including quantities and prices, are fair and reasonable. Contractors should expect that cost proposals will be negotiated. Costs must be separated and clearly identified on the Proposal Cover Sheet (Volume 1) and in Volume 3.

The on-line cost volume for Phase I proposal submissions must be at a level of detail that would enable DMEA personnel to determine the purpose, necessity, and reasonability of each cost element. Provide sufficient information (a. through h. below) on how funds will be used if the contract is awarded. Include the itemized cost volume information (a. through h. below) as an appendix in your technical proposal. The itemized cost volume information (a. through h. below) will not count against the 10-page limit on Phase I proposal submissions.

a. Special Tooling and Test Equipment and Material: The inclusion of equipment and materials will be carefully reviewed relative to need and appropriateness of the work proposed. The purchase of special tooling and test equipment must, in the opinion of the Contracting Officer, be advantageous to the Government and relate directly to the specific effort. They may include such items as innovative instrumentation and/or automatic test equipment. Title to property furnished by the Government or acquired with Government funds will be vested with the DoD Component; unless it is determined that transfer of the title to the contractor would be more cost effective than recovery of the equipment by the DoD Component.

b. Direct Cost Materials: Justify costs for materials, parts, and supplies with an itemized list containing types, quantities, price, and where appropriate, purposes.

- c. Other Direct Costs: This category of costs includes specialized services such as machining or milling, special testing or analysis, costs incurred in obtaining temporary use of specialized equipment. Proposals, which include leased hardware, must provide an adequate lease versus purchase justification or rationale.
- d. Direct Labor: Identify key personnel by name if possible or by labor category if specific names are not available. The number of hours, labor overhead and/or fringe benefits and actual hourly rates for each individual are also necessary.
- e. Travel: Travel costs must relate to the needs of the project. Break out travel cost by trip, with the number of travelers, airfare, and per diem. Indicate the destination, duration, and purpose of each trip.
- f. Cost Sharing: Cost sharing is permitted. However, cost sharing is not required, nor will it be an evaluation factor in the consideration of a proposal.
- g. Subcontracts: Involvement of university or other consultants in the planning and /or research stages of the project may be appropriate. If the offeror intends such involvement, describe the involvement in detail and include information in the cost proposal. The proposed total of all consultant fees, facility leases, or usage fees and other subcontract or purchase agreements may not exceed one-third of the total contract price or cost, unless otherwise approved in writing by the Contracting Officer. Support subcontract costs with copies of the subcontract agreements. The supporting agreement documents must adequately describe the work to be performed (i.e., Cost Volume). At the very least, a statement of work with a corresponding detailed cost volume for each planned subcontract must be provided.
- h. Consultants: Provide a separate agreement letter for each consultant. The letter should briefly state what service or assistance will be provided, the number of hours required, and the hourly rate.

Please review the updated Percentage of Work (POW) calculation details included in the DoD Program BAA. DMEA will not accept any deviation to the POW requirements.

Company Commercialization Report (CCR) (Volume 4)

Completion of the CCR as Volume 4 of the proposal submission in DSIP is required. Please refer to the DoD STTR Program BAA for full details on this requirement. Information contained in the CCR will be considered by DMEA during proposal evaluations.

Supporting Documents (Volume 5)

All proposing small business concerns are REQUIRED to submit the following documents to Volume 5:

1. Contractor Certification Regarding Provision of Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment
2. Disclosures of Foreign Affiliations or Relationships to Foreign Countries
3. Disclosure of Funding Sources

Please refer to the DoD Program BAA for more information.

PHASE II PROPOSAL GUIDELINES

Phase II proposals may only be submitted by Phase I awardees. Phase II is the prototype/demonstration of the technology that was found feasible in Phase I. DMEA encourages, but does not require, partnership and outside investment as part of discussions with DMEA sponsors for potential Phase II efforts.

The Technical Volume is not to exceed 40 pages and consists of a single PDF file with your firm name, topic number, and proposal number in the header of each page. All documentation should use no smaller than 10 point font on standard 8.5" X 11" paper with one-inch margins and not be in two-column format. Do not include blank pages.

Phase II proposals may be submitted for an amount not to exceed \$1,315,219.00. The technical period of performance for the Phase II effort shall be no more than twenty-four (24) months.

Phase I awardees may submit a Phase II proposal without invitation not later than sixty (60) calendar days following the end of the Phase I contract. The Phase II proposal submission instructions are identified in the Phase I contract, Part I – The Schedule, Section H, Special contract requirements, “STTR Phase II Proposal Submission Instructions.”

All Phase II proposals must have a complete electronic submission per the Proposal Volumes area listed in Phase I. Your proposal must be submitted via the submission site on or before the DMEA-specified deadline or it will not be considered for award.

Due to limited funding, DMEA’s ability to award any Phase II, regardless of proposal quality or merit, is subject to availability of funds. Please ensure that your proposal is valid for 120 days after submission, and any extension to that time period will be requested by the Contracting Officer.

A Phase II contractor may receive up to one additional, sequential Phase II award for continued work on a project. The additional, sequential Phase II award has the same guideline amounts and limits as an initial Phase II award. Sequential, Phase II proposals shall be initiated by the Government Technical Point of Contact for the initial Phase II effort and must be approved by the DMEA SBIR/STTR Program Manager in advance.

DMEA STTR PHASE II ENHANCEMENT PROGRAM

To encourage transition of STTR into DoD systems, DMEA has a Phase II Enhancement policy. DMEA’s Phase II Enhancement program requirements include: up to one-year extension of existing Phase II, and up to \$657,610.00 matching SBIR funds. Applications are subject to review of the statement of work, the transition plan, and the availability of funding. DMEA will generally provide the additional Phase II Enhancement funds by modifying the Phase II contract.

DISCRETIONARY TECHNICAL AND BUSINESS ASSISTANCE (TAB A)

DMEA does not provide Discretionary Technical and Business Assistance (TAB A).

EVALUATION AND SELECTION

All proposals will be evaluated in accordance with the evaluation criteria listed in the DoD STTR Program BAA

Proposing firms will be notified of selection or non-selection status for a Phase I award within 90 days of the closing date of the BAA.

Refer to the DoD STTR Program BAA for procedures to protest the Announcement. As further prescribed in FAR 33.106(b), FAR 52.233-3, Protests after Award should be submitted to:

DMEA Acting SBIR/STTR Program Manager (PM):

- Name: Mr. Tien Dang
- Email: osd.mcclellan-park.dmea.list.smbus@mail.mil

END

DMEA STTR 23.C Topic Index

DMEA23C-P001 Applications to Assist in Analysis and Re-Engineering of Printed Circuit Board Assemblies

DMEA23C-P001 TITLE: Applications to Assist in Analysis and Re-Engineering of Printed Circuit Board Assemblies

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Microelectronics

OBJECTIVE: Design and implement technologies to assist in the process of extracting a printed circuit board design non-destructively from a printed circuit board assembly. These technologies may be purely software based or include a hardware component.

DESCRIPTION: The weapons systems of the Department of Defense (DoD) rely heavily on microelectronics to function. Sometimes the DoD does not have access to the technical design data for these microelectronics. In order to obtain the technical design data for these systems, the Defense Microelectronics Activity will analyze printed circuit boards (PCBs) and circuit card assemblies (CCAs) to create a technical data package that includes a schematic, Gerber file, and bill of materials (BoM). Sometimes the intent is to re-engineer the CCA, which requires the Gerber file to meet design rule checks and be manufacturable. The analysis may involve visual inspection, removing components to identify them, X-ray computed tomography (CT) of PCBs or CCAs, and use of a flying pin prober. There are a number of aspects of this process that are still challenging and DMEA seeks technologies to improve the process. Some examples of the challenging areas include:

- Passive Components:
 - o Identify passive component values in an automated way
- Visual Inspection:
 - o Identification of components from image, including extracting text, logos, and silkscreen labels
- X-ray CT of CCA:
 - o Beam hardening and scattering from components can obscure traces on the PCB
 - o Low dosage required to not damage flash components with ionizing radiation
 - o Extracting the layers of the PCB with board warping and reconstruction artifacts
- Clean design extraction:
 - o Generate a Gerber file from the layer images that conforms to design rules, minimizes polygon vertices, and matches the original design as closely as possible.

DMEA is looking for technologies that can be incorporated into existing PCB and CCA analysis workflows to help address challenges or automate tasks that are currently manual.

PHASE I: Conduct research on technology that addresses one or more challenges associated with non-destructively generating a schematic, bill of materials, and/or Gerber file of a CCA. The end product of Phase I is a feasibility study report, in which the following must be specified:

- 1) A clear description of the technology and how it is applied.
- 2) Any associated hardware required as part of the technology solution (e.g. fixturing, sensors, cameras, tools, etc.).
- 3) A clear description of any required hardware, software, training datasets or other requirements for the effective implementation of the technology.
- 4) A clear description of how to incorporate the technology into an overall workflow to generate the schematic, bill of materials, and/or Gerber file of a CCA.

PHASE II: Develop a prototype of the Phase I concept and demonstrate its operation. Validate the performance in a way that realistically demonstrates how the technology would be deployed. This demonstration will include scalability of the technology in terms of capacity, cost, and time.

PHASE III DUAL USE APPLICATIONS: There may be opportunities for further development of this innovation for use in a specific military or commercial application. During a Phase III program, the

contractor may refine the performance of the design and produce pre-production quantities for evaluation by the Government. The proposed technology will be applicable to both commercial and government fields that require an added level of security for their microelectronics parts. Government applications include anti-counterfeit applications and acquisition processes for microelectronics parts for weapon systems and other critical systems.

REFERENCES:

1. Asadizanjani N, Tehranipour M, Forte D. PCB Reverse Engineering Using Non-destructive X-ray Tomography and Advanced Image Processing. 2016. IEEE Transactions on Components, Packaging, and Manufacturing Technology. DOI: 10.1109/TCPMT.2016.2642824.
2. Park HS, Chung YE, Seo JK. Computed tomographic beam-hardening artefacts: mathematical characterization and analysis. Philos Trans A Math Phys Eng Sci. 2015 Jun 13;373(2043):20140388. doi: 10.1098/rsta.2014.0388. PMID: 25939628; PMCID: PMC4424484.

KEYWORDS: PCB, PCBA, CCA, X-ray CT, Electronics, Microelectronics

Missile Defense Agency (MDA)
23.C Small Business Technology Transfer (STTR)
Proposal Submission Instructions for Program on Innovation Open Topic

INTRODUCTION

The Missile Defense Agency's (MDA) mission is to develop and deploy a layered Missile Defense System to defend the United States, its deployed forces, allies, and friends from missile attacks in all phases of flight.

The MDA Small Business Technology Transfer (STTR) Program is implemented, administered, and managed by the MDA Small Business Innovation Research (SBIR)/STTR Program Management Office (PMO), located within the Innovation, Science, & Technology (DV) directorate.

Offerors responding to the topic in this Broad Agency Announcement (BAA) must follow all general instructions provided in the Department of Defense (DoD) STTR Program BAA. MDA requirements in addition to or deviating from the DoD Program BAA are provided in the instructions below.

Proposers are encouraged to thoroughly review the DoD Program BAA and register for the DSIP Listserv to remain apprised of important programmatic and contractual changes.

- The DoD Program BAA is located at: <https://www.defensesbirsttr.mil/SBIR-STTR/Opportunities/#announcements>. Be sure to select the tab for the appropriate BAA cycle.
- Register for the DSIP Listserv at: <https://www.dodsbirsttr.mil/submissions/login>.

The MDA STTR topic published in this BAA meets requirements of Section 7 of the SBIR and STTR Extension Act of 2022. Please read the instructions carefully as they deviate from MDA's typical SBIR/STTR Phase I proposal submission instructions.

This release contains an open topic. As outlined in section 7 of the SBIR and STTR Extension Act of 2022, innovation open topic activities—

- (A) Increase the transition of commercial technology to the Department of Defense;
- (B) Expand the small business nontraditional industrial base;
- (C) Increase commercialization derived from investments of the Department of Defense; and
- (D) Expand the ability for qualifying small business concerns to propose technology solutions to meet the needs of the Department of Defense.

Unlike conventional topics, which specify the desired technical objective and output, open topics can use generalized mission requirements or specific technology areas to adapt commercial products or solutions to close capability gaps, improve performance, or provide technological advancements in existing capabilities.

A small business concern may only submit one (1) proposal to each open topic. If more than one proposal from a small business concern is received for a single open topic, only the most recent proposal to be certified and submitted prior to the submission deadline will receive an evaluation. All prior proposals submitted by the small business concern for the same open topic will be marked as nonresponsive and will not receive an evaluation.

Specific questions pertaining to the administration of the MDA STTR Program and these proposal preparation instructions should be directed to:

Missile Defense Agency
SBIR/STTR Program Management Office

MDA/DVR
Bldg. 5224, Martin Road
Redstone Arsenal, AL 35898
Email: sbirsttr@mda.mil

IMPORTANT

Please read the instructions carefully as they deviate from MDA's typical SBIR/STTR Phase I proposal submission instructions.

Your proposal must conform to the terms of this announcement. MDA reserves the right not to consider any or all non-conforming proposals. MDA reserves the right to limit awards under the topic, and only those proposals of superior scientific and technical quality as determined by MDA will be funded. MDA reserves the right to withdraw from negotiations at any time prior to contract award. The Government may withdraw from negotiations at any time for any reason to include matters of national security (foreign persons, foreign influence or ownership, inability to clear the firm or personnel for security clearances, or other related issues). Only United States small businesses and certain individuals are eligible to participate in the SBIR/STTR programs. A small business must meet the eligibility requirements set forth in 13 CFR 121.702. Please see the Small Business Administration (SBA) SBIR/STTR website: <https://www.sbir.gov/about#eligibility>

Please read the entire DoD Announcement and MDA instructions carefully prior to submitting your proposal. Please go to <https://www.sbir.gov/about#policy-directive> to read the SBIR/STTR Policy Directive issued by the SBA.

PHASE I PROPOSAL GUIDELINES

The Defense SBIR/STTR Innovation Portal (DSIP) is the official portal for DoD SBIR/STTR proposal submission. Offerors are required to submit proposals via DSIP; proposals submitted by any other means will be disregarded. Detailed instructions regarding registration and proposal submission via DSIP are provided in the DoD STTR Program BAA.

A small business concern may only submit one proposal. If more than one proposal from a small business concern is received for the topic, only the most recent proposal to be certified and submitted prior to the submission deadline will receive an evaluation. All prior proposals submitted by the small business concern will be marked as nonresponsive and will not receive an evaluation.

DSIP (available at <https://www.dodsbirsttr.mil>) will lead you through the preparation and submission of your proposal. Read the front section of the DoD announcement for detailed instructions on proposal format and program requirements. Proposals not conforming to the terms of this announcement may not be considered.

MDA's objective for Phase I is to determine the merit and technical feasibility of the concept. The contract period of performance for Phase I is six months.

Proposal Cover Sheet (Volume 1)

On DSIP at <https://www.dodsbirsttr.mil/submissions>, prepare the Proposal Cover Sheet.

Technical Volume (Volume 2)

The technical volume is not to exceed 10 pages and must follow the formatting requirements provided in the DoD STTR Program BAA. Any pages submitted beyond the 10 page limit will not be evaluated.

Content of the Technical Volume

For technical volume format guidance, please refer to the “Format of Technical Volume” section within the DoD STTR 23.C BAA.

Cost Volume (Volume 3)

The Phase I Base amount must not exceed \$150,000. MDA does not utilize the Phase I Option.

Company Commercialization Report (CCR) (Volume 4)

Completion of the CCR as Volume 4 of the proposal submission in DSIP is required. Please refer to the DoD STTR Program BAA for full details on this requirement. Information contained in the CCR will not be considered by MDA during proposal evaluations.

Supporting Documents (Volume 5)

All proposing small business concerns are REQUIRED to submit the following documents to Volume 5:

1. Contractor Certification Regarding Provision of Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment
2. Disclosures of Foreign Affiliations or Relationships to Foreign Countries
3. Disclosure of Funding Sources

Please refer to the DoD Program BAA for more information.

In addition to the requirements listed in the DoD STTR 23.C BAA, MDA will only accept letters of support as part of Volume 5.

If including letters of support, they MUST be uploaded using the “Letters of Support” category within Volume 5 of DSIP. A qualified letter of support is from a relevant commercial or Government Agency procuring organization(s) working with MDA, articulating their pull for the technology (i.e., what Missile Defense Systems need(s) the technology supports and why it is important to fund it), and possible commitment to provide additional funding and/or insert the technology in their acquisition/sustainment program. Letters of support shall not be contingent upon award of a subcontract.

Any documentation other than required documents listed in the DoD STTR 23.C BAA and letter(s) of support included as part of Volume 5 WILL NOT be considered.

PHASE II PROPOSAL GUIDELINES

Phase II proposals may only be submitted by Phase I awardees. Details on the due date, format, content, and submission requirements of the Phase II proposal will be provided by the MDA SBIR/STTR PMO during the fourth month of the Phase I period of performance.

MDA will evaluate and select Phase II proposals using the Phase II evaluation criteria listed in the DoD Program announcement. While funding must be based upon the results of work performed under a Phase I award and the scientific and technical merit, feasibility and commercial potential of the Phase II proposal, Phase I final reports will not be reviewed as part of the Phase II evaluation process. The Phase II proposal should include a concise summary of the Phase I effort including the specific technical problem or opportunity addressed and its importance, the objective of the Phase I effort, the type of research conducted, findings or results of this research, and technical feasibility of the proposed technology. Due to limited funding, MDA reserves the right to limit awards under any topic and only proposals considered to be of superior quality will be funded.

All Phase II awardees must have a Defense Contract Audit Agency (DCAA) approved accounting system. It is strongly urged that an approved accounting system be in place prior to the MDA Phase II award timeframe. If you do not have a DCAA approved accounting system, this will delay/prevent Phase II contract award. Please visit <https://www.dcaa.mil/Customers/Small-Business> for more information on obtaining a DCAA approved accounting system.

DISCRETIONARY TECHNICAL AND BUSINESS ASSISTANCE (TABA)

MDA is not offering TABA as part of the MDA STTR 23.C BAA.

EVALUATION AND SELECTION

All proposals will be evaluated in accordance with the evaluation criteria listed in the DoD STTR Program BAA. Selections will be based on best value to the Government considering the evaluation criteria listed in the DoD STTR Program BAA which are listed in descending order of importance.

MDA reserves the right to award none, one, or more than one contract under any topic. MDA is not responsible for any money expended by the offeror before award of any contract. Due to limited funding, MDA reserves the right to limit awards under any topic and only proposals considered to be of superior quality as determined by MDA will be funded.

It cannot be assumed that reviewers are acquainted with the firm or key individuals or any referenced experiments. Technical reviewers will base their conclusions only on information contained in the proposal. Relevant supporting data such as journal articles, literature, including Government publications, etc., should be listed in the proposal and will count toward the applicable page limit.

AWARD AND CONTRACT INFORMATION

The MDA SBIR/STTR PMO will distribute selection and non-selection email notices to all firms who submit an MDA STTR proposal. Proposing firms will be notified of selection or non-selection status for a Phase I award within 90 days of the closing date of the BAA. The email will be distributed to the “Corporate Official” and “Principal Investigator” listed on the proposal coversheet and will originate from the sbirsttr@mda.mil email address. MDA cannot be responsible for notification to a company that provides incorrect information or changes such information after proposal submission.

MDA will provide written feedback to unsuccessful offerors regarding their proposals upon request. Requests for feedback must be submitted in writing to the MDA SBIR/STTR PMO within 30 calendar days of non-selection notification. Non-selection notifications will provide instructions for requesting proposal feedback. Only firms that receive a non-selection notification are eligible for written feedback. Refer to the DoD STTR Program BAA for procedures to protest the announcement.

As further prescribed in Federal Acquisition Regulation (FAR) 33.106(b), and in accordance with FAR clause 52.233-3 Protest after Award, any protests after award should be submitted to Tina Barnhill via email: sbirsttr@mda.mil.

The MDA will issue all contract awards. The cognizant Government Contracting Officer is the only Government official authorized to enter into any binding agreement or contract on behalf of the Government.

Offeror Small Business Eligibility Requirements

Each offeror must qualify as a small business at time of award per the SBA’s regulations at [13 CFR 121.701-121.705](https://www.ecfr.gov/current/title-13/chapter-I/subchapter-B/part-121/subpart-121.701) and certify to this in the Cover Sheet section of the proposal. Small businesses that are selected for award will also be required to submit a Funding Agreement Certification document and be registered with Supplier Performance Risk System <https://www.sprs.csd.disa.mil/> prior to award.

Ownership Eligibility

Prior to award, MDA may request business/corporate documentation to assess ownership eligibility as related to the requirements of SBIR/STTR Program Eligibility. These documents include, but may not be limited to, the Business License; Articles of Incorporation or Organization; By-Laws/Operating Agreement; Stock Certificates (Voting Stock); Board Meeting Minutes for the previous year; and a list of all board members and officers. If requested by MDA, the offeror shall provide all necessary documentation for evaluation prior to STTR award. Failure to submit the requested documentation in a timely manner as indicated by MDA may result in the offeror's ineligibility for further consideration for award.

Performance Benchmark Requirements for Phase I Eligibility

MDA does not accept proposals from firms that are currently ineligible for Phase I awards as a result of failing to meet the benchmark rates at the last assessment. Additional information on Benchmark Requirements can be found in the DoD SBIR/STTR Program BAA.

References to Hardware, Computer Software, or Technical Data

In accordance with the SBIR/STTR Policy Directive, the work within the SBIR/STTR contracts are to conduct feasibility-related experimental or theoretical Research/Research and Development (R/R&D) related to described agency requirements. The purpose for Phase I is to determine the scientific and technical merit and feasibility of the proposed effort.

It is not intended for any formal end-item contract delivery and ownership by the Government of your hardware, computer software, or technical data. As a result, your technical proposal should not contain any reference to the term "Deliverables" when referring to your hardware, computer software, or technical data. Instead use the term: "Products for Government Testing, Evaluation, Demonstration, and/or possible destructive testing."

The standard (if applicable) formal deliverables for a Phase I are the:

- A001: Report of Invention(s), Contractor, and/or Subcontractor(s) // Patent Application for Invention
- A002: Status Report // Phase I Bi-monthly Status Report
- A003: Contract Summary Report // Phase I Final Report
- A004: Certification of Compliance // STTR Funding Agreement Certification - Life Cycle Certification
- A005: Computer Software Product // Product Description
- A006: Technical Report - Study Services // Prototype Design and Operation Document

FAR 52.203-5 Covenant Against Contingent Fees

As prescribed in [FAR 3.404](#), the following [FAR 52.203-5](#) clause shall be included in all contracts awarded under this BAA:

(a) The Contractor warrants that no person or agency has been employed or retained to solicit or obtain this contract upon an agreement or understanding for a contingent fee, except a bona fide employee or agency. For breach or violation of this warranty, the Government shall have the right to annul this contract without liability or to deduct from the contract price or consideration, or otherwise recover, the full amount of the contingent fee.

(b) "Bona fide agency," as used in this clause, means an established commercial or selling agency, maintained by a contractor for the purpose of securing business, that neither exerts nor proposes to exert improper influence to solicit or obtain Government contracts nor holds itself out as being able to obtain any Government contract or contracts through improper influence.

"Bona fide employee," as used in this clause, means a person, employed by a contractor and subject to the contractor's supervision and control as to time, place, and manner of performance, who neither exerts nor proposes to exert improper influence to solicit or obtain Government contracts nor holds out as being able to obtain any Government contract or contracts through improper influence.

"Contingent fee," as used in this clause, means any commission, percentage, brokerage, or other fee that is contingent upon the success that a person or concern has in securing a Government contract.

"Improper influence," as used in this clause, means any influence that induces or tends to induce a Government employee or officer to give consideration or to act regarding a Government contract on any basis other than the merits of the matter.

ADDITIONAL INFORMATION

Federally Funded Research and Development Centers (FFRDCs) and Support Contractors

Only Government personnel with active non-disclosure agreements will evaluate proposals. Non-Government technical consultants (consultants) to the Government may review and provide support in proposal evaluations during source selection. Consultants may have access to the offeror's proposals, may be utilized to review proposals, and may provide comments and recommendations to the Government's decision makers. Consultants will not establish final assessments of risk and will not rate or rank offerors' proposals. They are also expressly prohibited from competing for MDA STTR awards in the STTR topics they review and/or on which they provide comments to the Government.

All consultants are required to comply with procurement integrity laws. Consultants will not have access to proposals or pages of proposals that are properly labeled by the offerors as "Government Only." Pursuant to [FAR 9.505-4](#), the MDA contracts with these organizations include a clause which requires them to (1) protect the offerors' information from unauthorized use or disclosure for as long as it remains proprietary and (2) refrain from using the information for any purpose other than that for which it was furnished. In addition, MDA requires the employees of those support contractors that provide technical analysis to the SBIR/STTR Program to execute non-disclosure agreements. These agreements will remain on file with the MDA SBIR/STTR PMO.

Non-Government consultants will be authorized access to only those portions of the proposal data and discussions that are necessary to enable them to perform their respective duties. In accomplishing their duties related to the source selection process, employees of the aforementioned organizations may require access to proprietary information contained in the offerors' proposals.

SBA Company Registry

Per the SBIR/STTR Policy Directive, all applicants are required to register their firm at SBA's Company Registry prior to submitting a proposal. Upon registering, each firm will receive a unique control Identification number to be used for submissions at any of the 11 participating agencies in the SBIR or STTR program. For more information, please visit the SBA's Firm Registration Page: <http://www.sbir.gov/registration>.

Organization Conflicts of Interest (OCI)

The general OCI rules for Contractors that support development and oversight of STTR topics are covered in FAR [9.505-1](#) through [FAR 9.505-4](#) as the means of avoiding, neutralizing, or mitigating organizational conflicts of interest.

All applicable rules under the FAR Section [FAR 9.5](#) apply.

If you, or another employee in your company, developed or assisted in the development of any STTR requirement or topic, please be advised that your company may have an OCI. Your company could be precluded from an award under this BAA if your proposal contains anything directly relating to the development of the requirement or topic. Before submitting your proposal, please examine any potential OCI issues that may exist with your company to include subcontractors and understand that if any exist, your company may be required to submit an acceptable OCI mitigation plan prior to award.

In addition, [FAR 3.101-1](#) states that Government business shall be conducted in a manner above reproach and, except as authorized by statute or regulation, with complete impartiality and with preferential treatment for none. The general rule is to avoid strictly any conflict of interest or even the appearance of a conflict of interest in Government-contractor relationships. An appearance of impropriety may arise where an offeror may have gained an unfair competitive advantage through its hiring of, or association with, a former Government official if there are facts indicating the former Government official, through their former Government employment, had access to non-public, competitively useful information. (See *Health Net Fed. Svcs*, B-401652.3; *Obsidian Solutions Group, LLC*, B-417134, 417134.2). The existence of an unfair competitive advantage may result in an offeror being disqualified and this restriction cannot be waived.

It is MDA policy to ensure all appropriate measures are taken to resolve OCI's arising under [FAR 9.5](#) and unfair competitive advantages arising under [FAR 3.101-1](#) to prevent the existence of conflicting roles that might bias a contractor's judgment and deprive MDA of objective advice or assistance, and to prevent contractors from gaining an unfair competitive advantage.

Use of Foreign Nationals (also known as Foreign Persons), Green Card Holders, and Dual Citizens

See the "Foreign Nationals" section of the DoD STTR Program announcement for the definition of a Foreign National (also known as Foreign Persons).

ALL offerors proposing to use foreign nationals, green-card holders, or dual citizens, MUST disclose this information regardless of whether the topic is subject to export control restrictions. Identify any foreign nationals or individuals holding dual citizenship expected to be involved on this project as a direct employee, subcontractor, or consultant. For these individuals, please specify their country of origin, the type of visa or work permit under which they are performing and an explanation of their anticipated level of involvement on this project. You may be asked to provide additional information during negotiations in order to verify the foreign citizen's eligibility to participate on a STTR contract. Supplemental information provided in response to this paragraph will be protected in accordance with the Privacy Act (5 U.S.C. 552a), if applicable, and the Freedom of Information Act (5 U.S.C. 552(b)(6)).

Proposals submitted to export control-restricted topics and/or those with foreign nationals, dual citizens, or green card holders listed will be subject to security review during the contract negotiation process (if selected for award). MDA reserves the right to vet all un-cleared individuals involved in the project, regardless of citizenship, who will have access to Controlled Unclassified Information (CUI) such as export controlled information. If the security review disqualifies a person from participating in the proposed work, the contractor may propose a suitable replacement. In the event a proposed person and/or firm is found ineligible by the Government to perform proposed work, the Contracting Officer will advise the offeror of any disqualifications but is not required to disclose the underlying rationale.

Export Control Restrictions

The technology within most MDA topics is restricted under export control regulations including the International Traffic in Arms Regulations (ITAR) and the Export Administration Regulations (EAR). ITAR controls the export and import of listed defense-related material, technical data and services that provide the United States with a critical military advantage. EAR controls military, dual-use and commercial items not listed on the United States Munitions List or any other export control lists. EAR regulates export controlled items based on user, country, and purpose. The offeror must ensure that their firm complies with all applicable export control regulations. Please refer to the following URLs for additional information: <https://www.pmddtc.state.gov/> and <https://www.bis.doc.gov/index.php/regulations/export-administration-regulations-ear>.

All MDA STTR topics are subject to ITAR and/or EAR. Your company will be required to submit a Technology Control Plan (TCP) during the contracting negotiation process.

Flow-Down of Clauses to Subcontractors

The clauses to which the prime contractor and subcontractors are required to comply include, but are not limited to the following clauses: MDA clause H-08 (Public Release of Information), [DFARS 252.204-7000 \(Disclosure of Information\)](#), [DFARS clause 252.204-7012 \(Safeguarding Covered Defense Information and Cyber Incident Reporting\)](#), [DFARS clause 252.204-7020 \(NIST SP 800-171 DoD Assessment Requirements\)](#), MDA clause H-09 (Organizational Conflict of Interest), MDA clause H-27 (Foreign Persons), and MDA clause H-28 (Distribution of Control Technical Data). Your proposal submission confirms that any proposed subcontract is in accordance to the clauses cited above and any other clauses identified by MDA in any resulting contract. All proposed universities will need to provide written acceptance of the Flow-Down Clauses in both SBIR and STTR proposals.

MDA Clause H-08 Public Release of Information (Publication Approval)

MDA Clause H-08 pertaining to the public release of information is incorporated into all MDA STTR contracts and subcontracts without exception. Any information relative to the work performed by the contractor under all MDA STTR contracts must be submitted to the Procuring Contracting Officer (PCO) for review and approval prior to its release to the public. This mandatory clause also includes subcontractors, who shall provide their submission through the prime contractor for MDA's approval for release.

a. In addition to the requirements of National Industrial Security Program Operations Manual (DoD 5220.22-M), all foreign and domestic contractor(s) and its subcontractors are required to comply with the following:

1) Any official MDA information/materials that a contractor/subcontractor intends to release to the public that pertains to any work under performance of this contract, the MDA will perform a prepublication review prior to authorizing any release of information/materials.

2) At a minimum, these information/materials may be technical papers, presentations, articles for publication, key messages, talking points, speeches, and social media or digital media, such as press releases, photographs, fact sheets, advertising, posters, videos, etc.

b. Subcontractor public information/materials must be submitted for approval through the prime contractor to MDA.

c. Upon request to the MDA PCO, contractors shall be provided the "Request for Industry Media Engagement" form (or any superseding MDA form).

d. At least 45 calendar days prior to the desired release date, the contractor must submit the required form and information/materials to be reviewed for public release to MDAPressOperations@mda.mil, and simultaneously provide courtesy copy to the appropriate PCO.

e. All information/materials submitted for MDA review must be an exact copy of the intended item(s) to be released, must be of high quality and are free of tracked changes and/or comments. Photographs must have captions, and videos must have the intended narration included. All items must be marked with the applicable month, day, and year.

f. No documents or media shall be publically released by the contractor without MDA Public Release approval.

g. Once information has been cleared for public release, it resides in the public domain and must always be used in its originally cleared context and format. Information previously cleared for public release but containing new, modified or further developed information must be re-submitted

Rights in Noncommercial Technical Data and Computer Software – SBIR/STTR Program (DFARS 252.227-7018 Class Deviation 2020-O0007 Revision 1)

Use this link for full description of Data Rights:

<https://www.acq.osd.mil/dpap/policy/policyvault/USA001352-23-DPC.pdf>

Fraud, Waste, and Abuse

All offerors must complete the fraud, waste, and abuse training (Volume 6) that is located on DSIP (<https://www.dodsbirsttr.mil>). Please follow guidance provided on DSIP to complete the required training.

To Report Fraud, Waste, or Abuse, Please Contact:

MDA Fraud, Waste & Abuse

Hotline: (256) 313-9699

MDAHotline@mda.mil

DoD Inspector General (IG) Fraud, Waste & Abuse

Hotline: (800) 424-9098

hotline@dodig.mil

Additional information on Fraud, Waste and Abuse may be found in the DoD Instructions of this announcement.

Proposal Submission

All proposals MUST be submitted online using DSIP (<https://www.dodsbirsttr.mil>). Any questions pertaining to the DoD SBIR/STTR submission system should be directed to the DoD SBIR/STTR Help Desk: DoDSBIRSupport@reisystems.com.

It is recommended that potential offerors email topic authors to schedule a time for topic discussion during the pre-release period.

Classified Proposals

Classified proposals **ARE NOT** accepted under the MDA STTR Program. The inclusion of classified data in an unclassified proposal **MAY BE** grounds for the Agency to determine the proposal as non-responsive and the proposal not to be evaluated. Contractors currently working under a classified MDA STTR contract must use the security classification guidance provided under that contract to verify new

STTR proposals are unclassified prior to submission. Phase I contracts are not typically awarded for classified work. However, in some instances, work being performed on Phase II contracts will require security clearances. If a Phase II contract will require classified work, the offeror must have a facility clearance and appropriate personnel clearances in order to perform the classified work. For more information on facility and personnel clearance procedures and requirements, please visit the Defense Counterintelligence and Security Agency Web site at: <https://www.dcsa.mil>.

Use of Acronyms

Acronyms should be spelled out the first time they are used within the technical volume (Volume 2), the technical abstract, and the anticipated benefits/potential commercial applications of the research or development sections. This will help avoid confusion when proposals are evaluated by technical reviewers.

Communication

All communication from the MDA SBIR/STTR PMO will originate from the sbirsttr@mda.mil email address. Please white-list this address in your company's spam filters to ensure timely receipt of communications from our office.

Proposal titles, abstracts, anticipated benefits, and keywords of proposals that are selected for contract award will undergo an MDA Policy and Security Review. Proposal titles, abstracts, anticipated benefits, and keywords are subject to revision and/or redaction by MDA. Final approved versions of proposal titles, abstracts, anticipated benefits, and keywords may appear on DSIP and/or the SBA's SBIR/STTR award site (<https://www.sbir.gov/sbirsearch/award/all>).

Approved for Public Release (instructions)

23-MDA-11555 (11 Aug 23)

MDA STTR 23.C Topic Index

MDA23-P001

Open Topic for Radiation Hardened Microelectronics

MDA23-P001 TITLE: Open Topic for Radiation Hardened Microelectronics

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Microelectronics

The technology within this topic is restricted under the International Traffic in Arms Regulation (ITAR), 22 CFR Parts 120-130, which controls the export and import of defense-related material and services, including export of sensitive technical data, or the Export Administration Regulation (EAR), 15 CFR Parts 730-774, which controls dual use items. Offerors must disclose any proposed use of foreign nationals (FNs), their country(ies) of origin, the type of visa or work permit possessed, and the statement of work (SOW) tasks intended for accomplishment by the FN(s) in accordance with the Announcement. Offerors are advised foreign nationals proposed to perform on this topic may be restricted due to the technical data under US Export Control Laws.

OBJECTIVE: The objective of this open topic is to solicit potentially valuable small business Radiation Hardened Microelectronics (RadHard ME) focused innovations to missile defense and create an opportunity to expand the relevance of the STTR programs to firms who do not normally compete for STTR awards.

DESCRIPTION: Radiation hardened electronics are critical for many missile defense platforms. Missile defense applications have a need to operate in stressing natural and man-made environments. While this RadHard ME open topic may accept proposals on any technical challenge requiring a RadHard ME application, the government is seeking submissions that address the following:

- Radiation Effects- including Heavy Ion, X-ray Proton, and Pulsed Neutron Single Event Effects on Electronic Devices
- New single event effects (SEE) test methodologies, techniques, technologies, or alternate particle sources such as using LASERS
- Modeling and simulation methodologies to evaluate and distinguish between radiation effects from a persistent beta and gamma environment, and determine the circumstances where testing for one environment is sufficient to show survivability in the other, or in a combined environment
- Modeling and simulation methodologies to predict radiation damage to microelectronics and evaluate microelectronics for survivability in radiation environments
- Develop test methodologies to evaluate and distinguish between radiation effects from a persistent beta and gamma environment, and determine the circumstances where testing for one environment is sufficient to show survivability in the other, or in a combined environment
- System component health monitoring during radiation events to determine impacts of effects and application of automatic annealing techniques to maintain system operation
- Automated test software to improve testing speeds, to include the use of Artificial Intelligence/Machine Learning (AI/ML)
- Radio frequency (RF) communications in a radiation environment
- Radhard ME optimized for size, weight, and power (SWaP)
- Radiation hardened inertial measurement units (IMUs) suitable for hypersonic flight, Focal Plane Arrays (FPAs), Readout Integrated Circuits (ROICs), processors, memory, mixed-signal analog parts, optics & coatings, and power parts that meet the following specifications: Total Ionizing Dose (≥ 1 megarad (SiO₂)), Single Event Upset Rate ($1E-10$ (errors/device-day)), Single Event Latch-Up (≥ 90 (Linear Energy Transfer)), Dose Rate Upset ($\geq 1E10$ (rad(Si)/s)), Dose Rate Survivability ($\geq 1E12$ (rad(Si)/s)), Displacement Damage (fluence of $\geq 1E14$, with 1MeV energy equivalent neutrons/cm²)).

PHASE I: Conduct a feasibility study to demonstrate the technical and commercial practicality of the concept to include an assessment of its technical readiness and potential applicability to military and commercial markets.

PHASE II: Complete a prototype incorporating Government performance requirements, and demonstrate said prototype. Coordinate with the Government during prototype design and development to ensure that the delivered products would be relevant to ongoing missile defense architecture needs.

PHASE III DUAL USE APPLICATIONS: Conduct engineering and manufacturing development, test, evaluation in a realistic system environment or in a system level test-bed. The various technologies and models should have applicability to the defense industry. Model and simulations should be verified, validated, and accredited.

REFERENCES:

1. MDA22-D001: Radiation Hardened Microelectronics Storefront: <https://www.sbir.gov/node/2120611>
2. James R. Schwank, Marty R. Shaneyfelt, and Paul E. Dodd, "Radiation Hardness Assurance Testing of Microelectronic Devices and Integrated Circuits: Radiation Environments, Physical Mechanisms, and Foundations for Hardness Assurance," IEEE Transactions on Nuclear Science, Vol. 60, No. 3, June 2013.
3. Cladis, Davidson, and Newkirk, eds, "The Trapped Radiation Handbook," NDA 2534H, Washington, DC, <https://apps.dtic.mil/sti/pdfs/ADA020047.pdf>.
4. Schultz and Hjalmarson, From first-principles defect chemistry to device damage models of radiation effects in III-V semiconductors, MMM 2018, Osaka, Japan, <https://www.osti.gov/biblio/1593578>.
5. Huang et al, Multi-Timescale Microscopic Theory for Radiation Degradation of Electronic and Optoelectronic Devices, American Journal of Space Science, 2015. <https://thescipub.com/abstract/ajssp.2015.3.27> Nordland et al, Primary radiation damage: A review of current understanding and models, Journal of Nuclear Materials, 512 (2018) 450-479, <https://www.osti.gov/pages/biblio/1482433>.
6. Broberg et al, PyCDT: A Python toolkit for modeling point defects in semiconductors and insulators, Computer Physics Communications 226 (2018) 165-179. <https://www.sciencedirect.com/science/article/pii/S0010465518300079>.
7. Nordland et al, Primary radiation damage: A review of current understanding and models, Journal of Nuclear Materials, 512 (2018) 450-479, <https://www.osti.gov/pages/biblio/1482433>.
8. Radiation Effects on Electronics 101: https://nepp.nasa.gov/DocUploads/392333B0-7A48-4A04-A3A72B0B1DD73343/Rad_Effects_101_WebEx.pdf. Approved for Public Release (topic) 23-MDA-11540 (18 Jul 23)

KEYWORDS: Radiation hardening; microelectronics, modeling and simulation, radiation testing, radiation test methodology, x-ray, gamma ray, proton, neutron, single event effects, inertial measurement units, focal plane arrays, readout integrated circuits, Artificial Intelligence, Machine Learning; Open topic

Approved for Public Release (topic)
23-MDA-11540 (18 Jul 23)

**National Geospatial-Intelligence Agency (NGA)
23.C Small Business Technology Transfer (STTR)
Proposal Submission Instructions**

INTRODUCTION

NGA is a Department of Defense (DoD) combat support agency and a member of the U.S. Intelligence Community (IC). NGA develops imagery and map-based intelligence solutions for U.S. national defense, homeland security, and safety of navigation. NGA's mission is to "provide timely, relevant, and accurate geospatial-intelligence in support of national security." Today, NGA manages the National System for Geospatial-Intelligence (NSG), which provides the foundation for correlating U.S. intelligence activities to the location of the Earth.

Geospatial intelligence, or GEOINT, is the exploitation and analysis of imagery and geospatial information to describe, assess and visually depict physical features and geographically referenced activities on the Earth. GEOINT consists of imagery, imagery intelligence and geospatial information. Additional information pertaining to the NGA mission and high-level course can be obtained by viewing the agency's website at <https://www.nga.mil> and NGA's strategy documents at <https://www.nga.mil/about/strategy.html>.

NGA Research supports the NSG and National Security Strategy by solving hard defense and intelligence problems for the IC and DoD in three broad areas: Foundational GEOINT; Advanced Phenomenologies; and Analytic Technologies. NGA Research works with customers on early concepts through to advanced developments in operating systems and environments.

Offerors responding to a topic in this BAA must follow all general instructions provided in the DoD STTR Program BAA, as applicable. NGA requirements in addition to or deviating from the DoD Program BAA are provided in the instructions below.

Specific questions pertaining to the administration of the NGA STTR Program and these proposal preparation instructions should be directed to:

National Geospatial-Intelligence Agency
Attn: SBIR Program Manager, RA, MS: S75-RA
7500 GEOINT Dr., Springfield, VA 22150-7500
Email: SBIR@nga.mil

Proposers responding to a topic in this BAA must follow all general instructions provided in the DoD STTR Program BAA. NGA requirements in addition to or deviating from the DoD Program BAA are provided in the instructions below.

Proposers are encouraged to thoroughly review the DoD Program BAA and register for the DSIP Listserv to remain apprised of important programmatic and contractual changes.

- The DoD Program BAA is located at: <https://www.defensesbirstr.mil/SBIR-STTR/Opportunities/#announcements>. Be sure to select the tab for the appropriate BAA cycle.
- Register for the DSIP Listserv at: <https://www.dodsbirstr.mil/submissions/login>.

Specific questions pertaining to the administration of the NGA Program and these proposal preparation instructions should be directed to: sbir@nga.mil.

PHASE I PROPOSAL GUIDELINES

The Defense SBIR/STTR Innovation Portal (DSIP) is the official portal for DoD SBIR/STTR proposal submission. Proposers are required to submit proposals via DSIP; proposals submitted by any other means will be disregarded. Detailed instructions regarding registration and proposal submission via DSIP are provided in the DoD STTR Program BAA.

Technical Volume (Volume 2)

The technical volume is not to exceed 20 pages and must follow the formatting requirements provided in the DoD STTR Program BAA. The Government will not consider pages in excess of the page count limitation. Number all pages of your proposal consecutively.

Content of the Technical Volume

The offeror shall not propose option period(s).

Commercialization Strategy. In addition, the Commercialization Strategy shall also address Section 508 compliance as noted below:

Section 508 Compliance

The contractor shall ensure that all systems, hardware, software, software engineering, and information technology associated with this effort is made in a manner that is accessible for people with the standards for people with disabilities as directed in the NGA Instruction 8400.4 and Section 508 of the Rehabilitation Act of 1973 as amended in 1998 (Section 508). Specifically, all Information and Communications Technology (ICT) associated with this contract, may use the Web Content Accessibility Guidelines (WCAG) 2.1 to comply with the Section 508 or use alternative designs or technologies which result in substantially equivalent or greater access to and use of the product for people with disabilities. Furthermore, the contractor shall pursue human centered design and usability guidelines to ensure that all services associated with this Topic Area are accessible by as many users as possible and to drive modernization, innovation, and enhance mission support.

As part of the offeror's proposal, the offeror should include an outline of specifically how Section 508 compliance will be achieved in the design of the ICT product. The proposal for Phase II should provide an explicit, detailed description of the approach, indicate what is planned, how and where the work will be carried out, a schedule of major events, how the solution will be Section 508 Compliant, and the final product to be delivered. The methods planned to achieve each objective or task should be discussed explicitly and in detail. If a determination is made that a Section 508 exception request is justified, the rationale for the exception request must be made and submitted as a part of the proposal.

Cost Volume (Volume 3)

The Phase I amount must not exceed \$100,000 for up to a nine (9)-month period of performance. Costs must be separated and clearly identified on the Proposal Cover Sheet (Volume 1) and in Volume 3.

Please review the updated Percentage of Work (POW) calculation details included in the DoD Program BAA. NGA will not accept any deviation to the POW requirements.

Company Commercialization Report (CCR) (Volume 4)

Completion of the CCR as Volume 4 of the proposal submission in DSIP is required. Please refer to the DoD STTR Program BAA for full details on this requirement. Information contained in the CCR will be considered by NGA during proposal evaluations.

Supporting Documents (Volume 5)

All proposing small business concerns are REQUIRED to submit the following documents to Volume 5:

1. Contractor Certification Regarding Provision of Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment
2. Disclosures of Foreign Affiliations or Relationships to Foreign Countries
3. Disclosure of Funding Sources

Please refer to the DoD Program BAA for more information.

Additionally, submission of Standard Form 328, "Certificate Pertaining to Foreign Interests," is required in order to be considered for award. The form can be found at <https://www.gsa.gov/forms-library/certificate-pertaining-foreigninterests>.

PHASE II PROPOSAL GUIDELINES

Phase II proposals may only be submitted by Phase I awardees. Small business concerns shall provide a proposal no later than 30 calendar days prior to the expiration of their NGA Phase I contract period of performance to be considered for a Phase II award. For improved continuity, NGA encourages Phase I awardees to submit their Phase II proposals 60 days prior to the expiration of their NGA Phase I contract period of performance.

Sequential Phase II proposals (for related work after completion of the initial NGA Phase II or Direct to Phase II contract) will normally be required within 30 calendar days of: 1) NGA's review of the provider's prototype and final report, 2) NGA's determination that additional work is desired and funding is available; and 3) NGA's determination that the required work is not suitable for a Phase III contract. NGA expects to complete these actions within 30 calendar days of final report receipt. The precise proposal due date will be annotated in Section F of the original Phase II or Direct to Phase II contract.

NGA may entertain Phase II proposals to continue related work on non-NGA Phase I contracts of interest, subject to the original government contracting entity's approval. There are no pre-established due dates for these proposals.

Technical Volume (Volume 2)

Length: Technical Proposal shall not exceed 40 pages. It is the proposing small business concern's responsibility to verify that the Technical Volume and its individual parts do not exceed the page limits after upload to DSIP. The Government will not consider pages in excess of the page count limitation. Number all pages of your proposal consecutively.

Content of the Technical Volume

The offeror shall not propose option period(s).

VERSION 2

Follow Phase I “CONTENT OF THE TECHNICAL VOLUME (Volume 2)” instructions in the DoD SBIR BAA. Technical Proposal shall not exceed 40 pages.

Cost Volume (Volume 3)

Follow the Phase I “COST VOLUME (Volume 3) instructions above.

Phase II amount must not exceed \$1,000,000 for up to a 24-month period of performance. Costs must be separated and clearly identified on the Proposal Cover Sheet (Volume 1) and in Volume 3. The offeror shall not propose option period(s).

Company Commercialization Report (CCR) (Volume 4)

Follow the Phase I “COMPANY COMMERCIALIZATION REPORT (CCR) (Volume 4)” instructions above.

Supporting Documents (Volume 5)

Follow the Phase I “SUPPORTING DOCUMENTS (Volume 5)” instructions above.

DISCRETIONARY TECHNICAL AND BUSINESS ASSISTANCE (TABA)

NGA does not provide TABA.

EVALUATION AND SELECTION

All proposals will be evaluated in accordance with the evaluation criteria listed in the DoD STTR Program BAA.

The individual named as the Corporate Official on the Proposal Cover Sheet will receive an email for each proposal submitted from the NGA Contracting Officer/Specialist with their official notification of proposal selection or non-selection within 90 days of the closing date of the BAA or the timely submission date of their Phase II proposal. The notices will be binned into 3 categories: (1) proposals selected for award, (2) proposals selected for award if additional funding becomes available, and (3) proposals not selected for award.

Proposals in response to this BAA with the award designation of “Award if Additional Funding Becomes Available” will receive consideration for award through October 17, 2024. Phase II proposals with this award designation will receive consideration for award for a period of one year following the timely submission date of the Phase II proposal.

An unsuccessful offeror has three (3) days after notification that its proposal was not selected to submit a written request for a debriefing to the Contracting Officer (CO).

Refer to the DoD STTR Program BAA for procedures to protest the Announcement. As further prescribed in FAR 33.106(b), FAR 52.233-3, Protests after Award should be submitted to: Emely Winnert at Emely.E.Winnert@nga.mil.

AWARD AND CONTRACT INFORMATION

Phase I awards are capped at \$100,000 each over a maximum nine (9)-month period of performance.

VERSION 2

Phase II awards are capped at \$1,000,000 each over a maximum 24-month period of performance.

NGA caps sequential Phase II contracts (those proposed near the completion of the initial Phase II or Direct to Phase II contract) at the then current Small Business Administration (SBA) “without seeking SBA approval” ceiling over a maximum 24-month period of performance. See <https://www.sbir.gov/about> for the most recent information.

NGA typically provides a firm fixed price contract for its awards within 180 days of the proposal due date. The type of contract is at the discretion of the Contracting Officer.

ADDITIONAL INFORMATION**CONTROLLED UNCLASSIFIED INFORMATION (CUI)**

Controlled Unclassified Information (CUI) is information that requires safeguarding or dissemination controls pursuant to and consistent with applicable law, regulations, and government-wide policies but is not classified under Executive Order 13526 or the Atomic Energy Act, as amended.

Executive Order 13556 "Controlled Unclassified Information" (the Order), establishes a program for managing CUI across the Executive branch and designates the National Archives and Records Administration (NARA) as Executive Agent to implement the Order and oversee agency actions to ensure compliance. The Archivist of the United States delegated these responsibilities to the Information Security Oversight Office (ISOO).

32 CFR Part 2002 "Controlled Unclassified Information" was issued by ISOO to establish policy for agencies on designating, safeguarding, disseminating, marking, decontrolling, and disposing of CUI, self-inspection and oversight requirements, and other facets of the Program. The rule affects Federal executive branch agencies that handle CUI and all organizations (sources) that handle, possess, use, share, or receive CUI—or which operate, use, or have access to Federal information and information systems on behalf of an agency.

During performance of this contract, if the government provides the offeror a dataset that is not publicly released, the offeror must be CUI Compliant to receive it. For more information on this compliance please see DFARS Clauses 252.204.7008 and 252.204-7012, NIST Special Publication SP 800-171 and the National Archives and Records Administration (NARA) website (<https://www.archives.gov/cui/about>).

See each individual topic for guidance.

NON-DISCLOSURE AGREEMENTS (NDA)

Subject to any vetting of uncleared individuals involved in the project per the DoD STTR Program BAA, all eligible contractor and subcontractor personnel requiring access to Protected Information and Computer Software shall sign an NDA prior to accessing such information. See 5X52.209-9003, Protection of Information and Nondisclosure Agreements (JUN 2009) below for additional details.

INFORMATION HANDLING

VERSION 2

Contractor personnel will comply with the NGA, DoD, and IC policies and regulations (to include, but not limited to, the CoNGA Security Classification Guide) to properly mark (to include portion marking) classified and unclassified documentation, media, etc.

Markings will be in accordance with the lowest security classification possible to ensure the confidentiality and integrity for the greatest release to partners in accordance with NGA and mission partner marking guides for classified information.

Information management will be in accordance with applicable security policy and regulations, and NGA compliance documents.

All Government-furnished information released to the Contractor or created in the performance of this contract will be destroyed or returned by the Contractor to NGA upon contract termination or when no longer required for contract performance. The determination to destroy or return will be at the direction of the NGA CO or COR. **CLASSIFIED WORK PERFORMANCE SECURITY REQUIREMENTS (Not applicable to UNCLASSIFIED ONLY contracts)**

Contractor personnel performing Top Secret/Sensitive Compartmented Information (TS/SCI) work on the STTR contract are required to have active TS/SCI clearances for access to NGA facilities, when performing duties within TS/SCI environments, and for access to TS/SCI NGA computer systems. Contractors are subject to a Counterintelligence Polygraph as requested by the Government. NGA will sponsor TS/SCI security clearances, NGA Badges, Common Access Cards (CAC) and other items (example: parking hangtag) for required contract personnel.

Contractors must abide by the DD Form 254 - Contract Security Classification Specification and applicable security policies and regulations.

Contractor personnel shall follow all applicable NGA, IC, and DoD information security and operational security policies and guidance when accessing and transmitting data over networks during performance of agreement requirements.

The contractor shall inform the Government when its employees no longer support the contract (see DD254). The Government desires notification prior to the day the individual no longer supports the contract, but requires notification no later than the day support ends. If contractor personnel will no longer be supporting NGA via an NGA contract, any debriefing paperwork, notifications, and/or requests for further direction from the COR or Industrial Security shall be turned into the NGA Workforce Support Center, NGA Site Security Office, or the COR. If contract personnel are unable to turn these items into the NGA Workforce Support Center, NGA Site Security Office, or COR then it is the contractor's security office's responsibility to collect the items from the individual. If the contractor debriefs the employee, the contractor shall send a copy of the debriefing statement, plus any Government items (i.e. NGA Badge, CAC, Courier Card, parking hangtags, etc.) within four (4) business days (timeline may be extended with authorized documented exceptions by NGA Security) to an NGA Site Security Office or the NGA Workforce Support Center.

All classified work performed at a non-NGA facility must be approved by the COR.

Cleared contractor personnel may be authorized to hand-carry contract-related classified information as authorized by the COR. Contract personnel will obtain NGA courier authorization

VERSION 2

prior to hand-carry of contract-related classified data. Contract personnel will be limited to hand-carry classified information between the contractor facilities and NGA facilities only.

Any classified work performed at collaborator sites must be performed in either an NGA accredited SCIF or an Other Government Agency (OGA) SCIF that has either a Memorandum of Agreement (MOA), Memorandum of Understanding (MOU), Joint Use Agreement or Co-Use Agreement with NGA for this contract.

Contract personnel are forbidden from bringing in prohibited, unauthorized, and/or Portable Electronic Devices (PEDs) items into any NGA installation or any office/working location covered under this agreement. A list of PEDs includes but is not limited to cell phones, cameras, two-way pagers, laptops, recorders (digital, tape, etc.), flash drives, or any other kind of removable media, without prior approval and approval paperwork from NGA. See NGA instructions/regulations/policy for a full list of prohibited and unauthorized items. Security violation repercussions will be determined on the severity of the violation.

DISCLOSURE OF INFORMATION

(1) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-

- (a) The Contracting Officer has given prior written approval;
- (b) The information is otherwise in the public domain before the date of release; or
- (c) The information results from or arises during the performance of a project that involves no covered defense information (as defined in the clause at DFARS 252.204-7012, Safeguarding Covered Defense Information and Cyber Incident Reporting) and **has been scoped and negotiated by the contracting activity with the contractor and research performer and determined in writing by the contracting officer to be fundamental research* (which by definition cannot involve any covered defense information)**, in accordance with National Security Decision Directive 189, National Policy on the Transfer of Scientific, Technical and Engineering Information, in effect on the date of contract award and the Under Secretary of Defense (Acquisition, Technology, and Logistics) memoranda on Fundamental Research, dated May 24, 2010, and on Contracted Fundamental Research, dated June 26, 2008 (available at DFARS PGI 204.4).

(2) Requests for approval under paragraph (a)(1) shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 10 business days before the proposed date for release.

(3) The Contractor agrees to include a similar requirement, including this paragraph (c), in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.

***Note: This has to be negotiated prior to award of the contract. A request for determination after award will not be entertained and will result in the clause being pushed down to all subcontracts. Non-performance could result in cancelation of contract.**

Clauses

52.204-7 System for Award Management.

As prescribed in 4.1105(a)(1), use the following provision:

SYSTEM FOR AWARD MANAGEMENT (OCT 2018)

(a) Definitions. As used in this provision—

"Electronic Funds Transfer (EFT) indicator means a four-character suffix to the unique entity identifier. The suffix is assigned at the discretion of the commercial, nonprofit, or Government entity to establish additional System for Award Management records for identifying alternative EFT accounts (see subpart 32.11) for the same entity.

Registered in the System for Award Management (SAM) means that—

(1) The Offeror has entered all mandatory information, including the unique entity identifier and the EFT indicator, if applicable, the Commercial and Government Entity (CAGE) code, as well as data required by the Federal Funding Accountability and Transparency Act of 2006 (see subpart 4.14) into SAM

(2) The offeror has completed the Core, Assertions, and Representations and Certifications, and Points of Contact sections of the registration in SAM;

(3) The Government has validated all mandatory data fields, to include validation of the Taxpayer Identification Number (TIN) with the Internal Revenue Service (IRS). The offeror will be required to provide consent for TIN validation to the Government as a part of the SAM registration process; and

(4) The Government has marked the record "Active".

Unique entity identifier means a number or other identifier used to identify a specific commercial, nonprofit, or Government entity. See www.sam.gov for the designated entity for establishing unique entity identifiers.

(b)

(1) An Offeror is required to be registered in SAM when submitting an offer or quotation, and shall continue to be registered until time of award, during performance, and through final payment of any contract, basic agreement, basic ordering agreement, or blanket purchasing agreement resulting from this solicitation.

(2) The Offeror shall enter, in the block with its name and address on the cover page of its offer, the annotation "Unique Entity Identifier" followed by the unique entity identifier that identifies the Offeror's name and address exactly as stated in the offer. The Offeror also shall enter its EFT indicator, if applicable. The unique entity identifier will be used by the Contracting Officer to verify that the Offeror is registered in the SAM.

(c) If the Offeror does not have a unique entity identifier, it should contact the entity designated at www.sam.gov for establishment of the unique entity identifier directly to obtain one. The Offeror should be prepared to provide the following information:

- (1) Company legal business name.
- (2) Tradestyle, doing business, or other name by which your entity is commonly recognized.
- (3) Company physical street address, city, state, and Zip Code.
- (4) Company mailing address, city, state and Zip Code (if separate from physical).
- (5) Company telephone number.
- (6) Date the company was started.
- (7) Number of employees at your location.
- (8) Chief executive officer/key manager.
- (9) Line of business (industry).
- (10) Company headquarters name and address (reporting relationship within your entity).

(d) Processing time should be taken into consideration when registering. Offerors who are not registered in SAM should consider applying for registration immediately upon receipt of this solicitation. See <https://www.sam.gov> for information on registration.

(End of Provision)

52.204-27 Prohibition on a ByteDance Covered Application.

As prescribed in 4.2203, insert the following clause:

PROHIBITION ON A BYTEDANCE COVERED APPLICATION (JUN 2023)

(a) *Definitions.* As used in this clause—

Covered application means the social networking service TikTok or any successor application or service developed or provided by ByteDance Limited or an entity owned by ByteDance Limited.

Information technology, as defined in 40 U.S.C. 11101(6)—

(1) Means any equipment or interconnected system or subsystem of equipment, used in the automatic acquisition, storage, analysis, evaluation, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information by the executive agency,

if the equipment is used by the executive agency directly or is used by a contractor under a contract with the executive agency that requires the use—

(i) Of that equipment; or

(ii) Of that equipment to a significant extent in the performance of a service or the furnishing of a product;

(2) Includes computers, ancillary equipment (including imaging peripherals, input, output, and storage devices necessary for security and surveillance), peripheral equipment designed to be controlled by the central processing unit of a computer, software, firmware and similar procedures, services (including support services), and related resources; but

(3) Does not include any equipment acquired by a Federal contractor incidental to a Federal contract.

(b) *Prohibition.* Section 102 of Division R of the Consolidated Appropriations Act, 2023 (Pub. L. 117-328), the No TikTok on Government Devices Act, and its implementing guidance under Office of Management and Budget (OMB) Memorandum M-23-13, dated February 27, 2023, “No TikTok on Government Devices” Implementation Guidance, collectively prohibit the presence or use of a covered application on executive agency information technology, including certain equipment used by Federal contractors. The Contractor is prohibited from having or using a covered application on any information technology owned or managed by the Government, or on any information technology used or provided by the Contractor under this contract, including equipment provided by the Contractor’s employees; however, this prohibition does not apply if the Contracting Officer provides written notification to the Contractor that an exception has been granted in accordance with OMB Memorandum M-23-13.

(c) *Subcontracts.* The Contractor shall insert the substance of this clause, including this paragraph (c), in all subcontracts, including subcontracts for the acquisition of commercial products or commercial services.

(End of clause)

5X252.204-7000-90 PUBLIC RELEASE OF INFORMATION (MAR 2023)

(a) Except as provided in paragraph (b) of this clause, information pertaining to this contract shall not be released to the public unless authorized by the Contracting Officer in accordance with DFARS 252.204-7000, Disclosure of Information. Requests for approval to release information pertaining to this contract shall be submitted to the Contracting Officer by means of NGA Form 5230-1, National Geospatial-Intelligence Agency Request for Clearance for Public Release.

(b) The contractor may provide past performance information regarding this contract, without completing an NGA Form 5230-1 and without Contracting Officer approval, when submission of such information is to the Office of the Director of National Intelligence (ODNI), the Central Intelligence Agency (CIA), the National Reconnaissance Office (NRO), the National Security Agency (NSA), the Defense Intelligence Agency (DIA), and NGA to support source selections at those agencies. The contractor is responsible for the proper classification and handling of such

information, and shall provide a copy of the information provided to the Contracting Officer.

(End of Clause)

5X52.209-9003: PROTECTION OF INFORMATION AND NONDISCLOSURE AGREEMENTS (JUN 2009)

(a) Definitions. As used in this clause only:

(1) Protected Information and Computer Software means, unless specifically excluded by paragraph below, all information and computer software, in any form or media, that in the course of performing work under this contract are disclosed to the Contractor, its subcontractors, or their employees, or to which those persons otherwise are given access to, by:

(i) NGA,

(ii) Other government agencies,

(iii) Foreign governments, or

(iv) Other contractors while directly supporting NGA, which is accompanied by written legends identifying use or disclosure restrictions or disclosed under circumstances that the Contractor knows are subject to use or disclosure restrictions established in writing by the Government.

(2) Protected Information and Computer Software does not include information that:

(i) Has been released to the general public through no action of the undersigned in breach of this agreement or through no action of any other party in breach of any other obligation of confidentiality owing to the Government or the owner of the protected information or computer software;

(ii) Has been lawfully obtained by the recipient outside the course of the performance of this contract;

(iii) Has been properly licensed or provided directly by the owner (or other authorized source) of the information or computer software to the recipient to the extent so licensed or provided;

(iv) Is owned by the recipient or was developed independently of the disclosure hereunder;
or

(v) Has been disclosed to the recipient by the Government with explicit authorization to use or disclose the information for another purpose, to the extent so authorized.

(b) Use and disclosure restrictions. The Contractor shall use and disclose Protected Information and Computer Software only as necessary for the performance of the requirements of this contract. Protected Information and Computer Software may not be used or disclosed for any other purpose, including bid or proposal preparation or business marketing, without the written approval of the Contracting Officer. Furthermore, unless otherwise directed by the Contracting Officer, the Contractor shall comply with all restrictions set forth in any legends, licenses or

instructions provided to the Contractor or accompanying Protected Information and Computer Software or other written directives of the Government known to the Contractor. The use and disclosure obligations imposed by this paragraph shall expire as follows:

- (1) There shall be no expiration date for the following Protected Information and Computer Software:
 - (i) Technical data or computer software containing Limited Rights, Restricted Rights, Government Purpose Rights, Special License Rights, or Unlimited Rights legends;
 - (ii) information or software marked Limited Distribution (LIMDIS);
 - (iii) information or software marked Source Selection Information;
 - (iv) contract proposal information marked pursuant to FAR 52.215-1(e) limiting its use for proposal evaluation purposes only;
 - (v) information and computer software marked Contractor Proprietary or a similar legend;
 - (vi) data known by the Contractor to be protected by the Privacy Act; and
 - (vii) information and software marked Controlled Unclassified Information (CUI) or For Official Use Only (FOUO).
- (2) For other information or software accompanied at time of disclosure by a written legend identifying use or disclosure restriction time periods, the expiration date shall be as stated in or derived from the legend.
- (3) For all other Protected Information and Computer Software, the expiration date shall be 3 years from the date the information or software is first disclosed to the Contractor.

Notwithstanding the above obligations, the Contractor is not in breach of this agreement if the Contractor uses or discloses Protected Information and Computer Software in response to an order of a court or administrative body of competent jurisdiction, but only to the extent permitted by that authority and only if the Contractor gives the Contracting Officer, to the extent practical, notice of the tribunal's order before the use or disclosure is made that allows NGA a reasonable time to object to the order.

(c) Unauthorized Use or Disclosure. The Contractor shall immediately notify the Contracting Officer of any unauthorized use or disclosure known by the Contractor of Protected Information and Computer Software in violation of the obligations contained in this clause.

(d) Disposition. At the conclusion of performance of work under this contract, the Contractor shall immediately return to the Government all Protected Information and Computer Software in its possession. Furthermore, if an employee of the Contractor who has had access to Protected Information and Computer Software is terminated or reassigned and thus is no longer performing work under this contract, the Contractor shall immediately return all Protected Information and Computer Software in the employee's possession. Moreover, if a Contractor's employee is dedicated to support a specific NGA Office or Directorate or NGA program under this contract, but is subsequently reassigned to support another NGA Office or Directorate or NGA program under this contract, the Contractor shall immediately return all Protected Information or Computer Software in the employee's possession previously furnished by the prior NGA Office

VERSION 2

or Directorate or NGA program. In lieu of returning Protected Information and Computer Software, the Contracting Officer or Contracting Officer's representative may authorize the destruction of the information or the transfer of the information to another employee of the Contractor working under the contract. Finally, this clause shall not be interpreted as preventing the Contractor from retaining records required by statutes or other clauses of this contract, such as FAR 52.215-2 Audit and Records--Negotiations.

(e) Third party beneficiaries. This clause is executed for the benefit of the Government and the owners of Protected Information and Computer Software. The Government and the owners of Protected Information and Computer Software (and their delegates, successors and assignees) are third party beneficiaries of the obligations contained in this clause who, in addition to any other legal rights they may have, are intended to have the rights of direct action against the Contractor or any person to whom the Contractor has disclosed or released Protected Information and Computer Software, to seek damages from any breach of this clause, or to otherwise enforce this clause.

(f) Duration. The above obligations imposed by this clause shall survive the termination or completion of this contract.

(g) Classified Information. This clause is in addition to and in no manner abrogates requirements, obligations or remedies regarding the protection of classified information and does not supersede the requirements of any laws, regulations, other directives or nondisclosure agreements regarding classified information.

(h) Other Restrictions. This agreement does not abrogate any other obligations currently placed upon the Contractor or which may be imposed upon the Contractor in the future by the Government or other persons; or remedies afforded those persons regarding those obligations.

(i) Nondisclosure agreements. The Contractor shall require and ensure that each of its employees who may receive or be given access to Protected Information and Computer Software signs the nondisclosure agreement provided by attachment to this contract prior to the employee performing work under this contract covered by the nondisclosure agreement. The Contractor shall maintain copies of signed nondisclosure agreements for a period of at least three years after final payment under this contract. At the direction of the Contracting Officer, the Contractor shall make those agreements available for inspection by the Contracting Officer and will furnish the Contracting Officer copies of those agreements at no additional cost to the Government if requested by the Contracting Officer.

(j) The Contractor shall include the substance of this clause in all subcontracts under this contract in which subcontractors may be disclosed or granted access to Protected Information and Computer Software.

(End of Clause)

5X52.227-9000 UNAUTHORIZED USE OF NGA NAME, SEAL AND INITIALS (JUN 2006)

(a) As provided in 10 U.S.C. Section 425, no person may, except with the written permission of the Director, National Geospatial-Intelligence Agency, knowingly use the words "National Geospatial-Intelligence Agency", "National Imagery and Mapping Agency" or "Defense

VERSION 2

Mapping Agency”, the initials “NGA”, “NIMA” or “DMA”, the seal of the National Geospatial-Intelligence Agency, National Imagery and Mapping Agency, or the Defense Mapping Agency, or any colorable imitation of such words, initials, or seal in connection with any merchandise, retail product, impersonation, solicitation, or commercial activity in a manner reasonably calculated to convey the impression that such is approved, endorsed, or authorized by the Director, NGA.

- (b) Whenever it appears to the U.S. Attorney General that any person is engaged or about to engage in an act or practice which constitutes or will constitute conduct prohibited by paragraph (a), the Attorney General may initiate a civil proceeding in a district court of the United States to enjoin such act or practice. Such court shall proceed as soon as practicable to hearing and determination of such action and may, at any time before such final determination, enter such restraining orders or prohibition, or take such other action as is warranted, to prevent injury to the United States, or to any person or class of persons whose protection the action is brought.

(End of Clause)

5X52.232-9000: Submission of Invoice-Federal Payment Center (FPC) (OCT 2017)
– For use in contracts paid by the FPC vendor pay office.

(a) The contractor shall prepare each invoice in accordance with the Prompt Payment Act and email one copy of the invoice to the DOD/FPC Scott AFB, IL at FMFOINSP@nga.mil. The DOD/FPC at Scott AFB, IL requires an email copy, but will accept a hard copy that is mailed to Federal Payment Center, P.O. Box 25767, Scott AFB, IL 62225.

(b) At the same time of submission of the invoice to the FPC vendor pay office, the contractor shall fax or email one copy to [**Contracting Officer**], and one copy to [**Contracting Officer Representative**]. The contractor shall ensure that the invoice submitted to the payment office is the same invoice that is submitted to the CO and the COR without alteration.

(c) Upon receipt of the invoice, the COR will complete the receiving report and submit via the RRPT database tool. A copy of the completed receiving report shall also be provided to the Contracting Officer shown on the face of this contract/order.

(d) Contractors wishing to check the payment status of their vouchers may do so by calling FPC Vendor Support at 636-321-5251. In addition, questions may be directed to the Contracting Officer’s Representative (COR). In the absence of a COR, contact the Procurement Contracting Officer (PCO), whose name and contact information appear on the face page of this contract/order.

(End of Clause)

5X52.237-9001 CONTRACTOR IDENTIFICATION (JAN 2012)

The contractor shall ensure that contractor personnel, including their sub-contractor personnel, identify themselves as contractor personnel, by introducing themselves or being introduced as contractor personnel when:

VERSION 2

- (1) attending meetings with Government personnel or contractors performing under a contract awarded to support NGA requirements,
- (2) answering government telephones,
- (3) providing any type of written or electronic mail correspondence, and
- (4) working in any other situation where their actions could be construed as an official Government act or representation of the Government.

The contractor shall ensure that contractor personnel possess and properly display Government-issued identification badges when on NGA property or when attending NGA meetings not located on NGA property.

The contractor will ensure that contractor personnel, when performing in a contractor capacity, refrain from using their retired or reserve component military rank or title in all written and verbal communications.

The Government may include the results of the contractor's ability to adhere to this clause in quality assurance surveillance plans and award fee plans as part of the overall administration of this contract.

(End of Clause)

5X52.37-9000 Contractor Employee Data for Access to NGA Facilities or Sensitive Systems (OCT 2005)

1. This clause defines the contractor's responsibilities for providing accurate contractor data, and providing updates to that data, for NGA's Human Capital Management System (HCMS). NGA requires that all contractors provide initial and timely updates to HCMS data for all personnel performing under this contract who have access to NGA facilities or sensitive systems, as determined by the contracting officer.

2. The Contractor shall:

a. Provide the Contracting Officers Representative (COR) a Point of Contact (POC) for providing and maintaining contractor personnel data for the HCMS database. The POC shall be provided to the COR, in writing, within 10 days of contract award (or modification inserting this clause). For contracts with an on-site Project Lead or Program Manager, this person shall serve as the POC.

b. Provide the COR initial HCMS data for their personnel within 10 days of contract award or modification. The information that is to be provided for HCMS shall include: persons full legal name, social security number, citizenship status, NGA contract number, prime contractor name, NGA location and organization where the person will be working, and a 24/7 emergency contact point for the contractor.

c. Notify the COR of all contractor data changes within 10 days of the change. Changes include new or departing contractor personnel and any change to information provided in paragraph b above. If the contract number under which a contractor or its personnel work changes, the POC for the contract receiving the personnel shall notify the COR within 10 days of the change.

UNCLASSIFIED

VERSION 2

- d. Provide response to all inquiries made by NGA as to the validity and completeness of contractor data records in the HCMS database within two weeks of date of request.
- e. Ensure all employees attend in-processing and out-processing briefings.

(End of Clause)

UNCLASSIFIED

5X52.246-9000 - Contractor Compliance with all applicable National Geospatial-Intelligence Agency (NGA) and U.S. Government installation regulations, directives, instructions, rules, policies and procedures. (MAR 2023)

A. The Contractor shall comply with, and shall ensure that its personnel, to include subcontractors, comply with all applicable NGA regulations, directives, instructions, rules, policies and procedures. The Contractor may request copies from the Contracting Officer's Representative (COR), the Contracting Officer or their designated representative(s).

B. The Contractor shall comply with, and shall ensure that its personnel, to include subcontractors, comply with regulations, directives, instructions, rules, policies, procedures and other applicable requirements issued by the U.S. Government Installation Commander where NGA is a tenant activity, including, but not limited to, those relating to force protection, security, health and safety. The Contractor may request copies from the Contracting Officer's Representative (COR), the Contracting Officer or their designated representative(s).

C. The Contractor shall institute and implement an effective program to ensure their employees and subcontractors, comply with all applicable requirements in accordance with paragraphs A and B above as well as paragraphs E and H below.

D. The specific requirements covered in paragraphs A, B, E, and H may be specified in the Performance Work Statement, elsewhere in the contract, or in NGA and/or Government installation regulations, directives, instructions, rules, policies and procedures. Specific requirements may include, but are not limited to categories such as:

- Security in/out processing
- Personnel in/out processing
- Facility access, parking, and in/out processing
- Information technology access and in/out processing
- PeopleSoft access, updates and in/out processing
- Periodic and special training requirements

E. Facility Access and Badging. The following criteria must be met in order to be issued an NGA IC badge and to gain access to an NGA-controlled facility:

(1) NGA IC badges will only be issued to those contractors who provide direct charge support on an active TS/SCI NGA contract, even when seated at corporate locations outside of NGA Government facilities. Green badges must be used at least once during a one-month period at an NGA Government facility. Failure to use an NGA IC badge may result in suspension or termination of the badge for lack of activity. The badges will expire at the end of the supported contract. Note: NGA IC badges will not be issued to any contractor who does not need access to an NGA facility, i.e., Corporate VIPs, etc. Infrequent visitors must report to the Visitor's Center.

(2) Notwithstanding the above, NGA badges will be issued to contractors, who are required by contract, to gain access to an NGA facility in the event of an emergency or when after-hours access is required. The Government POC or Contracting Officer's Representative (COR) coordinates the submission of an application for an NGA badge; establishment of a PeopleSoft record of SCI accesses; completion of NGA Form 5212- 7A, "Request for Identification/Building

Access Picture Badge”; and submission of the application to the appropriate Site Security Office for approval. (Reference NGA Instruction 5210.8, Physical Security Program)

F. The Contracting Officer may direct the Contractor, at its own expense, to remove and replace any Contractor personnel who fail to comply with or violate applicable requirements of this clause. Such action may be taken at the Government’s discretion without prejudice to its rights under any other provision of this contract, including the Termination for Default clause.

G. The Contracting Officer may include the results of the Contractor’s ability to adhere to this clause in past performance reports, quality assurance surveillance plans and award fee plans as part of the overall administration of this contract.

H. NGA Inspector General.

(1) The contractor must report to the NGA Inspector General (IG), DoDIG, or Intelligence Community IG any and all possible violations of federal law or illegal intelligence activities related to this contract by individuals charging directly or indirectly to this contract.

(2) The IG shall have access to any individual charging directly or indirectly to this contract whose testimony is needed for the performance of the IG’s duties. In addition, the IG shall have direct access to all records, reports, audits, reviews, recommendations, documents, e-mails, papers, or other material that relate to this contract with respect to which the IG has responsibilities. Failure on the part of any contractor to cooperate with the IG shall be grounds for administrative action by the Director, Office of Contract Services, including contractual remedies.

(3) NGA contractors and contractor personnel may report suspected instances of improper conduct through the NGA IG Hotline. Contractors shall make their employees aware of this Hotline: 571-557-4849, secure 578-4849, or toll free 1-800-380-7729 or by contacting the OIG at IG@nga.mil or secure at IG@nga.ic.gov.

(4) The contractor agrees to include the substance of this clause in all subcontracts exceeding the simplified acquisition threshold except those for commercial products or commercial services and those where the NGA association must be protected.

(5) This requirement is supported in the Federal Acquisition Regulation (FAR) clause 52.203-13, which requires timely disclosure to the Government of credible evidence of violation of law, and timely and complete response to OIG requests for documents and access to employees and information.

(6) This requirement is supported in NGA policy. NGA 7410.1 requires all personnel, to include contractors, to cooperate fully with NGA OIG audits, inspections, and investigations.

(End of Clause)

END

UNCLASSIFIED

VERSION 2

OSD-NGA STTR 23.C Topic Index

OSD23C-001

Improved Road Network Extraction Through Reinforcement Learning

UNCLASSIFIED

VERSION 2

OSD23C-001 TITLE: Improved Road Network Extraction Through Reinforcement Learning

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Trusted AI and Autonomy

OBJECTIVE: Develop the next generation automated geographic feature extraction by replicating human performance through reinforcement learning.

DESCRIPTION: The National Geospatial-Intelligence Agency (NGA) has a requirement to generate foundation feature data vector (FFD) features like roads and building outlines. Today's FFD production process remains a labor intensive, time consuming manual process, and slow to deliver products that rapidly become outdated. NGA's traditional production, evaluation, and dissemination cycle takes too long to allow for regularly updated feature data.

Methods for automated feature extraction (AFE) have advanced significantly (Chen, et al., 2022). Most of these computer vision AFE methods rely on convolutional neural network (CNN) interpretation and segmentation of satellite imagery. The reliance on visual interpretation leaves these methods susceptible to incomplete, inaccurate, and non-routable networks because of obstructions (e.g. tree-lined roads) visible in the source imagery CNN-based AFE cannot properly interpret.

This topic will develop new hybrid artificial intelligence (AI) methods to augment computer vision results with reinforcement learning to replicate human decision making. Reinforcement Learning (RL) is a technique in AI for teaching machines to make decisions (Sutton & Barto, 2018) that has been applied to classic video games like Pac Man (DeNero, Klein, & Abbeel, 2023). RL's central advantage is that it learns sequences of actions similar to the way humans map, such as generating points along a roadway or the side of a structure, to facilitate validation. New techniques for feature tracing similar to how humans would approach digitizing should significantly increase vector data production and accuracy from imagery.

RL has been further applied to automated and semi-automated feature extraction to refine pixel-wise segmented vector data directly (Botteghi, Sirmacek, & Unsalan, 2021). Proposals for this topic should address a similar hybrid approach for new methods to enhance or replace deep learning/computer vision only approaches, augmented with decision making to improve completeness. The method should scale to city or regional scales across diverse geographic context and environments.

NGA expects that software prototyping/development under Phase II will be subject to export controls as described under ECCN 0D521 in the 0Y521 series table found in Supplement No. 5 to part 774 of the Export Administration Regulations (EAR). Phase II work most likely be conducted on NIST SP 800-171 compliant information systems.

PHASE I: The Phase I proposal should focus on demonstrating the feasibility of extracting roads in at least one small geographic area using an RL approach. Phase I will also provide a concept of operations to build and deploy at larger scales with associated costs.

PHASE II: Phase II will focus on developing a mature capability creating two (2) prototypes, one for roads and a second expanding to building footprint extraction, both in geographic areas of varying complexity (e.g. urban and rural, canopy vs. desert). Phase II will also test the accuracy improvements over existing computer vision-only methods.

PHASE III DUAL USE APPLICATIONS: Fully develop and transition the technology and methodology

UNCLASSIFIED

VERSION 2

based on the research and development results developed during Phase II for DOD and other commercial feature extraction applications.

REFERENCES:

1. Botteghi, N., Sirmacek, B., & Unsalan, C. (2021). RLSNAKE: A Hybrid Reinforcement Learning Approach for Road Detection. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, Volume XLIII-B3-2021. doi:<https://doi.org/10.5194/isprs-archives-XLIII-B3-2021-39-2021>;
2. Chen, Z., Deng, L., Luo, Y., Li, D., Marcato Junior, J., Nunes Goncalves, W., . . . Li, D. (2022). Road extraction in remote sensing data: A survey. *International Journal of Applied Earth Observations and Geoinformation*, 112. doi:<https://doi.org/10.1016/j.jag.2022.1028333>.
3. DeNero, J., Klein, D., & Abbeel, P. (2023, May 22). UC Berkeley CS188 Intro to AI. Retrieved from http://ai.berkeley.edu/project_overview.html;

KEYWORDS: Reinforcement Learning; Artificial Intelligence (AI); Satellite Imagery; Automated Feature Extraction (AFE)

UNCLASSIFIED