

**DEPARTMENT OF THE ARMY
SMALL BUSINESS INNOVATION RESEARCH (SBIR) PROGRAM**

**Army Special Program Awards for Required Technology Needs (SPARTN)
SBIR Broad Agency Announcement (BAA) 20.5**

August 24, 2020: SPARTN BAA issued for pre-release
September 18, 2020: SPARTN BAA begins accepting proposals
October 8, 2020: Deadline for receipt of proposals no later than **12:00 p.m. ET**

IMPORTANT

The Army SPARTN SBIR BAA is issued out of cycle from the traditional DoD/Army SBIR BAAs and is subject to the contents contained herein. This pilot program is intended to better incentivize commercial participation under a streamlined process that accelerates tech transitions and creates greater commercialization opportunities for recurring revenue. This BAA also strives to create a more rapid award time from solicitation closing.

This BAA deviates from the traditional Army SBIR period of performance and potential contract award guidelines, as well as other proposal instructions included in traditional in cycle Army SBIR BAAs. Please take note of the contents of this BAA when preparing proposals.

Webinars: A series of webinars will be conducted on both the SPARTN program in general and the specific topic during the pre-release period. Companies can register for these webinars on Eventbrite at https://aal_innovation.eventbrite.com/ and the dial in information will be sent prior to the event. The webinars will be hosted on Google Meets.

Webinar Schedule:

General SPRTN Webinar #1 - AUG 28 – 1:00 PM ET
General SPRTN Webinar #2 - SEP 08 – 2:00 PM ET
Fire Faster Webinar #1 - AUG 27 – 5:00 PM ET
Fire Faster Webinar #2 - SEP 03 1:30 PM ET

Any changes in date or time of the webinars will be posted on aal.army/spartn and on SITIS. All webinars will be recorded and posted to aal.army/spartn, as well as in SITIS, after the event.

Submission: Phase I Proposals for the Army SPARTN SBIR BAA must be submitted through the Defense SBIR/STTR Innovation Portal (DSIP) at <https://www.dodsbirsttr.mil/submissions>.

Deadline for Receipt: Proposals must be **completely** submitted no later than **12:00 p.m. ET**, October 8, 2020. Proposals submitted after 12:00 p.m. will not be evaluated.

Classified proposals will not be accepted under this BAA.

The Small Business Administration, through its SBIR/STTR Policy Directive, purposely departs from normal Government solicitation formats and requirements and authorizes 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 Army is soliciting all SBIR proposals as a Broad Agency Announcement.

For general questions related to the instructions of this BAA, please contact the Army SBIR Program Management Office

(PMO) via email at usarmy.apg.ccdc.mbx.sbir-program-managers-helpdesk@mail.mil.

Help Desk: If you have questions about the Defense Department's SBIR or STTR Programs, please call the DoD SBIR/STTR Help Desk at 1-703-214-1333, or email to DoDSBIRSupport@reisystems.com.

The Help Desk is available from 9:00 AM – 5:00 PM (ET), Monday – Friday.

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1.0 INTRODUCTION

The Army invites small business firms to submit proposals under this BAA for the Army SBIR SPARTN pilot program. Firms with the capability to conduct research and development (R&D) in topics identified in this BAA and to commercialize the results of that R&D are encouraged to participate.

This BAA is initially soliciting Phase I proposals only. Potential future Phase II proposals may be submitted at a later time in accordance with this BAA and any future communication from the Army SBIR PMO.

A separate BAA will not be issued requesting Phase II proposals, and unsolicited proposals will not be accepted. All firms that receive a Phase I award originating from this BAA will be eligible to participate in Phase II and Phase IIB competitions and potential Phase III awards. Submission of Phase II and Phase IIB proposals will be in accordance with instructions provided by the Army. A general outline of Phase II and Phase IIB submissions is included in this BAA. Additional details on the due date, content, and submission requirements of the Phase II proposals will be provided by the Army following Phase I award. If a firm submits their Phase II proposal prior to the dates provided by the Army, it may be rejected without evaluation.

The Army is not obligated to make any awards under this BAA and all awards are subject to the availability of funds. The Army is not responsible for any monies expended by the proposer before the issuance of any award.

For technical questions about the topics during the pre-release period, contact the Topic Authors listed for each topic in the BAA. To obtain answers to technical questions during the formal BAA period, visit <https://www.dodsbirsttr.mil/submissions/>.

Specific questions pertaining to the Army SBIR Program should be submitted to:

Monroe Harden
Acting Program Manager, Army SBIR
usarmy.apg.ccdc.mbx.sbir-program-managers-helpdesk@mail.mil
U.S. Army Combat Capabilities Development Command
6662 Gunner Circle
Aberdeen Proving Ground, MD 21005-1322
TEL: 866-570-7247

2.0 PROGRAM DESCRIPTION

2.1 Objectives

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

The goal of the SPARTN SBIR BAA is to improve commercialization rates of SBIR-funded technology and to attract the most innovative small businesses through a rapid award process and increased contract award amounts. The SPARTN BAA aims to better incentivize commercial participation under a streamlined process that accelerates tech transitions and creates greater commercialization opportunities for recurring revenue in the topic areas identified in this BAA.

2.2 Three Phase Program

The SPARTN SBIR BAA Program is a three-phase program, with the potential for an additional “Phase IIB” contract as outlined in this section.

Phase I:

Phase I awards under this BAA will be for four months (no option period) for a maximum award amount of \$200,000, funded solely by Army SBIR funding. Technologies selected could range from enabling technologies to complete solutions. In general, Phase I is intended to determine, to the extent possible, the scientific, technical, and commercial merit and feasibility of ideas submitted under the SBIR Program. 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, and the successful completion of which is a prerequisite for further support in Phase II. Proposers are encouraged to consider whether the research or research and development being proposed also has private sector potential, either for the proposed application or as a base for other applications. At the end of Phase I, companies must conduct a concept demonstration of proposed technology and deliver a solution design brief describing how the demonstrated solutions contribute to solving the problem. Soldier/end user touch points will occur at least once during this phase, and more often if necessary. The Army Applications Lab (AAL) will conduct an optional cohort program for selected companies to help them better understand the problem and connect them with relevant Army stakeholders.

Phase II:

Phase II awards will be made to firms on the basis of results of their Phase I effort and/or the scientific merit, technical merit, and commercialization potential of the Phase II proposal. Phase II contracts awarded as a result of this BAA will be 9 to 24 months in length, with a consolidated \$1,500,000 traditional award funded by SBIR funding, plus a potential additional \$1,000,000 (or more) consisting of \$500,000 in SBIR funding and at least \$500,000 in non-SBIR matching funding (Government or private sector). The \$1,000,000 (or more) addition may be included in the Phase II proposal (with a corresponding technical approach) and, if selected for funding, may be funded as part of the base award or included as an option to potentially be exercised. While firms are encouraged to include in their proposal the work to be performed with the additional \$1,000,000 and evidence of outside matching funding, this will not be a criteria for Phase II selection. Evidence of matching funding must be included in order to be eligible for award above the \$1,500,000 traditional award amount.

Phase II contracts will be “gated” as base and option periods, with the time frames and amounts of each “gate” to be determined by the proposed approach. The first gate develops the technology and delivers an operational prototype. Soldier touch points are embedded in the development process to enable companies a direct opportunity to understand and collaboratively discuss how their technology can meet Army needs. The first gate is to be completed in 9 to 12 months. The second “gate” will involve a technology demonstration, user testing, and an advanced soldier touchpoint to further mature technology applications for military use. The goal of the second gate is to understand technology scaling needs into procurement in coordination with both Science and Technology (S&T) and advanced development partners.

Phase IIB:

This SPARTN SBIR BAA includes the potential for a Phase IIB award, which can range up to \$24,000,000 in total funding, to include \$6,000,000 in Army SBIR funding, \$6,000,000 in other Government non-SBIR program funding, and \$12,000,000 in private capital/outside funding. For a technology to enter this phase, a non-SBIR government program stakeholder must agree to lead programmatic efforts under the successive award and provide non-SBIR appropriated funds. The goal of this stage is for the Army, in coordination with industry, to further develop dual use technologies and create pathways to commercialization internal and external to the DOD. These efforts are intended to

culminate in advanced development and transition of the technology to a program of record. Period of performance and specific deliverables/contract requirements for this stage will be defined at a later time based on the proposed technology advancement and Government program needs.

Phase III:

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 only by sources other than the SBIR Program. Phase III work is typically oriented towards commercialization of SBIR research or technology.

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:

3.1 Performance Benchmarks for Progress toward Commercialization

In accordance with the SBA SBIR-STTR Policy Directive Sec 6(a)(7), DoD established a threshold for the application of a benchmark where it is applied only to Phase I applicants that have received more than twenty (20) awards over the prior five (5) fiscal years as determined by the Small Business Administration. The ratio of Phase II awards received to Phase I awards received during this period must be at least 0.25. Additional information on performance benchmarking for Phase I applicants can be found at <https://www.sbir.gov/performance-benchmarks>.

3.2 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.

3.3 Cooperative Research and Development

Research and development conducted jointly by a small business concern and a 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 firm.

3.4 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.

3.5 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.pmddtc.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.

3.6 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.

3.7 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.

3.8 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 SBIR Program training related to Fraud, Waste and Abuse is available at: <https://www.sbir.gov/tutorials/fraud-waste-abuse/tutorial-1>. See Section 4.18 for reporting Fraud, Waste and Abuse.

3.9 Funding Agreement

Any contract, grant, or cooperative agreement entered into 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 the contract method will be used by DoD Components for all SBIR awards.

3.9 HBCU/MI - Historically Black Colleges and Universities and Minority Institutions

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>.

3.11 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).

3.12 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 small business firm 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. 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 small business firm 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.

3.13 Proprietary Information

Proprietary information is information that you provide which constitutes a trade secret, proprietary commercial or financial information, confidential personal information or data affecting the national security.

3.14 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/>.

3.15 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.

3.16 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.

3.17 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 DoDD 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. Proposers 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 (DoDD 3216.02), recruitment of military research subjects (DoDD 3216.02), and informed consent and surrogate consent (10 U.S.C. § 980) and chemical and biological agent research (DoDD 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 DoDD 3216.02 for definitions of these terms and more information about the applicability of DoDI 3216.02 to research involving human subjects.

3.18 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.

3.19 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).

3.20 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.)

3.21 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.

3.22 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.

3.23 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.

3.24 Business Concern that is Majority-Owned by Multiple Venture Capital Operating Companies, Hedge Funds or Private Equity Firms

A concern which is more than 50% owned by multiple venture capital operating companies, hedge funds, private equity firms, or any combination of these as set forth in 13 C.F.R. § 121.702.

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 that:

- 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 firm has the capability to implement the technical approach, i.e., has or can obtain people and equipment suitable to the task.

4.2 Proposer Eligibility and Performance Requirements

- a. Each proposer must qualify as a small business concern as defined by 13 C.F.R §§ 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 3.15 of this BAA). Proposers must meet eligibility requirements for Small Business Ownership and Control (see 13 CFR § 121.702).
- b. A minimum of two-thirds of the research and/or analytical work in Phase I must be conducted by the proposing firm. For Phase II, a minimum of one-half (50%) of the research and/or analytical work must be performed by the proposing firm. The percentage of work is measured by both direct and indirect costs.
- c. For both Phase I and II, the primary employment of the principal investigator must be with the small business firm at the time of the award and during the conduct of the proposed effort. 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.** Proposers with prior SBIR/STTR awards must meet two

benchmark requirements for Progress towards Commercialization as determined by the Small Business Administration (SBA) on June 1 each year.

- (1) Phase I to Phase II Transition Rate: For all proposers 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 proposers with greater than 15 Phase II awards over the last ten fiscal years excluding the last two years, the proposer 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.

Consequence of failure to meet the benchmarks:

- SBA will identify and notify Agencies on June 1st of each year the list of companies which fail to meet minimum performance requirements. These companies will not be eligible to submit a proposal for a Phase I award for a period of one year from that date.
- Because this requirement only affects a company's eligibility for new Phase I awards, a company that fails to meet minimum performance requirements may continue working on its current ongoing SBIR/STTR awards and may apply for and receive new Phase II and Phase III awards.
- To provide companies with advance warning, SBA notifies companies on April 1st if they are failing the benchmarks. If a company believes that the information used was not complete or accurate, it may provide feedback through the SBA Company Registry at www.sbir.gov.
- In addition, SBA has posted a [Guide to SBIR/STTR Program Eligibility](#) to help small businesses understand program eligibility requirements, determine if they will be eligible at the time of award, and accurately complete necessary certifications.
- The benchmark information on the companies will not be available to the public.
- More detail is available at <https://www.sbir.gov/performance-benchmarks>.

4.3 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.

4.4 Majority Ownership in Part

Majority ownership in part by multiple venture capital, hedge fund, and private equity firms: Small businesses 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.

4.5 Conflicts of Interest

Contract awards to firms 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

4.6 Classified Proposals

Classified proposals will not be accepted under the DoD SBIR Program. If topics will require classified work during Phase II, the proposing firm 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 Security Service Web site at: <http://www.dss.mil/index.html>.

4.7 Research Involving Human Subjects

For Phase I purposes, proposals submitted in response to this BAA shall not include research involving human subjects. The following language still applies to any future phase awards should research involving human subjects be proposed at that point.

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 3.12).

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. Proposers 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.**

4.8 Research Involving Animal Subjects

For Phase I purposes, proposals submitted in response to this BAA shall not include research involving animal subjects. The following language still applies to any future phase awards should research involving animal subjects be proposed at that point.

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 3.11).

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.**

4.9 Research Involving Recombinant DNA Molecules

For Phase I purposes, proposals submitted in response to this BAA shall not include research involving recombinant DNA molecules. The following language still applies to any future phase awards should research involving recombinant DNA molecules be proposed at that point.

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.

4.10 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. Debrief instructions and timelines will be submitted along with select/non-select notices following technical evaluations and award selections. Please note debriefs are typically provided in writing via email to the Corporate Official identified in the firm proposal within 60 days of receipt of the request. Requests for oral debriefs may 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 debrief request.

4.11 Pre-Award and Post Award BAA Protests

Interested parties have the right to protest as prescribed in FAR 33.106(b) and FAR 52.233-2. For purposes of pre-award protests related to the terms of this BAA, as well as protests related to a selection or award decision, protests should be served to the Contracting Officer (listed below). For protests filed with the Government Accountability Office (GAO), a copy of the protest shall be submitted to the Contracting Officer listed below within one day of filing with the GAO. Protests of small business status of a selected firm may also be made to the Small Business Administration.

Army Contracting Command –
Aberdeen Proving Ground
(Research Triangle Park Division)

Mr. Christopher Justice
Contracting Officer
E-mail:
christopher.d.justice4.civ@mail.mil

4.12 Phase I Award Information

All Phase I and Phase II proposals will be evaluated and judged on a competitive basis. Proposals will be initially screened to determine responsiveness. Proposals passing this initial screening will be technically evaluated by Government employee engineers or scientists to determine the most promising technical and scientific approaches. Each proposal will be judged on its own merit. The Army is under no obligation to fund any proposal or any specific number of proposals in a given 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 Army SBIR PMO budget, with up to 15 awards expected per topic.
- b. **Type of Funding Agreement.** Phase I awards will be made via Firm Fixed Price contract or small purchase (Purchase Order).
- c. **Dollar Value.** Phase I awards under this BAA may not exceed \$200,000.00, consisting of only a base period (no option period).
- d. **Timing.** The Army anticipates, but is not bound to, award of Phase I contracts within 45 days of solicitation closing.

4.13 Phase II Award Information

The Army expects Phase I awardees to submit Phase II proposals no more than 30 days prior to the end of the period of performance of the Phase I contract. Further details on the due date, content, and submission requirements of the Phase II proposal will be provided by the Army by subsequent notification following Phase I award.

Additional Phase II Information:

- a. **Number of Phase II Awards.** The number of Phase II awards will be consistent with the Army SBIR PMO budget, with up to 5 awards expected per topic.
- b. **Type of Funding Agreement.** Phase II awards will be made via Firm Fixed Price contract or cost reimbursement/cost plus fixed fee contract.
- c. **Dollar Value.** Phase II contracts awarded as a result of this BAA will be 9 to 24 months in length, with a consolidated \$1,500,000 traditional award funded by SBIR funding, plus a potential additional \$1,000,000 (or more) consisting of \$500,000 in SBIR funding and at least \$500,000 in non-SBIR matching funding (Government or private sector). Refer to the “Program Description” section of this BAA for a more detailed discussion.
- d. **Timing.** The average time between DoD’s receipt of a Phase II proposal and the award of a Phase II contract is six months. However, the Army intends to use accelerated evaluation, selection, and award processes to minimize the gap between the end of a Phase I award and the start of the Phase II award.

Additional Phase IIB Information:

- a. **Number of Phase IIB Awards.** The number of Phase IIB awards is unknown at this time and is subject to non-SBIR program support as described in the “Program Description” section of this BAA.
- b. **Type of Funding Agreement.** Phase IIB awards will be made via Firm Fixed Price contract or cost reimbursement/cost plus fixed fee contract, or potentially an Other Transaction (OT).
- c. **Dollar Value.** Phase IIB awards are sequential Phase 2 awards that use SBIR, other Government non-SBIR program funding, and private investment in a 1:1:2 ratio. The maximum SBIR contribution to the contract would be \$6,000,000. Refer to the “Program Description” section of this BAA for a more detailed discussion.
- d. **Timing.** Dependent on proposal submission time, technical scope of proposal submission and coordination with Government non-SBIR program funding office.

4.14 Questions about this BAA and BAA Topics

- a. **General Questions Concerning this BAA and BAA Topics.** For general questions related to the contents of this BAA, please contact the Army SBIR PMO via email at usarmy.apg.ccdc.mbx.sbir-program-managers-helpdesk@mail.mil.
- b. **Proposal Submission Questions.** For questions related to the proposal preparation and electronic submission process via DSIP, please contact the DOD SBIR/STTE Help Desk from 9:00 AM through 5:00 PM, Monday through Friday at (703) 214-1333 or dodsbirsupport@reisystems.com.
- c. **Direct Contact with Topic Authors During Pre-Release.** During the pre-release period of August 24, 2020 through September 17, 2020, proposers may contact the topic authors listed in this BAA via telephone or e-mail to ask technical questions regarding the specific topics. Questions should be limited to specific information related to improving the understanding of a particular topic’s requirements. Proposers may not ask for advice or guidance on solution approach, and additional material may not be submitted to the topic author for review.

- d. **Pre-Release Webinars.** A series of webinars will be conducted on both the SPARTN program in general and the specific topics during the pre-release period. Companies can register for these webinars on Eventbrite at https://aal_innovation.eventbrite.com/ and the dial in information will be sent prior to the event. The webinars will be hosted on Google Meets.

Webinar Schedule:

General SPRTN Webinar #1 - AUG 28 – 1:00 PM ET

General SPRTN Webinar #2 - SEP 08 – 2:00 PM ET

Fire Faster Webinar #1 - AUG 27 – 5:00 PM ET

Fire Faster Webinar #2 - SEP 03 1:30 PM ET

Any changes in date or time of the webinars will be posted on aal.army/spartn and on SITIS. All webinars will be recorded and posted to aal.army/spartn, as well as in SITIS, after the event.

- e. **Topic Q&A (formerly SITIS).** Once DoD begins accepting proposals on **September 18, 2020** no further direct contact between proposers and topic authors is allowed unless the Topic Author is responding to a question submitted during the Pre-release period. However, proposers may submit written questions through Topic Q&A at <https://www.dodsbirsttr.mil/submissions/login>. In Topic Q&A, the questioner and respondent remain anonymous and all questions and answers are posted electronically for general viewing.

Questions 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, will not receive a response. Proposing firms may locate the topic to which they want to submit a technical question by using the Topic Search feature on this Web site. 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 DSIP Topic Q&A for this BAA opens on **September 8, 2020** and closes to new questions on **September 24, 2020 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 firms are advised to monitor Topic Q&A during the BAA period for questions and answers. Proposing firms should also frequently monitor DSIP for updates and amendments to the topics.

4.15 Registrations and Certifications

Proposing firms must be registered in the Defense SBIR/STTR Innovation Portal (DSIP) at: <https://www.dodsbirsttr.mil/submissions/> in order to prepare and submit proposals.

Before the DoD Components can award a contract, proposing firms must be registered in the System for Award Management (SAM). If you were previously registered in CCR, your information has been transferred to SAM. However, it is in the firm's interest to visit

SAM and ensure that all of the firm's data is up to date from SAM and other databases to avoid delay in award. SAM replaced the Central Contractor Registration (CCR), Online Representations and Certifications Application (ORCA), and the Excluded Parties List System (EPLS). SAM allows firms interested in conducting business with the federal government to provide basic information on business capabilities and financial information. To register, visit www.sam.gov.

Follow instructions found on the SAM Web site on how to obtain a Commercial and Government Entry (CAGE) code and Data Universal Numbering System (DUNS) number. Once a CAGE code and DUNS number are obtained, update the firm's profile on the Defense SBIR/STTR Innovation Portal (DSIP) at <https://www.dodsbirsttr.mil/submissions/>.

In addition to the standard federal and DoD procurement certifications, the SBA SBIR Policy Directive requires the collection of certain information from firms at time of award and during the award life cycle. Each firm 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.

4.16 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.

4.17 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 for consideration under numerous federal program BAAs or solicitations, it is unlawful to enter into 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.

4.18 Fraud and False Statements

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

[http://www.dodig.mil/Components/Administrative- Investigations/DoD-Hotline/Hotline-Complaint/](http://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.

4.19 Adequate Accounting System

In order to reduce risk to the small business and avoid potential contracting delays, it is suggested that 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: <http://www.dcaa.mil> and click on "Guidance" and then click on "Audit Process Overview Information for Contractors," and also at: <http://www.dcaa.mil> and click on "Checklists and Tools" and then click on "Pre-award Accounting System Adequacy Checklist."

4.20 State and Other Assistance Available

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

- Information and technical assistance;
- Matching funds to SBIR 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 Businesses 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 (TABAs)

In accordance with section 9(q) of the Small Business Act (15 U.S.C. 638(q)), the Army will provide technical assistance services to small businesses engaged in SBIR projects through a network of scientists and engineers engaged in a wide range of technologies. The objective of this effort is to increase Army SBIR technology transition and commercialization success thereby accelerating the fielding of capabilities to Soldiers and to benefit the nation through stimulated technological innovation, improved manufacturing capability, and increased competition, productivity, and economic growth.

The Army has stationed nine Technical Assistance Advocates (TAAs) across the Army to provide technical assistance to small businesses that have Phase I and Phase II projects with the participating organizations within their regions.

For more information go to: <https://www.armysbir.army.mil>, then click the "SBIR" tab, and then click on Transition Assistance/Technical Assistance.

This technical and business assistance to SBIR awardees to assist in:

- Making better technical decisions on SBIR projects
- Solving technical problems that arise during SBIR projects;
- Minimizing technical risks associated with SBIR projects; and
- Developing and commercializing new commercial products and processes resulting from such projects including intellectual property protections.

Army may provide up to \$5,000 of SBIR funds for the technical assistance described above for each Phase I award, and \$10,000 per Phase II project to these vendors for direct support to SBIR awardees.

Alternatively, a SBIR firm may directly acquire the technical assistance services described above and not through the vendor selected by the Components. Firms must request this authority from the agency and clearly identify the need for assistance (purpose and objective of required assistance), provide details on the provider of the assistance (name and point of contact for performers) and why the proposed TABA providers are uniquely skilled to conduct the work (specific experience in providing the assistance proposed), and the cost of the required assistance (costs and hours proposed or other details on arrangement). This information must be included in the Explanatory Material section of the firm's cost proposal specifically identified as "Discretionary Technical and Business Assistance."

If the awardee demonstrates this requirement sufficiently, the agency shall permit the awardee to acquire such technical assistance itself, in an amount up to \$5,000 for each Phase I award and \$10,000 for each Phase II project, as an allowable cost of the SBIR award. The per year amount will be in addition to the award and is not subject to any profit or fee by the requesting (SBIR) firm and is inclusive of all indirect rates.

The TABA provider may not be the requesting firm, an affiliate of the requesting firm, an investor of the requesting firm, or a subcontractor or consultant of the requesting firm otherwise required as part of the paid portion of the research effort (e.g. research partner or research institution).

Failure to include the required information in the Phase I and/or Phase II proposal will result in the request for discretionary technical and business assistance being disapproved. Requests for TABA funding outside of the Phase I or Phase II proposal submission will not be considered. If the firm is approved for TABA from a source other than that provided by the agency, the firm may not be eligible for the technical assistance services normally provided by those organizations. Small business concerns that receive technical or business assistance as described in this section are required to submit a description of the assistance provided, and the benefits and results achieved. Contact the Army SBIR Program Office for any other considerations.

NOTE: The Small Business Administration (SBA) is currently developing regulations governing TABA. All regulatory guidance produced by SBA will apply to any SBIR contracts where TABA is utilized.

It should also be noted that if approved for discretionary technical and business assistance from an outside source, the firm will not be eligible for the Army's Technical Assistance Advocate support. All details of the TABA agency and what services they will provide must be listed in the technical proposal under "consultants". The request for TABA must include details on what qualifies the TABA firm to provide the services that you are requesting, the firm name, a point of contact for the firm, and a web site for the firm. List all services that the firm will provide and why they are uniquely qualified to provide these services. The award of TABA funds is not automatic and must be approved by the Army SBIR Program Manager. The maximum TABA dollar amount that can be requested in a Phase I Army SBIR proposal is \$5,000. The maximum TABA dollar amount that can be requested in a Phase II Army SBIR proposal is \$5,000 per year (for a total of \$10,000 for two years).

5.0 PHASE I PROPOSAL

5.1 Introduction

Phase I proposals must be submitted by the date and time specified on the cover page of this BAA and to be eligible for review and award and shall not exceed \$200,000 or four months of performance.

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. Proposals are to be submitted electronically to <https://www.dodsbirsttr.mil/submissions>. The 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. It is recommended that firms register as soon as possible upon identification of a proposal opportunity to avoid delays in the proposal submission process.

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

Volume 6: Fraud, Waste and Abuse Training

* Responses to this BAA will not accept Volume 4, 5 or 6, so proposals submitted in response to this BAA will only contain Volumes 1-3.

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 proposer may modify all proposal volumes prior to the BAA close date.

Signatures are not required on the electronic forms at the time of submission. If the proposal is selected for award, the Army will contact the proposer for signatures at the time of award.

SBIR Phase I proposals under this BAA will have three Volumes: Proposal Cover Sheet, Technical Volume, and Cost Volume. **Please note that the Army will not be accepting a Volume Four (Company Commercialization Report), Volume Five (Supporting Documents) or Volume Six (Fraud, Waste and Abuse) as noted at the DOD SBIR website.** The Technical Volume .pdf document under this BAA has a 10-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 other attachments.

Small businesses submitting a Phase I Proposal must use the DOD SBIR electronic proposal submission system (<https://www.dodsbirsttr.mil/submissions/>). This site contains step-by-step instructions for the preparation and submission of the Proposal Cover Sheet, Cost Volume, and how to upload the Technical Volume. For general inquiries or problems with proposal electronic submission, contact the DOD SBIR Help Desk at 703-214- 1333. The Help Desk is available from 9:00 AM – 5:00 PM (ET) Monday – Friday.

Do not include blank pages, duplicate the electronically generated cover pages or put information normally associated with the Technical Volume such as descriptions of capability or intent in other sections of the proposal as these will count toward the 10-page limit.

Only the electronically generated Cover Sheets and Cost Volume are excluded from the 10-page limit. **Army Phase I proposals submitted containing a Technical Volume .pdf document containing over 10 pages may be deemed NON-COMPLIANT and may not be evaluated. It is the responsibility of the Small Business to ensure that once the proposal is submitted and uploaded into the system that the technical volume .pdf document complies with the 10 page limit. Anything beyond 10 pages will not be evaluated.**

Phase I proposals must describe the "vision" or "end-state" of the research and the most likely strategy or path for transition of the SBIR project from research to an operational capability that satisfies one or more Army operational or technical requirements in a new or existing system, larger research program, or as a stand-alone product or service. Technologies selected could range from enabling technologies to complete solutions. At the end of Phase I, companies should be able to demonstrate an initial functional prototype and deliver a solution design brief describing how the demonstrated solutions contribute to solving the problem.

5.2 Marking Proprietary Proposal Information

Proposers 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:

- a. 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 proposer 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

- b. 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.dodsbirsttr.mil/submissions/>, prepare the Proposal Cover Sheet. The Cover Sheet must include a brief technical abstract of no more than 200 words that describes the proposed R&D project with a discussion of anticipated benefits and potential commercial applications. **Do not include proprietary or classified information in the Proposal Cover Sheet.** If your proposal is selected for 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.

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 firm's responsibility to verify that the Technical Volume does not exceed the 10 page limit after upload to DSIP.
- (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 company name, topic number, and proposal number assigned by the Defense SBIR/STTR Innovation Portal (DSIP) site 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. 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.
- (4) **Related Work.** Describe significant activities directly related to the proposed effort, including any conducted by the principal investigator, the proposing firm, 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 proposer'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 your company'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 SBIR project that your company 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. Proposers frequently assume that individuals with dual citizenship or a work permit will be permitted to work on an SBIR project and do not report them. This is not necessarily the case and a proposal will be rejected if the requested information is not provided. Therefore, firms should report any and all individuals expected to be involved on this project that are considered a foreign national as defined in Section 3.5 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 SBIR 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 or not 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 university or other subcontractors or consultants in the project may be appropriate. If such involvement is intended, it should be identified and described according to the [Cost Breakdown Guidance](#). A minimum of two-thirds 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. SBIR 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 SBIR 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 Guidance may not apply to the proposed project. If that is the case, there is no need to provide information on each and every 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 Army, unless it is determined that transfer of title to the contractor would be more cost effective than recovery of the equipment by the Army.
- (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; however, cost sharing is not required nor will it be an evaluation factor in the consideration of a Phase I proposal.
- (5) All subcontractor costs and consultant costs must be detailed at the same level as prime contractor costs in regard to labor, travel, equipment, etc. Provide detailed substantiation of subcontractor costs in your cost proposal. Enter this information in the Explanatory Material section of the on-line cost proposal form. The Supporting Documents Volume (Volume 5) may be used if additional space is needed.

When a proposal is selected for award, you must be prepared to submit further documentation to the 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 <http://www.dcaa.mil>. Click on "Guidance" and then click on "Audit Process Overview Information for Contractors."

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 best value 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 reasonableness and realism shall also be considered to the extent appropriate.

Technical reviewers will base their conclusions only on information contained in the proposal. It cannot be assumed that reviewers are acquainted with the firm 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.

7.0 PHASE II PROPOSAL

7.1 Introduction

Only those firms who receive a Phase I award will be eligible to submit a Phase II proposal. Submission of Phase II proposals are not permitted at this time and, if submitted, will be rejected without evaluation. Phase II proposal preparation and submission is expected to take place no later than 30 days prior to the end of Phase I performance. Additional details regarding submission date and time, along with any other pertinent information, will be provided to Phase I awardees upon receipt of the Phase I contract.

Phase II Proposals shall follow the same guidelines laid out for Phase I, with the exception of a 15 page limit for the Technical Volume in Phase II proposals, and a 25 page limit for Technical Volume of Phase IIB proposals.

Phase II proposals submitted in response to this BAA shall be for 9 to 24 months in length, with a consolidated \$1,500,000 traditional SBIR funding, plus a potential additional option of \$1,000,000 (or more) consisting of \$500,000 in SBIR funding and at least \$500,000 in non-SBIR matching funding (Government or private sector). The \$1,000,000 addition should include the technical approach for that option and should be budgeted separately from the traditional \$1,500,000. While firms are encouraged to include in their proposal the work to be performed with the additional \$1,000,000 and evidence of outside matching funding, this will not be a criteria for Phase II selection. Evidence of matching funding must be included in order to be eligible for award above the \$1,500,000 traditional award amount.

Phase II contracts for \$1,500,000 will be “gated” as base and option periods, with the time frames and amounts of each “gate” to be determined by the proposed approach. The first gate develops the technology and delivers an operational prototype. Soldier touch points are embedded in the development process to enable companies a direct opportunity to understand and collaboratively discuss how their technology can meet Army needs. The first gate is to be completed in 9 to 12 months. The second “gate” will involve a technology demonstration, user testing, and an advanced soldier touchpoint to further mature technology applications for military use. The goal of the second gate is to understand technology scaling needs into procurement in coordination with both Science and Technology (S&T) and advanced development partners. Phase II proposals should be formatted as such.

Phase IIB:

This SPARTN SBIR BAA includes the potential for a Phase IIB award, which can range up to \$24,000,000 in total funding, to include \$6,000,000 in Army SBIR funding, \$6,000,000 in other Government non-SBIR program funding, and \$12M in private capital/outside funding. For a technology to enter this phase, a non-SBIR government program stakeholder must agree to lead programmatic efforts under the successive award and provide non-SBIR appropriated funds. Proposal submission instructions, to include submission dates and other pertinent information, for Phase IIB will be provided at a later time to those firms receiving both a Phase I and Phase II award.

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 into 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).

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 company contain marketing expertise and, if not, how will that expertise be brought into the company?
- (5) Who are the proposing firm'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 company is required to report actual sales and investment data in its Company Commercialization Report (see Section 5.4.e) at least annually. For information on formatting, page count and other details, please refer to the Component-specific instructions.

8.0 PHASE II EVALUATION CRITERIA

Phase II proposals will be evaluated based on the criteria outlined below, unless otherwise specified in the Component-specific instructions. Selections will be based on best value 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 reasonableness and realism shall also be considered to the extent appropriate.

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

9.0 CONTRACTUAL REQUIREMENTS

9.1 Other Contract Requirements

Small Business Concerns (SBCs) are strongly encouraged to engage with their Contracting/Agreements Office to determine what measures can be taken in the event contract performance is affected due to the COVID-19 situation. SBCs are encouraged to monitor the CDC Website, engage with your employees to share information and discuss COVID-19 concerns employees may have. Please identify to your Contracting/Agreements Officer potential impacts to the welfare and safety of your workforce and any contract/OT performance issues. Most importantly, keep in mind that only your Contracting/Agreements Officer can affect changes to your contract/OT.

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.

- 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 (that is, 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.
- 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. Publication Approval.** Government review and approval will be required prior to any dissemination or publication, except within and between the Contractor and any subcontractors, of classified 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 22.1803.

- 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. Therefore, 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 award is required to provide adequate security on all covered contractor information systems. Specific security requirements are listed in DFARS 252.204.7012, and compliance is mandatory.

9.2 Commercialization Updates in Phase II

If, after completion of Phase I, the contractor is awarded a Phase II contract, the contractor shall be required to periodically update the following commercialization results of the Phase II project through the Web site at <https://www.dodsbirsttr.mil/submissions/>:

- a. Sales revenue from new products and non-R&D services resulting from the Phase II technology;
- b. Additional investment from sources other than the federal SBIR/STTR Program in activities that further the development and/or commercialization of the Phase II technology;
- c. Whether the Phase II technology has been used in a fielded DoD system or acquisition program and, if so, which system or program;
- d. The number of patents resulting from the contractor's participation in the SBIR/STTR Program;
- e. Growth in number of firm employees; and
- f. Whether the firm has completed an initial public offering of stock (IPO) resulting, in part, from the Phase II project.

These updates on the project will be required one year after the start of Phase II, at the completion of Phase II, and subsequently when the contractor submits a new SBIR or STTR proposal to DoD. Firms that do not submit a new proposal to DoD will be asked to provide updates on an annual basis after the completion of Phase II.

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

Section 890 of the National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2020 prohibits 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 an exception applies. See [provision 252.225-7974 Class Deviation 2020-O0005](#) "Prohibition on Contracting with Persons that have Business Operations with the Maduro Regime.

9.4 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.

9.5 Patents

Small business firms 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 USC 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 Invention Reporting in Section 11.6.

9.6 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 unlimited 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 proposer 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. The contract cannot be awarded until assertions have been approved.

9.7 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.

9.8 Deliverables and Final Technical Reports - Phase I through Phase III

- a. **Phase I Deliverables:** In addition to technical reporting requirements which will be specified in Phase I contracts, at the end of Phase I, companies shall demonstrate a concept demonstration and deliver a solution design brief describing how the demonstrated solutions contribute to solving the problem.

- b. Phase II Deliverables:** In addition to technical reporting requirements which will be specified in Phase II contracts, at the end of Phase II, companies shall meet specific deliverable requirements within each “gate” of Phase II performance. During the first “gate”, the contractor shall develop the technology and deliver an operational prototype. Soldier touchpoints will be embedded into the development process to enable companies a direct opportunity to understand and collaboratively discuss how their technology can meet Army needs. The first “gate” requirements must be met within 9-12 months. The second “gate” involves a technology demonstration, user testing, and an advanced soldier touchpoint to further mature technology applications for military use.
- c. Final Report 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 at http://www.dtic.mil/dtic/submit/guidance_on_submitting_docs_to_dtic.html. In addition, monthly status and progress reports may be required by the DoD Component.
- d. SF 298 Form “Report Documentation Page” Preparation:**

- (1) If desirable, language used by the company in its Phase II proposal to report Phase I progress may also be used in the final report.
- (2) For each unclassified report, the company 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 SBIR contract is subject to SBIR Data Rights which allow for protection under DFARS 252.227-7018 Class Deviation 2020-O0007 (see Section 11.5, Technical Data Rights). The sponsoring DoD activity, after reviewing the company'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 SBIR 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 "SBIR Report".

- e. **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)
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 SBIR Data Rights protected under DFARS 252.227-7018 Class Deviation 2020-00007.

10.0 TOPICS

SPARTN SBIR BAA 20.5 Topic TITLE: Self-Propelled Howitzer Rate of Fire

RT&L FOCUS AREA(S): General
Warfighting TECHNOLOGY
AREA(S): Weapons

Objective

Develop the components for a system-of-systems in order to increase the rate of fire of self-propelled howitzers.

Description

The US Army's current approach for reloading the cannon armament of self-propelled howitzers is primarily a manual process. A fixed, limited number of projectiles and propellant charges are stored in the vehicle armor. Those projectiles and propellants are pulled from their stowed position by hand and loaded into the cannon using manually-stocked, manually-actuated assisting mechanisms. After the round is fired, which is a separate process with a specific chain of events, the bore is available to be

reloaded. At this point, the process can be repeated. This approach is limited by the physical capabilities of the soldiers operating the howitzer. At high rates of fire with large, next-generation munitions, this manual process is expected to be unsustainable.

For the next self-propelled howitzer system, the US Army is interested in exploring alternate cannon reloading approaches that enable high sustained rates of fire. This program of effort seeks to identify subsystem technologies that enables the system optimization of ammunition handling internal to the self-propelled howitzer to include, but is not limited to:

Ammunition Material Handling – the transfer of fuzed-projectiles and propellant into the howitzer breech

Storage – efficient arrangement, positive control, and material flow of artillery ammunition

Inventory Management – real-time tracking of on-board ammunition

Other technology areas that can assist in ammunition handling but not listed above

The constraints of the self-propelled howitzer platform will need to be considered such as armament cab volume, hot and cold temperature extremes, blowing sand and dust environments, overpressure and shock caused by firing the howitzer, on-board high voltage system, and the safety of Soldiers that may co-occupy the space. The types of artillery ammunition to be considered are Modular Artillery Charge System (MACS) and super charge propellant, stub case, 155mm artillery shells, and fuzes.

Phase I

Determine the technical feasibility of a system, or components of a system, that would enable an optimized material solution to increase rate of fire to the above effort. Identify a preliminary approach to a technology design that demonstrates a clear path towards solution development. Phase I deliverables include a design review including expected performance with supporting documentation and analysis, a final report including Phase II plans, and a concept demonstration of proposed technology. Examples of a suitable concept demonstration are digital animations, a 3D printed or scalable models, or simulations, or physical demonstration of current technology adapted to the problem.

Companies can voluntarily participate in the Army Application Lab 18 week cohort program. The cohort program is designed to accelerate technology development through the rapid exposure to Army stakeholders and the field artillery community. Planned activities include problem topic deep dive, a field week with a field artillery unit, hands-on field artillery equipment, and stakeholder engagement from the requirements writer, to acquisition manager, to the end-user. An example cohort program for this topic is:

Week 1 – Orientation and problem deep dive (virtual)

Week 2 – Field week (in-person at an Army installation)

Week 3-6 – Concept research and planning

Week 7 – Concept brief and stakeholder round-table discussion (in-person at an Army installation)

Week 8-11 – Concept design development

Week 12 – Design mid-point review and stakeholder round-table discussion (virtual)

Week 13-16 - Concept design development continued

Week 17 – Design brief rehearsal (virtual)

Week 18 – Design brief, demonstration (in-person at an Army installation), and design paper delivery

While the cohort programming will be provided free of charge, participating companies must travel and

participate out of company internal operating budgets. Proposers that plan to participate in the cohort (if awarded a Phase I) are encouraged to include travel costs for three cohort trips, within the continental US, of 4-5 days each for the in person programming. In-person events may be substituted for virtual events depending on COVID-19 travel restrictions. Details will be provided to awardees under this topic at Phase I award

Phase II

Execute prototype detailed design and develop a subsystem prototype based on the Phase I final report. Conduct a formal risk assessment of the subsystem technology in operational environment. Phase II deliverables include a demonstration and delivery of a TRL 6 prototype for further Army evaluation, as well as quarterly and final reports detailing design and performance analysis of the prototype.

Awardees of this topic can voluntarily participate in quarterly soldier touch-points, a 3-4 day business trip within the continental US. Touch points will be provided free of charge for participating companies. Companies must travel and participate out of the company internal operating budgets. Soldier touch point details will be provided to awardees under this topic at Phase II award. Awardees are also eligible for Phase IIb award after completion of Phase II period of performance

Phase III

Develop a manufacturing-ready product design, capable of integration with the existing or future platform, and demonstrate technology integration as part of a vehicle system. Low rate production will occur as required. Support Government-sponsored test activities. Potential commercial uses include warehouse distribution centers, agricultural equipment, and petroleum extraction platforms. Phase III deliverables include system-level integration technical data package, installation documentation, and system-level prototype for demonstration and government-sponsored testing.

TRL

6 - System/subsystem model or prototype demonstration in a relevant environment

Keywords

artillery; robotics; inventory management; auto-loader; robotic arm; storage; Paladin; Howitzer; ERCA; Extended Range Cannon Artillery; Self-Propelled Howitzer System; rate of fire; material handling

Background

This topic was developed in conjunction with PM SPHS and LRPF CFT to develop components to achieve an improved rate of fire for the Self-Propelled Howitzer System.

References

- http://everyspec.com/ARMY/TM-Tech-Manual/TM_43-0001-28-3_CHG-11_53626/
- <https://asc.army.mil/web/portfolio-item/artillery-ammunition/>
- <https://www.army-technology.com/projects/paladin/>
- <https://aal.army/cohortprogram/>

The technology within this topic is restricted under the International Traffic in Arms Regulation (ITAR), which controls the export and import of defense-related material and services. Offerors

must disclose any proposed use of foreign nationals, their country of origin, and what tasks each would accomplish in the statement of work in accordance with section 3.5.b(7) of the solicitation.

TPOC-1: Russ McNear

Phone: 315-759-9576

Email: russ.t.mcnear.mil@aal.army

TPOC-2: Heather Keeler

Phone: 586-282-0195

Email: heather.keeler2.civ@mail.mil

TPOC-3: MAJ Chris Isch

Phone: (580) 442-6900

Email: christopher.k.isch.mil@mail.mil