

DEPARTMENT OF THE AIR FORCE (AF)
SMALL BUSINESS INNOVATION RESEARCH (SBIR) PROGRAM
X20.R SBIR COMMERCIAL SOLUTIONS OPENING (CSO)
AF VENTURES DIRECT TO PHASE II TOPIC AF20R-DCSO1
AMENDMENT 1
6 April 2020

The subject solicitation is hereby amended to reflect the following changes:

1. **Section 2.1, Objectives**, is changed as follows:

- a. “The DoD 10 Technology Focus Areas representing AF Strategic priorities are listed below. **An additional Focus Area, number 11, COVID-19, has been added to address the current pandemic.** Proposals are not required to address one of these areas.”
- b. Added to the list of Focus Areas: “11. **COVID-19** - The AF COVID-19 Operational Planning Team (OPT) has assembled to identify key interest areas supporting COVID-19 defeat and mitigation related to AF operations and activities. The areas of interest identified by the AF COVID-19 OPT are found at Attachment 1. Please note, number 6 is open to solutions not contemplated under 1-5.”

2. **Section 6.0, Direct to Phase II Evaluation Criteria**, is replaced in its entirety with the following:

All Phase I and 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 peer reviewed by engineers or scientists to determine the most promising technical and scientific approaches. Each proposal will be judged on its own merit. AF is under no obligation to fund any proposal or any specific number of proposals under this topic. It also may elect to fund several or none of the topic’s proposed approaches.

Proposals will be peer reviewed based on the criteria below. Selections will represent best value to the Government considering the following factors listed in descending order of importance:

- a. The potential for commercial (Government or private sector) application and benefits expected to accrue from commercialization. The SBC’s record of commercializing SBIR or other research, the existence of Phase II follow-on commitments for the subject research, and matching funding, whether from Government or private sources, are evidence of commercialization potential.
- b. The appropriateness, relevance, and specificity of an identified Defense Need. A complete, signed, and cogent Air Force Customer Memorandum is an indicator of

the appropriateness, relevance, and specificity of an identified Defense Need. Adequacy of the proposed effort and its relationship to fulfilling the identified Defense Need.

- c. The soundness, technical merit, and innovation of the proposed approach and its incremental progress toward fulfilling the identified Defense need and the qualifications of the proposed Principal Investigators/Project Managers, supporting staff, and consultants to execute against the proposed approach

Price reasonableness will be considered to the extent appropriate.

Peer reviewers will base their conclusions only on information contained in the proposals except when specified, e.g., the '100-second video'. It cannot be assumed that reviewers are acquainted with the firm or key individuals or any referenced experiments.

IAW 15 USC 638(dd)(7), investment by venture capital, private equity firms, or hedge funds shall not be used as an award criterion.

Other Factors Considered During the Selection Process:

- Possible duplication with other R/R&D;
- Potential integration with other Air Force or DoD Programs;
- Phase III potential;
- Funding limitations;
- Innovativeness;
- USAF SBIR program balance;
- Applicant small business size/status pursuant to 13 CFR 121.701-705; demonstrations of eligibility through registrations pursuant to FAR Subpart 4.11 and 4.18; and applicant responsibility pursuant to FAR Part 9;
- National security concerns.

The effort's cost to the Government may be considered to determine the successful offeror when more than one proposal is found to be essentially equal in merit.

3. Section 10.0, Direct to Phase II Topic, is changed as follows:

- a. The topic number is changed from "AF201-DCSO1" to "AF20R-DCSO1".
- b. Areas of Focused Defense Need: The final sentence in the paragraph, i.e., "Link: <https://afwerx.af.mil/sbir.html>", is deleted in its entirety.

All other content of the subject solicitation remains unchanged and in full effect.

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30 March 2020: Solicitation posted to beta.SAM.

8 April 2020: Solicitation posted to DSIP. (*More under "Important" below.*)

30 April 2020: Full Proposals Due **No Later Than 12:00 p.m. ET**

IAW with Section 879 of the National Defense Authorization Act (NDAA) for Fiscal Year 2017 (P.L. 114-328), Congress has authorized the Defense CSO Pilot Program. This program allows agencies to obtain solutions or potential new capabilities fulfilling requirements, closing capability gaps, or providing potential technological advancements. Consistent with FY17 NDAA Section 879, AF is soliciting proposals under a CSO. This solicitation is intended for informational purposes and reflects current planning. If there is inconsistency between the information in the CSO and resulting awards, if any, the awards' terms and conditions take precedent.

IMPORTANT

CSO Publication via Defense SBIR/STTR Innovation Portal (DSIP) and beta.SAM: The AF X20.R CSO, including topic AF20R-DCSO1, will be posted to **beta.SAM** on Monday **30 March 2020**. The **DSIP portal** will open for proposal submission on **8 April 2020**. **Please monitor beta.SAM and DSIP for possible updates.**

How to Submit: All proposals must be prepared and submitted through the Department of Defense (DOD) SBIR/STTR Innovation Portal (DSIP), <https://www.dodsbirsttr.mil/>. Ensure the proposal email address is accurate. AF is not responsible for missed notifications due to firms changing mailing address/email address/company points of contact after submission without notifying the AF. **Firms shall register in the System for Award Management, <https://www.sam.gov/> to be eligible for award.** Firms must verify registration for "All Contracts", not just grants. Addresses must be consistent between the proposal and SAM at award.

Classified proposals are NOT accepted.

CSO Changes: The instructions/topic information have been significantly revised – read carefully.

SBIR/STTR Updates and Notices:

- The CSO of record is found at <https://beta.sam.gov/> and <https://www.dodsbirsttr.mil/> (select 'Topics'; scroll down to 'SITIS & Topics/Instructions' header and select 'AFX' tab). Proposals must meet all CSO of record requirements at proposal submission deadline.
- To receive AF Ventures and other AF innovation opportunity notifications, register at <https://af-ventures.com/> and <https://www.afwerx.af.mil/join.html>.

Help Desk: For AF SBIR/STTR Program questions, contact the AF Help Desk at 1-800-222-0336 or AFSBIRSTTR-Info@us.af.mil. For Defense SBIR/STTR Innovation Portal (DSIP) questions or issues, contact the DoD SBIR/STTR Help Desk at DoDSBIRSupport@reisystems.com.

TABLE OF CONTENTS

1.0	INTRODUCTION	4
2.0	PROGRAM DESCRIPTION	5
2.1	Objectives	5
2.2	Three Phase Program	5
2.3	AF Special Topic Information	6
3.0	DEFINITIONS	7
3.1	Certified HUBZone Small Business Concern	7
3.2	Commercial Solutions Opening (CSO)	7
3.3	Commercialization	7
3.4	Essentially Equivalent Work	7
3.5	Export Control	7
3.6	Federal Laboratory	7
3.7	Foreign Nationals	7
3.8	Fraud, Waste and Abuse	8
3.9	Funding Agreement	8
3.10	Innovative	8
3.11	Other Transaction	8
3.12	Performance Benchmarks for Progress Toward Commercialization	8
3.13	Principal Investigator	8
3.14	Proprietary Information	9
3.15	Research Involving Animal Subjects	9
3.16	Research Involving Human Subjects	9
3.17	Research Involving Recombinant DNA Molecules	9
3.18	Research or Research and Development	10
3.19	Service-Disabled Veteran-Owned Small Business (SDVOSB)	10
3.20	Small Business Concern (SBC)	10
3.21	Subcontract	10
3.22	United States	10
3.23	Women-Owned Small Business Concern	10
4.0	PROPOSAL FUNDAMENTALS	11
4.1	Introduction	11
4.2	Offeror Eligibility and Performance Requirements	11
4.3	Joint Ventures	12
4.4	Majority Ownership in Part	12
4.5	Conflicts of Interest	12
4.6	Classified Proposals	12
4.7	Research Involving Human Subjects	13
4.8	Research Involving Animal Subjects	13
4.9	Research Involving Recombinant DNA Molecules	13
4.10	Use of Unmanned Aerial Systems (UAS)	14
4.11	Proposal Status and Feedback	14
4.12	CSO Protests, Selection and Award Protests	14
4.13	Direct to Phase II Award Information	15
4.14	Questions about this CSO and CSO Topics	15

4.15	Registrations and Certifications	15
4.16	Promotional Materials	
4.17	Prior, Current, or Pending Support of Similar Proposals or Awards	16
4.18	Fraudulent or False Statements	16
4.19	State and Other Assistance Available	16
4.20	Government Use of Support Contractors on AF SBIR/STTR Program	17
4.21	Innovation in Manufacturing	17
5.0	DIRECT TO PHASE II PROPOSAL	18
5.1	Introduction	18
5.2	Proposal Provisions	18
5.3	Direct to Phase II Open Topic	18
5.4	Proposal Submission	19
5.5	Matching Phase II Overview	19
5.6	Direct to Phase II Proposal Preparation Instruction	20
5.7	Proposal Content	20
6.0	DIRECT TO PHASE II EVALUATION CRITERIA	37
7.0	COMMERCIALIZATION READINESS PROGRAM (CRP)	38
8.0	CONTRACTUAL REQUIREMENTS	39
8.1	Other Contract Requirements	39
8.2	Commercialization Update in Phase II	40
8.3	Copyrights	40
8.4	Patents	40
8.5	Technical Data Rights	41
8.6	Invention Reporting	41
8.7	Final Technical Report	41
9.0	VOLUNTARY DIRECT TO PHASE II MATCHING FUNDS GUIDANCE	43
9.1	Examples of Voluntary Cost Share or Match Sources	43
9.2	Voluntary Matching Investment Timing/Logistics	43
10.0	AFWERX TOPICS	45
10.1	AF20R-DCSO1 TITLE: Direct to Phase II Open Call for Innovative Defense-Related Dual-Purpose Technologies/Solutions with a Clear Air Force Stakeholder Need	45
	ATTACHMENTS	
	1. COVID-19 Focus Area Interests	
	2. Customer Memoranda Template	
	3. Fund Matching Form Template	

1.0 INTRODUCTION

The Air Force (AF) invites small business firms to submit proposals under this CSO for the Small Business Innovation Research (SBIR) Program. Firms with the capability to conduct research and development (R&D) in the AF-related topics described in Section 10.1 and to commercialize the results of that R&D are encouraged to participate. Note that this solicitation includes only one type of effort, Direct-to-Phase II.

The *2014 Quadrennial Defense Review* (QDR) established innovation as a central line of effort in the national defense strategy of the United States. The decisive military advantage of the United States over its adversaries and peer competitors is steadily eroding. Consequently, under section 879 of the National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2017 (Pub. L. 114-328) contracting officers may acquire innovative commercial items, technologies, or services using a competitive procedure called a Commercial Solutions Opening (CSO). Under this CSO, the DoD may competitively select proposals received in response to a general solicitation, similar to a Broad Agency Announcement, based on a review of proposals by Government scientific, technological, or other subject-matter experts. Use of a CSO in accordance with Class Deviation 2018-O0016 is considered a competitive procedure for the purposes of 10 U.S.C. chapter 127 and FAR 6.102. Contracting officers shall treat items, technologies, and services acquired using a CSO as commercial items. The full definition of commercial items (products and services) under FAR 2.101 applies to this solicitation. This CSO includes no requirement for a commercial product or service be an already developed, off-the-shelf item.

This CSO seeks innovative, commercial technologies proposed to create new AF solutions or potential new capabilities fulfilling requirements, closing capability gaps, or providing potential technological advancements. This CSO may result in the award of prototype projects, which include not only commercially available technologies fueled by commercial or strategic investment, but also concept demonstrations, pilots, and agile development activities incrementally improving commercial technologies, existing Government-owned capabilities, or concepts for broad defense application(s). The Government reserves the right to award a contract or an Other Transaction for any purpose, to include a prototype, under this CSO. The AF also reserves the right to award all, part, or none of the proposals received. The Federal Government is not responsible for any monies expended by the Applicant before award of any Funding Agreement. The SBIR/STTR program is not a substitute for existing unsolicited proposal mechanisms. Unsolicited proposals will not be accepted under the AF SBIR/STTR program in either Phase I or Phase II.

The AF Program Manager is Mr. David Shahady. General information related to the AF Small Business Program is found at <http://www.airforcesmallbiz.af.mil/>. The site contains contracting opportunities within the AF, as well as business information and upcoming outreach/conference events. Other informative sites include the Small Business Administration's (SBA), www.sba.gov, and the Procurement Technical Assistance Centers, <http://www.ptac.us.org>. These centers provide Government contracting assistance and guidance to small businesses, typically at no cost.

2.0 PROGRAM DESCRIPTION

2.1 Objectives

The AF SBIR Program's objectives include stimulating technological innovation, strengthening the small business role in meeting DoD R&D needs, fostering and encouraging minority and disadvantaged persons in technological innovation, and increasing commercial application of DoD-supported R/R&D results.

The DoD 10 Technology Focus Areas representing AF Strategic priorities are listed below. Proposals are not required to address one of these areas.

1. **Artificial Intelligence:** Improve algorithms, address data quality, optimize human-machine coordination, and disrupt adversaries' efforts.
2. **Autonomy:** Address autonomous systems teaming; machine perception, reasoning and intelligence; human and autonomy systems trust and interaction.
3. **Communications:** Addressing high-performance, low power embedded processing and developing algorithms for self-configuring, self-healing, and resource allocation.
4. **Cyber:** Address behavioral issues, develop self-securing networks, and develop cyber effects and consequences capability assessments.
5. **Directed Energy:** Address power scaling, jitter reduction, laser size and weight, adaptive optics, beam propagation, and target tracking.
6. **Hypersonics:** Address high temperature materials, hypersonic vehicle manufacturing, air breathing propulsion, and hypersonic guidance and control systems.
7. **Microelectronics:** Develop economically competitive domestic manufacturing capabilities, improve radiation hardening, and develop radio frequency (RF) technologies for specialty applications with nuclear, space and electronic warfare capabilities.
8. **Quantum Sciences:** Address quantum clocks and sensors and quantum communications technologies. Develop enabling technologies for quantum computing in the areas of cryogenics and photon detection.
9. **Space:** Developing low earth orbit nano-satellites for missile warning, intelligence, surveillance, reconnaissance, navigation, and communications.
10. **Biotechnology:** Applications related to disease prevention and mitigation, rapid emergency medical response and trauma management, environmental remediation, and advanced materials.

The AF SBIR Program follows the policies and practices of the Small Business Administration (SBA) SBIR/STTR Policy Directive (2 May 19), https://www.sbir.gov/sites/default/files/SBIR-STTR_Policy_Directive_2019.pdf. This CSO incorporates and makes use of Policy Directive flexibilities to encourage proposals based on scientific and technical approaches most likely to yield important results for the AF and private sector.

2.2 Three Phase Program

The SBIR/STTR Program consists of Phases I, II, and III. Phase I is to determine, to the extent possible, the scientific and technical merit and feasibility of ideas with commercial potential. Proposals should concentrate on R/R&D significantly contributing to proving scientific and technical feasibility and the proposed effort's commercialization potential, wherein successful completion is required to obtain further AF support, e.g., a Phase II award. Proposers should consider whether the R/R&D proposed to the AF has private sector potential, either for the proposed application or as the basis for other applications.

Phase II awards are based on Phase I results, including commercialization potential, relevance to Defense needs, and the Phase II proposal's technical merit. Phase II is the principal R/R&D effort, expected to

produce a well-defined deliverable prototype. Phase II awardees may receive one additional, sequential Phase II award to continue the project. There is also the possibility for a third Phase II award under the Commercialization Assistance Pilot Program (CAPP). Additionally, agencies may provide opportunities to apply for Phase IIB awards which seek to bridge the gap between Phase II and III. Proposals for these opportunities, if/when available, are sought through separate, discreet solicitation cycles.

The purpose of Phase IIIs is to further test, evaluate, or develop the prototype into a viable product or non-R&D service for sale in military or private sector markets. SBIR/STTR Phase IIIs include work deriving from, extending, or completing efforts made under prior SBIR/STTR funding agreements, but is funded by sources other than the SBIR/STTR Program. This can be private sector, non-SBIR/STTR Government sources, or both., Phase III work is typically oriented towards commercializing SBIR/STTR research or technology.

2.3 SBIR Direct to Phase II Topic Information

Phase II and Direct-to-Phase II			
Technical Volume (Vol 2)	Additional Info (Vol 5)	Technical & Reporting Duration	Initial Award Amount
NTE 15 pages	15-slide deck, 100 second video, phone/video interview	NTE 27 months (24 month technical, 3 month reporting)	Max \$1M SBIR funding; can exceed this amount with matching Government funds.

3.0 DEFINITIONS

The following definitions from the SBA SBIR/STTR Policy Direction, the Federal Acquisition Regulation (FAR), and 10 USC 2371b apply to this CSO:

3.1 Certified HUBZone Small Business Concern: An SBC 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).

3.2 Commercial Solutions Opening (CSO): A competitive procedure contracting officers may use to acquire innovative commercial items, technologies or services.

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

3.4 Essentially Equivalent Work: Work substantially the same research, proposed for funding in more than one application submitted to the same Federal agency, or two or more different Federal agencies for review and funding consideration. It may also include work where a specific research objective and the research design for accomplishing project objective are the same or closely related to another proposal or award, regardless of funding source.

3.5 Export Control: The International Traffic in Arms Regulations (ITAR), 22 CFR Parts 120 through projects with military or dual-use applications beyond fundamental research. Fundamental research is basic and applied research ordinarily published and shared broadly within the scientific community. More information is available at https://www.pmddtc.state.gov/?id=ddtc_kb_article_page&sys_id=24d528fddbfc930044f9ff621f961987.

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.

3.9 Funding Agreement: Any contract, grant, cooperative agreement, or Other Transaction for Prototype 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.

3.10 Innovative:

- (1) Any new technology, process, or method, including research and development; or
- (2) Any new application of an existing technology, process, or method.

3.11 Other Transaction: Refers to the type of Other Transaction Agreement (OTA) that may be placed as a result of this CSO. This type of OT is authorized by 10 U.S.C 2371b for prototype projects directly relevant to enhancing the mission effectiveness of military personnel and the supporting platforms, systems, components, or material proposed to be acquired or developed by the DoD, or for the improvement of platforms, systems, components, or materials in use by the armed forces. This type of OTA is treated by DoD as an acquisition instruments, commonly referred to as an "other transaction" for a prototype or a Section 2371b "other transaction." The definition of a "prototype project" in the context of an OT is as follows: a prototype project addresses a proof of concept, model, reverse engineering to address obsolescence, pilot, novel application of commercial technologies for defense purposes, agile development activity, creation, design, development, demonstration of technical or operational utility, or combinations of the foregoing. A process, including a business process, may be the subject of a prototype project.

3.12 Performance Benchmarks for Progress Toward Commercialization: IAW the SBA SBIR/STTR Policy Directive Section 4.(a)(3), DoD's established benchmark threshold applies only to Phase I applicants with more than 20 awards in the prior five fiscal years. The ratio of Phase I awards to Phase II awards received during the period must be at least 4:1. Additional information can be found at <https://www.sbir.gov/performance-benchmarks>.

3.13 Principal Investigator: The principal investigator/project manager is the 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 SBC 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 SBC. 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 AF SBIR Program Manager/Coordinator. Further, an SBC may replace the principal investigator on an SBIR Phase I or Phase II award, subject to approval in writing by the contracting officer.

3.14 Proprietary Information: Proprietary information includes trade secrets, as well as commercial or financial information.

3.15 Research Involving Animal Subjects: "Activities involving animal subjects shall be conducted in accordance with DoDI 3216.01, "Use of Animals in DoD Programs"; 9 CFR parts 1-4; National Academy of Sciences Publication "Guide for the Care & Use of Laboratory Animals" as amended; Department of Agriculture rules implementing the Animal Welfare Act (7 U.S.C. §§ 2131-2159); and other applicable Federal/DoD/local laws, regulations, and instructions.

"Animal use" protocols apply to activities meeting 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) being used or 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 applicability to work involving animals

3.16 Research Involving Human Subjects: All research involving human subjects shall be conducted in accordance with 32 C.F.R. § 219 "The Common Rule", 10 USC §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. Offerors 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.

3.17 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/2013/06/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.

3.18 Research or Research and Development:

- 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, systems, or methods, including prototype or process design, development, and improvement to meet specific requirements.

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 meeting the requirements set forth in 13 CFR. § 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: 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.

4.0 PROPOSAL FUNDAMENTALS

4.1 Introduction

The proposal must provide sufficient information to demonstrate to the reviewers the proposed work represents an innovative approach to investigation of important scientific or engineering problems and is worthy of support under the stated criteria. The proposed R/R&D must be responsive to the chosen topic.

Before submitting a proposal, offerors should assess the intended effort to determine:

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

4.2 Offeror Eligibility and Performance Requirements

- a. Each proposer must qualify as a small business concern IAW 13 C.F.R §§ 701-705 at time of award and certify to this on the proposal Cover Sheet. SBIR/STTR eligibility requirements are unique and do not correspond to other small business programs (see Section 3.15 of this CSO). Proposers must meet eligibility requirements for Small Business Ownership and Control IAW 13 CFR § 121.702 and Section 4.4 of this CSO.
- b. A minimum of one-half of the Phase II research and/or analytical must be conducted by the offeror. The percentage of work is measured by both direct and indirect costs.
- c. 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 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. Phase II R/R&D work must be performed by the small business concern and its subcontractors in the U.S.
- e. **Benchmarks.** Proposers with prior SBIR/STTR awards must meet two benchmark requirements for progress toward commercialization as determined by the Small Business Administration (SBA) on 1 June each year.
 1. For all proposers with greater than 20 Phase I awards over the past five fiscal years, excluding the most recent year (currently FY 2014-2018), the ratio of Phase II awards to Phase I awards must be at least 0.25.
 2. For all proposers with greater than 15 Phase II awards over the last ten fiscal years excluding the last two years (currently FY 2008-2018), 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 provide Agencies annually on 1 June the list of companies failing to meet minimum performance requirements. These companies will not be eligible to submit Phase I proposals for one year from that date.
- This requirement only affects a company's eligibility for new Phase I awards. Companies failing to meet minimum performance requirements may continue work on current, ongoing SBIR/STTR awards. They may also apply for and receive new Phase II awards. Likewise, they are not prohibited from receiving Phase III awards.
- To provide advance warning, SBA notifies companies on 1 April if they are failing the benchmarks. If a company believes 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 award, and accurately complete necessary certifications.
- Companies' benchmark information is not available to the public.
- **At this time, SBA is not compiling a list of companies deemed ineligible to submit a proposal for a new Phase I or Direct-to-Phase II award based on failure to meet the Commercialization Benchmark requirement.**

4.3 Joint Ventures

Joint ventures and limited partnerships are permitted, provided the entity created qualifies as a small business in accordance with the Small Business Act, 13 U.S.C. § 121.701.

4.4 Investment from, and Majority Ownership by, Venture Capital Operating Companies, Hedge Funds, and Private Equity Firms

Small businesses owned in majority part by multiple venture capital operating companies (VCOC), hedge fund, or private equity firms, are ineligible to submit proposals under this CSO. This solicitation is not utilizing the Domestic Investment Pilot Program authority of the FY2020 NDAA Section 884. Further, investment of venture capital or investment from hedge funds or private equity firms will not be used as a criterion for selection under this CSO.

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. Proposing firms should contact the cognizant Ethics Counselor from the employee's Government agency for further guidance if in this situation.

4.6 Classified Proposals

Classified proposals will not be accepted in response to this CSO. If efforts will require classified work during Phase II performance, the proposing firm must have or obtain a facility clearance. Additional information on facility and personnel clearance procedures and requirements can be found at the Defense Security Service site, <http://www.dss.mil/index.html>.

4.7 Research Involving Human Subjects

All research involving human subjects, to include use of human biological specimens and human data, shall comply with the applicable Federal and state laws and agency policy/guidelines for human subject protection (see Section 3.12).

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 AF. All institutions engaged in human subject research, to include subcontractors, must also have a valid Assurance. In addition, personnel involved in human subject 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. 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 AF 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.**

4.8 Research Involving Animal Subjects

All research, development, testing, experimentation, education or training involving the use of animals shall comply with the applicable Federal and agency rules on animal acquisition, transport, care, handling, and use (see Section 3.11).

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.**

4.9 Research Involving Recombinant DNA Molecules

All research involving recombinant DNA molecules shall comply with the applicable Federal and state laws and regulations and any additional agency guidance. Research shall be approved by an Institutional Biosafety Committee.

4.10 Use of Unmanned Aircraft Systems (UAS)

All activities involving the operation of Unmanned Aerial Systems shall be conducted IAW Department of Defense Memo entitled “Guidance for the Domestic Use of Unmanned Aircraft Systems in the U.S. National Airspace, dated 18 August 2018 and DOD memo entitled, “Delegation Authority to Approve Exemptions for Using Commercial-Off-The-Shelf Unmanned Aerial Systems in Support of Urgent Needs, dated 16 November 2018. Contractor personnel operating DoD or DoD-contracted UAS in U.S. National Airspace, whether or not the domestic use is related to an intelligence activity, will comply with all laws, regulations, and guidance relating to the operation of UAS in U.S. National Airspace. Specific programs utilizing UAS are required to obtain an exemption for operational use of a UAS; therefore, additional documentation may be requested by the AF to support an exemption request. The DOD exemption approval process can last as much as two months. **No funding can be used for contracted-UAS operations until ALL approvals are granted.**

4.11 Proposal Status and Feedback

The Principal Investigator (PI) and Corporate Official (CO) indicated on the Proposal Cover Sheet (Volume 1) will be notified by email regarding proposal selection or non-selection. The SBC will receive a notification for each proposal submitted. Please read each notification carefully and note the proposal number referenced. **If changes occur to the company mail or email address(es) or points of contact after proposal submission, the information must be provided to the AF at sbir@afwerx.af.mil. The message shall include the subject line, “20.R Address Change”.**

Any feedback requests must be submitted in writing within 30 calendar days after receipt of notification of non-selection. Written requests for feedback must be submitted via sbir.feedback@afwerx.mil. Requests for feedback should include the company name and the telephone number/e-mail address for a specific point of contact, as well as an alternate. Additionally, include the proposal number(s). Feedback requests received more than 30 calendar days after non-selection notification receipt will be fulfilled at the Contracting Officers' discretion. Unsuccessful offerors are entitled to no more than one feedback response for each proposal.

Release of Proposal Review Information. After final award decisions have been announced, the peer review of the applicant's proposal may be provided to the offeror. The identity of the reviewer shall not be disclosed.

It is anticipated all proposal reviews will be complete, selection decisions made, and notification letters sent within approximately 30 calendar days of proposal receipt. Please refrain from contacting the CSO Contracting Officer for proposal status before that time.

4.12 CSO, Selection, and Award Protests

Interested parties may have the right to protest this CSO by serving the Contracting Officer (listed below) with the protest, or by filing with the Government Accountability Office (GAO) or U.S. Court of Federal Claims. to by Ms. Kristina Croake, AF SBIR/STTR Contracting Officer, kristina-croake@us.af.mil. Protest of selections or awards should also be directed to Ms. Croake or by filing with the GAO or the U.S. Court of Federal Claims. If the protest is filed with the GAO, a copy of the protest shall be received by the AF Legal Operations Agency within one day of filing. Protests of a selected firm's small business status should be directed to the SBA.

4.13 Direct-to-Phase II Award Information

- a. **Number of Awards.** The number of awards will depend upon funds availability. The Government reserves the right to make no awards under this solicitation. The Federal Government is not responsible for any costs incurred before award receipt.
- b. **Type of Funding Agreement.** Each selected Phase II proposal will be awarded as a negotiated contract or Other Transaction, including reasonable profit consistent with profit-making R/R&D firms. Firm-Fixed Price or Firm-Fixed-Price Level of Effort and/or an Other Transaction may be negotiated and are at the discretion of the Contracting Officer.
- c. **Average Dollar Value.** The maximum Phase II contract value is found in Section 2.3, Chart 1.
- d. **Timing.** It is intended peer review, proposal selection, negotiations, and award will be complete within 60 calendar days of proposal receipt.

4.14 Questions about this CSO and CSO Topics

a. General SBIR Questions/Information

1. **AF Help Desk.** The AF SBIR/STTR Help Desk is prepared to address general questions about this CSO, the proposal preparation and electronic submission process, and other program- related areas. The Help Desk may be contacted from 9:00 a.m. to 5:00 p.m. ET Monday through Friday at 1-800-222-0336 or AFSBIRSTTR-Info@us.af.mil.
2. **AF SBIR/STTR Special Topic Updates and Notices.** To receive notifications about AF Ventures and other AF innovation opportunities, please register at <https://af-ventures.com/> and <https://www.afwerx.af.mil/join.html>.
3. **Questions for Topic Author.** During the proposal period, please send questions for the Technical Points of Contact to sbir20.r@afwerx.af.mil.

- b. **Online Q&A Webinars ('Ask me Anything').** For information on these webinars, please visit <https://www.afwerx.af.mil/sbir.html>.

4.15 Registrations and Certifications

Firms must be registered in the DoD Submission system, <https://www.dodsbirsttr.mil/submissions/login>, to prepare and submit proposals.

Proposing firms must also register in the System for Award Management (SAM.gov). SAM.gov allows firms interested in conducting business with the Federal Government to provide basic business capability and financial information. To register, visit SAM.gov. Follow instructions found there to obtain a Commercial and Government Entity (CAGE) code and SAM Management Identifier (SAMMI) number. Offerors must be registered in SAM to receive awards. Firms are advised to visit SAM and ensure all company data is up to date before proposal submission and before award.

In addition to the standard Federal and DoD procurement certifications, the SBA SBIR/STTR Policy Directive requires certain information be collected from firms at award and during the award life cycle. Each firm will be asked to provide this additional information at the time of award, prior to receiving 50% of the total award amount, and prior to final payment.

4.16 Promotional Material

Promotional and non-project related proposal content is discouraged. Additional information provided via website or other communication medium, except where explicitly requested, will not be considered,

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

IMPORTANT -- It is permissible, with proper notification, to submit identical proposals or proposals containing a significant amount of essentially equivalent work (see Section 3.3) for consideration under multiple Federal program solicitations. However, it is unlawful to enter into contracts, grants, cooperative agreements, Other Transactions or other award types, requiring essentially equivalent effort. Questions concerning prior, current, or pending support of similar proposals or awards must be disclosed to the soliciting agency or agencies as early as possible.

4.18 Fraud and False Statements

Knowingly and willfully making false, fictitious, or fraudulent statements or representations may be a felony under the Federal Criminal False Statement Act (18 USC Sec 1001), punishable by a fine of up to \$10,000, imprisonment up to five years, or both.

The DoD Office of Inspector General (IG) Hotline is an important avenue for reporting fraud, waste, abuse, and mismanagement within the DoD. The DoD IG 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 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/>. Written correspondence should be addressed to the Defense Hotline, The Pentagon, Washington, DC 20301-1900. Email reporting is available at hotline@dodig.mil.

4.19 State and Other Assistance Available

Many states have established programs to provide services to small business firms 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 award recipients;
- Assistance in obtaining Phase III funding.

Contact the state SBIR/STTR Support office at https://www.sbir.gov/state_services?state=105813# for further information.

4.20 Use of Support Contractors for the AF SBIR Program

Proposals may be handled for administrative purposes only by support contractors, including Oasis Systems, Riverside Research, Peerless Technologies, HPC-COM, Mile Two, Wright Brother Institute, and MacB (an Alion Company). In addition, only Government employees and technical personnel from Federally Funded Research and Development Centers (FFRDCs) MITRE and Aerospace Corporations working under contract to provide technical support to AF Life Cycle Management Center and Space and Missiles Centers may evaluate proposals. All support contractors are bound by appropriate non-

disclosure agreements. Contact the AF SBIR/STTR Contracting Officer listed in section 4.12 with concerns regarding the listed contractors.

4.21 Innovation in Manufacturing

Pursuant to EO 13329, high priority is accorded to proposals advancing innovation in U.S. small business manufacturing.

5.0 DIRECT TO PHASE II PROPOSAL INSTRUCTIONS

5.1 Introduction

15 U.S.C. §638(cc), as amended by NDAA FY12, Sec. 5106, and further amended by NDAA FY19, Sec. 854, PILOT TO ALLOW PHASE FLEXIBILITY, allows the AF to make SBIR Phase II awards to small business concerns without regard to whether the small business concerns were provided awards under Phase I of the program for the same proposed project. The Air Force is implementing a Direct to Phase II

CSO opportunity under this authority. This does not guarantee future Direct to Phase II opportunities will be offered. Proposals submitted under this CSO must include documentation to determine Phase I feasibility has been met.

5.2 Proposal Provisions

Offerors must provide documentation satisfying the Phase I feasibility requirement* as an appendix to the Phase II proposal. Offerors must demonstrate completion of research and development through means other than the SBIR/STTR Programs solely to establish the feasibility of the Phase II proposal based on the criteria outlined in the topic description. Phase II proposals require a comprehensive, detailed effort description. Proposals should demonstrate sufficient Phase I technical progress or problem-solving results to warrant more extensive R/R&D. Developing technologies with commercial and military potential is extremely important. Particularly, AF is seeking proposals emphasizing technologies' dual-use applications and commercial exploitation.

* NOTE: Offerors are required to provide information demonstrating scientific and technical merit and feasibility has been established. The AF will not review the Phase II proposals if it is determined the offeror 1) fails to demonstrate technical merit and feasibility are established or 2) the feasibility documentation does not support substantial performance by the offeror and/or the principal investigator (PI). Refer to the Phase I description (within the topic) to review the minimum requirements needed to be demonstrated in the feasibility documentation. **Feasibility documentation MUST NOT be solely based on work performed under prior or ongoing Federally funded SBIR or STTR work.**

5.3 Direct to Phase II Open Topic

The Direct to Phase II contract period of performance is up to 27 months, including 24 months for technical performance and three months for reporting. The award value will not exceed \$1M. Companies with solutions requiring further prototyping and demonstration prior to a SBIR Phase III award may apply. Awards will provide additional funds to conduct further R/R&D effort on non-defense commercial solutions to meet a specific Air Force end-user and customer need. These Phase II awards are intended to provide a path to commercialization, not the final step for the proposed solution. Matching funds from non-SBIR Federal and non-Federal sources are not mandatory. Cost-sharing is also not required. However, cost share or match serves as evidence of commercial potential in accordance with 15 USC 638(e)(4)(B)(ii).

For Governmental cost match, funds must be received by AFRL/SBRF within 30 days of CSO closing. For private investment, the company must provide funds receipt evidence within 90 days of award. It is anticipated Phase II efforts with Federal cost match or share will be awarded via contracts. Proposed efforts with private investment cost match will be awarded via OTs for Prototype.

Solution 'Pitch' Video Call: Each offeror must prepare for a 10-minute video call including a five-minute pitch and a five-minute Q&A. The PIs for all proposals determined to have technical merit after application of the evaluation criteria found in Section 6.0 will be notified via email of the pitch opportunity. If the proposal identifies a motivated, empowered Defense end-user and/or customer, the PI is strongly encouraged to request they participate. In those cases, the PI's five-minute pitch will occur first, followed by the five minute Q&A with the peer review team. The Defense stakeholders will only listen. Following the pitch and Q&A, the PI will disconnect. The peer review team will then speak directly with the stakeholders.

Companies may select only one offered time slot, which will be assigned on a first come, first served basis, per proposal. Participation includes a dry-run session to ensure the companies are able to connect

and to become familiar with the environment. It is highly recommended the dry-run session be utilized and back-up plans prepared should significant equipment issues occur. Companies missing the pitch appointment for any reason will not be eligible for award.

5.4 Proposal Submission

Proposals must be electronically submitted through the DoD SBIR/STTR Submission Web site, <https://www.dodsbirsttr.mil/submissions/> no later than the date and time indicated on the CSO title page. Late proposals will not be evaluated; no exceptions will be made. **CLASSIFIED PROPOSALS ARE NOT ACCEPTED; PROPOSALS SHALL NOT CONTAIN CLASSIFIED INFORMATION OR DATA.**

Each proposal submission must contain a Proposal Cover Sheet, Technical Volume, Cost Volume, Supporting Documents, and Fraud, Waste and Abuse Training (see Section 5.4). **NOTE: The Company Commercialization Report, typically a required proposal volume, is not available for this solicitation.** The preferred submission format is Portable Document Format (.pdf). When combining .pdf documents into a full proposal, ensure digital signatures are not stripped. Graphics must be distinguishable in black and white. Virus-check all submissions.

NOTE: The Government is not obligated to make any Direct to Phase II awards nor is it responsible for offeror expenditures prior to award. All awards are subject to successful negotiations and funds availability.

The AF SBIR/STTR Program Office has instituted training and certification requirements to combat fraud in the SBIR/STTR Programs. As a result, SBCs are required to complete Fraud, Waste, and Abuse Training as part of the proposal submission process. The training is available at <https://www.dodsbirsttr.mil/submissions/>. When training is complete and certified, DSIP will indicate so in the proposal, completing the Volume 6 requirement. If training is not completed, the submitter will receive an error message and submission cannot be completed.

All Phase II R/R&D must be performed by the small business and its team members in the United States, as defined in Section 4.2, "Offeror Eligibility and Performance Requirements". The Phase II Principal Investigator's primary employment must be with the small business concern at the time of award and during the entire performance period. Primary employment means more than one-half of the Principal Investigator's time is spent working for the small business. This precludes full-time employment with another organization.

5.5 Government and Private Matching Funds

Proposers wishing to include cost match, Government or private, in their proposals must submit a completed Fund Matching form as described in "Volume 5" (this section).

Additional Private Cost Match Reporting Requirement: The Phase II final report shall include a brief description in company format discussing investor funds expenditure in support of the project. This report shall be submitted by the deadline specified in the award document.

5.6 Direct to Phase II Proposal Preparation Instructions

Proposal Requirements. A Phase II proposal should provide sufficient information to persuade the AF the proposed effort represents an innovative solution worthy of support under the stated criteria. All sections below count toward the page limitation unless otherwise specified.

Proprietary Information. Information constituting a trade secret, commercial or financial information, confidential personal information, or data affecting national security must be clearly marked. It shall be treated in confidence to the extent permitted by law. Awards for selected proposals will likely incorporate the Work Plan, in whole or part, by reference or as an attachment. Therefore, **the Work Plan shall be Non-Proprietary and marked accordingly.**

Layout: Number all proposal pages consecutively. Use type no smaller than 10-point on standard 8-1/2" x 11" paper with one-inch margins. Technical Volume page headers should contain the company name, topic number, and proposal number assigned by DSIP upon Cover Sheet creation. The header may be included in the one-inch margin. Most proposals will be printed in black and white so make sure all graphics are distinguishable in black and white. Offerors are discouraged from including promotional and non-programmatic items, except when directed, e.g., in the 'one-pager' and the '100-second video'. To verify proposal receipt, click on the "Check Upload" icon to view the proposal. Typically, the uploaded file will be virus checked and converted to a .pdf document within the hour. If the proposal does not appear after an hour, contact the DoD SBIR/STTR Help Desk via email at DoDSBIRSupport@reisystems.com, 9:00 am to 5:00 pm ET, Monday through Friday. Confirm all digital signatures in the proposal, if applicable, are still present after upload.

5.7 Proposal Content

A complete proposal consists of:

Registration

- SAMMI Number (formerly DUNS)
- Commercial and Government Entity (CAGE) Code
- Small Business Association ID
- DoD SBIR/STTR ID

Volume 1: Proposal Cover Sheet

- Basic Information (CAGE, SAMMI)
- Proposal Summary
- Proposal Certification
- Contact Information

Volume 2: Technical Volume

- White Paper Not To Exceed 15 Pages
 - Table of Contents
 - Glossary
 - Technical Summary
 - Identification/Significance of Problem/Opportunity
 - Phase I Feasibility Study Results
 - Phase II Technical Objectives/Key Results
 - Phase II Work Plan
 - Scope
 - Task Outline
 - Milestone Schedule
 - Deliverables
 - Required Reports
 - Safety Related Deliverables
 - Commercialization Strategy
 - Commercialization Plan
 - Military Applications/DoD Customers
 - Non-Defense Commercial Customers

Key Personnel
Foreign Nationals
Investors/Partners
Related Work

Volume 3: Cost Volume

Direct Labor
Overhead
G&A
Subcontractors/Consultants
Other Direct Costs, e.g., materials, equipment, travel
Profit Rate/Cost Share or Match

Volume 4: Company Commercialization Report Not in use for this solicitation.

Volume 5: Supporting Documents: You may email sbir@afwerx.af.mil with the subject “20.R Product Request” for templates. A few are available as attachments to this CSO.

Signed Customer Memorandum (*Template at Attachment 2*)
15 Page Slide Deck
Coversheet Supplement
 Certification/Eligibility Check
 Prior, Current, or Pending Support of Similar Proposals or Awards
 Foreign Citizen Table, if applicable
Supplemental Cost Information
Resumes of Key Personnel
Non-Proprietary Work Plan
(as required) Technical Data Assertions
Stand-Alone Section K (Signed)
DoD Funding Agreement Certification (Signed)
SBIR/STTR Environment, Safety and Occupational Health (ESOH)
1-Page ‘Sales Pitch’ Summary
Link to 100 Second Video
The following are as required:
Fund Matching Form (*Template at Attachment 3*)
Additional Fund Matching Documentation, e.g., Private Investor Letter
Additional Facilities/Equipment Information
Additional Subcontractor/Consultant Information
Certified DD Form 2345, Militarily Critical Technical Data Agreement
Customer Memorandum
Lifecycle Certification
Allocation of Rights
Additional Letters of Support

Volume 6: Fraud, Waste and Abuse Training: Refer to Chart 1 for submission requirements.

Volume 1: Proposal Coversheet

The proposal Cover Sheet is prepared in DSIP. It must include a technical abstract no more than 200 words describing the proposed R/R&D project, discussing anticipated benefits and potential commercial applications. **Proprietary and/or classified information shall not be included in the Proposal Cover Sheet.** For selected proposals, the technical abstract and anticipated benefits discussion may be publicly released. When the Proposal Cover Sheet is saved, DSIP will assign a proposal number. The Cover Sheet may be revised as often as necessary until the CSO closes.

Technical Abstract: The technical abstract should include a brief program objective and effort description. Technical abstracts are submitted to the Office of the Secretary of Defense (OSD) for publication. Therefore, they shall not contain proprietary or classified information. The term “Component” on the Cover Sheet refers to the soliciting AF organization, i.e., AFWERX.

Anticipated Benefits/Potential Commercial Applications of R/R&D: The first line of the ‘Anticipated Benefits’ section should follow this format: *We solved [AF problem] by providing [advantage], to help [AF end-user organization] accomplish [AF end-user’s] goal. We will recognize profit by charging [non-defense commercial customer organizations] to get [non-defense commercial benefit].* Be very explicit regarding the proposed AF end user and customer, if different, which is likely, and potential non-SBIR funding sources after successful Phase II completion. This list should also include non-proprietary, non-defense commercial customers. Do not include specific AF names or non-defense customers, as this section will be publicly released.

List of maximum 8 Key Words or Phrases, separated by commas, describing the project: This section will be used to categorize the application. These keywords may also be used to identify Phase III transition partners within the Government. Therefore, consider more than technical key words. A potentially useful analogy is Search Engine Optimization (SEO) Keywords.

Prior, Current, or Pending Support of Similar Proposals or Awards: *While permissible, with proper notification, to submit identical proposals or proposals containing a significant amount of essentially equivalent work under one or more than one Federal announcement, it is unlawful to enter into contracts requiring essentially equivalent effort.* Potential for this situation must be disclosed to the AF before award. Proposals substantially the same as another submission previously, currently, or in process of being funded by another Federal agency or the AF must be identified. On the Proposal Cover Sheet, answer ‘Yes’ to the following or similar question, “Has a proposal for essentially equivalent work been submitted to other US Government agencies or the AF?”

Volume 2: Technical Volume

The technical volume shall be no longer than 15 pages. Pages beyond 15 will not be reviewed or considered. Include page numbers in the technical volume.

Table of Contents: Include a table of contents immediately following the Proposal Cover Sheet.

Glossary: Include a glossary of acronyms and abbreviations used in the proposal.

Technical Summary:

Identification and Significance of the Problem or Opportunity: Briefly describe the specific problem/opportunity addressed in the feasibility study and its relationship to Phase II.

- **Non-Defense Commercial Solution:** Describe the non-defense commercial solution, including its use by non-defense commercial customers. Describe its technical specifications as well as the qualitative and quantitative value it brings to the solution’s users. Additionally, answer the following questions;

- Is the proposed item “of a type”, i.e., similar to a commercial item, customarily used by the public or by non-Governmental entities for non-Governmental purposes?
- Has the proposed item been (i) sold, leased, or licensed to the public; OR (ii) offered for sale, lease, or license to the public?
- Include, where applicable, revenue, unit sales, user adoption, pre-sales, and investment. Broad adoption and commercial success can be indicators of commercial potential and reduced technical risk, but are not mandated. This is an R/R&D solicitation, not a Commercial Off The Shelf resale solicitation. See FAR 2.101 for a full definition of commercial items.
- Proposed Adaptation of Non-Defense Commercial Solution: Describe the proposed R/R&D adaptation of the non-defense commercial solution to meet a US Government end-user need. In this section, answer the following questions:
 - How similar is the modified item to others sold in the commercial marketplace to non-US Government customers?
 - Does the supplier perform similar modifications for non-US Government customers?
 - Do AF unique modifications change the product’s essential use and purpose?
 - Are there differences in the production/manufacturing/delivery processes used to perform the modification for the Federal Government versus non-Government customers?
 - What are the quantitative benefits expected for identified AF end-users?

Phase I ‘Feasibility Study’ Results: The proposal shall detail the solution’s ability to meet AF end-users’ and customers’ needs. These results shall be framed in the context of AF End User and Customer Exploration previously performed for the effort.

- Scientific or Technical R/R&D effort, including research questions, methods, results, and relevant literature.
- AF End-User and Customer Exploration Methods: Describe methods, both successful and unsuccessful, used to perform technical and scientific feasibility analysis and AF Customer and End-User Exploration for adapting the non-defense commercial solution to a specific AF end-user’s needs. This should include detailed reports of at least one in-depth interview with an AF End-User and one in-depth interview with an AF Customer.
- Empowered and Committed AF End-Users: List and describe specific AF end-users, e.g., operators, willing to support further R&D, testing, evaluation, or trial for the proposed Phase II solution. Specifically explain how the proposed solution meets the end-user(s) needs. Describe in as much detail as possible the firm’s understanding of the AF end-user’s problem or benefit area.
- Empowered and Committed AF Customers: List and describe the specific AF customer, e.g., acquisition professional such as a Program Manager at a system program office, willing to assist with transitioning the proposed Phase II solution into a Phase III.
- Empowered and Committed US Non-AF Government End-Users: Commitments from US non-AF Government end-users will also be considered. However, there **MUST** be at least one AF end-user and customer.
- **NOTE:** Inclusion of a Customer Memorandum is mandatory. A template is available Attachment 3. This Customer Memorandum formally captures interest from the empowered and committed AF end-users and customers described above. Proposals without a signed Customer memorandum will not be considered. Customer Memoranda must be uploaded to the ‘*Letters of Support*’ Section in Volume 5, Supporting Documents.

Relevant supporting data such as journal articles, literature, Government publications, etc., should be

contained or referenced in the proposal and will count toward the page limit.

Phase II Technical Objectives and Key Results: Clearly describe three to five Phase II R/R&D effort and trial objectives. These objectives should be tied to specific proposed Phase II trial tasks. These objectives shall be qualitative and specific to the participating AF end-user(s). The objectives shall be tied to specific time periods, and be tangible and unambiguous about anticipated results. These objectives shall describe end-state outcomes, i.e., what will be done, rather than processes or activities, i.e., how it will be done. Each objective shall be accompanied by three to five specific 'key results', measurable throughout Phase II performance. These key results will likely be quantitative in nature, e.g., deliver X widgets to AF end user. Non-quantitative key results shall be clearly measurable.

- **Required Stakeholders Needed to Accomplish Phase II:** List anticipated interactions with stakeholders necessary to accomplish the Phase II trial. Such stakeholders may include lawyers, test range officials, information assurance officials, system program office engineers, etc. Clearly describe Phase II trial completion requirements not within the offeror's immediate control and plans to work within those constraints.

NOTE: This includes clearances, e.g., DD Form 254 and Authorities to Operate (ATO) on DoD networks. This is a crucial component of the proposal.

Phase II Work Plan: For this Phase II topic, a Work Plan, **not** a Statement of Work, is required. For Phase II proposals including private investment cost match, the Work Plan should include those tasks to be supported with SBIR funding. Tasks to be executed with private investment should also be discernable from SBIR-funded tasks. If awarded the SBIR-funded and private investment-funded tasks are included in different parts of the award document. The Work Plan should be structured around the effort's purpose and requirements set forth in clear, specific, and objective terms with measurable outcomes. The work plan has two mandatory features; (1) Work stated in terms of outcomes or results, rather than performance methods, and (2) measurable performance standards, including assessment methods for these standards. The plan should include the location and mechanics for accomplishing the proposed approach. Phase II projects shall attempt to demonstrate the Phase I-like effort's technical feasibility, including transition results to the private sector or Government customer.

- **Scope:** List the effort's major requirements and specifications.
- **Task Outline:** Provide an outline of work to be accomplished throughout the effort. For matching efforts, clearly identifying SBIR-funded tasks and cost match-funded tasks.
- **Milestone Schedule:** The maximum award period of performance will be 27 months. Include a concise program schedule with all key milestones identified. Propose a suggested start date, usually ~2 months after Phase II submission deadline. For each milestone, include:
 - An expected delivery date, represented in number of months after contract award, e.g., widget delivered at contract award (CA) + 6 months.
 - A specific deliverable of value to be provided to the AF end-user.
 - Clear acceptance criteria for all parties to determine milestone achievement.
 - Proposals shall not include more than 15 milestones/deliverables, including a refined Work Plan (CA + 30 calendar days) and a Final Technical Report, the draft of which is due 30 days after technical performance completion.

NOTE: Upload suggested payment amounts/references to rationale/supporting information in "Additional Cost Information", Volume 5, Supporting Documents.

NOTE: If proposing to work with multiple AF end-users, Customer Memoranda must be consolidated into a single, coherent, mutually agreed upon Schedule of Milestones meeting the approval of all.

Chart 2 is a notional construct for the Schedule of Milestones. Each milestone marks the completion of a required deliverable, e.g., baseline execution plan, prototype component, test plan, prototype production, final report submission, etc. Status reports cannot be milestones. Describe how the milestones will be identified as completed. Milestone payments shall reflect justifiable costs to achieve completion. Supporting rationale, e.g., invoices from non-defense commercial customers, will be included in Volume 5, Supporting Documents. NOTE: Pricing information from non-defense commercial customers is likely proprietary and should be marked as such. See the Section 3.9 for the definition of Proprietary Information, and Section 8.7.b for guidance on marking Proprietary Information.

Chart 2: Contraction of Milestones—Notional

<u>TASK/MILESTONE</u>	<u>EXPECTED DELIVERY (MONTHS AFTER CONTRACT AWARD)</u>	<u>DELIVERABLE</u>	<u>ACCEPTANCE CRITERIA</u>	<u>PAYMENT AMOUNT</u>
EXAMPLE: 01 - Finalize customer requirements for adaptation	Award +1 month	Complete set of specifications for adapted commercial solution and quantitative goals for further R&D and widget tests in the AF operational environment.	AF end-users and customers agree the specifications will meet their needs.	\$50,000 (EVIDENCE: invoice from pilot program with non-defense customer A.)
EXAMPLE: 02 - Deliver 3 adapted commercial widgets	Award + 4 months	Three adapted widgets delivered to the AF end-user meeting specifications described in task 01.	The AF end-user will physically accept the adapted widgets	\$250,000 (EVIDENCE: 2019 sales of non-defense commercial widget)
EXAMPLE: 03 - Training for using widgets	Award + 4 months	The solution provider will train 3 AF end-users to employ the adapted solution in the operational environment.	The 3 AF end-users verify training is sufficient to use the adapted widget.	\$75,000 (EVIDENCE: invoice from pilot program with non-defense customer A)

EXAMPLE: 04 - Test support for widgets	Award + 12 months	The solution provider will support the test, and produce a report the adapted widget's performance success in solving the AF users' needs as described in task 01.	The test report is endorsed by the AF end-users, confirming test results.	\$100,000 (EVIDENCE: invoice from pilot program with non-defense customer B)
EXAMPLE: 05 - Warranty for widgets	Award +15 months	The adapted widgets shall remain in a workable condition throughout project performance.	The AF end-users verify widgets worked during entire project's performance.	\$100,000 (EVIDENCE: invoice from pilot program with non-defense customer C)

- **Deliverables:** Include a section clearly describing the specific sample/prototype hardware/software to be delivered, as well as data deliverables, schedules, and quantities.
- Unique item identification IAW DFARS 252.211-7003, Item Identification and Valuation, may be required. For hardware, more information may be found at <https://www.acq.osd.mil/dpap/dars/dfars/html/current/252211.htm#252.211-7003>.
- **Required Reports:** At a minimum, the following reports are required for ALL Phase II awards and must be included in the Work Plan. All are considered scientific and technical reports.
 - **Final Report:** The draft is due 30 calendar days after completion of the Phase II technical effort. The first page of the final report will include a single-page project summary, identifying the purpose of the work, providing a brief description of the effort accomplished, and listing potential results applications. The summary may be published by DoD; therefore, it shall not contain proprietary information. It shall also contain project objectives met, work completed, results obtained, and technical feasibility estimates.
 - **Status Reports:** Status reports are due quarterly, at a minimum. These shall be concise documents describing progress in meeting the selected AF end-user's needs. Each status report shall be no longer than 15 slides. The status reports shall include progress toward Phase II objectives and key results, as well as a quantitative measure between 0 and 1 of progress toward each.
 - **Phase II Summary Report:** The Phase II summary report is due at technical effort completion. It shall be submitted via email to the cognizant AF Contracting or Agreements Officer. Reports shall not exceed 700 words, including a description of the technology and anticipated applications/benefits for Government and/or private sector use.
 - **Additional Reporting:** The AF end-user or customer may require additional reporting or documentation including:
 - Software documentation and user manuals;
 - Engineering drawings;
 - Operation and Maintenance documentation;
 - Safety hazard analysis when the project will result in partial or total development/delivery of hardware; and

- Updated commercialization results.
- Additional Reporting Requirement for Efforts with Cost Match: The final Phase II status report must include a brief accounting, in company format, regarding investor funds' expenditures to support the project.
- **Safety Related Deliverables:** Safety requirements shall be followed in the proposed project's design and performance. The Work Plan must contain separate sections specifically addressing the following:
 - Preliminary Hazard Analysis (Report, if applicable): If hardware is to be developed, the contract shall include at least a preliminary hazard analysis included in the deliverables.
 - Hazardous Material Report: If use of hazardous material is anticipated, the following are required:
 - Materials identification;
 - Materials purpose; and
 - Possible alternative/procedures/safeguards to minimize risk.

Commercialization Strategy:

- **Commercialization Plan:** The SBA and DoD require Phase II proposals include a commercialization plan. The plan should briefly describe the commercialization potential for the proposed project's anticipated results, as well as plans for exploitation in both the Defense and non-Defense markets. The plan must include the following:
 - (i) Company Information. Focused objectives/core competencies; specialization area(s); products with significant sales; and history of previous Federal and non-Federal funding, regulatory experience, and subsequent commercialization.
 - (ii) Customer and Competition. Clear description of key technology objectives, current competition, and advantages compared to competing products or services; description of hurdles to innovation acceptance.
 - (iii) Market. Milestones, target dates, market size analysis, and estimated market share after first year and fifth year sales; plan to obtain market share.
 - (iv) Intellectual Property. Patent status, technology lead, trade secrets, or other demonstration of a plan to achieve sufficient protection to realize the commercialization stage and attain at least a temporal competitive advantage.
 - (v) Financing. Plans for securing necessary funding in Phase (vi) Assistance and Mentoring. Plans for securing needed technical or business assistance through mentoring, partnering, or through arrangements with State assistance programs, Small Business Development Centers, FFRDCs, Manufacturing Extension Partnership centers, the AF Mentor-Protégé Program, or other assistance providers.

Specifically address the following questions:

- i. What is the first product planned to incorporate the proposed technology?
- ii. Who are the probable customers, and what is the estimated market size?
- iii. How much money is needed to bring this technology to market and how will it be obtained?

- iv. Does the firm have the necessary marketing expertise and, if not, how will the firm compensate?
- v. Who are the probable competitors, and what price/quality advantage is anticipated by the firm?
- vi. Are there private sector or non-SBIR/STTR funding sources demonstrating commitment to Phase II results? This includes both outside private investment such as venture capital, angel investors, state or local government programs, etc., and internal funding sources, such as funding from affiliates. Please delineate past and potential future investments, e.g., currently raising a round, have signed term sheets. Also note if commitments are conditional on receiving a Phase II award.
- vii. Please note private investment funds from qualified third-party investors potentially available for Phase II enhancements, e.g., matching funds wherein the investor and the SBIR Program provide additional funding for added work to the Phase II award. More information regarding qualified third-party investors may be found at <https://www.acq.osd.mil/osbp/sbir/sb/investment-qualification.shtml>.
- viii. Has your company received or will it receive any foreign investment? If so, what is the source and the received or anticipated amount?
- ix. Are there Phase III (Government or commercial) follow-on commitments for the proposed technology?
- x. Are there any other commercial potential indicators?
- xi. What is the last 12 months' total revenue from non-defense commercial solution sales?
- xii. State the proposed Phase II's anticipated end results, specifically plans to transition to a Phase III with a potential Government customer.

Military Applications/DoD Customers: Briefly describe the proposed solution's existing potential military requirement. Identify the DoD agency/organization most likely to become the solution's customer. In many cases the potential DoD customer will be different than the end user. For example, the user may be in an operational flying unit and the customer in a system program office for the related aircraft. State whether a DoD agency has expressed interest in, or commitment to, a non-SBIR, Federally-funded Phase III effort or a Phase II enhancement with matching SBIR funds. If so, please include relevant details regarding funding availability, e.g., fiscal year, for solution transition, and other relevant funding details, such as funding type, e.g., RDT&E, Operations and Maintenance, etc. Include agency points of contact names, email addresses, and telephone numbers.

- **Non-Defense Commercial Customers**

- Past revenue from commercial customers of the proposed non-defense commercial solution. Clearly list non-Defense commercial customers, including revenue received as a result of the proposed solution's sales. Do not include other solutions the company may offer.
- Potential revenue-generating projects directly related to the proposed non-Defense commercial solution or adaptation thereof. Separately list potential revenue-generating projects with Defense or non-Defense customers directly related to the proposed solution(s). NOTE: On-going or completed projects/sales, such as those in section 2.5.1, are strongly preferred to potential projects.

- **Key Personnel:** Identify key personnel involved in the project, including subcontractors and consultants. Include information regarding education, experience, and citizenship. A technical resume for the Principal Investigator, including publications, if any, shall be included. And

- **Non-U.S. Citizens:** Identify all non-U.S. citizens and dual citizens proposed as direct employees, subcontractors, or consultants. For these individuals, in addition to technical resumes, please provide countries of origin, type of visas or work permits held, and explanation of their anticipated involvement level in the project, i.e., tasks to be assigned. When the topic area is subject to export control, these individuals, if permitted to participate, are limited to work in the public domain. Further, tasks assigned must not be capable of assimilation into an understanding of the project's overall objectives. This precludes foreign citizens from acting in key positions such as Principal Investigator, Senior Engineer, etc. Additional information may be requested during negotiations to verify foreign citizens' eligibility.

Proposals including the involvement of foreign nationals should include this table:

Full Name	Foreign National (Yes or No)	Country of Origin	T	Description of Involvement (specific task(s) in the work plan)
(LIST)	(LIST)	(LIST)	(LIST)	(LIST)

- **Investors and Partners:** Identify company investors, shareholders, or strategic advisors making significant contributions to support the Phase II effort. Explain how their past experiences or track record will support the technical or commercialization efforts. This could include leveraging other entities in company investors' portfolios or accessing other capital sources.
- **Related Work:** Describe significant activities directly related to the proposed effort, including previous programs conducted by the Principal Investigator, proposing firm, consultants, or others, and their application to the proposed project. List reviewers providing comments regarding the offeror's knowledge of the state-of-the-art in the specific approach proposed. Specify related Government efforts, SBIR or otherwise, awarded, previously proposed, or intended for proposal.

Volume 3, Cost Volume

Complete the Cost Volume in the format shown in the Cost Breakdown Guidance by using the online cost volume form on DSIP. Some items may not apply and there is no requirement to provide information for those items. The Cost Volume must be adequate to enable AF personnel to determine the purpose, necessity and reasonability of the proposed price. The on-line Cost Volume and Itemized Cost Volume Information will not count against the 15-page limit/15 slide limit. The itemized listing may be placed in the "Explanatory Material Section of the Online Cost Volume (assuming sufficient space) and be submitted in Volume 5, Supporting Documents, under the "Other" dropdown options. Only one file can be uploaded to DSIP. Ensure this file includes the complete Technical Volume and the information below.

The maximum value of a Phase II award under this CSO will be \$1M. Fixed price payments shall be tied to measurable milestones, as agreed to with the Government. For Phase II efforts including Government cost match, the cost proposal should clearly identify SBIR-funded tasks and non-SBIR-funded tasks.

For direct costs, include substantiating information such as vendor quotes, previous orders, historical data, etc. Costs without substantiating justification should be detailed through the cost estimating process. All substantiating evidence should be included in the 'Additional Cost Information' section of the Supporting Documents Volume (Volume 5). If selected for award, further documentation may be required by the AF Contracting or Agreements Officer to substantiate costs.

Information included in the online Cost Volume form includes but is not limited to:

- Direct Labor Costs: Identify key personnel by name if possible or by labor category if specific names are not available. The number of hours, labor overhead and/or fringe benefits, and actual hourly rates for each individual are required.
- Direct Material Costs: Justify cost for materials, parts, and supplies with an itemized list containing types, quantities, price and, where appropriate, purpose.
 - Other Direct Costs: This category of costs includes specialized services such as machining or milling, special testing or analysis, specialized equipment leases, etc. Proposals including leased hardware must provide an adequate lease vs. purchase justification or rationale.
 - Travel: Include travel costs in "Other Direct Costs." Travel costs must relate to project needs. Break out travel costs by trip, number of travelers, airfare, per diem, lodging, etc. The number of trips required, as well as the destination and purpose of each trip should be included. Recommend budgeting at least one trip to the AF location managing the project. Actual travel cost may differ from proposed travel; however, information allows the Government to ensure costs are not excessive.
 - Subcontracts: Include subcontract/consultant costs in "Other Direct Costs." Involvement of university or other consultants in the planning and/or research stages of the project may be appropriate. If the offeror intends such involvement, describe in detail and include information in the Cost Volume. The proposed total of all consultant fees, facility leases or usage fees, and other subcontract or purchase agreements may not exceed one-third of the total award price, unless otherwise approved in writing by the Contracting or Agreements Officer. Subcontract costs should be supported by subcontract agreements adequately describing the work to be performed. At a minimum, an offeror must include a Work Plan with a corresponding detailed cost volume for planned subcontracts.
 - Consultants: Provide a separate agreement letter for each consultant. The letter should briefly state what will be provided, the number of hours, and the hourly rate.
 - Special Tooling and Test Equipment and Material: The inclusion of equipment and materials will be carefully reviewed for need and appropriateness to the work proposed. The purchase of special tooling and test equipment must, in the opinion of the Contracting or Agreements Officer, be advantageous to the Government and relate directly to the specific effort. This may include such items as innovative instrumentation and/or automatic test equipment. Title to property furnished by the Government or acquired with

Government funds will be vested with the AF unless it is determined title transfer to the awardee would be more cost effective than AF's equipment recovery efforts.

PLEASE ROUND ALL COSTS TO THE NEAREST DOLLAR!

NOTE: If no exceptions are taken to an offeror's proposal, the Government may execute award without negotiations. Therefore, the initial proposal should contain the best terms from a price and technical standpoint. The Government reserves the right to award a contract or an Other Transaction for Prototype.

For questions regarding the award document, contact the Contracting or Agreements Officer listed on the selection notification. The Government reserves the right to conduct negotiations if the Contracting or Agreements Officer determines them necessary.

VOLUME 4: Company Commercialization Report (CCR)

Note: This volume will not be available or required for response to this CSO.

VOLUME 5: Supporting Documents

Volume 5, Supporting Documents, is NOT optional and allows small businesses to submit additional supporting documentation for the Technical and Cost Volumes (Volumes 2 and 3). Documents acceptable for inclusion in Volume 5 are below. You may email sbir@afwerx.af.mil with the subject “20.R Product Request” for templates. A few are available as attachments to this CSO.

- Signed Customer Memorandum (*Template at Attachment 2.*)
- 15 Page Slide Deck
- Coversheet Supplement
 - Certification/Eligibility Check
 - Prior, Current, or Pending Support of Similar Proposals or Awards
 - Foreign Citizen Table (if applicable)
- Supplemental Cost Information
- Resumes of Key Personnel
- Non-Proprietary Work Plan
- Technical Data Assertions (if applicable)
- Signed Stand-Alone Section K
- Signed DoD Funding Agreement Certification
- SBIR/STTR Environment, Safety and Occupational Health (ESOH)
- 1-Page ‘Sales Pitch’ Summary
- Link to 100 Second Video
- Include if applicable:***
 - Fund Matching Form (*Template found at Attached 2.*)
 - Additional Fund Matching Documentation, e.g., Private Investor Letter
 - Additional Information on Facilities/Equipment
 - Additional Information on Subcontractor/Consultants
 - Certified DD Form 2345, Militarily Critical Technical Data Agreement
 - Customer Memorandum
 - Lifecycle Certification
 - Allocation of Rights
 - Additional Letters of Support in offeror’s format

NOTE: If proposing to work with more than one AF end-user, all Customer Memorandums must be consolidated into a single, coherent Customer Memorandum reflecting the consolidated Work Plan milestones, signed by the lead AF Phase II point of contact.

Signed Customer Memorandum: To be considered, proposals must include at least one signed memorandum from a specific empowered AF end-user and customer, likely not the same entity, ready and willing to participate in the proposed prototype solution’s trial. This should include specific objectives and measurable (quantitative) key results the proposed solution can achieve to meet the AF end-user and customer’s needs. Mandatory memo template is at <https://www.afwerx.af.mil/sbir.html>.

Other Federal agencies may provide memorandums as well, but there must be at least one signed memorandum from an AF end-user and customer.

Additional Cost Information: A detailed cost proposal must be submitted and uploaded as Additional Cost Information in Volume 5. Cost proposal information will be treated as proprietary. Include detailed cost information to support Cost Volume (Volume 3) inputs in this section. For Phase II efforts including private investment cost match, the cost proposal should clearly delineate SBIR-funded versus private investment-funded tasks.

- Supplemental Cost Information:
 - Direct Labor: May include information not identified in Volume 3, Cost Volume.
 - Direct Materials: May include additional supporting documentation for materials, parts, and supplies.
 - Other Direct Costs: May include additional supporting documentation for specialized services or temporary use/lease of specialized facilities/equipment.
- Facilities/Equipment: Describe instrumentation and/or physical and digital facilities necessary and available to carry out the Phase II effort. Justify equipment to be purchased and include in 'Additional Cost Information,' as necessary. State whether proposed performance locations meet Federal, state, and local Governments environmental laws and regulations for airborne emissions, waterborne effluents, external radiation levels, outdoor noise, solid/bulk waste disposal practices, toxic/hazardous material handling/storage, and others as identified.
- Subcontracts: May include additional supporting documentation for subcontractor/consultant costs. Some proposing firms choose to work with subcontractors or consultants assisting in determining solution feasibility through DoD customer discovery assistance. If the proposing firm is working with a customer discovery firm, the associated agreement must follow the spending caps identified in 15 U.S.C. 638(q) and the agreement shall be included in the proposal.
- Travel: May include additional supporting documentation for travel costs.
- Indirect Costs: Indicate the proposed rates' bases. The proposal should identify the specific rates used and allocation bases to which they are applied. Provide proposed rates and applications per FY throughout the anticipated performance period. Do not propose composite rates.

DD Form 2345: For proposals submitted under export-controlled topics (either International Traffic in Arms (ITAR) and Export Administration Regulations (EAR)), a copy of the certified DD Form 2345, Militarily Critical Technical Data Agreement, or evidence of application submission must be included. The form, instructions, and FAQs may be found at the United States/Canada Joint Certification Program website, <http://www.dla.mil/HQ/InformationOperations/Offers/Products/LogisticsApplications/JCP/DD2345Instructions.aspx>. DD Form 2345 approval will be verified if the proposal is selected for award.

NOTE: This topic may be subject to export-control considerations. A DD Form 2345 is not required at proposal submission. See Section 10.1, AF Direct to Phase II Topic, for further information and guidance.

Signed Funding Agreement Certification: Offerors must complete and include this certification in Volume 5 of the proposal submission. It can be found at: <https://www.afsbirsttr.af.mil/Program/Phase-I-and-II/> under “Phase I and II Certification – Funding Agreement”.

Technical Data Rights Assertions: Rights in technical data, including software, developed under the terms of any contract resulting from this solicitation generally rest with the contractor. The Government obtains a royalty-free license to use such technical data only for Government purposes beginning with Government receipt of the last deliverable under the award and ending 20 years later. This data should be marked with the restrictive legend specified in DFARS 252.227-7018, Rights in Noncommercial Technical Data and Computer Software – Small Business Innovation Research (SBIR) Program or similar article. Upon expiration of the 20 year protection, the Government has unlimited rights in the SBIR data unless extended through receipt of another SBIR/STTR award. 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 peer review purposes, (2) as expressly permitted by the contractor, or (3) a use, release, or disclosure is necessary for emergency repair or overhaul of Government-operated items. Proposing firms wishing to assert data rights should include the following table in the proposal:

Technical Data or Computer Software to be Furnished With Restrictions	Basis for Assertion <ul style="list-style-type: none"> • None, • Developed exclusively at private expense, • Developed partially at private expense 	Asserted Rights Category <ul style="list-style-type: none"> • None, • Government Purpose Rights • Limited Rights (Technical Data) • Restricted Rights (Software) • Specifically Negotiated License • Rights in SBIR Data 	Name of Person Asserting Restrictions
(LIST)	(LIST)	(LIST)	(LIST)

If a proposer plans to submit assertions in accordance with DFARS 252.227-7017, Identification and Assertion of Use, Release, or Disclosure Restrictions, or similar article, those assertions must be identified. Further, assertion of use, release, or disclosure restriction **MUST** be included in this section of the proposal submission. An award cannot be executed until assertions have been approved.

Lifecycle Certification: All SBIR/STTR Phase II awardees must complete a certification document at award, prior to receipt of more than half the total contract award amount, and before final payment receipt. All questions must be answered and an authorized officer of the company must sign and date prior to submission. The document is found at <https://www.afsbirsttr.af.mil/Portals/60/Pages/Phase%20I-II/SBIR-STTR-Phase-I-II-Life%20Cycle%20Certifications.pdf>.

Allocation of Rights: If subcontracting to a research institution or other organization, the firm may wish to complete an allocation of rights agreement. This is not required for SBIR awards but may be used at the company’s discretion. Example: <https://www.afsbirsttr.af.mil/Portals/60/Pages/Phase%20I-II/Model%20agreement%20for%20the%20allocation%20of%20rights.pdf>.

Other: Combine all documents into a single .pdf and upload to the Other section of Volume 5: Supporting Documents.

- **SBIR/STTR Environment, Safety and Occupational Health (ESOH) Questionnaire:** Include a

completed SBIR/STTR Environment, Safety, and Occupational Health (ESOH) Questionnaire in Volume 5, Supporting Documents “Other” section. Form can be found at https://www.afsbirsttr.af.mil/Portals/60/Pages/Phase%20I-II/SBIR_Ph_II_ESOH_Questionnaire.pdf.

- **Prior, Current, or Pending Support of Similar Proposals or Awards:** Identify proposals for essentially equivalent work submitted to other Federal agencies or DoD components as described in Section 9.7, Volume 1, Proposal Cover Sheet, by providing in Volume 5, Supporting Documents:

Federal agency to which proposal was submitted	Date of Proposal Submission	Proposal title and number	Name of Principal Investigator	Awarded? If so, include contract number.
(LIST)	(LIST)	(LIST)	(LIST)	(LIST)

If this does NOT apply, include a single-page document stating, “No prior, current, or pending US Government support for proposed work”. **Failure to disclose similar proposals or awards will result in proposal disqualification.** Additionally, reusing previously awarded proposals, in part or whole, will likely result in the submission being deemed essentially equivalent. For example, if a 100-second video is submitted with a Phase II proposal that is awarded, then use the same (or substantially similar) video for another proposal, it will likely be deemed essentially equivalent and disqualified.

- **15-Page Slide Deck:** Include a 15-page slide deck summarizing the proposal’s main points. It should be clear and concise, as it is the starting point to understanding the proposal.
 - **Slide 1 Summary:** Include an easy-to-understand overview of the product-market fit, proposed trial, proposed customer, and objectives and key metrics.
 - **Slide 2 Technical Merit Summary:** Summarize the best points regarding the commercial non-defense solution, its adaptation through R/R&D to meet AF needs, as well as the R/R&D effort proposed to establish scientific and technical feasibility.
 - **Slide 3 Team’s Ability to Accomplish Work Summary:** Summarize the team’s expertise and experience and its influence in meeting the AF end-user’s and associated required stakeholders’ needs.
 - **Slide 4 Commercialization Potential:** Summarize the best points in the potential AF customer’s plans for a Phase III award or non-defense commercialization.
 - **Slide 5 Financial Sustainability:** Describe the product’s and company’s financial sustainability. Include sales/revenue numbers of the specific non-defense commercial solution, if available. This information will not be shared outside the acquisition team. This is an R&D solicitation, not a solicitation for resale of COTS items.
 - **Slide 6 Team Commercialization Overview:** Include team partners, investors, past efforts, and successes. This slide should include the team’s commercialization strengths, not scientific strengths.
 - **Slide 7 Pricing:** The effort’s pricing should be linked to the non-defense commercial solution’s price. Include references to invoices for the non-defense commercial solution.
 - **Slide 8 Non-Defense Commercial Solution:** Clearly describe the non-defense commercial solution, including relevant customers/sales.

- **Slide 9 R/R&D Adaptations of Commercial Solution:** Describe R/R&D adaptations or changes to the non-defense commercial solution required to meet the AF end-user's/customer's needs.
 - **Slide 10 AF End-User:** Describe in detail the AF end-user and how the solution addresses their needs. Note any Customer Memoranda received.
 - **Slide 11 Key stakeholders:** Describe stakeholders, e.g., safety, range officials, cybersecurity, and information assurance, within and outside the Government key to executing the product's trial with the AF Customer and how buy-in will be secured. This could be as simple as a signature on an official document.
 - **Slide 12 Objectives and Key Metrics:** Describe how success/failure will be measured during the solution's trial.
 - **Slide 13 Milestone Schedule:** Include highlights of the milestone schedule with timing, acceptance criteria, and proposed costs.
 - **Slide 14 Results of Feasibility Study:** Include feasibility study highlights of metrics and methods for AF end-user, R/R&D, and customer discovery typically accomplished in Phase I performance.
 - **Slide 15.** The firm may provide additional information, if desired.
- **1-Page 'Sales Pitch' Summary:** Include a visually appealing, one-page company 'sales pitch' and proposed non-Defense commercial solution R&D to meet an AF need. This portion of the document may be circulated publicly and, therefore, should contain no proprietary, confidential, or Personally Identifiable Information, e.g., names, contact information, etc., for AF employees.
 - **100 Second Video:** Include as single page with a working link to a public-facing video describing the company and proposed non-Defense commercial solution's adaptation through R/R&D, intended to meet and AF need. This portion of the document may be circulated publicly and, therefore, should contain no proprietary, confidential, or Personally Identifiable Information, e.g., names, contact information, etc., for AF employees. It should include the product and value proposition to the DoD. If the link is broken, the video is not present, or the video is longer than 100 seconds, the proposal will not be reviewed.
 - **Phase II Cost Match Documentation:** If cost matching is proposed, include a Matching Application Package in Volume 5, Supporting Documents, "Other" section. A Matching Application Package consists of:
 - A completed Matching application form. The form can be found at Attachment 2.
 - A letter from the private investor to the company, submitted electronically via DSIP in Volume 5, Supporting Documents, "Other" Section. The letter should contain:
 - A commitment to match Phase II funding at any ratio, in cash, contingent on selection for award. Milestones for funding must be appropriately structured to avoid front-loading and unbalanced expenditure of SBIR funds. Specifically, matching or cost-sharing funds cannot be conditioned on expenditure of all or majority of SBIR funds before any matching or cost-share funds are expended.
 - A brief (less than one page) statement describing the investor's (i) experience with evaluating companies' ability to successfully commercialize technology; and (ii) assessment of the market for this particular technology, including the company's ability to bring this technology to market.
 - **Additional Letters of Support:** Letters of support are intended to demonstrate the proposed innovation, if developed, would solve a valid market need. More generally, letters of support help validate commercial impact claims made in the proposal. Therefore, letters from potential

technology end users, i.e., customers and corporate partners/collaborators, are appropriate, as well as letters from actual or potential investors. All letters should be uploaded in a single .pdf file organized logically. NOTE: When combining .pdf documents, ensure digital signatures are not stripped.

VOLUME 6: FRAUD, WASTE, AND ABUSE CERTIFICATION

The AF SBIR/STTR Program Office has instituted training and certification requirements to combat fraud in the SBIR/STTR Programs. As a result, each offeror is required to complete Fraud, Waste, and Abuse Training as part of the Phase II proposal submission process. When the training is complete and certified, the DoD Submission site will indicate so in the proposal, thereby completing Volume 6. If the training is not completed, the offeror will receive an error message. Proposals cannot be submitted until training is complete.

6.0 DIRECT TO PHASE II EVALUATION CRITERIA

All Phase I and 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 engineers or scientists to determine the most promising technical and scientific approaches. Each proposal will be judged on its own merit. The Federal Agency 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 or subtopic.

Proposals will be peer reviewed based on the criteria below. Selections will represent best value to the Government, considering the following factors which are of equal importance:

- a. The potential for commercial (government or private sector) application and the benefits expected to accrue from this commercialization. Matching funding, whether from government or private sources, is a strong indicator of commercialization potential.
- b. The appropriateness, relevance, and specificity of an identified Defense Need. A complete, signed, and compelling Air Force Customer Memorandum is a strong indicator of the appropriateness, relevance, and specificity of an identified Defense Need.
- c. The soundness, technical merit, and innovation of the proposed approach and its incremental progress toward topic or subtopic solution.

IAW 15 USC 638(dd)(7), venture capital, private equity firm, and/or hedge fund investment shall not be used as a criterion for award under this solicitation.

Price reasonableness is established through competition for Direct to Phase II awards. Cost analysis may be conducted on otherwise successful proposals to determine the overall price fair and reasonable.

Peer reviewers will base their conclusions only on information contained in the proposals except when specified, e.g., the '100-second video'.

Additional factors may apply to proposals with or without cost share or match.

- Possible duplication with other R/R&D;
- Potential integration with other Air Force or DoD Programs;
- Phase III potential;
- Funding limitations;
- Innovativeness;
- USAF SBIR program balance;
- Applicant small business size/status pursuant to 13 C.F.R. 121.701-705; demonstrations of eligibility through registrations pursuant to FAR Subpart 4.11 and 4.18; and applicant responsibility pursuant to FAR Part 9;
- National security concerns.

The effort's cost to the Government may be considered to determine the successful offeror when more than one proposal is determined essentially equal in merit.

7.0 COMMERCIALIZATION READINESS PROGRAM (CRP)

The SBIR/STTR Reauthorization Act of 2011 formalized the Commercialization Readiness Program (CRP), a version of which the AF has established. The AF has also developed criteria and processes to identify existing Phase II projects expected to meet high-priority AF needs with potential for rapid transition to Phase III. Inclusion is by invitation and at the AF's discretion.

CRP projects may receive a variety of assistance services and/or opportunities to facilitate project transition. CRP participation may also result in SBIR-funded modifications to existing Phase II contracts beyond the typical SBIR funding parameters. These modifications enhance ongoing projects with expanded research, development, test, or evaluation to accelerate transition and commercialization. CRP participants may be required to provide additional reporting regarding results achieved.

8.0 CONTRACTUAL REQUIREMENTS

8.1 Other Contractual Requirements

Awardees will be required to make certain legal commitments through acceptance of Government contract clauses or OT articles. The following outline is illustrative of provisions required by the FAR or statute for inclusion in Phase II awards. This is not a complete list, nor does it contain specific clause/article wording.

- a. **Standards of Work.** Work performed under the award must conform to professional standards.
- b. **Inspection.** Work performed under the award 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 awardee records involving award transactions.
- d. **Default.** The Government may terminate the award for failure to perform the negotiated effort.
- e. **Termination for Convenience.** The Government may terminate the award at any time if it deems termination in its best interest. The firm will be compensated for work performed and reasonable termination costs.
- f. **Disputes.** Any award dispute not resolved by agreement shall be decided by the Contracting or Agreements Officer with right of appeal.
- g. **Contract/OT Work Hours.** The awardee may not require an employee to work more than eight hours a day or forty hours a week unless compensated accordingly through overtime pay.
- h. **Equal Opportunity.** The firm will not discriminate against any employee or employee applicant because of race, color, religion, sex, or national origin.
- i. **Affirmative Action for Veterans.** The awardee will not discriminate against any employee or applicant for employment because he or she is a disabled veteran.
- j. **Affirmative Action for Handicapped.** The awardee 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 award.
- l. **Covenant Against Contingent Fees.** No person or agency has been employed to solicit or secure the award upon an understanding for compensation except bona fide employees or commercial agencies maintained by the awardee for the purpose of securing business.
- m. **Gratuities.** The Government may terminate the contract if gratuities have been offered to any Government representative to secure the awardee.
- n. **Patent Infringement.** The awardee shall report each notice or patent infringement claim based on contract performance.
- o. **Military Security Requirements.** The awardee shall safeguard classified information associated with the contracted work IAW applicable regulations.
- p. **American Made Equipment and Products.** The awardee will purchase equipment and/or products in support of the SBIR award from U.S.-based sources whenever possible.
- q. **Unique Identification (UID).** If hardware will be delivered to the Government under the award, there is potential unique item identification will be required IAW DFARS 252.211-7003.
- r. **Publication Approval.** Government review and approval will be required prior to dissemination or publication, except within and between the awardee and its subcontractors (if any), of classified and non-fundamental information developed under this award or contained in reports to be furnished pursuant to this award.
- s. **Animal Welfare.** Awards involving research, development, test, evaluation, or training on vertebrate animals will incorporate DFARS clause 252.235-7002 or similar verbiage.
- t. **Protection of Human Subjects.** Effective 29 July 2009, contracts including or potentially

including research involving human subjects IAW 32 CFR Part 219, DoD Directive 3216.02, and 10 U.S.C. 980, including research meeting exemption criteria under 32 CFR 219.101(b), will incorporate DFARS clause 252.235-7004 or similar verbiage.

- 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. Similar verbiage will be included in OT awards unless determined exempt through comparable determination.
- v. **ITAR.** IAW 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 solicitations and contracts; therefore, all awards resulting from this CSO will include DFARS 252.225-7048 or similar verbiage. Full text:
http://farsite.hill.af.mil/reghtml/Regs/far2afmcfars/fardfars/Dfars/Dfars252_220.htm?zoom_highlig ht=dfars+252%2E225-7048#P4543_324418.
- w. **Cybersecurity.** Awardees are required to provide adequate security on all covered business information systems. Specific security requirements are listed in DFARS 252.204.7012, and compliance is mandatory.

8.2 Commercialization Updates in Phase II

After Phase II award, the awardee shall be required to periodically update the following Phase II commercialization results at <https://www.dodsbirsttr.mil/submissions>.

- a. Sales revenue from Phase II-developed new products and non-R&D services;
- b. Additional investment from non-Federal SBIR/STTR Program in activities furthering Phase II technology development and/or commercialization;
- c. Phase II technology used in a fielded DoD system or acquisition program and, if any, which system or program;
- d. The number of patents resulting from SBIR/STTR Program awards;
- e. Growth in number of firm employees; and
- f. Completion of an initial public offering of stock (IPO), if any, resulting all or in part from the Phase II project.

Project updates will be required one year after Phase I performance starts, at Phase II completion, and when the firm submits a new SBIR or STTR proposal to DoD. Firms not submitting new proposals to DoD will update annually after Phase II completion. **NOTE: The DoD SBIR/STTR Innovation Portal (DSIP) Company Commercialization Report function is not currently available.**

8.3 Copyrights

With the Contracting or Agreements Officer’s prior written permission, 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 each publication contain an appropriate acknowledgment and disclaimer statement.

8.4 Patents

Awardees normally may retain the principal worldwide patent rights to Government-funded inventions. The Government receives a royalty-free license, reserves the right to require the patent holder to license others in certain limited circumstances, and requires anyone exclusively licensed to sell the invention in the United States to manufacture it domestically. As authorized by 35 USC 205, the Government will not make public 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 12.6.

8.5 Technical Data Rights

Rights in technical data, including software, developed under the award terms resulting from proposals submitted under this CSO, generally remain with the awardee. The Government obtains a royalty-free license to use such technical data only for Government purposes during the period commencing with acceptance of the last deliverable under the award and ending 20 years after project completion. This data should be marked with the restrictive legend specified in DFARS 252.227-7018 or similar. Upon expiration of the 20 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 entity other than its support services contractors except (1) for evaluation purposes; (2) as expressly permitted by the contractor; or (3) use, release, or disclosure is necessary for emergency repair or overhaul of Government-operated items. See DFARS clause 252.227-7018, "Rights in Noncommercial Technical Data and Computer Software – Small Business Innovation Research (SBIR) Program."

If a proposer plans to submit assertions IAW DFARS 252.227-7017 or similar award term, those assertions must be identified and restrictions **MUST** be included in the proposal submission. Award cannot be executed until assertions are approved or mutually agreed-upon during negotiations.

8.6 Invention Reporting

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

8.7 Final Technical Reports

- a. **Content:** A final report is required for each award. The reports must contain detail regarding the project objectives, work performed, results obtained, and estimates of technical feasibility. A completed SF 298, "Report Documentation Page," will be used as the report's first page. The Report Documentation Page may be prepared and printed from Defense Technical Information Center's (DTIC's) site at http://www.dtic.mil/dtic/submit/guidance_on_submitting_docs_to_dtic.html.
- b. **SF 298 Form "Report Documentation Page" Preparation:**

1. For unclassified reports, the submitting company 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 SBIR/STTR awards is subject to DFARS 252.227-7018 or similar protection. AF will review the awardee's Block 12 information and assign the final distribution statement.

For additional distribution statement guidance, visit the DTIC site:
http://www.dtic.mil/dtic/pdf/distribution_statements_and_reasons.pdf

Block 14 (Abstract), "Report Documentation Page" must include as the first sentence, "Report developed under SBIR/STTR contract (or OT) for topic [insert topic number]. [Follow with the topic title, if possible.]" The abstract must identify the work's purpose and briefly describe that conducted, the findings/results, and potential applications. The abstract

will be published by the DoD. Therefore, **it shall not contain proprietary or classified data.** Type “UU” in Block 17.

2. Block 15 (Subject Terms) 298 must include the term "SBIR Report".

c. Submission:

All final reports are submitted to the awarding AF organization IAW the award document. Companies shall not submit Final Reports directly to DTIC.

Delivery is normally required within 30 calendar days after technical program completion.

Requirements regarding other deliverables' submission will be defined in Sections B and C of contract, and Appendix A of Other Transaction for Prototype, award documents.

Special submission instructions for CLASSIFIED reports will be defined in the award's delivery schedule.

DO NOT E-MAIL classified or controlled unclassified reports, or reports containing SBIR/STTR Data Rights protected under DFARS 252.227-7018.'

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

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

(B) The following legend must appear on each page of the proposal that contains information the Applicant wishes to protect: Use or disclosure of information contained on this sheet is subject to the restriction on the title page of this proposal.

9.0 PHASE II VOLUNTARY MATCHING FUNDS GUIDANCE

Below guidance discusses relationships between small companies and outside investors for voluntary matching. Matching fund commitments are evidence of commercial potential pursuant to 15 USC 638(e). There is no requirement to provide cost share or match, and proposals including either does not receive preference during peer review. Each applicant's commercial potential is evaluated on its own merits IAW non-exclusive criteria in 15 USC 638(e).

9.1 Examples of voluntary cost share or match sources:

- Funding from small business affiliates in support of the proposed R/R&D is generally considered cost share.
- Investment from **outside** sources, which includes other companies, state or local Governments, venture capital firms, individual "angel" investors, non-SBIR/non-STTR Federal Government programs, or any combination thereof, is considered cost match. This does not include the the small business's owner, their family members, and/or "affiliates" of the small business, as defined in 13 CFR Section 121.103, as highlighted below:
 - Concerns are affiliates when one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.
 - Factors such as ownership, management, previous relationships with or ties to another concern, and contractual relationships are considered in making affiliation determinations.
 - Individuals or firms with identical or substantially identical business or economic interests, such as family members, persons with common investments, or firms economically dependent through contractual or other relationships, may be treated as one party with such interests aggregated. While the proposal must state whether funding is from external or internal sources, the Contracting Officer and the SBA have the discretion to designate an entity as an "outside investor," regardless of the designation in the proposal.
- In contrast to cost-sharing, cost match must be an arrangement by which the outside party provides cash to the small company in return for such items as equity; a share of royalties; rights in the technology; a percentage of profit; an advance purchase order for products resulting from the technology; Federal funds transferred to the AF SBIR/STTR Center of Excellence Finance Division (AFRL/SBRF) via Military Interdepartmental Purchase Request (MIPR), or any combination thereof.

The AF SBIR/STTR Center of Excellence reserves the right to adjust these guidelines at any time. Any changes to these guidelines will be sent to the eligible companies and posted online via amendment to this solicitation.

9.2 Voluntary Matching Investment Timing/Logistics

(1) Can Entity E's investment in Small Company S during the first month of S's Phase I SBIR performance qualify as a matching contribution to qualify S for Matching?

Yes, provided E is an outside investor and the other Voluntary Matching conditions are met. The investment can occur at any time after the start of Phase I performance.

(2) Small Company A, which won a Phase I award, spins off Small Company B to commercialize the SBIR technology. A then convinces Angel Investor I to invest funds in B. Is I's investment in B considered a matching contribution to qualify A for Voluntary Matching?

For Angel Investor I's investment in Small Company B to qualify Small Company A for Matching, USAF must determine if A and B are substantially the same entity as evidenced, for example, by meeting the "affiliates" definition " in 13 C.F.R. Sec.121.103. If USAF determines A and B are substantially the same entity, I's investment in B could qualify A for Voluntary Matching. Of course, the parties must also meet the other conditions for Voluntary Matching, e.g., I must be an outside investor.

(3) Can Entity E's investment in Small Company S before the submission of S's Direct to Phase II SBIR proposal qualify as a matching contribution to qualify S for Matching?

Yes, provided E is an outside investor and the other Matching conditions are met. The investment can occur at any time after the **pre-release date** of Direct-to-Phase II proposal instructions, and no later than 90 calendar days after award.

10.0 DIRECT TO PHASE II TOPIC

AF201-DCSO1 **TITLE:** Direct to Phase II Open Topic: Open Call for Innovative Defense-Related Dual-Purpose Technologies/Solutions with a Clear Air Force Stakeholder Need

OBJECTIVE: A Phase II may be awarded for a maximum period of 27 months and \$1M. The objective of this topic is to explore Innovative Defense-Related Dual-Purpose Technologies which may not be covered by any other specific SBIR topic, exploring options for solutions potentially outside the AF's current focus fields of focus but useful to the AF. This topic seeks companies with capability to complete a feasibility study and prototype validated concepts under an accelerated Phase II schedule. This topic is aimed at later stage development rather than basic science and research.

DESCRIPTION: The Air Force is a large and complex organizations consisting of many functions with similar commercial sector counterparts. The AF is interested in exploring innovative technology domains with demonstrated clear commercial value in the non-defense sector through existing products/solutions for potential AF applications. While it is impossible to cover all technology areas with SBIR topics, this topic is a call for open ideas and technologies covering topics not currently listed. It is important potential solutions have a high probability of keeping pace with technological change and should be closely tied to commercial technologies supporting solution development. This topic is intended to identify non-Defense commercial solutions to be adapted and expanded innovatively through R/R&D to meet DoD stakeholders' needs in a short timeframe at low cost. Solutions should be focused on the three areas listed below, meeting as many as possible.

1. Financial Sustainability – The offeror(s) should demonstrate financial sustainability for both the solution and itself. The best solutions demonstrate this by sales to non-Defense clients and other private investment sources.
2. Defense Need – The offeror(s) should demonstrate understanding of the fit between the solution and Defense stakeholders. The best solutions demonstrate this with a signed memo from a specific, empowered AF end-user and customer (likely not the same person) ready and willing to participate in the proposed prototype solution's trial. This should include specific objectives and measurable (quantitative) key results the proposed solution can achieve to meet AF end-user and customer needs.
3. Technical/Team – The proposed approach's soundness, technical merit, and innovation and incremental progress toward fulfilling an AF need and the qualifications of the proposed Principal Investigators/Project Managers, supporting staff, and consultants to execute against the proposed approach.

Proposals should demonstrate a product-market fit between an AF end-user and the proposed R/R&D adaptation of an existing or emerging non-Defense commercial solution. This is accomplished most effectively through a proposal with a mature non-Defense technical solution and a clear understanding of its adaptation to meet an AF customer's specific need, supported by documentation from a specific motivated, empowered AF end-user and customer ready and willing to participate in the proposed prototype solution's trial.

AREAS OF FOCUSED DEFENSE NEED: There are a significant amount of potential AF defense end-users with interest in the topics listed below. Offerors who believe their solution

can help address a Focus Area should identify it in the application slide deck. This does not change the requirement to demonstrate the defense need as listed above. Companies with solutions to other problems not listed are also invited to submit under this topic. Focus areas are simply intended to indicate particular AF interests at this time. Link: <https://www.afwerx.af.mil/sbir.html>.

-Artificial Intelligence: Improve algorithms, address data quality, optimize human-machine coordination, and disrupt adversaries' efforts.

-Autonomy: Address f autonomous systems teaming; machine perception, reasoning and intelligence; human and autonomy systems trust and interaction.

-Communications: Addressing high-performance, low power embedded processing and developing algorithms for self-configuring, self-healing, and resource allocation.

-Cyber: Address behavioral issues, develop self-securing networks, and develop cyber effects and consequences capability assessments.

-Directed Energy: Address power scaling, jitter reduction, laser size and weight, adaptive optics, beam propagation, and target tracking.

-Hypersonics: Address high temperature materials, hypersonic vehicle manufacturing, air breathing propulsion, and hypersonic guidance and control systems.

-Microelectronics: Develop economically competitive domestic manufacturing capabilities, improve radiation hardening, and develop radio frequency (RF) technologies for specialty applications with nuclear, space and electronic warfare capabilities.

-Quantum Sciences: Address quantum clocks and sensors and quantum communications technologies. Develop enabling technologies for quantum computing in the areas of cryogenics and photon detection.

-Space: Developing low earth orbit nano-satellites for missile warning, intelligence, surveillance, reconnaissance, navigation, and communications.

-Biotechnology: Applications related to disease prevention and mitigation, rapid emergency medical response and trauma management, environmental remediation, and advanced materials.

-COVID-19: The AF COVID-19 Operational Planning Team (OPT) has assembled to identify key interest areas supporting COVID-19 defeat and mitigation related to AF operations and activities. The areas of interest identified by the AF COVID-19 OPT may be found at Attachment 1. Please note, number 6 is open to solutions not contemplated under 1-5.

PHASE I: This topic is intended for technology proven ready to move directly into a Phase II SBIR, and thus will not have a Phase I.

PHASE II: Proposals should include development, installation, integration and demonstration of the proposed solution prototype system. This demonstration should focus specifically on:

1. Evaluating the proposed solution against the proposed objectives and measurable key results.
2. Describing in detail how the installed solution differs from the non-defense commercial offering to solve the Air Force need, as well as how it can be scaled for wide adoption, i.e., modified for scale.
3. Identifying the proposed solution's clear transition path, taking into account input from affected stakeholders, including but not limited to, end users, engineering, sustainment, contracting, finance, legal, and cyber security.
4. Specifying the solution's integration with other current and potential future solutions.
5. Describing the solution's sustainability, i.e., supportability
6. Identifying other specific DoD or Governmental customers for the solution

PHASE III DUAL USE APPLICATIONS: Phase II solutions may transition quickly to Phase III after the product-market fit is verified. The firm will transition the adapted non-defense commercial solution to provide expanded mission capability to a broad range of potential Government/civilian users and alternate mission applications.

NOTES:

- a. Due to heavy interest in this topic, the AF will not answer questions via email, except in rare cases. Teleconferences will be held to efficiently address all questions. Please monitor <https://af-ventures.com/> for specific telecom details.
- b. SBIR solicitations result in contracts and Other Transactions for Prototype, NOT grants. Therefore, SAM.gov registration should include the answer 'YES' to the question 'Do you wish to bid on contracts?' Firms registered to compete for grants only will be ineligible for award under this topic.
- c. Registration in SAM is required to be eligible for award. Please verify the firm's CAGE code, company name, address information, SAMMI/DUNS numbers, etc., prior to submitting a proposal. In the proposal's 15-slide deck, include a screenshot from SAM.gov showing the company's CAGE, SAMMI/DUNS number, and current business address, with verification the firm is registered to receive "All Contracts". It is the firm's responsibility to ensure proposal and SAM data are consistent.
- d. The firm is required to answer all questions on the SBIR proposal cover sheet and 'DoD SBIR/STTR Programs Funding Agreement Certification' completely and accurately.
- e. While awards will firm fixed price, companies must complete the cost volume in the SBIR online application in sufficient detail for the Government to determine costs fair and reasonable.
- f. Proposed technologies may be restricted under the International Traffic in Arms Regulation (ITAR) which controls defense-related materials/services import/export, or the Export Administration Regulation (EAR), controlling dual use items. Offerors must review the U.S. Munitions List, <https://www.law.cornell.edu/cfr/text/22/121.1>, and provide a tentative determination regarding applicability to their proposed efforts. If determined applicable, a certified DD Form 2345, Militarily Critical Technology Agreement, must be submitted with the proposal. Information regarding the application process and instructions for form completion are found at <https://www.dla.mil/HQ/LogisticsOperations/Services/JCP/DD2345Instructions/>.

If subject to ITAR, involvement of foreign nationals may be restricted. "Foreign National" is defined in 22 CFR 120.16 as a natural person who is neither a lawful permanent resident (8 U.S.C. § 1101(a)(20)), nor a protected individual (8 U.S.C. § 1324b(a)(3)). It also includes foreign corporations, business associations, partnerships, trusts, societies, other entities/groups not incorporated/organized to do business in the United States, international organizations, foreign governments, and their agencies/subdivisions. Offerors must identify foreign national team members and provide their countries of origin, visa/work permits possessed, and Work Plan tasks assigned. Additional information may be required during negotiations to verify eligibility. Even if eligible, participation may be restricted due to U.S. Export Control Laws.

NOTE: Export control compliance statements are not all-inclusive and do not remove submitters' liability to 1) comply with applicable ITAR/EAR export control restrictions or 2) inform the Government of potential export restrictions as efforts proceed.

REFERENCES:

1. FitzGerald, B., Sander, A., & Parziale, J. (2016). Future Foundry: A New Strategic Approach to Military-Technical Advantage. Retrieved June 12, 2018: <https://www.cnas.org/publications/reports/future-foundry>
2. Blank, S. (2016). The Mission Model Canvas – An Adapted Business Model Canvas for Mission-Driven Organizations. Retrieved June 12, 2018: <https://steveblank.com/2016/02/23/the-mission-model-canvas-an-adapted-business-model-canvas-for-mission-driven>
3. US Department of Defense. (2018). 2018 National Defense Strategy of the United States Summary, 11. Retrieved from: <https://www.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf>
4. AF201-001 SBIR ‘Open Topic’ Focus Areas: <https://www.afwerx.af.mil/sbir.html>
5. AF201-001 SBIR ‘Open Topic’ User Needs – <https://www.afwerx.af.mil/sbir.html>

KEYWORDS: Open, Other, Disruptive, Radical, Dual-Use, Commercial

TPOC: AFWERX, support@afwerx.af.mil