DEPARTMENT OF THE ARMY

DoD 24.4 Small Business Innovation Research (SBIR)
Annual Broad Agency Announcement (BAA)
Component-Specific Proposal Instructions
Release 17

June 11, 2024: Topics issued for pre-release
June 26, 2024: Army begins accepting proposals via DSIP
July 16, 2024: DSIP Topic Q&A closes to new questions at 12:00 p.m. ET
July 30, 2024: Deadline for receipt of proposals no later than 12:00 p.m. ET

INTRODUCTION

The future Army must be capable of conducting Multi-Domain Operations (MDO) as part of an integrated Joint Force across an array of situations in multiple theaters by 2035. The MDO concept describes how the Army will support the Joint Force in the rapid and continuous integration of all domains of warfare – land, sea, air, and cyberspace – to deter and prevail as we compete short of conflict, and fight and win if deterrence fails. The Army must provide game-changing capabilities to our Soldiers. To capitalize on small business innovation and reduce the time from solicitation to award, the Army has implemented an approach to advertise SBIR funding opportunities through the Department of Defense (DoD) Annual BAA process, outside of the three pre-determined BAA cycles.

Each Small Business Concern (SBC) (also referred to herein as "proposer", "offeror", and/or "firm") is encouraged to thoroughly review the DoD SBIR Program BAA, to include any amendments/revisions, and the Army component-specific proposal instructions herein.

The following resources are provided to assist SBCs with SBIR Program Opportunities:

- The DoD SBIR Program BAA is located at: https://www.dodsbirsttr.mil/submissions/solicitation-documents/active-solicitations
- To remain apprised of important programmatic and solicitation changes, SBCs should register for the Defense SBIR / Small Business Technology Transfer (STTR) Innovation Portal (DSIP) Listserv at: https://www.dodsbirsttr.mil/submissions/login.
- How to Submit a Compliant and Responsive Proposal Webinar: https://youtu.be/YyXMWUYo_zo

CONTACT INFORMATION

SBC's may direct questions to the following Points of Contact, as described below:

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

Army Component Specific Proposal Instructions: General questions regarding the administration of the Army SBIR Program, and the Army Component-Specific Proposal Instructions can be directed to the following:

Email: usarmy.SBIRSTTR@army.mil

Website: https://www.armysbir.army.mil/

Mailing Address:
Army SBIR Office
2530 Crystal Drive, Suite 11192
Arlington, Virginia 22202

Direct Contact with Army SBIR Topic Authors: During the pre-release period, proposing SBCs have an opportunity to contact topic authors by telephone or e-mail to ask technical questions about specific topics posted under this BAA. Questions should be limited to specific information related to improving the understanding of a particular topic's requirements. Proposing SBCs may not ask for advice or guidance on solution approach and may not submit additional material to the topic author. If information provided during an exchange with the topic author is deemed necessary for proposal preparation, that information will be made available to all parties through Topic Q&A. After the pre-release period, questions must be asked through the Topic Q&A.

Topic Q&A: Once a topic enters the open period and DoD begins accepting proposals, no further direct contact between proposing small business concerns and topic authors is allowed unless the Topic Author is responding to a question submitted during the pre-release period. However, proposing small business concerns may submit written questions through Topic Q&A at https://www.dodsbirsttr.mil/submissions/login. In Topic Q&A, all questions and answers are posted electronically for general viewing. Identifying information for the questioner and respondent is not posted.

Questions submitted through the Topic Q&A are limited to technical information related to improving the understanding of a topic's requirements. Any other questions, such as those asking for advice or guidance on solution approach, or administrative questions, such as SBIR or STTR program eligibility, technical proposal/cost proposal structure and page count, budget and duration limitations, or proposal due date WILL NOT receive a response. Answers are generally posted within seven (7) business days of question submission (answers will also be e-mailed directly to the inquirer). Proposing SBCs are advised to monitor Topic Q&A during the topic pre-release and open period for questions and answers.

RESPONSIVENESS AND TIMELINESS

Proposals will only be evaluated in response to an active, corresponding Army topic. Proposals will be initially screened to determine responsiveness and timeliness. Proposals passing this initial screening will be technically evaluated by engineers or scientists, through a peer or scientific review process, to determine the most promising technical and scientific approaches. Assessment of responsiveness may continue during technical evaluation and after selection. If at any point the proposal is deemed untimely, unresponsive, or noncompliant, OR the SBC is deemed ineligible or non-responsible, the proposal will be disqualified/rejected and a contract will not be awarded.

Interested firms shall follow the DoD SBIR Program BAA instructions as well as the Army's component-specific proposal instructions herein when preparing and submitting proposals. The DoD SBIR Program BAA, to include any amendments/revisions, can be found here: https://www.defensesbirsttr.mil/SBIR-STTR/Opportunities/.

The Government reserves the right to disqualify/reject proposals for failing to meet any of the requirements of the SBA SBIR/STTR Policy Directive, the DoD SBIR Program BAA instructions, the Army's component-

specific proposal instructions herein, and/or in the topic itself. The following include, but are not limited to, the common reasons for which proposals are disqualified/rejected:

- Failure to possess an active and accurate registration through the System for Award Management (SAM);
- The proposal is missing required number of signatures and/or content;
- Minimum Performance Percentage of Work is not allocated properly;
- Work as proposed does not meet the definition of Research and Development required for funding;
- Proposal submitted beyond deadline;
- Commercialization Plan is submitted in a format other than the prescribed template at Appendix D – Commercialization Plan Template, enclosed herein;
- Cost/Price exceeds the stated award guideline limitation identified within the corresponding SBIR opportunity;
- The proposal exceeds the stated page count(s) or formatting requirements;
- Firm is NOT an eligible SBC;
- Firm does NOT meet the ownership and control requirements;
- Firm is 50% or more owned or managed by a corporate entity that is not a SBC;
- Firm will NOT perform the prescribed percentage of the research and/or analytical work;
- Primary employment of the Principal Investigator for this project is NOT with the firm;
- Firm has been convicted of a fraud-related crime;
- Principal Investigator or Corporate Official has been convicted of a fraud-related crime;
- Firm and affiliates have employed, on average over the last 24 months, more than 500 employees;
- Firm has been awarded a contract from the US Government for essentially equivalent work;
- Claiming data rights assertions in Volume 1 without including an assertion of use, release, or disclosure restriction in accordance with Defense Federal Acquisition Regulation Supplement (DFARS) 252.227- 7017) in Volume 5 – Supporting Documents;
- Lack of proper documentation for research utilizing human/animal subjects or recombinant DNA;
- Lack of information or negative information concerning use of foreign nationals;
- Offeror requests to award to a different firm/entity after proposal submission;
- Failure or refusal to submit certified or other than certified cost data in accordance with DFARS Clause 252.215-7010, Requirements for Certified Cost or Pricing Data and Data Other Than Certified Cost or Pricing Data;
- Proposal is for a topic other than that which is identified;
- Failure to submit a complete and fully certified DD Form 2345, Military Critical Technical Data Agreement, or evidence of application submission when the Topic is subject to International Traffic in Arms or Export Administration Regulations (ITAR/EAR); and/or
- Proposals that do not include the fully completed and signed Disclosures of Foreign Affiliations or Relationships to Foreign Countries in Volume 5 – Supporting Documents of the proposal submission.

REPRESENTATIONS THROUGH THE SYSTEM FOR AWARD MANAGEMENT (SAM)

The purpose of electronic Representations and Certifications (Reps/Certs) is to provide all Offerors with a portal in which to submit Reps/Certs in a publicly accessible format, nullifying the requirement to submit identical information in response to each and every Federal contract solicitation.

Interested firms are required to be registered and active in SAM (www.sam.gov) before submitting a proposal and shall continue to be registered until time of award, during performance, and through final payment of any contract. Firms are reminded to update SAM data as necessary, ensuring their Reps/Certs reflect the proper North American Industry Classification System (NAICS) code and Product and Service Code (PSC) supporting

this effort:

NAICS: 541715, Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)

PSC: AC11, National Defense R&D Services; Department of Defense - Military; Basic Research; AND
AC12, National Defense R&D Services; Department of Defense - Military; Applied Research

A firm may NOT submit an offer on behalf of another entity. The proposed firm's Entity Information shall match the Entity Information (Commercial and Government Entity (CAGE) Code / DoD Activity Address Code (DoDAAC) / Unique Entity Identifier (UEI)) contained in the proposal to be eligible for award. A firm submitting an offer using a "Doing Business As" (DBA) name must have the DBA registered and linked to their SAM registration. An offer submitted using a DBA that is different from the firm's legal, registered name, and not identified in SAM shall be disqualified/rejected from consideration.

Proposing firms with no SAM registration, inactive SAM registration(s), or SAM registration(s) with improper representations and certifications will be disqualified and shall not be considered for award.

ELIGIBILITY
The Army's SBIR Program is subject to small business size, affiliation rules, and ownership or investment disclosure and registration requirements referenced in 13 C.F.R. §§ 121.701-705, Size and Eligibility Requirements for the SBIR and STTR Programs, and the Small Business Administration's SBIR/STTR Program Policy Directive (MAY 2023). These eligibility requirements are unique and do not correspond to those of other small business programs.

Proposing SBCs may refer to Section 4.2, Proposing Small Business Concern Eligibility and Performance Requirements, of DoD SBIR 24.4 Program BAA, to include any amendments/revisions, for full eligibility requirements.

Ownership in Part by Multiple Venture Capital, Hedge Fund, and Private Equity Firms
Proposing SBCs that are owned in majority part by multiple venture capital operating companies (VCOCs), hedge funds, or private equity funds are eligible to submit applications or receive awards for this topic.

- The proposing SBC shall identify each foreign national, foreign entity, or foreign government holding or controlling greater than a 5% equity stake in the proposing SBC, whether such equity stake is directly or indirectly held.

- The proposing SBC shall also identify any and all of its ultimate parent owner(s) and any other entities and/or individuals owning more than a 5% equity stake in its chain of ownership.

VCOCs, hedge funds and private equity firms are allowed to hold minority shares of SBIR/STTR awardee so long as they do not have control of the awardee company and so long as their affiliation with the awardee, if any, does not put the awardee firm over the size limit.

If the VCOC is itself more than 50% directly owned and controlled by one or more individuals who are citizens or permanent resident aliens of the United States, the VCOC is allowed to have majority ownership and control of the awardee. In that case, the VCOC and the awardee, and all other affiliates, shall have a total of 500 employees or less.

INTERNATIONAL TRAFFIC IN ARMS REGULATIONS (ITAR)
Statement of Work tasks shall neither require the use of export-controlled information/property nor result in the development of export-controlled data/hardware unless expressly stated in the topic (e.g. "The technology within this topic is restricted under the ITAR, 22 CFR Parts 120-130, which controls the export and import of defense-related material and services, including export of sensitive technical data, or the EAR, 15 CFR Parts 730-774").

If a proposal is submitted under a topic that requires the use of export-controlled information/property or the development of export-controlled data/hardware, either ITAR/EAR, a complete and fully certified DD Form 2345, Military Critical Technical Data Agreement, or evidence of application submission, must be included with timely proposal submission. Failure to provide such documentation will be grounds for disqualification and rejection of the proposal. Additionally, the proposing SBC shall mark an affirmative response to the following Volume I Proposal Cover Sheet prompt: "There will be ITAR/EAR data in this work and/or deliverables".

The DD Form 2345, Military Critical Technical Data Agreement, instructions, and Frequently Asked Questions (FAQs) may be found at the United States/Canada Joint Certification Program (JCP) website, JCP Portal.

A contract award will not be made without a complete and fully certified DD Form 2345. Additionally, and pursuant to DFARS Procedures Guidance and Information (PGI) 225.7901-2, Contractors shall direct their attention to the clause at DFARS 252.225-7048, Export-Controlled Items for questions concerning compliance with ITAR/EAR.

CONTROLLED UNCLASSIFIED INFORMATION (CUI)
Successful firms will be required to comply with CUI DoDI 5200.48. Firms must monitor CUI for aggregation and compilation based on the potential to generate classified information pursuant to security classification guidance addressing the accumulation of unclassified data or information. Firms shall report the potential of classification of aggregated or compiled CUI to ASA(ALT) Security Manager. Firms, pursuant to mandatory DoD contract provisions, will submit unclassified DoD information for review and approval for release and approval for release in accordance with the standard DoDI 5230.09. All CUI records must follow the approved mandatory disposition authorities whenever the DoD provides CUI to, or CUI is generated by, non-DoD entities in accordance with Section 1220-1236 of Title 36, CFR, Section 3301a of Title 44, U.S.C., DoDI 5200.48.

RESEARCH THAT UTILIZES HUMAN/ANIMAL SUBJECTS OR RECOMBINANT DNA

Research Involving Human Subjects.
Research involving human subjects, including use of human biological specimens and human data, in accordance with 32 CFR Part 219, DoD Directive 3216.02, and 10 U.S.C. 980, including research that meets exemption criteria under 32 CFR 219.101(b), is prohibited under Army Phase I SBIR contracts. Proposed Army Phase II SBIR work shall not include research involving human subjects, including use of human biological specimens and human data, in accordance with 32 CFR Part 219, DoD Directive 3216.02, and 10 U.S.C. 980, including research that meets exemption criteria under 32 CFR 219.101(b), unless expressly allowed in the topic. If Phase I or not expressly allowed in the topic for Phase II, proposals with activities involving human subjects will be disqualified and rejected at any time throughout proposal evaluation and analysis.

If a Phase II SBIR proposal is submitted under a topic that allows the involvement of human subjects, including use of human biological specimens and human data, the offeror shall abide by DoD SBIR 24.4 Program BAA, to include any amendments/revisions, definitions and section 4.9, Research Involving Human Subjects; shall clearly segregate research activities involving human subjects from other research and development activities in its proposal; shall follow DFARS clause 252.235-7004, Protection of Human Subjects; and shall obtain all required approvals. It is the responsibility of the SBC to obtain Institutional Review Board (IRB) and Human Research Protection Official (HRPO) approvals. Ample time (four to eight months) should be allotted to complete both the IRB and HRPO approval processes. As such, SBCs shall begin the approval process during Phase I performance to be prepared for a possible Phase II contract. No funding can be used towards human subject research until ALL approvals are granted. Failure to provide such documentation in a timely manner will significantly delay Phase II contract award, become grounds for cancellation of the contract action, or become grounds for termination of an existing contract.

Research Involving Animal Subjects.
Research involving animal subjects is prohibited under Army Phase I SBIR contracts. Proposed Army Phase II SBIR work shall not include research involving animal subjects unless expressly allowed in the topic. If Phase I or not expressly allowed in the topic for Phase II, proposals with activities involving animal subjects will be disqualified and rejected at any time throughout proposal evaluation and analysis.

If a Phase II SBIR proposal is submitted under a topic that allows the involvement of animal subjects, the offeror shall abide by DoD SBIR 24.4 Program BAA, to include any amendments/revisions, definitions and section 4.10, Research Involving Animal Subjects; shall clearly segregate research activities involving animal subjects from other research and development activities in its proposal; shall include plans for Institutional Animal Care and Use Committee (IACUC) review and approval in its proposal; shall follow DFARS clause 252.235-7002, Animal Welfare; and shall obtain all required approvals, including secondary or headquarters-level approval by a DoD/Army veterinarian who is trained or experienced in laboratory animal medicine and science. SBCs shall begin the approval process during Phase I performance to be prepared for a possible Phase II contract. No animal research may be conducted using DoD funding until all the appropriate DoD office(s) grant approval. Failure to obtain approvals in a timely manner will significantly delay contract award, become grounds for cancellation of the contract action, or become grounds for termination of an existing contract.

Research Involving Recombinant DNA.
Research involving recombinant DNA is prohibited under Army Phase I SBIR contracts. Proposed Army Phase II SBIR work shall not include research involving recombinant DNA unless expressly allowed in the topic. If Phase I or not expressly allowed in the topic for Phase II, proposals with activities involving recombinant DNA will be disqualified and rejected at any time throughout proposal evaluation and analysis.

If a Phase II SBIR proposal is submitted under a topic that allows the involvement of recombinant DNA, the offeror shall abide by DoD SBIR 24.4 Program BAA, to include any amendments/revisions, definitions and section 4.11; shall clearly segregate research activities involving recombinant DNA from other research and development activities in its proposal; and shall obtain all required approvals. SBCs shall begin the approval process during Phase I performance to be prepared for a possible Phase II contract. No research involving recombinant DNA may be conducted using DoD funding until all the appropriate approvals are granted. Failure to obtain approvals in a timely manner will significantly delay contract award, become grounds for cancellation of the contract action, or become grounds for termination of an existing contract.

ARMS, AMMUNITION AND EXPLOSIVES (AA&E)

If the proposed statement of work requires the use, development, production, manufacture, purchase, or delivery of Arms, Ammunition and Explosives (AA&E) data and/or hardware, the offeror shall follow the following instructions:

1. References:
    a. MIL-STD-1168 - Ammunition Lot Numbering and Ammunition Data Cards
    b. DODM 5100.76 - Physical Security of Sensitive Conventional Arms, Ammunition, and Explosives (AA&E)
    c. AR 190-11 - Physical Security of Arms, Ammunition, and Explosives
    d. Defense Transportation Regulation 4500.9-R
    e. Technical Bulletin (TB) 700-2

2. The offeror, in its proposal, and resulting contractor, in performance of the work, shall comply with the requirements of the following DFARS provisions/clauses:
    a. 252.223-7002, Safety Precautions for Ammunition and Explosives (NOV 2023);
    b. 252.223-7003, Change in Place of Performance-Ammunition and Explosives (DEC 1991); and
    c. 252.223-7007, Safeguarding Sensitive Conventional Arms, Ammunition, and Explosives (NOV 2023).

3. The offeror, in its proposal, and resulting contractor, in performance of the work, shall provide proper storage and accountability. These standards are set forth in Department of Defense (DOD) 5100.76-M, entitled "Physical Security of Sensitive Conventional Arms, Ammunition and Explosives".

4. Prior to any contract award, the offeror must first pass a pre-award physical security inspection of its and its subcontractor's facilities, conducted by Defense Security Service (DSS). See DOD 5100.76-M, Appendix 2, Attachment 1, for a listing of DSS regions. Facilities, including any subcontractor facilities, that do not meet all of the security requirements of DOD 5100.76-M will not be awarded a contract.

5. If the proposed statement of work requires transportation of Sensitive Conventional AA&E, the standards set forth in Defense Transportation Regulation 4500.9-R., Defense Traffic Management, shall be followed.

6. Place of Performance: In accordance with Federal Acquisition Regulation (FAR) provision/clause 52.215-6, Place of Performance (OCT 1997), and DFARS provision/clause 252.223-7003, Change in Place of Performance—Ammunition and Explosives (DEC 1991), the offeror shall include the following information in Volume 5 of its proposal. Failure to include this information may result in disqualification of the proposal and cancellation of the contract action.

    a. The offeror, in the performance of any contract resulting from this solicitation, □ intends, □ does not intend [check applicable block] to use one or more plants or facilities located at a different address from the address of the offeror as indicated in its proposal.
    b. If the offeror or respondent checks "intends" in paragraph (a), it shall include the following required information for each and every plant or facility (including subcontractor plants or facilities) located at a different address from the address of the offeror as indicated in its proposal.
        i. Firm Name
        ii. Place of Performance (Street Address, City, State, County, ZIP Code)
        iii. Name and Address of Owner and Operator of the Plant or Facility

7. In accordance with local procedures and DFARS provision/clause 252.223-7007, Safeguarding Sensitive Conventional Arms, Ammunition, and Explosives (NOV 2023), the offeror shall include the following information in Volume 5 of its proposal for itself and for each plant or facility (including subcontractor plants or facilities) that the offeror listed as a "Place of Performance". The offeror shall include the information to the best of its ability in order to avoid delay in contract award. Do not include locations that will not use, develop, produce, manufacture, purchase, or deliver AA&E in performance of the work.
    a. Firm Name
    b. Identify if the firm is the prime-contractor or sub-contractor
    c. Place of Performance (Street Address, City, State, County, ZIP Code)
    d. Unique Entity Identification (UEI) and Cage Code
    e. Confirm that address and cage code match the information in SAM.gov ("unknown" is an acceptable response if unable to look up sub-contractors)
    f. Full name, phone number, and email address for a point of contact at this location
    g. Description of the AA&E and/or work involving AA&E
    h. National Stock Number (NSN) of the AA&E (if none exist, indicate "N/A")
    i. Identify the Security Risk Classification (SRC) of the AA&E (Instructions for determining the SRC are found in Enclosure 7 (p. 40 - p.46) of DODM 5100.76) (The SRC can be either I, II, III, IV or U) ("unknown" is an acceptable response if Government input is required to make this determination)
    j. Identify the hazard classification (HC) of the AA&E (Instructions for determining the HC are found in Chapter 2 (p.2) of TB 700-2) ("unknown" is an acceptable answer if Government input is required to make this determination)
    k. Identify whether the AA&E will be furnished by the Government as Government Furnished Property (GFP) or if it will be developed, produced, manufactured, or purchased by the prime or sub-contractor

ANTICIPATED FUNDING AGREEMENT STRUCTURE

The Government plans to execute funding agreements as FAR-based, firm-fixed-price contracts. Fixed price payments shall be tied to measurable milestones or deliverables, as agreed to by the Government. The Government Contracting Officer retains the right to negotiate a contract type and price (or estimated cost and fee) that will promote the Government's interest, result in reasonable contractor risk, and provide the contractor with the greatest incentive for efficient and economical performance (FAR Subpart 16.1 – Selecting Contract Types).

For this topic, Department of the Army will accept Phase I proposals for the cost of up to $250,000 for up to a 6-month period of performance and Direct to Phase II proposals for the cost of up to $2,000,000 for a 24-month period of performance.

CONTRACT REQUIREMENTS

In addition to the contractual requirements specified at section 8.0, 'Contractual Requirements', of the DoD 24.4 SBIR Program BAA, awards under the Army SBIR Program are also subject to the following:

1. DELIVERABLE REQUIREMENTS
    a) Hardware (Prototype) Deliverables: See topic for information to determine if development and delivery of prototypes is required. If your proposal identifies hardware that will be delivered to the government, be aware of the possible requirement for unique item identification in accordance with DFARS Clause 252.211- 7003, Item Unique Identification and Valuation. More information regarding item identification and valuation requirements may be found at DFARS Section 211.274. DFARS Clause

252.211-7003 is available at https://www.acquisition.gov/dfars/part-252-solicitation-provisions-and-contract-clauses#DFARS_252.211-7003.

b) Data Deliverables (Contract Data Requirements Lists – CDRLS):

- Status Reports: Under the authority of Data Item Description number DI-MGMT-80368A, status reports are due at a specified time after contract award and periodically (e.g., Monthly, Bi-monthly, Quarterly) thereafter.

- Final Report: Under the authority of Data Item Description number DI-MISC-80711A, delivery of the final report shall be prior to the period of performance expiration date.

- Project Summary Report: Under the authority of Data Item Description number DI-MISC-80048, delivery of the final report shall be prior to the period of performance expiration date.

- Safety-Related Deliverables: Where applicable to an awardee's proposed project's design and performance, the following safety-related deliverables may be required:

  - Preliminary Hazard Analysis Report (if applicable): If hardware is to be developed, the contract shall include at least a preliminary hazard analysis prepared in accordance with Data Item Description number DI-SAFT-80101C, or similar.

  - Hazardous Material Report: If use of hazardous material is anticipated, the contract shall include a Hazardous Materials Management Program (HMMP) Plan to be prepared in Contractor format that at a minimum, shall include: Materials identification; Materials purpose; and possible alternative/procedures/safeguards to minimize risk.

- Additional Reporting: The Army 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/or updated commercialization results.

c) Interim Report of Inventions and Subcontracts: An Interim (Phase II) and Final (Phase I and Phase II) Report of Inventions and Subcontracts, DD Form 882, will be required (https://www.esd.whs.mil/Portals/54/Documents/DD/forms/dd/dd0882.pdf)

d) SBIR Funding Agreement Certification – Life-Cycle Certification: All SBIR Phase I and Phase II awardees must complete this certification at all times set forth in the funding agreement (see §8(j) of the SBIR/STTR Policy Directive).

- For a SBIR Phase I: The contractor shall submit a SBIR Funding Agreement Certification – Life Cycle Certification that it follows specific SBIR or STTR program requirements, as an attachment in Wide Area Workflow (WAWF) using a 2-in-1 (Service Only) voucher (FFP type contracts), when submitting invoices for final payment or disbursement on the Phase I contract.

- For a SBIR Phase II: The contractor shall submit a SBIR Funding Agreement Certification – Life Cycle Certification as an attachment in WAWF using a 2-in-1 (Services Only) voucher (FFP type contracts) when submitting invoices for any of the following payment requests:

- prior to receiving 50% of the total award amount on the Phase II award
- prior to final payment on the Phase II award.

A copy of the Life-Cycle Certification is available at:
https://grants.nih.gov/sites/default/files/SBIR-Life-Cycle-Certification.pdf

2. MEETING REQUIREMENTS
At a minimum, the following meetings will be required:

- Start of Work Meeting: Within 30 calendar days of contract award, SBCS are required to host a start of work meeting to assure a clear and mutual understanding of the contract terms, conditions, line items, technical requirements and sequence of events needed for successful execution of the contracted effort.

- Periodic (e.g., Monthly, Bi-Monthly, Quarterly) Review Meetings: Periodic review meetings shall be conducted to monitor and report on status of contractor effort towards achieving contract objectives, identify accomplishments to date and difficulties encountered, and compare the status achieved to planned goals and the resources expended.

PHASE I PROPOSAL INSTRUCTIONS
The DSIP is the official portal for DoD SBIR/STTR proposal submission. Proposers/Offerors are required to submit proposals via DSIP; proposals submitted by any other means will be disregarded. Detailed instructions regarding registration and proposal submission via DSIP are provided in the DoD SBIR Program BAA.

Phase I proposal submissions under these component-specific proposal instructions shall include the following:

- Volume 1: Proposal Coversheet
- Volume 2: Technical Volume
- Volume 3: Cost Volume
- Volume 4: Company Commercialization Report (Auto generated for prior Federal SBIR or STTR awardees)
- Volume 5: Supporting Documents
- Volume 6: Fraud, Waste, and Abuse Training Certificate

Volume 1 - Proposal Coversheet
The proposal coversheet shall follow the instructions and requirements provided in the DoD SBIR Program BAA. The offeror shall certify that to the best of its knowledge and belief, its eligibility information under the SBIR Program is accurate, complete, and current as of the date of the offer.

Volume 2 - Technical Volume
The following instructions supersede those stated in section 5.3.c of the DoD SBIR 24.4 Program BAA.

The Technical Volume shall not exceed five (5) pages and shall follow the formatting requirements provided in section 5.3.b of the DoD SBIR 24.4 Program BAA. Any proposals submitted in a different format or exceeding the page count limits will be deemed unresponsive and will neither be evaluated nor considered for award. The technical volume shall contain two (2) key parts: technical approach and team qualifications, described in further detail below.

Volume 2, Part 1. The technical approach section shall explain, in detail, how the offeror is going to

solve the specific technical problem or opportunity addressed in the topic. The offeror shall include a statement of work with explicit, detailed descriptions and key elements of the technical approach (including subcontractors' efforts), any risks, relevant past work and how success was measured along with how success will be measured for this effort. Explain objectives while avoiding technical jargon. The statement of work shall indicate what tasks are planned, how and where the work will be conducted, a schedule of major events and meetings, and the final product(s) to be delivered (reference the 'Contractual Requirements' section above). The Phase I effort should attempt to determine the technical feasibility of the proposed concept. The methods planned to achieve each objective or task should be discussed explicitly and in detail. This section should be a substantial portion of the Technical Volume section. As a reminder, research or activities involving Human/Animal Subjects and/or Recombinant DNA is prohibited in Army Phase I SBIR contracts.

Volume 2, Part 2. The team qualifications section shall identify the key personnel working on the project (including information on directly related education and experience) and the resources that will be brought to bear on solving the problem. Further, if proposing the use of Foreign National personnel as defined at section 3 of the DoD SBIR 24.4 Program BAA, offerors shall specify each Foreign National's country of origin, the type of visa or work permit under which they are performing, and provide an explanation of their anticipated level of involvement on this project - Offerors may be asked to provide additional information during negotiations in order to verify the foreign citizen's eligibility to participate in the SBIR. The Government may withdraw from negotiations at any time for any reason to include matters of national security (foreign persons, foreign influence or ownership, inability to clear the firm or personnel for security clearances, or other related issues).

Volume 3 - Cost Volume

The Cost Volume shall follow all instructions and requirements provided in the DoD SBIR Program BAA. The following instructions supersede those stated in section 5.3. d of the DoD SBIR 24.4 Program BAA.

Phase I proposals shall not exceed the funding and period of performance limits identified in the section herein titled 'Anticipated Funding Agreement Structure.' Proposals exceeding these limits shall be deemed unresponsive and will neither be evaluated nor considered for award. Phase I Options are not anticipated at this time. If an option is identified in the topic posting, costs for the Base and Option shall be separated and clearly identified on the Proposal Cover Sheet (Volume 1) and in Volume 3.

For pricing purposes, offerors shall assume a contract or agreement start date of approximately 180 calendar days after the closing date of the solicitation (in accordance with SBIR/STTR Policy Directive paragraph 7(c)(1)(ii)).

In the event that adequate price competition, as defined in FAR 15.403-1(1), is not realized, the Government will conduct additional proposal analysis, in accordance with the techniques identified at FAR 15.404-1. In accordance with FAR 15.402(a), Contracting officers shall purchase supplies and services from responsible sources at fair and reasonable prices. If the Contracting Officer is unable to deem the offeror as responsible (FAR 9.1), the offeror will be disqualified. Proposals lacking a fair and reasonable price will be eliminated.

Volume 3 - Content of the Cost Volume

ALL proposed costs shall be accompanied by documentation to substantiate how the cost was derived. For example, if you proposed travel costs to attend a project-related meeting or conference, and used a

travel website to compare flight costs, include a screenshot of the comparison. Similarly, if you proposed to purchase materials or equipment, and used the internet to search for the best source, include your market research for those items. You do not necessarily have to propose the cheapest item or supplier, but you should explain your decision to choose one item or supplier over another. It's important to provide enough information to allow evaluators and contracting personnel to understand how the proposer plans to use the requested funds. Some items in the cost breakdown may not apply to the proposed project. If that is the case, there is no need to provide information on each and every item. Failure to include supporting documentation with the proposal may delay any potential contract award, as the proposer will be asked to submit the necessary documentation to the Contracting Officer to substantiate costs. It is important to respond as quickly as possible to the Contracting Officer's request for documentation. Failure or refusal to provide documentation may result in dissolution of the contract action.

Cost Breakdown Guidance:

- DIRECT LABOR:
    - List all key personnel by name as well as by number of hours dedicated to the project as direct labor.
    - Provide a task-level, time-phased (e.g., annual) breakdown of labor hours, rates, and cost by appropriate Direct Labor category, and explain the basis of estimates. Include substantiating documentation to support the costs (e.g., payroll reports)
- MATERIAL/TOOLING/EQUIPMENT:
    - Provide a consolidated priced summary of individual raw materials, parts, components, assemblies, and services to be produced or performed by others. For all items proposed, include the item nomenclature, description, part number, quantity, unit price, extended amount, vendor name, basis of estimate, and whether the item is commercial in accordance with the definition in FAR 2.101, based on adequate price competition or non-competitive.
    - The Offeror shall provide the basis for establishing the reasonableness of price through price analysis. Proposing firms shall provide substantiating documentation for the costs (e.g. vendor quotes, invoice prices, competitive bids, etc.). If your choice isn't the lowest cost available, explain the decision to choose one item or supplier over another.
    - Ensure all materials are American made to the maximum extent practicable. Offerors who propose to use a foreign-made product in its technology may be required to find an American-made equivalent.
    - While special tooling and test equipment and material cost may be included, it will be carefully reviewed relative to need and appropriateness for the work proposed. The purchase of special tooling and test equipment shall, in the opinion of the Procurement/Government Component Contracting Officer, be advantageous to the Government and should be related directly to the specific topic. These may include such items as innovative instrumentation or automatic test equipment. Title to

property furnished by the Government or acquired with Government funds will be vested with the DoD Component, unless it is determined that transfer of title to the contractor would be more cost effective than recovery of the equipment by the DoD Component.

- SUBCONTRACTS: A subcontract is any contract as defined at FAR 2.101, other than one involving an employer-employee relationship, entered into by the prime contractor (awardee) calling for supplies or services for the performance of the contract.

    - Provide data showing the degree of Subcontractor competition and the basis for establishing the source and reasonableness of price through price analysis.

    - All subcontractor costs and consultant costs, such as labor, travel, equipment, materials, shall be detailed at the same level as prime contractor costs. Provide detailed substantiation of subcontractor costs in your cost proposal.

    - Percentage of Work Requirement: For Phase I, the offeror shall perform a minimum of two-thirds (66.66%) of the research and/or analytical effort. One third (33.33%) may be subcontracted to another firm or research organization/facility. The percentage of work is measured by both direct and indirect costs.

    - Offerors shall not propose to subcontract to the issuing agency, to any other Federal Government agency, or to other units of the Federal Government, except Federal Laboratories in rare circumstances. As defined in 15 United States Code (U.S.C.) 3703, Federal Laboratory means any laboratory, any federally funded research and development center, or any center established under 15 U.S.C. 3705 and 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. A waiver is no longer required for the use of federal laboratories and FFRDCs; however, Offerors must certify their use of such facilities on the Cover Sheet of the proposal. A list of eligible FFRDCs is available at: https://www.nsf.gov/statistics/ffrdclist/

    - Offerors shall not propose to subcontract to any prohibited sources, as prescribed at FAR 25.7 – Prohibited Sources, and its supplements. Proposals identifying a subcontractor/vendor arrangement with a prohibited source may be rejected.

    - Offerors shall ensure subcontracting arrangements are with United States SBCs to the maximum extent practicable. Offerors proposing a subcontractor arrangement with other than a United States SBC (such as, a large business, foreign firm, foreign government, educational institution, unit of Federal Government, etc.) may be required to submit further explanation, and/or have the submitted proposal disqualified.

- TRAVEL:

    - Explain the basis of proposed travel, including to/from locations, number of trips, number of travelers per trip, and number of days/nights per trip. Include substantiating documentation for the costs (e.g. screenshots of flight cost comparison, rental car quotes, etc.). NOTE: Virtual meetings shall be utilized to the maximum extent practicable.

- In accordance with FAR 31.205-46 Travel costs incurred shall not exceed the maximum per diem rates set forth in Federal Travel Regulation, Joint Travel Regulation, or standard regulations, unless the travel is special or considered unusual. Any special or unusual travel costs shall be supported with substantiating documentation for review and consideration. Per diem rate lookup can be located at https://www.gsa.gov/travel/plan-book/per-diem-rates?gsaredirect=perdiem.

- INDIRECT COSTS:

  - Indicate how you have computed and applied your indirect costs (e.g., overhead, general & administrative, material handling, fringe, etc.), including cost breakdowns. Indicate the rates used and provide an appropriate explanation.

  - If a Defense Contract Audit Agency (DCAA) Audit has been conducted within the last five (5) years, include the audit compliance documentation in the cost proposal documents. The documentation should also include the offeror's DCAA Point of Contact (if applicable). Further, if applicable Offerors shall provide any current Forward Pricing Rate Agreements (FPRA) in effect at time of proposal submission.

Volume 4 - Company Commercialization Report (CCR)
Completion of the CCR as Volume 4 of the proposal submission in DSIP is required for prior SBIR/STTR awardees. Please refer to the DoD SBIR Program BAA for full details on this requirement. Information contained in the CCR will be considered by the Department of the Army during proposal evaluations.

Volume 5 - Supporting Documents
Volume 5 is provided for proposers to submit additional documentation to support the Cover Sheet (Volume 1) and the Technical Volume (Volume 2), and the Cost Volume (Volume 3).

All proposing SBCs are REQUIRED to submit the following documents to Volume 5:

1. Proposing SBCs shall submit an eight (8) slide Commercialization Plan, utilizing the template found at Appendix D – Commercialization Plan Template attached hereto. The offeror shall convert the Commercialization Plan to a Portable Document Format (PDF) prior to submitting as an attachment to Volume 5 – Supporting Documents. Any proposals submitted without a Commercialization Plan, or in a format other than the template provided at Appendix D – Commercialization Plan Template, shall be deemed unresponsive and will neither be evaluated nor considered for award. The Commercialization Plan content requirements, as described at Appendix D, include:

   a. SBIR Project Title: Opening slide that includes the SBIR project title, principal investigator name/title key (or other relevant) personnel, and subcontractors, firm name, topic number, and proposal number.
   b. Bottom Line Up Front (BLUF): Slide that outlines/summarizes key areas of the Commercialization Plan. See slide 2 of Appendix D.
   c. Company Information & Background: Focused objectives/core competencies; Specialization area(s); Products with significant sales; Concise history of previous Federal and non-Federal funding, Regulatory experience (if applicable), Past commercialization successes; and Past failure and how your firm overcame.
   d. Customer and Competition: Clear description of key technology objectives; Current competition and/or alternative solutions; Advantages of company's solution compared to competing products or services; Description of hurdles to acceptance of

the proposed innovation; and Description of possible areas where your technology may be utilized or is underutilized.

e. Market: Provide an analysis of market size, and estimated market share after first year sales and after 5 years; Explain milestones target dates of plan to obtain market share; Respond to specific questions regarding your qualifications and approach to bring the product to market (See slide 5 of Appendix D)
f. 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; Describe how you will protect the intellectual property that enables commercialization of its products while keeping competitors at bay. **Note:** This cannot conflict with the final negotiated assertion of use, release, or disclosure restriction (in accordance with DFARS 252.227- 7017), if any.
g. Financing: Plans for securing necessary non-SBIR funding; Describe your firm's revenue stream generation.
h. Assistance and mentoring: Plans for securing needed technical or business assistance through mentoring, partnering, or through arrangements with government sponsored (e.g., State assistance programs, Federally-funded research laboratories, Manufacturing Extension Partnership centers), not-for-profits (e.g., SBDC), commercial accelerators, DOD Prime Contractors, or other assistance provider.

2. Contractor Certification Regarding Provision of Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment (Attachment 1 of the DoD 24.4 SBIR Program BAA) (reference section 5.3.g of the DoD 24.4 SBIR Program BAA)
3. Disclosures of Foreign Affiliations or Relationships to Foreign Countries (Attachment 2 of the DoD 24.4 SBIR Program BAA) (reference section 2.2, 4.3, and 5.3.h of the DoD 24.4 SBIR Program BAA) – Previous versions of Attachment 2 or versions created by other Federal agencies will not be accepted.

All proposing SBCs are required to submit the following documents to Volume 5, *if applicable*:

4. Verification of Eligibility of Small Business Joint Ventures (Attachment 3 of the DoD 24.4 SBIR Program BAA), if applicable (reference section 4.4 of the DoD 24.4 SBIR Program BAA)
5. Assertion of use, release, or disclosure restriction (in accordance with DFARS 252.227- 7017), if applicable (reference section 8.7 of the DoD 24.4 SBIR Program BAA)
6. Justification for SBC-selected TABA vendor

In addition to the Volume 5 requirements, the Department of the Army may accept the following documents in Volume 5:

7. Cost/Pricing Information
8. SBIR Funding Agreement Certification
9. Other (only as specified in the topic)

Please only submit documents that are identified immediately above, and as required by the DoD SBIR Program BAA. All other documents submitted will be disregarded, including but not limited to promotional and non-project related information. Information provided via Universal Resource Locator (URL) links or on computer disks, CDs, DVDs, video tapes or any other medium will not be accepted or considered in the proposal evaluation.

Volume 6 Fraud, Waste and Abuse Training
Follow instructions provided in the DoD Program BAA for completion of the Fraud, Waste and Abuse training in DSIP.

DIRECT TO PHASE II (DP2) PROPOSAL INSTRUCTIONS
The DSIP is the official portal for DoD SBIR/STTR proposal submission. Proposers/Offerors are required to submit proposals via DSIP; proposals submitted by any other means will be disregarded. Detailed instructions regarding registration and proposal submission via DSIP are provided in the DoD SBIR Program BAA.

For topics eligible for DP2 proposal submission under these component-specific proposal instructions, proposals shall include the following:

- Volume 1: Proposal Coversheet
- Volume 2: Technical Volume
- Volume 3: Cost Volume
- Volume 4: Company Commercialization Report (Auto generated for prior Federal SBIR or STTR awardees)
- Volume 5: Supporting Documents
- Volume 6: Fraud, Waste, and Abuse Training Certificate

With the exception of the DP2 component specific proposal instructions identified below, DP2 Proposals shall follow the Phase I Proposal instructions described at Section 5.0 of the DoD SBIR 24.4 Program BAA.

Volume 1 - Proposal Coversheet
The proposal coversheet shall follow the instructions and requirements provided in the DoD SBIR Program BAA. The offeror shall certify that to the best of its knowledge and belief, its eligibility information under the SBIR Program is accurate, complete, and current as of the date of the offer.

Volume 2 - Technical Volume
The following instructions supersede those stated in section 5.3.c of the DoD SBIR 24.4 Program BAA.

The Technical Volume shall include two (2) sections, and is subject to a total page limit of 15 pages broken down as follows:

A. Feasibility Documentation (five (5) pages maximum);
B. Technical Proposal (10 pages maximum)

Volume 2A, Feasibility Documentation
Feasibility documentation shall not exceed five (5) pages in length. Any proposals exceeding the page count limits will neither be evaluated nor considered for award.

Proposers interested in submitting a DP2 proposal in response to these topics shall provide documentation to substantiate that the scientific and technical merit and feasibility described in the Phase I section of the topic has been met and describes the potential commercial applications. Documentation shall include all relevant information including, but not limited to: technical reports (summary and citation), test data, prototype designs/models, and performance goals/results. If references exist, the offeror shall include a reference list or works cited list as the last page of the feasibility documentation. This will count towards the total page limit.

Work submitted within the feasibility documentation must have been substantially performed by the proposer and/or the Principal Investigator.

The Army will not evaluate the proposer's related Phase II proposal if it determines that the proposer has failed to demonstrate that technical merit and feasibility has been established or the proposer has failed to demonstrate that work submitted in the feasibility documentation was substantially performed by the proposer and/or the PI.

Feasibility documentation and DP2 proposals cannot be based upon or logically extend from any prior or ongoing federally funded SBIR or STTR work.

If technology in the feasibility documentation is subject to Intellectual Property (IP), the proposing small business concern must either own the IP or must have obtained license rights to such technology prior to proposal submission, to enable it and its subcontractors to legally carry out the proposed work.

If the proposing SBC fails to demonstrate technical merit and feasibility equivalent to the Phase I level as described in the associated topic, the related Phase II proposal will not be accepted or evaluated.

Volume 2B, Technical Proposal

The Technical Proposal shall not exceed 10 pages and shall follow the formatting requirements provided in section 5.3.b of the DoD SBIR 24.4 Program BAA. Any proposals submitted in a different format or exceeding the page count limits will neither be evaluated nor considered for award. The technical proposal shall contain two key parts: (1) technical approach and (2) team qualifications.

Volume 2B, Part 1. The technical approach section shall explain, in detail, how the offeror is going to solve the specific technical problem or opportunity addressed in the topic. The offeror shall include a statement of work with explicit, detailed descriptions and key elements of the technical approach (including subcontractors' efforts), any risks, relevant past work and how success was measured along with how success will be measured for this effort. Explain objectives while avoiding technical jargon. The statement of work shall indicate what tasks are planned, how and where the work will be conducted, a schedule of major events and meetings, and the final product(s) to be delivered (reference the 'Contractual Requirements' section above). The Phase II effort should attempt to provide proof of concept and prototype development. The methods planned to achieve each objective or task should be discussed explicitly and in detail. This section should be a substantial portion of the Technical Volume section. If the topic allows research or activities involving Human/Animal Subjects and/or Recombinant DNA, offerors shall identify the applicable protocols and how those protocols will be followed.

Volume 2B, Part 2. The team qualifications section shall highlight identify the key personnel working on the project (including information on directly related education and experience), and the resources that will be brought to bear on solving the problem. Further, if proposing the use of Foreign National personnel as defined at section 3 of the DoD SBIR 24.4 Program BAA, offerors shall specify each Foreign National's country of origin, the type of visa or work permit under which they are performing and provide an explanation of their anticipated level of involvement on this project. Offerors may be asked to provide additional information during negotiations in order to verify the foreign citizen's eligibility to participate in the SBIR. The Government may withdraw from negotiations at any time for any reason to include matters of national security (foreign persons, foreign influence or ownership,

inability to clear the firm or personnel for security clearances, or other related issues).

Volume 3 - Cost Volume
The Cost Volume shall follow all instructions and requirements provided in the DoD SBIR Program BAA. The following instructions supersede those stated in section 5.3. d of the DoD SBIR 24.4 Program BAA.

DP2 proposals shall not exceed the funding and period of performance limits identified in the section herein titled 'Anticipated Funding Agreement Structure.' Proposals exceeding these limits shall be deemed unresponsive and will neither be evaluated nor considered for award. Proposers are required to use the Cost Proposal method as provided on the DSIP submission site. The Cost Volume (and supporting documentation) DOES NOT count toward the page limit of the Technical Volume.

For pricing purposes, offerors shall assume a contract or agreement start date of approximately 180 calendar days after the closing date of the solicitation (in accordance with SBIR/STTR Policy Directive paragraph 7(c)(1)(ii)).

In the event that adequate price competition, as defined in FAR 15.403-1(1), is not realized, the Government will conduct additional proposal analysis, in accordance with the techniques identified at FAR 15.404-1. In accordance with FAR 15.402(a), Contracting officers shall purchase supplies and services from responsible sources at fair and reasonable prices. If the Contracting Officer is unable to deem the offeror as responsible (FAR 9.1), the offeror will be disqualified. Proposals lacking a fair and reasonable price will be eliminated.

Volume 3 - Content of the Cost Volume
ALL proposed costs shall be accompanied by documentation to substantiate how the cost was derived. For example, if you proposed travel costs to attend a project-related meeting or conference, and used a travel website to compare flight costs, include a screenshot of the comparison. Similarly, if you proposed to purchase materials or equipment, and used the internet to search for the best source, include your market research for those items. You do not necessarily have to propose the cheapest item or supplier, but you should explain your decision to choose one item or supplier over another. It's important to provide enough information to allow evaluators and contracting personnel to understand how the proposer plans to use the requested funds. Some items in the cost breakdown may not apply to the proposed project. If that is the case, there is no need to provide information on each and every item. Failure to include supporting documentation with the proposal may delay any potential contract award, as the proposer will be asked to submit the necessary documentation to the Contracting Officer to substantiate costs. It is important to respond as quickly as possible to the Contracting Officer's request for documentation. Failure or refusal to provide documentation may result in dissolution of the contract action.

Cost Breakdown Guidance:

- DIRECT LABOR:
    - List all key personnel by name as well as by number of hours dedicated to the project as direct labor.

- Provide a task-level, time-phased (e.g., annual) breakdown of labor hours, rates, and cost by appropriate Direct Labor category, and explain the basis of estimates. Include substantiating documentation to support the costs (e.g., payroll reports)

- MATERIAL/TOOLING/EQUIPMENT:

  - Provide a consolidated priced summary of individual raw materials, parts, components, assemblies, and services to be produced or performed by others. For all items proposed, include the item nomenclature, description, part number, quantity, unit price, extended amount, vendor name, basis of estimate, and whether the item is commercial in accordance with the definition in FAR 2.101, based on adequate price competition or non-competitive.

  - The Offeror shall provide the basis for establishing the reasonableness of price through price analysis. Proposing firms shall provide substantiating documentation for the costs (e.g. vendor quotes, invoice prices, competitive bids, etc.). If your choice isn't the lowest cost available, explain the decision to choose one item or supplier over another.

  - Ensure all materials are American made to the maximum extent practicable. Offerors who propose to use a foreign-made product in its technology may be required to find an American-made equivalent.

  - While special tooling and test equipment and material cost may be included, it will be carefully reviewed relative to need and appropriateness for the work proposed. The purchase of special tooling and test equipment shall, in the opinion of the Procurement/Government Component Contracting Officer, be advantageous to the Government and should be related directly to the specific topic. These may include such items as innovative instrumentation or automatic test equipment. Title to property furnished by the Government or acquired with Government funds will be vested with the DoD Component, unless it is determined that transfer of title to the contractor would be more cost effective than recovery of the equipment by the DoD Component.

- SUBCONTRACTS: A subcontract is any contract as defined at FAR 2.101, other than one involving an employer-employee relationship, entered into by the prime contractor (awardee) calling for supplies or services for the performance of the contract.

  - Provide data showing the degree of Subcontractor competition and the basis for establishing the source and reasonableness of price through price analysis.

  - All subcontractor costs and consultant costs, such as labor, travel, equipment, materials, shall be detailed at the same level as prime contractor costs. Provide detailed substantiation of subcontractor costs in your cost proposal.

  - Percentage of Work Requirement: For DP2, the offeror shall perform a minimum of one-half (50%) of the research and/or analytical effort. The percentage of work is measured by both direct and indirect costs.

  - Offerors shall not propose to subcontract to the issuing agency, to any other Federal Government agency, or to other units of the Federal Government, except Federal

Laboratories in rare circumstances. As defined in 15 United States Code (U.S.C.) 3703, Federal Laboratory means any laboratory, any federally funded research and development center, or any center established under 15 U.S.C. 3705 and 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. A waiver is no longer required for the use of federal laboratories and FFRDCs; however, Offerors must certify their use of such facilities on the Cover Sheet of the proposal. A list of eligible FFRDCs is available at: https://www.nsf.gov/statistics/ffrdclist/

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- TRAVEL:

  - Explain the basis of proposed travel, including to/from locations, number of trips, number of travelers per trip, and number of days/nights per trip. Include substantiating documentation for the costs (e.g. screenshots of flight cost comparison, rental car quotes, etc.). NOTE: Virtual meetings shall be utilized to the maximum extent practicable.

  - In accordance with FAR 31.205-46 Travel costs incurred shall not exceed the maximum per diem rates set forth in Federal Travel Regulation, Joint Travel Regulation, or standard regulations, unless the travel is special or considered unusual. Any special or unusual travel costs shall be supported with substantiating documentation for review and consideration. Per diem rate lookup can be located at https://www.gsa.gov/travel/plan-book/per-diem-rates?gsaredirect=perdiem.

- INDIRECT COSTS:

  - Indicate how you have computed and applied your indirect costs (e.g., overhead, general & administrative, material handling, fringe, etc.), including cost breakdowns. Indicate the rates used and provide an appropriate explanation.

  - If a DCAA Audit has been conducted within the last five (5) years, include the audit compliance documentation in the cost proposal documents. The documentation should also include the offeror's DCAA Point of Contact (if applicable). Further, if applicable Offerors shall provide any current Forward Pricing Rate Agreements (FPRA) in effect at time of proposal submission.

Volume 4 - Company Commercialization Report (CCR)

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

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    b. Bottom Line Up Front (BLUF): Slide that outlines/summarizes key areas of the Commercialization Plan. See slide 2 of Appendix D.
    c. Company Information & Background: Focused objectives/core competencies; Specialization area(s); Products with significant sales; Concise history of previous Federal and non-Federal funding, Regulatory experience (if applicable), Past commercialization successes; and Past failure and how your firm overcame.
    d. Customer and Competition: Clear description of key technology objectives; Current competition and/or alternative solutions; Advantages of company's solution compared to competing products or services; Description of hurdles to acceptance of the proposed innovation; and Description of possible areas where your technology may be utilized or is underutilized.
    e. Market: Provide an analysis of market size, and estimated market share after first year sales and after 5 years; Explain milestones target dates of plan to obtain market share; Respond to specific questions regarding your qualifications and approach to bring the product to market (See slide 5 of Appendix D)
    f. 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; Describe how you will protect the intellectual property that enables commercialization of its products while keeping competitors at bay. **Note:** This cannot conflict with the final negotiated assertion of use, release, or disclosure restriction (in accordance with DFARS 252.227- 7017), if any.
    g. Financing: Plans for securing necessary non-SBIR funding; Describe your firm's revenue stream generation.
    h. Assistance and mentoring: Plans for securing needed technical or business assistance through mentoring, partnering, or through arrangements with government sponsored (e.g., State assistance programs, Federally-funded research laboratories, Manufacturing Extension Partnership centers), not-for-profits (e.g., SBDC), commercial accelerators, DOD Prime Contractors, or other assistance provider.

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DoD 24.4 SBIR Program BAA) (reference section 2.2, 4.3, and 5.3.h of the DoD 24.4 SBIR Program BAA) – Previous versions of Attachment 2 or versions created by other Federal agencies will not be accepted.

All proposing SBCs are required to submit the following documents to Volume 5, *if applicable*:

4. Verification of Eligibility of Small Business Joint Ventures (Attachment 3 of the DoD 24.4 SBIR Program BAA), if applicable (reference section 4.4 of the DoD 24.4 SBIR Program BAA)
5. Assertion of use, release, or disclosure restriction (in accordance with DFARS 252.227- 7017), if applicable (reference section 8.7 of the DoD 24.4 SBIR Program BAA)
6. Justification for SBC-selected TABA vendor

In addition to the Volume 5 requirements, the Department of the Army may accept the following documents in Volume 5:

7. Cost/Pricing Information
8. SBIR Funding Agreement Certification
9. Other (only as specified in the topic)

Please only submit documents that are identified immediately above, and as required by the DoD SBIR Program BAA. All other documents submitted will be disregarded, including but not limited to promotional and non-project related information. Information provided via URL links or on computer disks, CDs, DVDs, video tapes or any other medium will not be accepted or considered in the proposal evaluation.

Volume 6 Fraud, Waste and Abuse Training
Follow instructions provided in the DoD Program BAA for completion of the Fraud, Waste and Abuse training in DSIP.

DISCRETIONARY TECHNICAL AND BUSINESS ASSISTANCE
The Army, at its discretion, may provide Technical and Business Assistance (TABA). The Army will select a preferred vendor(s) for the Army SBIR TABA program through a competitive process. Alternately, a SBC may, by subcontract or otherwise, select one or more vendors to assist the firm in meeting the TABA goals. The Applicant must request the authority to select its own TABA provider in its Army SBIR proposal and must demonstrate that the vendor is *uniquely* postured to provide the specific technical and business services required by providing documentation in Volume 5, Supporting Documentation. TABA funding will be denied if the offeror fails to include the cost and detailed explanation in its proposal. If you prefer to use the Army preferred vendor, you may opt for that support after selection if chosen to receive a contract award.

Participation in the Army SBIR TABA program is voluntary for each Army SBIR awardee. Services provided to Army SBIR firms under the auspices of the TABA program may include, but are not limited to:

1. Access to a network of scientists, engineers, and technologists focused on commercialization and transition considerations such as protected supply chain management, advanced manufacturing, process/product/production scaling, etc.;
2. Assistance with intellectual property protections, such as legal considerations, intellectual property rights, patent filing, patent fees, licensing considerations, etc.;

3. Commercialization and technology transition support such as market research, market validation, development of regulatory or manufacturing plans, brand development; and
4. Regulatory support such as product domain regulatory considerations, regulatory planning, and regulatory strategy development.

The Army SBIR program sponsors participation in the TABA program. The resource limitation for each firm is as follows:

- Phase I Firms:
  - Army-Preferred Vendor: If approved, the contractor may receive up to $6,500 worth of assistance services per project (in addition to the maximum value identified in the 'Anticipated Funding Agreement Structure' section herein).
  - Firm-Selected Vendor: If approved, the contractor may receive up to $6,500 in contract obligation (in addition to the maximum value identified in the 'Anticipated Funding Agreement Structure' section herein) per project.

- Phase II Firms:
  - Army-Preferred Vendor: If approved, the contractor may receive up to $50,000 worth of assistance services per project (in addition to the maximum value identified in the 'Anticipated Funding Agreement Structure' section herein).
  - Firm-Selected Vendor: If approved, the contractor may receive up to $50,000 in contract obligation (must be included as part of the maximum value identified in the 'Anticipated Funding Agreement Structure' section herein) per project.

EVALUATION AND SELECTION

The Army shall conduct an evaluation of each responsive, timely, eligible proposal in accordance with the evaluation criteria listed in the DoD SBIR 24.4 Program BAA (see Section 6.0 – Phase I Evaluation Criteria), as supplemented by the component-specific instructions herein (Appendix A, B & C, as applicable). It is the policy of the Army to ensure equitable and comprehensive proposal evaluations based on the evaluation criteria and to select the source (or sources) whose offer meets the Government's technical, policy, and programmatic goals. Selections for further consideration of possible contract award will be based on a determination of the overall technical value of each proposal. Proposals will not be evaluated against each other during the evaluation process, but rather evaluated on their own individual merit to determine how well the proposal meets the criteria stated in this BAA and the corresponding opportunity.

Designated support contractors may review submissions for the purposes of technical evaluation. All support contractors are bound by appropriate non-disclosure agreements.

As previously stated herein, timeliness, responsiveness, and eligibility will be assessed upon initial screening, during evaluation, and after selection for further consideration of possible contract award. Proposals that do not comply with the instructions and requirements detailed in this document, the DoD Program BAA, or the corresponding Topic posting (including the research objective(s)), will be considered ineligible, unresponsive, untimely, or non-conforming and therefore will not be evaluated or considered for award.

Consistent with the instructions and evaluation criteria specified in the DoD SBIR 24.4 Program BAA (see Section 6.0 – Phase I Evaluation Criteria), as supplemented by the component-specific instructions herein (e.g. Appendix A, B & C, as applicable), and the corresponding Topic posting, proposals selected for further consideration of possible contract award are those that, through a peer or scientific review, have been

determined to be a best value to the Government, as they have demonstrated the strongest understanding of the problem to be solved, offered the most capable solutions with the greatest overall benefit and potential to meet the Government's requirement, and were determined to be the most advantageous to the Government.

Proposing firms will be notified via email of selection or non-selection status of its Phase I or DP2 proposal within 90 days of the closing date of the Topic. The notification will be sent to the Corporate Official listed on the proposal cover sheet, from the Army SBIR Program Office mailbox.

Selected proposals are not guaranteed a contract award. Proposers shall not regard the notification email (selection decision notice) as an authorization to commit or expend funds. Upon selection, proposals are forwarded to a Government Contracting Officer for contract negotiation and further consideration. The Government Contracting Officer shall evaluate selected proposal(s) for price reasonableness utilizing the various proposal analysis techniques described at FAR 13.106-3, or 15.404-1, to ensure a fair and reasonable price is paid. A Government Contracting Officer may contact the proposer in order to discuss and request additional information required for award. This may include representations and certifications, certified or other than certified cost data, subcontracting plan for small businesses, and/or other information as applicable to the proposed award. Proposers shall not regard these communications as an authorization to commence work or commit or expend funds. In the event that an Offeror has not provided fair and reasonable pricing, the proposal shall be eliminated from further consideration for award.

Upon an affirmative determination of price reasonableness and responsibility, the Contracting Officer may proceed with an award, subject to the availability of funds. Unless a Government Contracting Officer signs an award document (e.g., contract), no obligations to provide funding are made. The Government may reject the proposal or dissolve award of the contract action at any time.

If signed by the Government Contracting Officer, the award document is the official and authorizing instrument, thereafter, referred to as the "contract". The period of performance will begin upon award of the contract. The Contracting Officer will email the signed contract to the principal investigator (PI) and/or an authorized organization representative.

FEEDBACK

The Army promotes transparency regarding the technical evaluation for all Army SBIR proposals. The Army will provide feedback to offerors in accordance with section 4.12 of the DoD SBIR 24.4 Program BAA. The selection decision notice contains instructions for obtaining feedback in the form of a ValidEval Report. The Army shall not provide any additional feedback beyond the ValidEval report. Offerors are entitled to no more than one feedback per proposal.

NOTE: Feedback is not the same as a FAR Part 15 debriefing. The competitive procedures for this solicitation are governed by the SBA SBIR/STTR Policy Directive. Therefore, offerors are neither entitled to, nor will they be provided FAR Part 15 debriefs.

PROTESTS

Pre-award agency protests related to the terms of the BAA must be served to the point of contact listed in section 4.13 of the DoD SBIR 24.4 Program BAA.

Post award agency protests related to a selection or award decision must be served to the following address:

Email: usarmy.SBIRSTTR@army.mil

Mailing Address:

Army SBIR Office
2530 Crystal Drive; Suite 11192
Arlington, Virginia 22202

Firms shall follow section 4.13 of the DoD SBIR 24.4 Program BAA for protests filed with the Government Accountability Office (GAO) and size protests regarding the small business status of a selected proposing small business concern.

Appendix A
Phase I Evaluation Criteria

Army SBIR Phase I Proposal Review v2 Evaluation Criteria Defined

		DEFINITION
INTRODUCTION	*weight 5%*	Write a clear, concise description of what your innovation does or will do, and where you are in your evolution. Make clear its intended impact on the Army. Evaluators should "get it" after reading this.
POTENTIAL FOR ARMY IMPACT	OPERATIONAL IMPACT	At the scale of a single Army end-user, argue that their jobs or lives will be significantly improved if your solution is adopted. What is the impact of your solution for a soldier/Army civilian vs. today's solutions?
weight 25%	POTENTIAL SCALE OF IMPACT	Here, we're looking for an idea of how broad the impact you described above could be. Look into the future to a time when your solution is both technically mature and actively in use by Army personnel. Describe the scale and scope of your impact within the context of the Army.
TECHNICAL FEASIBILITY	SCIENTIFIC FEASIBILITY	Is the science behind the solution sound? Convince readers who don't have deep expertise in your field that your innovation is built atop sound scientific and engineering principles.
	ENABLING TECHNOLOGIES	Point to the foundational technologies that you rely on to deliver your solution. Do the required enabling technologies introduce added risk? Using proven (and ideally Army-fielded) underlying technologies and techniques helps to lower technical risk.
	ALTERNATIVE TECHNICAL APPROACHES	From a technologist's perspective, why is your proposed solution the best choice for the Army? Refute the alternative engineering approaches others are using. Why does your technology win?
weight 25%	TECHNICAL RISK MITIGATION	No matter your current technology readiness level, technical risks remain. Identify those risks. Present a credible plan to tackle those risks.
TRANSITION	ARMY TRANSITION PATHWAY	Planning for success, what's next for you after this SBIR award? Describe the next type of deal you aim to make with the Army, e.g. a CRADA, a different SBIR contract, a CSO, etc. Briefly outline your current plan to unlock that next opportunity and/or share the biggest risks you see post this SBIR award.
weight 20%	SBIR MILESTONE SCHEDULE	Please share with us a thoughtful execution plan. Strike a balance between giving us a sense of the detailed thinking behind the scenes and the need for your contracting officer to manage a reasonably small number of milestones during your period of performance.
FIRM CASH FLOW	FIRM SURVIVAL RISK	SBIR funds are meant to fuel growth rather than stave off a firm's impending financial failure. Demonstrate that your company will survive financially as a going concern through the early stages of a Phase III contract, sometimes referred to as "transitioning" into use by Army personnel.
	OTHER PEOPLE'S MONEY	Make the case that non-Army and/or non-DoD dollars will continue to fund improvements to your solution from which the Army will benefit in the future. Companies who cannot demonstrate non-Army and/or non-DoD funding sources for future solution enhancements are less attractive to the Applied SBIR program.
weight 10%	FINANCIAL PROFIT POTENTIAL	Through the Applied SBIR program, the Army wants to take advantage of the speed and scalability of dual-use companies. Make your best case that your product is or will be profitable. If you have more than one product, please focus your argument on the product / solution presented for this SBIR program.
TEAM ABILITY	*weight 10%*	Prove your team has executed well as a group. Please draw clear distinctions between private sector, DoD and civilian government work. What milestones have you accomplished as a group in this company?
SUBMISSION QUALITY	QUALITY OF PROSE	Prove you write clearly. Prove you argue convincingly.
weight 5%	DATA QUALITY & ATTRIBUTION	Support your arguments with relevant, properly attributed data to enhance your credibility.

Army SBIR Phase I Proposal Review v2 Evaluation Criteria

		UNSATISFACTORY	MARGINAL	SATISFACTORY	SUPERIOR
INTRODUCTION	*weight 5%*	Ineffective introduction. Failed to provide concise innovation proposition.	Adequate introduction. Gradually conveyed innovation's purpose and value. Should be more crisp.	Effective introduction. Systematically conveys innovation's purpose and value.	Exceptional introduction. Immediately conveys innovation's purpose and value.
POTENTIAL FOR ARMY IMPACT	OPERATIONAL IMPACT	If successful, no improvement vs. existing technological approaches.	If successful, slight improvement vs. existing technological approaches.	If successful, significant improvement vs. existing technological approaches.	If successful, radical improvement vs. existing technological approaches.
weight 25%	POTENTIAL SCALE OF IMPACT	A fully deployed, mature solution could impact only niche use cases.	A fully deployed, mature solution could impact an Army element.	A fully deployed, mature solution could impact several Army elements.	A fully deployed, mature solution could have impact across the entire Army.
TECHNICAL FEASIBILITY	SCIENTIFIC FEASIBILITY	No scientific basis for presented approach.	Incomplete scientific basis for presented approach.	Credible scientific basis for presented approach.	Convincing scientific basis for presented approach.
	ENABLING TECHNOLOGIES	Requires nonexistent or unavailable technology.	Requires emerging, cutting edge technology.	Requires proven technologies.	Requires Army-fielded technologies.
	ALTERNATIVE TECHNICAL APPROACHES	No examination of alternatives.	Partially refutes alternatives.	Adequately refutes alternatives.	Persuasively refutes alternatives.
weight 25%	TECHNICAL RISK MITIGATION	Inappropriate next steps.	Somewhat appropriate next steps.	Appropriate next steps.	Highly appropriate next steps.
TRANSITION	ARMY TRANSITION PATHWAY	Fails to identify next contract goal and/or fails to present a plan for near-term execution.	Identifies next contract goal. Has a plan for near-term execution.	Identifies stage-appropriate next contract goal. Credible plan for near-term execution.	Identifies ideal next contract goal. Convincing plan for near-term execution.
weight 20%	SBIR MILESTONE SCHEDULE	Unclear or non-credible project milestones, or timing.	Mostly clear, credible project milestones and timing. Mostly appropriate level of detail.	Mostly clear, credible project milestones and timing. Appropriate level of detail.	Completely clear, credible project milestones and timing. Appropriate level of detail.
FIRM CASH FLOW	FIRM SURVIVAL RISK	Fails to demonstrate solvency through a Phase III.	Marginally demonstrates solvency through a Phase III.	Credibly demonstrates solvency through a Phase III.	Convincingly demonstrates solvency through a Phase III.
	OTHER PEOPLE'S MONEY	Fails to present non-DoD sources for future R&D funding.	Evolving non-DoD sources of future R&D funding.	Secure non-DoD source(s) of future R&D funding.	Diverse and robust non-DoD sources of future R&D funding.
weight 10%	FINANCIAL PROFIT POTENTIAL	Product does not have a path to profitability.	Demonstrates product has a path to profitability.	Demonstrates product progressing toward profitability.	Demonstrates product has achieved profitability.
TEAM ABILITY	*weight 10%*	Evidence of marginal group execution.	Evidence of some group execution.	Evidence of impressive group execution.	Evidence of exceptional group execution.
SUBMISSION QUALITY	QUALITY OF PROSE	Poorly written. Very difficult to impossible to follow argument. Several spelling or grammar errors.	Moderately written. Sometimes difficult to follow argument. A few spelling / grammar errors.	Effectively written. Convincing, easy to follow argument. No spelling or grammar errors.	Clearly and persuasively written. Compelling arguments. No spelling or grammar errors.
weight 5%	DATA QUALITY & ATTRIBUTION	Poorly supported by data. Little to no data attribution.	Partially supported by data. Some data attribution.	Credibly supported by data. Adequate data attribution.	Persuasively supported by meaningful data. Comprehensive data attribution.

Appendix B
Direct to Phase II Evaluation Criteria

Army SBIR Direct to Phase II v2 Evaluation Criteria Defined

		DEFINITION
INTRODUCTION	*weight 2%*	Write a clear, concise description of what your innovation does or will do, and where you are in your evolution. Make clear its intended impact on the Army. Evaluators should "get it" after reading this.
POTENTIAL FOR ARMY IMPACT	OPERATIONAL IMPACT	At the scale of a single Army end-user, argue that their jobs or lives will be significantly improved if your solution is adopted. What is the impact of your solution for a soldier/Army civilian vs. today's solutions?
weight 20%	POTENTIAL SCALE OF IMPACT	Here, we're looking for an idea of how broad the impact you described above could be. Look into the future to a time when your solution is both technically mature and actively in use by Army personnel. Describe the scale and scope of your impact within the context of the Army.
TECHNICAL FEASIBILITY	SCIENTIFIC FEASIBILITY	Is the science behind the solution sound? Convince readers who don't have deep expertise in your field that your innovation is built atop sound scientific and engineering principles.
	ENABLING TECHNOLOGIES	Point to the foundational technologies that you rely on to deliver your solution. Do the required enabling technologies introduce added risk? Using proven (and ideally Army-fielded) underlying technologies and techniques helps to lower technical risk.
	ALTERNATIVE TECHNICAL APPROACHES	From a technologist's perspective, why is your proposed solution the best choice for the Army? Refute the alternative engineering approaches others are using. Why does your technology win?
weight 30%	TECHNICAL RISK MITIGATION	No matter your current technology readiness level, technical risks remain. Identify those risks. Present a credible plan to tackle those risks.
TRANSITION	ARMY TRANSITION PATHWAY	Planning for success, what's next for you after this SBIR award? Describe the next type of deal you aim to make with the Army, e.g. a CRADA, a different SBIR contract, a CSO, etc. Briefly outline your current plan to unlock that next opportunity and/or share the biggest risks you see post this SBIR award.
weight 20%	SBIR MILESTONE SCHEDULE	Please share with us a thoughtful execution plan. Strike a balance between giving us a sense of the detailed thinking behind the scenes and the need for your contracting officer to manage a reasonably small number of milestones during your period of performance.
FIRM CASH FLOW	FIRM SURVIVAL RISK	SBIR funds are meant to fuel growth rather than stave off a firm's impending financial failure. Demonstrate that your company will survive financially as a going concern through the early stages of a Phase III contract, sometimes referred to as "transitioning" into use by Army personnel.
	OTHER PEOPLE'S MONEY	Make the case that non-Army and/or non-DoD dollars will continue to fund improvements to your solution from which the Army will benefit in the future. Companies who cannot demonstrate non-Army and/or non-DoD funding sources for future solution enhancements are less attractive to the Applied SBIR program.
weight 15%	FINANCIAL PROFIT POTENTIAL	Through the Applied SBIR program, the Army wants to take advantage of the speed and scalability of dual-use companies. Make your best case that your product is or will be profitable. If you have more than one product, please focus your argument on the product / solution presented for this SBIR program.
TEAM ABILITY	*weight 10%*	Prove your team has executed well as a group. Please draw clear distinctions between private sector, DoD and civilian government work. What milestones have you accomplished as a group in this company?
SUBMISSION QUALITY	QUALITY OF PROSE	Prove you write clearly. Prove you argue convincingly.
weight 3%	DATA QUALITY & ATTRIBUTION	Support your arguments with relevant, properly attributed data to enhance your credibility.

Army SBIR Direct to Phase II v2 Evaluation Criteria

		UNSATISFACTORY	MARGINAL	SATISFACTORY	SUPERIOR
INTRODUCTION	*weight 2%*	Ineffective introduction. Failed to provide concise innovation proposition.	Adequate introduction. Gradually conveyed innovation's purpose and value. Should be more crisp.	Effective introduction. Systematically conveys innovation's purpose and value.	Exceptional introduction. Immediately conveys innovation's purpose and value.
POTENTIAL FOR ARMY IMPACT	OPERATIONAL IMPACT	If successful, no improvement vs. existing technological approaches.	If successful, slight improvement vs. existing technological approaches.	If successful, significant improvement vs. existing technological approaches.	If successful, radical improvement vs. existing technological approaches.
weight 20%	POTENTIAL SCALE OF IMPACT	A fully deployed, mature solution could impact only niche use cases.	A fully deployed, mature solution could impact an Army element.	A fully deployed, mature solution could impact several Army elements.	A fully deployed, mature solution could have impact across the entire Army.
TECHNICAL FEASIBILITY	SCIENTIFIC FEASIBILITY	No scientific basis for presented approach.	Incomplete scientific basis for presented approach.	Credible scientific basis for presented approach.	Convincing scientific basis for presented approach.
	ENABLING TECHNOLOGIES	Requires nonexistent or unavailable technology.	Requires emerging, cutting edge technology.	Requires proven technologies.	Requires Army-fielded technologies.
	ALTERNATIVE TECHNICAL APPROACHES	No examination of alternatives.	Partially refutes alternatives.	Adequately refutes alternatives.	Persuasively refutes alternatives.
weight 30%	TECHNICAL RISK MITIGATION	Inappropriate next steps.	Somewhat appropriate next steps.	Appropriate next steps.	Highly appropriate next steps.
TRANSITION	ARMY TRANSITION PATHWAY	Fails to identify next contract goal and/or fails to present a plan for near-term execution.	Identifies next contract goal. Has a plan for near-term execution.	Identifies stage-appropriate next contract goal. Credible plan for near-term execution.	Identifies ideal next contract goal. Convincing plan for near-term execution.
weight 20%	SBIR MILESTONE SCHEDULE	Unclear or non-credible project milestones, or timing.	Mostly clear, credible project milestones and timing. Mostly appropriate level of detail.	Mostly clear, credible project milestones and timing. Appropriate level of detail.	Completely clear, credible project milestones and timing. Appropriate level of detail.
FIRM CASH FLOW	FIRM SURVIVAL RISK	Fails to demonstrate solvency through a Phase III.	Marginally demonstrates solvency through a Phase III.	Credibly demonstrates solvency through a Phase III.	Convincingly demonstrates solvency through a Phase III.
	OTHER PEOPLE'S MONEY	Fails to present non-DoD sources for future R&D funding.	Evolving non-DoD sources of future R&D funding.	Secure non-DoD source(s) of future R&D funding.	Diverse and robust non-DoD sources of future R&D funding.
weight 15%	FINANCIAL PROFIT POTENTIAL	Product does not have a path to profitability.	Demonstrates product has a path to profitability.	Demonstrates product progressing toward profitability.	Demonstrates product has achieved profitability.
TEAM ABILITY	*weight 10%*	Evidence of marginal group execution.	Evidence of some group execution.	Evidence of impressive group execution.	Evidence of exceptional group execution.
SUBMISSION QUALITY	QUALITY OF PROSE	Poorly written. Very difficult to impossible to follow argument. Several spelling or grammar errors.	Moderately written. Sometimes difficult to follow argument. A few spelling / grammar errors.	Effectively written. Convincing, easy to follow argument. No spelling or grammar errors.	Clearly and persuasively written. Compelling arguments. No spelling or grammar errors.
weight 3%	DATA QUALITY & ATTRIBUTION	Poorly supported by data. Little to no data attribution.	Partially supported by data. Some data attribution.	Credibly supported by data. Adequate data attribution.	Persuasively supported by meaningful data. Comprehensive data attribution.

Appendix C
Phase II Evaluation Criteria

Army SBIR Phase II Proposal Review v3 Evaluation Criteria Defined

		DEFINITION
INTRODUCTION	*weight 2%*	Write a clear, concise description of what your innovation does or will do, and where you are in your evolution. Make clear its intended impact on the Army. Evaluators should "get it" after reading this.
POTENTIAL FOR ARMY IMPACT	OPERATIONAL IMPACT	At the scale of a single Army end-user, argue that their jobs or lives will be significantly improved if your solution is adopted. What is the impact of your solution for a soldier/Army civilian vs. today's solutions?
weight 20%	POTENTIAL SCALE OF IMPACT	Here, we're looking for an idea of how broad the impact you described above could be. Look into the future to a time when your solution is both technically mature and actively in use by Army personnel. Describe the scale and scope of your impact within the context of the Army.
TECHNICAL FEASIBILITY	SCIENTIFIC FEASIBILITY	Is the science behind the solution sound? Convince readers who don't have deep expertise in your field that your innovation is built atop sound scientific and engineering principles.
	ENABLING TECHNOLOGIES	Point to the foundational technologies that you rely on to deliver your solution. Do the required enabling technologies introduce added risk? Using proven (and ideally Army-fielded) underlying technologies and techniques helps to lower technical risk.
	ALTERNATIVE TECHNICAL APPROACHES	From a technologist's perspective, why is your proposed solution the best choice for the Army? Refute the alternative engineering approaches others are using. Why does your technology win?
weight 30%	TECHNICAL RISK MITIGATION	No matter your current technology readiness level, technical risks remain. Identify those risks. Present a credible plan to tackle those risks.
TRANSITION	ARMY TRANSITION PATHWAY	Planning for success, what's next for you after this SBIR award? Describe the next type of deal you aim to make with the Army, e.g. a CRADA, a different SBIR contract, a CSO, etc. Briefly outline your current plan to unlock that next opportunity and/or share the biggest risks you see post this SBIR award.
weight 20%	SBIR MILESTONE SCHEDULE	Please share with us a thoughtful execution plan. Strike a balance between giving us a sense of the detailed thinking behind the scenes and the need for your contracting officer to manage a reasonably small number of milestones during your period of performance.
FIRM CASH FLOW	FIRM SURVIVAL RISK	SBIR funds are meant to fuel growth rather than stave off a firm's impending financial failure. Demonstrate that your company will survive financially as a going concern through the early stages of a Phase III contract, sometimes referred to as "transitioning" into use by Army personnel.
	OTHER PEOPLE'S MONEY	Make the case that non-Army and/or non-DoD dollars will continue to fund improvements to your solution from which the Army will benefit in the future. Companies who cannot demonstrate non-Army and/or non-DoD funding sources for future solution enhancements are less attractive to the Applied SBIR program.
weight 15%	FINANCIAL PROFIT POTENTIAL	Through the Applied SBIR program, the Army wants to take advantage of the speed and scalability of dual-use companies. Make your best case that your product is or will be profitable. If you have more than one product, please focus your argument on the product / solution presented for this SBIR program.
TEAM ABILITY	*weight 10%*	Prove your team has executed well as a group. Please draw clear distinctions between private sector, DoD and civilian government work. What milestones have you accomplished as a group in this company?
SUBMISSION QUALITY	QUALITY OF PROSE	Prove you write clearly. Prove you argue convincingly.
weight 3%	DATA QUALITY & ATTRIBUTION	Support your arguments with relevant, properly attributed data to enhance your credibility.

Army SBIR Phase II Proposal Review v3 Evaluation Criteria

		UNSATISFACTORY	MARGINAL	SATISFACTORY	SUPERIOR
INTRODUCTION	*weight 2%*	Ineffective introduction. Failed to provide concise innovation proposition.	Adequate introduction. Gradually conveyed innovation's purpose and value. Should be more crisp.	Effective introduction. Systematically conveys innovation's purpose and value.	Exceptional introduction. Immediately conveys innovation's purpose and value.
POTENTIAL FOR ARMY IMPACT	OPERATIONAL IMPACT	If successful, no improvement vs. existing technological approaches.	If successful, slight improvement vs. existing technological approaches.	If successful, significant improvement vs. existing technological approaches.	If successful, radical improvement vs. existing technological approaches.
weight 20%	POTENTIAL SCALE OF IMPACT	A fully deployed, mature solution could impact only niche use cases.	A fully deployed, mature solution could impact an Army element.	A fully deployed, mature solution could impact several Army elements.	A fully deployed, mature solution could have impact across the entire Army.
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	ENABLING TECHNOLOGIES	Requires nonexistent or unavailable technology.	Requires emerging, cutting edge technology.	Requires proven technologies.	Requires Army-fielded technologies.
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TRANSITION	ARMY TRANSITION PATHWAY	Fails to identify next contract goal and/or fails to present a plan for near-term execution.	Identifies next contract goal. Has a plan for near-term execution.	Identifies stage-appropriate next contract goal. Credible plan for near-term execution.	Identifies ideal next contract goal. Convincing plan for near-term execution.
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FIRM CASH FLOW	FIRM SURVIVAL RISK	Fails to demonstrate solvency through a Phase III.	Marginally demonstrates solvency through a Phase III.	Credibly demonstrates solvency through a Phase III.	Convincingly demonstrates solvency through a Phase III.
	OTHER PEOPLE'S MONEY	Fails to present non-DoD sources for future R&D funding.	Evolving non-DoD sources of future R&D funding.	Secure non-DoD source(s) of future R&D funding.	Diverse and robust non-DoD sources of future R&D funding.
weight 15%	FINANCIAL PROFIT POTENTIAL	Product does not have a path to profitability.	Demonstrates product has a path to profitability.	Demonstrates product progressing toward profitability.	Demonstrates product has achieved profitability.
TEAM ABILITY	*weight 10%*	Evidence of marginal group execution.	Evidence of some group execution.	Evidence of impressive group execution.	Evidence of exceptional group execution.
SUBMISSION QUALITY	QUALITY OF PROSE	Poorly written. Very difficult to impossible to follow argument. Several spelling or grammar errors.	Moderately written. Sometimes difficult to follow argument. A few spelling / grammar errors.	Effectively written. Convincing, easy to follow argument. No spelling or grammar errors.	Clearly and persuasively written. Compelling arguments. No spelling or grammar errors.
weight 3%	DATA QUALITY & ATTRIBUTION	Poorly supported by data. Little to no data attribution.	Partially supported by data. Some data attribution.	Credibly supported by data. Adequate data attribution.	Persuasively supported by meaningful data. Comprehensive data attribution.

Appendix D
Commercialization Plan Template

General Instructions/Guidance:

1. As stated above, proposing SBCs shall prepare an eight (8) slide commercialization plan, utilizing the template and format below. The commercialization plan shall be converted to a PDF and included with Volume 5 – Supporting Documentation.

2. Font size shall be no smaller than 10-point font.

3. Slides should display the slide number in bottom right corner.

4. All text (including tables, charts, plots, axis labels, legends, captions) shall be readable without zooming and understandable without voice-over.

5. For plots and charts:
   a. Include title/bullet describing importance of plot/chart, and/or data (be specific).
   b. Axis shall be meaningfully labeled (to be understandable by non-experts) and include scale.

6. Avoid jargon; define technical terms.

7. To insert images, capture a screenshot of the image and paste it into the slide. Please do not drag-drop a file into the presentation or use the Insert Pictures menu function.

8. Use PowerPoint's "Compress Pictures" feature to reduce file size.
   a. Select 96ppi resolution
   b. Uncheck “For this picture only"

9. Replace the boilerplate footer below with distribution markings as appropriate, i.e. sensitive, proprietary, intellectual property.

To be considered valid proposals, Commercialization Plan submissions shall follow the number and content of each slide as contained in the attached template.

Firm Name

SBIR Project Title

Principal Investigator Name / Title
Key (or other relevant) Personnel, and

Subcontractors

BLUF: Bottom Line Up Front

- BLUF:
  1. **Company information and background**: Core competencies, significant sales, previous funding, commercialization successes.
  2. **Customer and Competition**: Clear description of key technology objectives, current competition, and advantages.
  3. **Market**: Plan to obtain market share.
  4. **Intellectual Property**: Patent status, technology lead, trade secrets or other demonstration of a plan to protect the company's technical advantage.
  5. **Financing/Revenue**: Plans for securing necessary non -SBIR funding.
  6. **Assistance and mentoring**: Plans for securing needed technical or business assistance.

Company Information and Background

- Core competencies and areas of specialization.
- Products with significant sales.
- Concise history of previous Federal and non -Federal funding/investments.
- Regulatory experience (if applicable).
- Past commercialization successes.
- Past failure and how you overcame.

Customer & Competition

- Description of key technology objectives.
- Current competition and/or alternative solutions.
- Advantages of company's offer compared to competing products or services.
- Hurdles to acceptance of the proposed innovation.
- Description of possible areas where your technology may be utilized or is under utilized.

Market

- Analysis of market size and 1 and 5 year forecasted market share.
- Explanation of milestones and target dates of plan to obtain that market share.
- What experience do you have with marketing to this target market?
- What commercialization strategy appears to be the best for bringing this product to the target market?
- What experience do you have with bringing products to market – either through this company or though other companies with which you have worked.
- Does the company currently market, manufacture, or license technology? Describe what you do.

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 temporary competitive advantage.

- Describe how you will protect the intellectual property that enables commercialization of its products while keeping competitors at bay. Note any actions you may consider to attain at least a temporary competitive advantage. Also consider your company's prior record in this area. Comment on your company's strategy to build a sustainable business through protection of intellectual property.

Financing

- Plan for securing non -SBIR, private or government funding necessary to enter low rate of production of anticipated technical solution.
- Describe your revenue stream generation to include but not limited to:
  - Manufacture and direct sales
  - Sales through value added resellers or other distributors
  - Joint venture

Assistance & Mentoring

- Plans for securing needed technical or business assistance through mentoring, partnering, or arrangements with government sponsored (e.g., SBIR funded Discretionary Technical and Business Assistance (TABA), State assistance programs, Federally-funded research laboratories, Manufacturing Extension Partnership centers), not -for-profits (e.g., Small Business Development Center (SBDC) or Small Business Technical Development Center (SBTDC)), commercial accelerators, DOD Prime Contractors, SBA Mentor - Protégé program, Procurement Technical Assistance Center (PTAC) or other assistance provider.

Army SBIR 24.4 Topic Index
Release 17

A244-032	High-Power Single Mode Diode Bars
A244-033	Robust Computer Vision for Better Object Detection with Limited Training Data
A244-034	AI-Enhanced TPS Development and Sustainment
A244-035	AI Driven Production of Coarse- and Nano-Nitramines
A244-036	Laminated Metallic Armor

A244-032 TITLE: High-Power Single Mode Diode Bars

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Integrated Sensing and Cyber; Directed Energy (DE);

OBJECTIVE: Develop a diode bar with multi-watt (5-10W) power output per emitter that maintains single mode operation when coupled to an external wavelength beam combiner.

DESCRIPTION: This topic seeks to enable power scaling in direct diode high energy lasers (HELs) while maintaining single mode operation and high efficiency performance. Current diode bars are limited to 1W power outputs in single mode. This limitation leads to larger size, weight, and power (SWaP) HELS. The Army seeks a solution that demonstrates diode bars at 5W-10W per emitter with > 45% eo-efficiency at 9xxnm-10xxnm wavelength.

PHASE I: This topic is accepting only Phase I proposals for the cost of up to $250,000 for up to a 6-month period of performance.

During Phase I, Government and Industry will work collaboratively to refine topic objectives to reach a feasible commercial product. The work will entail a complete design of emitter as well as a bar of emitters, supported by modeling and simulation for validation and estimation of emitter performance. Experimentation and analysis are to be performed to demonstrate the feasibility of the emitter and validate the models/simulations. This effort will conclude with a traceable plan to produce prototypes in phase II and design iterations for further testing.

PHASE II: During Phase II, a prototype design will be completed for production. A prototype will be delivered for demonstration. The demonstration device will be tested to validate the design against the threshold specifications of the topic.

PHASE III DUAL USE APPLICATIONS:

- Single-mode diodes have a variety of use cases across sensing, communications, and directed high energy applications.
- Single-mode diodes emit a narrow, intense beam that suffer less dispersion and attenuation than multi-diode beams.
- Potential dual use cases for single-mode diode bars include:
    - LiDAR (e.g., autonomous vehicles, surveying, atmospheric characterization)
    - Fiber optic communications
    - Manufacturing (cutting, engraving, welding)
    - Medical procedures
    - Cosmetics
    - Printing

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KEYWORDS: Diode; Laser; Power Scaling

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A244-033 TITLE: Robust Computer Vision for Better Object Detection with Limited Training Data

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Trusted AI and Autonomy; Biotechnology; Advanced Computing and Software; Integrated Sensing and Cyber

OBJECTIVE: The goal for this topic is to experiment with innovative AI/ML approaches to object identification and imagery scene analysis.

DESCRIPTION: With the increasing availability of digital imagery, including satellite data for electro-optical/infrared and synthetic aperture radar, alongside full-motion video and other sensor data, there is a growing need for automated methods to process and analyze vast amounts of multi-modal data efficiently. One critical application is the identification of objects of interest (OoI) within imagery data or the scene generated by the imagery, which can provide valuable insights and facilitate decision-making processes in various fields such as military intelligence, environmental monitoring, transportation management, and security surveillance.

PHASE I: This topic is only accepting Direct to Phase II (DP2) proposals for a cost up to $2,000,000 for an 18-month period of performance.

Proposers interested in submitting a DP2 proposal must provide documentation to substantiate that the scientific and technical merit and feasibility equivalent to a Phase I project has been met. Documentation can include data, reports, specific measurements, success criteria of a prototype, etc.

The focus of this SBIR topic is robust AI/ML object detection techniques for computer vision that do not rely on extensive availability of labeled training data - foundational knowledge and methods already exist, thus not requiring a feasibility study. Computer vision algorithms using handcrafted mathematical features which include edge detection and scale-invariant feature transform (SIFT), developed decades ago, are still effective for certain tasks and offer faster run times. Evolutionary algorithms, such as Neuroevolutionary of Augmenting Topologies (NEAT), are used to optimize the parameters of a computer vision system, and can be combined with other methods, such as handcrafted features and various neural networks architectures to form hybrid approaches with less dependence on extensive training data. Newer techniques, based on transformers and referred to as foundational models, have shown extraordinary ability to generalize to new tasks without requiring use case specific training data. All these computer vision technologies have been shown to function within academic and industrial settings, even reaching sufficient maturity to be deployed in commercial products such as level 2 self driving cars and vision language models such as Gemini released by Google. These foundational technologies can be leveraged for this SBIR topic and adapted for DOD and Army use cases without requiring a feasibility study.

(DIRECT TO) PHASE II: During DP2, Firms should (1) develop and implement novel or hybrid AI/ML models for object detection that do not rely on extensive training data; and (2) train models in Project Linchpin's AI Unclassified Operations Environment using Linchpin data for DOD use cases.

PHASE III DUAL USE APPLICATIONS:

- Autonomy: Detecting objects and obstacles for self-driving cars, robots, and drone delivery initiatives

- Retail: Analyze shopping behavior in store to gain insights into product interactions, contactless checkout
- Public safety: Detection of unauthorized objects or individuals in manufacturing, logistics, and construction sectors
- Traffic management: Monitor roads to optimize traffic flow and reduce congestion
- Enhanced Security: Improving security systems for access control and surveillance purposes.
- Agriculture: Computer vision can be used for yield prediction and plant monitoring to detect diseases.

Computer vision solutions in the private sector encompass a wide range of applications, from object detection and recognition to healthcare and agriculture. Companies such as Amazon, Google, and Microsoft offer cloud-based object detection and recognition services, while Face++, Kairos, and NEC provide facial recognition solutions. In addition, companies like IBM, Cisco, and Huawei offer video analytics solutions, and ABB, Kuka, and FANUC provide vision-guided robotics and automation solutions.

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KEYWORDS: Digital Imagery; Objects of Interest; Sensor Data; AI/ML; Scale-Invariant Feature Transform; Neuroevolutionary of Augmenting Topologies

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A244-034 TITLE: AI-Enhanced TPS Development and Sustainment

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Trusted AI and Autonomy; Advanced Materials; Advanced Infrastructure & Advanced Manufacturing;

OBJECTIVE: This SBIR project will provide an organic capability for field-level maintenance and repair of weapon system electronics that shortens supply chain latency for electronic component repairs and provides a critical need to screen electronic components for No Evidence of Failure (NEOF) at the source in the tactical unit. This mitigates the high cost of discovering NEOF at higher echelons of maintenance. The end goal is to achieve faster weapon system repairs, faster component Turn-Around-Times (TAT), high equipment Operational Availability (Ao), and high Unit readiness, all achieved at lower life-cycle costs. The Army is transitioning to a warfighting doctrine of Multi-Domain Operations (MDO) in Large Scale Combat Operations (LSCO). This doctrine emphasizes the vulnerability of contested Logistics supply chains and interdicted network bandwidth in the Tactical Echelon. Both circumstances emphasize the need to have maintenance capability at the point of need on the battlefield without the need for support reachback. This project will significantly facilitate that capability.

DESCRIPTION: The topic is to apply Artificial Intelligence (AI) and Model-Based Systems Engineering (MBSE) to improve the development, operation and sustainment of Test Program Sets (TPS) for maintenance of electronic components of weapon systems. It has direct relevance to all weapon systems and end items across all Army commodities, ground, air, missile, and C5ISR (see backup charts). Current TPS development can take a year or more with costs ranging over a million dollars per TPS. Over a thousand TPS are ultimately needed for all types of weapon systems.

PHASE I: This topic is accepting only Phase I proposals for the cost of up to $250,000 for up to a 6-month period of performance.

1. Evaluation of TPS development prerequisite documentation a. ATE specifications, ATE Model library, Unit Under Test (UUT) technical data.
2. Development of UUT test strategy
3. Evaluation and selection of suitable AI and apps for ATE/TPS/UUT model development & integration
4. Evaluation and selection of AI optimization algorithms (e.g., ChatGPT+, Wolfram Alpha or equivalent)
5. Preliminary design of test program hardware and software using AI-based model development

PHASE II: TPS hardware & software prototype development, critical design, test, integration, verification, validation, and acceptance (per TPS development procedures outlined in DA PAM 750-43)

PHASE III DUAL USE APPLICATIONS:

1. Sensor integration in mobile platforms with AI-assisted guided diagnostics.
2. PD TMDE, as the current leader of the DOD ATS Management Board, which is comprised of Army, Navy, Air Force, Marines and other Joint Programs, will socialize the SBIR process with the other Services. The Navy, with a large TPS inventory and on-going development process, is interested in the digital engineering approach to TPS management.

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KEYWORDS: Test Project Sets; Multi-Domain Operations; Large Scale Combat Operations; Turn-Around-Times; Operational Availability; Electronic Components; Weapons Systems

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A244-035 TITLE: AI Driven Production of Coarse- and Nano-Nitramines

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

OBJECTIVE: Use AI/ML driven methodologies to control the production processes for nano-nitramines to produce the most efficient, effective formulations currently known in an agile and flexible manner. AI/ML driven manufacturing and formulation science can be applied from 'cradle to grave' for nano-nitramines and can enable their widespread adoption by making research and production automated.

DESCRIPTION: The U.S. army is currently producing coarse nitramines (HMX, RDX, and CL-20) in large quantities, and nano-Nitramine in experimental batches. Significant delays have occurred in the process of transitioning Nano-nitramine because the manufacturing is especially time consuming, and furthermore, once produced, they are difficult to process. This is partly caused by the difficulty in producing and manipulating nano-nitramines, and the relatively low supply of CL-20 of any particle size. We believe that AI/ML technology will greatly improve processes to produce both coarse and nano-nitramines. The U.S. Army is currently using techniques to measure several critical parameters for the manufacturing of energetic materials but cannot use the data effectively. We believe that AI/ML controlled crystallization and manufacturing of nitramines will provide the following improvements:

1. The determination of methodologies that will produce the desired nano-nitramines.
2. Elucidation of the critical parameters of the crystallization and dissolution processes which can be tailored to produce nano-nitramines directly.
3. Improvement of post crystallization processes, such as mechanical attrition, which currently are limited to the ~1-2 μm scale industrially, to directly produce nanomaterials.
4. Determination of the ideal particle size and packing ratios to use for various industrial processes involving consolidation and mixing with working with nanomaterials.
5. Reduction in reject/rework, higher throughput and lower cost for coarse nitramines (Class 1, V, and FEM)

PHASE I: This topic is only accepting Direct to Phase II (DP2) proposals for a cost up to $2,000,000 for a 24-month period of performance.

Proposers interested in submitting a DP2 proposal must provide documentation to substantiate that the scientific and technical merit and feasibility equivalent to a Phase I project has been met. Documentation can include data, reports, specific measurements, success criteria of a prototype, etc.

(DIRECT TO) PHASE II: (1) Demonstrate feasibility of proposed techniques to monitor and control coarse and nano-materials during manufacturing. (2) Implement the probes during the manufacturing process and collect data. Use data with machine learning algorithms.

PHASE III DUAL USE APPLICATIONS:

- Academic and corporate research focuses on the efficacy of leveraging AI/ML and modeling & simulation (M&S) software in a diverse range of commercial use cases, namely healthcare.
- On the defense side, Congress and the DoD have signaled their continued interest in critical chemical development in legislation and DoD awards.
    - Of note – the DoD has leveraged the Defense Production Act Investments (DPAI) to award $192M in contracts to increase supply of chemicals by 2028.
    - Current companies, however, are generic chemical suppliers who do not purport to use novel technologies to increase chemical production efficiency.
- Potential dual use cases include:

- •Medicine manufacturing leveraging an AI-based estimator
- •Chemical engineering, specifically regarding process optimization, material synthesis, and quality control
- •Agriculture chemical production and efficacy
- •EV battery chemistry development and discovery

Chemical discovery in the R&D and academic research phases

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KEYWORDS: Nano-Nitramines; Crystallization; Nanomaterials; Coarse Nitramines; AI/ML

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A244-036 TITLE: Laminated Metallic Armor

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Advanced Infrastructure & Advanced Manufacturing; Sustainment & Logistics; Advanced Materials;

OBJECTIVE: This topic is seeking innovative, readily scalable manufacturing technologies to cost-effectively produce laminated/graded metallic armor plate and high strength structural components that are readily integrable.

DESCRIPTION: The Army is seeking low-cost, high-yield domestic production processes for laminated/graded metallic armor plates and high strength structural components that can be readily integrated into vehicle structures using existing welding processes. These types of armor and components would allow for significant reduction in weight while maintaining the same level of force protection.

PHASE I: This topic is accepting only Phase I proposals for the cost of up to $250,000 for up to a 6-month period of performance.

Demonstrate the feasibility of laminated steel armor:

- Utilize computational materials engineering approaches to identify and develop novel layered metallic armor system.
- Produce plates of individual materials to validate simulations and thermomechanical processes.
- Identify and apply advanced materials processing to prototype 1’x3’ flat plates.
- Characterize flatness/dimensional accuracy and mechanical properties of the flat plates.
- Assess single and multi-hit ballistic merit of plate and component.
- Demonstrate weldability of the metallic armor system.
- Demonstrate applicability of the layered metallic armor process to a shaped component geometry.
- Assess scalability issues and limitations of the process.
- Develop a cost model of the material system and process.

PHASE II:
Demonstrate the following:

- Mature manufacturing process controls and identify processing window to ensure a stable, well-controlled process.
- Utilize computational materials engineering approaches to shaped component geometry having a layered metallic armor arrangement.
- Produce shaped component configurations.
- Characterize flatness/dimensional accuracy and mechanical properties of the shaped component.
- Assess single and multi-hit ballistic merit of component.
- Identify and mitigate non-conforming dimensional tolerances of shaped components.
- Improve ballistic performance.
- Increase thickness of armor material systems.
- Mature thermodynamic materials models to ensure accurate simulation of manufacturing processes.
- Demonstrate applicability of processes to potential higher performance, advanced alloys, and multiple materials.
- Identify how to scale-up manufacturing process of laminated armor systems.

PHASE III DUAL USE APPLICATIONS:

1. The automotive sector is increasingly adopting additive manufacturing for rapid prototyping and cost reduction, driving innovation and efficiency in production processes.
2. Studies have shown that innovative materials like polyethylene (Mayer 2019), steel-aluminum metal laminate, steel-elastomer laminate, aramid composites, and glass-ceramic materials can enhance the performance of armor plates and laminates for impact resistance and ballistic performance.
3. Potential commercial dual-use industries for laminated armor:
    1. Space Exploration: Construction of equipment designed to withstand extreme environments
    2. Banking: Armored vaults, safes, and transport vehicles
    3. Construction Machinery: Protection against environmental debris
    4. Police and Security: Armored vehicles

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KEYWORDS: Laminated/Graded Metallic Armor Plate; Components; Computational Materials;

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