Broad Agency Announcement

Synthetic Hemo-technologIEs to Locate and Disinfect (SHIELD)

BIOLOGICAL TECHNOLOGIES OFFICE

HR001123S0037

June 28, 2023

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- **Federal Agency Name –** Defense Advanced Research Projects Agency (DARPA), Biological Technologies Office (BTO)
- **Funding Opportunity Title –** SHIELD
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  - Proposal Abstract Due Date and Time: **August 2, 2023, 4:00 PM**
  - Full Proposal Due Date and Time: **September 27, 2023, 4:00 PM**
  - BAA Closing Date: **September 27, 2023**
- **Concise description of the funding opportunity:** The Synthetic Hemo-technologIEs to Locate and Disinfect (SHIELD) program will develop safe and effective prophylactic countermeasures to defeat bloodborne pathogens and prevent bloodstream infections (BSI) associated with combat wounds. The program will develop prophylaxes that are effective against both fungal and bacterial pathogens which are responsible for the vast majority of BSI. SHIELD will develop safe and effective broad-spectrum prophylaxes that can be delivered following injury and protect recipients for at least 72 hours.
- **Anticipated individual awards –** Multiple awards are anticipated.
- **Types of instruments that may be awarded –** Procurement contract, cooperative agreement, or other transaction.
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PART II: FULL TEXT OF ANNOUNCEMENT

1. Funding Opportunity Description

This publication constitutes a Broad Agency Announcement (BAA) as contemplated in Federal Acquisition Regulation (FAR) 6.102(d)(2) and 35.016 and 2 CFR § 200.203. Any resultant award negotiations will follow all pertinent law and regulation, and any negotiations and/or awards for procurement contracts will use procedures under FAR 15.4, Contract Pricing, as specified in the BAA.

The Defense Advanced Research Projects Agency (DARPA) is soliciting innovative proposals to develop safe and effective prophylactic countermeasures that prevent blood stream infections (BSI) arising from both fungal and bacterial pathogens. The goal of the program is to demonstrate a broadly deployable prophylaxis can clear bloodborne pathogens and protect the host from morbidity and mortality associated with BSI. Research will focus on the following areas: (1) Identify, optimize, and validate prophylaxes that clear bloodborne fungi and bacteria from the host in a pathogen-agnostic manner; (2) Develop prophylaxes that will protect the recipient and prevent BSI for at least 72 hours after administration in animal models across various pathogen exposure and trauma scenarios that are relevant to combat casualty care (wound from burn & trauma from blast); and (3) Establish the safety and non-immunopathogenicity of prophylaxes. Upon completion, SHIELD will demonstrate prophylaxes that are safe, effective, and increase survival rates in relevant animal models significantly over state-of-the-art approaches to manage BSI.

1.1. PROGRAM OVERVIEW

The SHIELD program seeks to develop technologies that will transform how the military manages and treats BSI. Specifically, SHIELD will develop and de-risk prophylaxes so that these technologies have the potential to be broadly administered to trauma victims in combat casualty care scenarios. Prophylaxes will enable the host to clear multiple different bloodborne fungal and bacterial pathogens that are prevalent in BSI. Thus, SHIELD prophylaxes will prevent morbidity and mortality associated with BSI including sequelae associated with invasive fungal infections (IFI) and sepsis. Finally, prophylactic countermeasures will confer durable and sustained protection to the recipient after trauma – a critical period when they are most susceptible to opportunistic infection from fungi and bacteria.

Fungal pathogens are an understudied and underreported threat to warfighter health and are responsible for a significant fraction of BSI in combat casualty care scenarios. There are no prophylaxes currently used to prevent fungal BSI. Instead, fungal infections are treated with antifungal compounds (e.g., azoles and polyenes) which are only marginally effective and extremely toxic. Finally, the number of pathogenic fungal strains that resist antifungals is increasing rapidly thus expanding the scope and scale of unknown threats to warfighters. Currently, BSIs from bacteria are managed using oral prophylaxes and post-infection treatments. Oral antibiotics are administered as prophylaxes to prevent bacterial BSI after the initial trauma in many combat casualty care scenarios. Oral antibiotic prophylaxes are ineffective because trauma dramatically reduces the oral bioavailability of these drugs. Treatments for early-stage

bacterial BSI such as intravenous broad-spectrum antibiotics are ineffective because of untimely administration and the proliferation of multi-drug resistant bacteria.

SHIELD technologies will offer transformative and significant improvements over state-of-the-art treatments for bacterial and fungal BSI. SHIELD technologies will be:

- Post-trauma prophylactic countermeasures that clear pathogens, reduce infection, and prevent mature disease states such as IFI and sepsis.
- Pathogen-agnostic with broad efficacy against both known and emerging fungal and bacterial pathogens.
- Durable, rapidly deployable, non-toxic, and non-immunopathogenic.

1.2. PROGRAM STRUCTURE AND TECHNICAL APPROACH

The SHIELD program is structured as a four (4) year effort consisting of three (3) phases: (18-month Phase I (Base), 18-month Phase II (Option I), and 12-month Phase III (Option II)). Performers in the SHIELD program will develop, test, and validate the safety and efficacy of new prophylaxes against BSI. Furthermore, performers will interface with Government Independent Verification and Validation (IV&V) teams to evaluate the safety and validate the efficacy of prophylaxes in multiple different pathogen exposure scenarios and trauma models that mimic the threat environment confronted by warfighters. The program schedule is summarized in Figure 1.

1.2.1 Prophylaxes to defeat fungal pathogens

Performers must develop, optimize and validate prophylaxes that clear bloodborne fungal pathogens in hosts thus preventing serious diseases such as IFI. Prophylactic countermeasures developed must clear bloodborne fungi before the onset of severe fungemia. Performers must develop prophylaxes that are effective against the multiple different morphologies that fungi can adopt (e.g., spores, hyphae, and mixed). Specific fungal genera of interest to SHIELD are listed in Table 1.

Table 1*. Fungal pathogens that are frequently found in BSI and thus of interest to the SHIELD program. Performers will develop prophylactic countermeasures that can defeat at least three species of fungal pathogens spanning at least three different genera (see below).*

Fungal class	**Fungal genera**
Saccharomycetes	*Candida*
Euromycetes	*Aspergillus*
Tremellomycetes	*Cryptococcus*
Pneumonocystidomycetes	*Pneumonococcus*
Mycurmycota	*Rhizopus*

1.2.2 Prophylaxes to defeat bacterial pathogens

Performers will design, optimize, and validate prophylaxes that can clear numerous types of bloodborne bacteria and prevent BSI in relevant animal models in various pathogen exposure scenarios. SHIELD-developed prophylaxes will clear multiple strains of bloodborne bacteria from host circulation before pathogens proliferate and progress to more mature disease states such as sepsis and/or septic shock. Furthermore, prophylaxes must be effective against multiple

different bacterial species (at least one Gram-positive and one Gram-negative strain). SHIELD-developed prophylaxes must aid the host in clearing bacterial pathogens in all morphologies, including spores. Specific bacterial genera of interest to SHIELD are listed in Table 2.

***Table 2**. Examples of bacterial pathogens that are prominent in BSI and therefore of interest to the SHIELD program. Performers will develop prophylaxes that can defeat at least three genera across both Gram-positive and Gram-negative classes (at least one from each class).*

Bacterial class	Example genera
Gram-positive	*Staphylococci* *Streptococci* *Clostridium* *Listeria* *Enterococci*
Gram-negative	*Escherichia* *Pseudomonas* *Yersinia* *Enterobacter* *Klebsiella*

Proposals must describe a plan to develop, test, and validate prophylaxes that can defeat multiple species and morphologies of both bacterial and fungal pathogens. Prophylaxes that address fungal and bacterial pathogens may be comprised of multiple components. However, they must be co-administrable, mutually compatible, and must collectively satisfy the metrics for both safety and efficacy. **Proposals describing prophylaxes that address only one pathogen set (either only bacteria or fungi) will be considered non-conforming and may be rejected without further review.**

Proposals from prospective performers should:

- Describe the organizational structure within the team, complete with a dedicated project manager (separate from the principal investigator), distribution of responsibilities, lines of communication, and technical tasks throughout the proposal.
- Describe structures and activities to support continuous engagement with prospective IV&V teams and facilitate engagements with prospective transition partners.
- Structure themselves to communicate and engage with the Government sponsor, Government stake holders, and relevant prospective regulatory agencies to facilitate a feasible path towards clinical translation and potential commercialization of the technology.

1.3. TECHNICAL APPROACH

Proposals should describe the engineering, design, and testing of prophylaxes. SHIELD-developed prophylaxes should be capable of defeating multiple circulating fungal and bacterial pathogens from various genera. Prophylaxes should protect the host from BSI for at least 72 hours. Technical approaches may leverage recent discoveries in the fields of:

- Biomolecular, Cellular, and Immune Engineering (including, but not limited to: engineered red blood cells, biomimetic cells, artificial cells, synthetic proteins, or host immune modulation including engineering of Type 1 and Type 2 immunity).

- Microparticles & Nanoparticle Engineering (including, but not limited to: exosomes, synthetic microparticles, liposomes, microgels, long-circulating particles, synthetic cells).
- Synthetic & Molecular Biology (including, but not limited to: engineered complement proteins and their components; opsonization molecules including carbohydrate-binding motifs; various engineered combinations thereof to recognize diverse pathogens and aid the host in defeating multiple bacterial and fungal species; see Tables 1 & 2).

Proposals describing variations of existing antifungal compounds or narrow spectrum antibiotics will be considered non-conforming and may be rejected without further review.

Performers will design, test, and validate prophylaxes with the following capabilities and characteristics:

- Pathogen-Agnostic Efficacy. Prophylactic countermeasures must defeat: ≥3 pathogenic fungal species from at least three different genera listed in Table 1; ≥3 pathogenic bacterial species from at least three different genera listed in Table 2, including at least one Gram-positive and one Gram-negative agnostically. In total, the prophylactic countermeasure will demonstrate efficacy against a total of ≥6 total pathogens that are most prevalent in BSI. Pathogen-agnostic efficacy will first be tested *in vitro* by the ability for the technology to neutralize ≥3 fungal pathogens and ≥3 bacterial pathogens using *in vitro* assays in whole blood. Performer teams will then assess the pathogen-agnostic efficacy *in vivo* by measuring the ability for the prophylactic technology to clear at least 6 total bloodborne pathogens (≥3 fungi and ≥3 bacteria). Importantly, prophylaxis efficacy will be evaluated against each pathogen individually in *in vivo* experiments in Phases I and II. Prophylaxes efficacy will be evaluated against simultaneous exposure to multiple pathogens (one bacterial and one fungal) in Phase III.
- Clearance of Bloodborne Pathogens. Pathogen clearance *in vitro* will be demonstrated by measuring the ability of the prophylaxes to aid the host in clearing bacteria and fungi *in vitro* from whole blood within 12 hours after exposure to the pathogen of interest. *In vivo* models will have pathogen(s) directly introduced into host circulation. *In vivo* clearance will be assessed by measuring circulating pathogen concentrations 24 hours after exposure to the pathogen of interest.
- Safety. Performers will need to demonstrate the acute and chronic safety of their prophylactic countermeasures. Teams will design the appropriate experiments to definitively establish that prophylactic countermeasures are safe, non-immunopathogenic, and non-toxic to the host. In addition, performers will measure relevant biomarkers (e.g., blood concentrations of inflammatory and apoptotic cytokines) before and after administration to confirm that prophylactic countermeasures do not cause adverse physiological effects. Biomarkers for safety including cytokines and other physiological parameters will be approach-specific and thus each performer must design and validate an assessment to definitively demonstrate both acute and chronic safety. Prophylaxes must not negatively impact hematological function, nor induce acute toxicity through significant accumulation in the vital organs (e.g., liver, spleen, lymph nodes and kidneys). Performers may work with contract research organizations (CRO) to assess toxicity.
- Durable Protection. Prophylaxes will protect recipients from pathogen exposure for at least 72 hours post-administration. Durability will be assessed in animal models with induced trauma (burn or blast) that are challenged with different pathogens following

administration. Durability will be assessed by measuring the ability to clear multiple types of bloodborne pathogens and increase in survival rates in animal models against simultaneous exposure to both fungal and bacterial pathogens when compared to the state-of-the-art treatments for BSI.

Performers will conceive, design, and test prophylaxes to clear multiple different types of both fungal (see Table 1) and bacterial (see Table 2) pathogens. Proposals should consider the following:

- Prophylaxes should clear or enable the host to clear: bloodborne fungi in fungemia conditions and bloodborne bacteria in bacteremia conditions. Prophylaxes will increase the survival rate of animal subjects in different models of trauma models and across varying pathogen exposure scenarios.
- Strategies may include, but are not limited to the following: circulating cells, particles, or hybrid systems with various sub-systems that can recognize multiple fungal and bacterial pathogens; systems that can co-opt natural filtration mechanisms to clear both bloodborne fungal and bacterial pathogens from the host; host immunomodulation including control of Type 1 and Type 2 immunity.
- Describe methodologies to assess and evaluate the safety of prophylactic countermeasures including appropriate justifications based on specific technologies.
    - Prophylaxes administration will ideally induce only transient excursions in relevant cell populations and cytokines without significantly altering the patho-physiological state in the host.
    - Prophylaxes will not be toxic or induce adverse physiological events in relevant animal models.
- Describe transformational approaches to advance the state-of-the-art for pathogen-agnostic recognition of diverse types of fungal and bacterial pathogens.
    - Develop innovative approaches beyond the paradigm of creating next-generation antifungal compounds (e.g., azoles and polyenes) and antibiotics.
    - **Proposals describing efforts that solely focus on incremental advances (e.g., developing and new antifungal compounds or designing new antibiotics) will be considered non-conforming and may be rejected without further review**.
    - Proposals should describe technologies that can be administered and be effective while considering the practical constraints associated with combat casualty care scenarios. For example, technologies should be compatible with administration to recipients after trauma and should confer broad protection to the from diverse fungal and bacterial pathogens.
    - **Traditional vaccines or vaccine-based approaches will be considered non-conforming.**
- Prophylaxes must not contribute to the creation of fungal or bacterial strains that may become resistant to existing countermeasures. Furthermore, prophylaxes must present a negligible risk of harmful and/or irreversible alteration of the host mycobiome and microbiome.
- Prophylaxis administration should not induce any unsafe and/or sustained excursions of relevant biomarkers or pathogenic molecular events that would suggest toxicity.

Technical approaches that combine multiple components are acceptable as long as the following requirements are met:

- The formulation can be administered to the host in a timely fashion.
- Prophylaxis(es) administration may consist of multiple doses, but must avoid exceeding complex procedures such as precise timing and dosing schedules.
- The entire formulation must satisfy all relevant metrics for safety and efficacy.

1.4. DETAILED PROGRAM STRUCTURE, SCHEDULE, MILESTONES & METRICS

1.4.1 Overview of Program Structure

Prophylaxes safety and efficacy will be initially assessed in-house by performers followed by independent verification and validation by IV&V team(s) identified by DARPA. Efficacy will be assessed in various trauma models and pathogen exposure scenarios. Performers will assess the safety and efficacy of prophylaxes (see Figure 1) during Phases I and II. Performers will also coordinate with IV&V team(s) to verify the safety and efficacy of prophylaxes in Phases I, II, and III in animal models across the following parameters: pathogen type (e.g., bacterial or fungal); single- or dual-pathogen exposure; pathogen exposure timeline (e.g., concurrent administration of prophylaxes and pathogen exposure vs. delayed pathogen exposure relative to prophylaxis administration); presence or absence of trauma (e.g., Phase I – no trauma, Phase II – burn wound, Phase III – blast exposure).

Phase I: Proof-of-Concept *in vitro* and *in vivo* (0-18 Months). Performers will demonstrate proof-of-concept safety and efficacy in Phase I. Performers will design, characterize, and produce prophylaxes at the laboratory scale to support proof-of-concept experiments. Prophylaxes dosing, specific animal model, and administration schedules will be agreed to upon through discussions with IV&V team(s). Prophylaxes efficacy will be assessed by the ability for the technology to clear multiple fungal and bacterial pathogens in an agnostic manner both *in vitro* and *in vivo*. Performers will satisfy pathogen clearance metrics *in vitro* and *in vivo* (see Table 3). Safety will be assessed in a technology-specific manner and thus will ultimately be evaluated on a performer-by-performer basis. Assessments may include, but are not limited to, the following: maintaining adequate levels of relevant host cell populations, maintaining healthy levels of inflammatory biomarkers. Furthermore, the prophylaxes will be non-immunopathogenic. Proof-of-concept safety and efficacy will be evaluated at the end of Phase I (18 Mo evaluation point).

Phase II: Protect against burn & pathogen exposure (19-36 Months). Performers will produce prophylaxes at the pilot scale to support Phase II experiments (dosing, animal models, and number of subjects will be determined in collaboration with IV&V team(s)). Performers will demonstrate improved efficacy of their prophylaxes by increasing pathogen clearance – a 10^3-fold reduction in pathogen concentration in host circulation in the following scenario. Prophylaxes will first be administered to animals. After a delay up to 48 hours, the animal will then be exposed to a single pathogen. Additional safety assessments will also be performed including biodistribution studies and assays to verify non-toxicity. Phase II will culminate in an evaluation point at Month 36 wherein prophylaxes will achieve a survival rate of >50% in animals with acute immune dysregulation as a result of burn trauma followed by exposure to one pathogen (see Tables 1 & 2).

Phase III: Dual protection in blast model (37-48 Months). Performers will produce prophylaxes at the full scale to support all Phase III experiments (dosing, animal models, and number of subjects will be determined in collaboration with IV&V team(s)). Phase III will further assess: *in vivo* efficacy and durable protection as measured by *in vivo* clearance of multiple bloodborne fungal and bacterial pathogens co-administered simultaneously in an animal model with immune dysregulation as a result of blast. Performers will demonstrate a 10^4-fold reduction in the concentration of each pathogen in host circulation in a dual pathogen challenge. Finally, prophylaxes will achieve a survival rate of >75% in animals subjected to blast and exposure to multiple pathogens (at least one fungal & one bacterial species listed in Tables 1 & 2). Increased survival rates must be demonstrated after prophylaxes administration and pathogen exposure in animals in the following scenarios. Scenario 1: Prophylaxes will be administered and pathogen exposure with follow shortly thereafter. Scenario 2: Prophylaxes will first be administered to animals. After a 72-hour delay, the animal will then be exposed to multiple pathogens (one fungal and one bacterial).

1.4.2 Anticipated IV&V Capabilities and Testing Schedule

Performers will work closely with IV&V team(s) who will independently validate the safety and efficacy of prophylaxes. IV&V team(s) will support DARPA and SHIELD performers as a Government-furnished service to independently validate and verify *in vitro* and *in vivo* the performance of each prophylaxis. Performers will work with IV&V team(s) to obtain relevant data pursuant to meeting program metrics, milestones, and evaluation points at 18, 36, and 48 Months. Performers will structure their research projects with the assumption that integrated IV&V team(s) will have full access to validated animal models to support *in vivo* work. Performers will work with prospective IV&V team(s) that have (at the minimum) the following capabilities and know-how:

- Experience with processes and procedures to rapidly obtain and maintain IACUC and DoD ACURO approvals.
- Handling bacterial and fungal pathogens; pathogen exposure models and survival experiments in relevant animal models; measurements of pathogens and prospective prophylaxes in different tissues and organs *in vivo* and *in vitro*. IV&V team(s) will evaluate the efficacy of prophylaxes in trauma models in animals including burn and blast.
- The capability, authority, and approval to handle and propagate pathogens including all of those listed in Tables 1 and 2. Established assays to measure the *in vitro* and *in vivo* pathogen biodistribution in tissues and organs.
- Expertise in cell and molecular biology and medical immunology to support key measurements and assays of prophylaxes safety and efficacy including the following: *in vitro* and *in vivo* (e.g., antigen presentation, lymphocyte replication, apoptosis, pyroptosis, and inflammation), bulk and single cell host genetics, epigenetics, transcriptomics, proteomics, and metabolomics.

Performers will coordinate with IV&V team(s) with the latter performing the following tests (see Figure 1 for detailed program schedule). The Government has identified the following detailed testing plan with the intention of bounding the scope of effort, while affording the maximum

flexibility, creativity, and innovation in proposing solutions to the stated problem. The final detailed testing plan may vary depending upon the technology.

- **Test 1 (18 Months After Contract (MAC)).** IV&V team(s) will work with performers to test prophylaxis efficacy *in vivo* in support of Milestone 1.3. Specifically, IV&V team(s) will measure the ability for prophylaxes to clear at least three different bloodborne pathogenic fungi and three pathogenic bacteria *in vivo*. Prophylaxis efficacy will be evaluated against each pathogen individually in a series of multiple experiments. Pathogens will be directly introduced into host circulation concentrations that are appropriate for a given pathogen. *In vivo* clearance assays will measure pathogen clearance in healthy animal subjects (no trauma) 24 hours after exposure. Single pathogen challenge experiments will be repeated to demonstrate broad pathogen agnostic efficacy of the prophylaxis.
- **Test 2 (18 MAC).** IV&V team(s) will coordinate with performers to demonstrate that each prophylaxis is safe and non-immunopathogenic in support of Milestone 1.4. Specifically, IV&V team(s) will acquire prophylaxes from performers, administer them in healthy animal subjects, and measure the blood concentrations of key cytokines over time. In consultation with the Government, performer teams and IV&V teams will work together to define specific and measurable metrics for safety by defining the bounds of acceptable excursions of key cytokines and cell populations.
- **Test 3 (27 MAC).** IV&V team(s) will work with performers to test the ability for prophylaxes to clear bloodborne pathogens in a wound model *in vivo* in support of Milestone 2.2. Pathogens will be delivered directly into host circulation. IV&V team(s) will measure the ability of the prophylaxes to clear at least one pathogenic fungus and one pathogenic bacterium each in a series of single pathogen challenge experiments. Efficacy will be assessed by measuring the reduction in the concentration of pathogens in host circulation. These experiments will establish the efficacy of the prophylaxes in animal subjects with acute immune dysregulation as a result of trauma (burn).
- **Test 4 (36 MAC).** IV&V team(s) will work with performers to test the ability for prophylaxes to improve survival in a burn + pathogen challenge in support of Milestone 2.4. Specifically, IV&V team(s) will measure the survival of animal subjects that are subjected to burn and exposure to at least one pathogenic fungus and one pathogenic bacterium each in a series of single pathogen challenge experiments.
- **Test 5 (45 MAC).** IV&V team(s) will work with performers to test the ability for prophylaxes to clear pathogens in a blast trauma model *in vivo* in support of Milestone 3.2. Specifically, IV&V team(s) will measure the ability of the prophylaxes to clear multiple pathogens (at least one fungal & one bacterial species) in a dual pathogen exposure challenge. Prophylaxes efficacy will be tested using animals that are subjected to trauma from blast and then exposed to pathogens in two different scenarios. Scenario 1: Prophylaxes administration followed shortly after by pathogen exposure. Scenario 2: Prophylaxes administration followed by a 72-hour delay and then subsequent pathogen exposure.
- **Test 6 (48 MAC).** IV&V team(s) will work with performers to test the ability for the prophylaxes to improve survival in a blast + dual pathogen challenge in support of Milestone 3.3. Specifically, IV&V team(s) will measure the survival rates of animal subjects with immune dysregulation as a result of blast and exposure to multiple

pathogens (at least one fungal & one bacterial species) simultaneously. Prophylaxes durability will be assessed by measuring the protection in animal subjects across at least two scenarios. Scenario 1: Prophylaxes administration followed shortly after by exposure to multiple pathogens. Scenario 2: Prophylaxes administration followed by a 72-hour delay and then exposure to multiple pathogens.

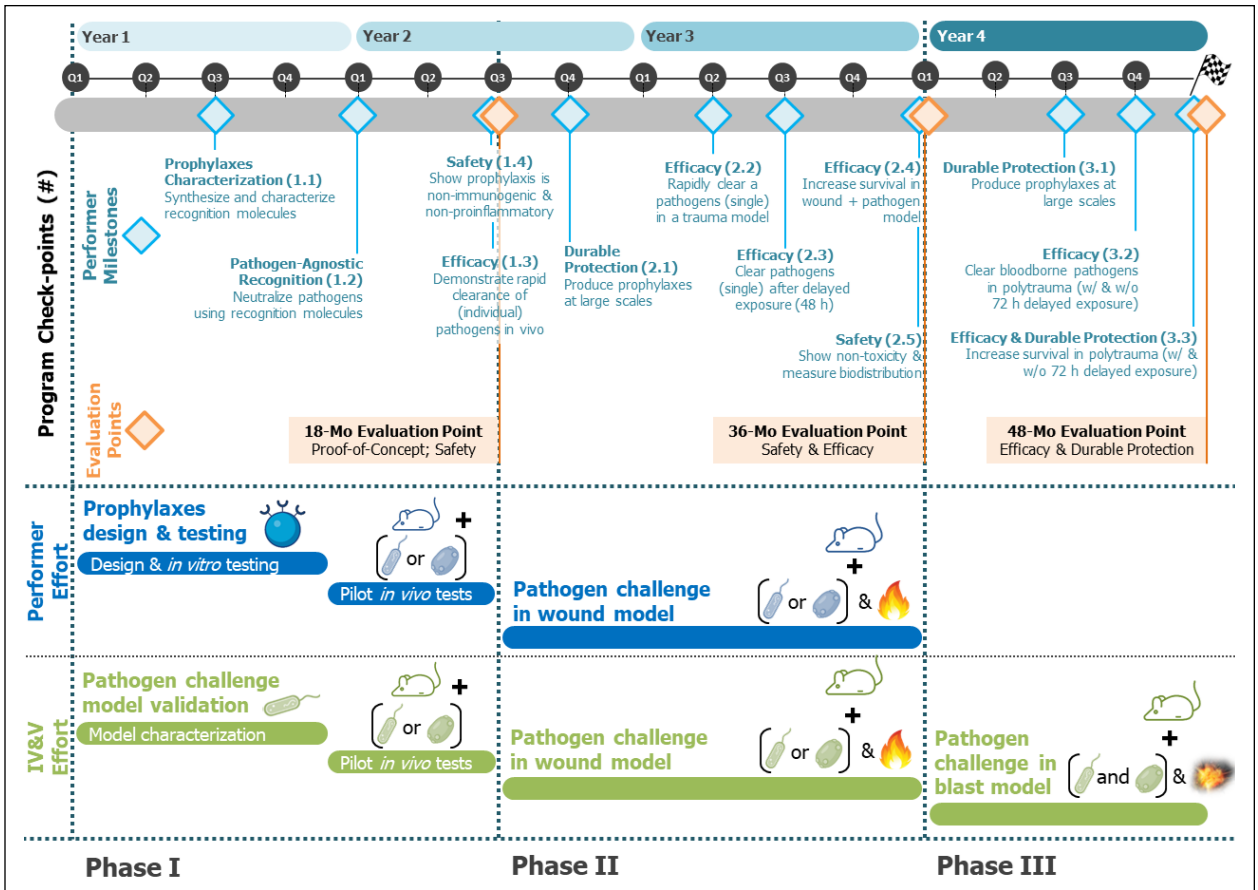

Figure 1. *Program schedule for SHIELD including key milestones, evaluation points, and responsibilities for both performers and IV&V team(s).*

1.4.3 Additional Coordination Between Performers and IV&V Team(s)

Performers and IV&V team(s) will coordinate and develop a comprehensive testing plan within 1 month after the program start date (see Milestone 1.0). This plan will include a schedule and a matrix that will conform to the SHIELD testing schedule. Performers and IV&V team(s) will coordinate throughout the program to facilitate the transfer of prophylaxes to IV&V team(s). If necessary, Material Transfer Agreements (MTA) will be fully executed no later than 3 months after the program start date (see Milestone 1.1). Performers and prospective IV&V teams are encouraged to draft and execute Data Transfer Agreements to expedite exchange of data and know-how at the appropriate time. Finally, performers and prospective IV&V team(s) are encouraged to enter into an Associate Contractor Agreement (ACA) to facilitate and coordinate critical tests (if necessary). Amendments to the developed testing matrix are possible with approval from each team and the Government sponsor. Performers and IV&V team(s) will conceive, draft, and submit detailed testing plans at least 3 months prior to each planned test (see

Section 1.4.2). Critical tests conducted by both performers and IV&V team(s) should be completed in advance of each respective deadline so that data analysis and report preparation can be completed and delivered to the Government sponsor in a timely fashion.

1.4.4 Milestones and Metrics

Table 3. *Milestones, deliverables, and metrics for SHIELD performers.*

Phase I: Proof-of-Concept *in vivo* & *in vivo* **(0-18 Mo)**	**Milestone 1.0:** Submit Testing Plan – Coordinate with IV&V team(s) to establish a comprehensive testing plan **(Month 1).** **Deliverables**: • Detailed testing plan to assess the safety and efficacy of prophylaxes for the all three program phases including experimental details, methodology, and justifications of animal subjects, and amount of prophylaxis(es) needed for each phase. • Fully executed Material Transfer Agreements (MTA) and Data Transfer Agreements (DTA) with IV&V team(s) (if necessary). **Milestone 1.1:** Prophylaxes Characterization – Produce prophylaxes at laboratory scale to support *in vitro* and *in vivo* work **(Month 6).** **Deliverables**: • Characterize the relevant chemical, biological, and physical properties of prophylaxes. • Produce prophylaxes at laboratory scales to support proof-of-concept Phase I experiments (as prescribed by IV&V team(s)). **Milestone 1.2:** Pathogen-Agnostic Efficacy – Identify molecules that clear pathogens most prevalent in BSI **(Month 12).** **Metrics**: • Clear or neutralize ≥3 fungal species in a series of single pathogen challenge experiments in whole blood *in vitro* (10^2-fold reduction in <12 hours) (species must be selected from at least three different genera in Table 1). • Clear or neutralize ≥3 bacterial pathogens in a series of single pathogen challenge experiments in whole blood *in vitro* (10^2-fold reduction in <12 hours) (species must be selected from at least three different genera spanning both Gram-negative and Gram-positive bacteria listed in Table 2). **Milestone 1.3:** Efficacy – Clear (individual) pathogens *in vivo* **(Month 18).** **Metrics:** • Clear one strain of bloodborne fungus in a single pathogen challenge *in vivo* (10^2-fold reduction in blood concentration in <24 hours after pathogen exposure). • Clear one strain of bloodborne bacteria in a single pathogen challenge *in vivo* (10^2-fold reduction in blood concentration in <24 hours after pathogen exposure). **Milestone 1.4:** Safety – Show prophylaxes are: non-immunopathogenic **(Month 18).** **Metric**: Prophylactic is non-immunopathogenic as measured by maintaining safe serum concentrations of select cytokines after administering prophylaxis to be determined with coordinating and consulting with IV&V team(s) (e.g., cytokines may include: C-Reactive Protein, Interleukins-1 and -6, Tumor Necrosis Factor-[alpha], Annexin-V).

Table 3. *Milestones, deliverables, and metrics for SHIELD performers.*

Phase II: Protect against burn & pathogen exposure **(19-36 Mo)**	**Milestone 2.1:** Durable Protection – Produce prophylaxes at pilot scale **(Month 12).** **Deliverable**: Produce prophylaxes at pilot scale quantities to support Phase II safety and efficacy experiments (as prescribed by IV&V team(s)). **Milestone 2.2:** Efficacy – Clear bloodborne pathogens in a burn model **(Month 27).** **Metrics**: • Clear one fungal strain in single pathogen challenge *in vivo* (10^3-fold reduction in blood concentration in <24 hours after pathogen exposure). • Clear one bacterial strain in single pathogen challenge *in vivo* (10^3-fold reduction in blood concentration in <24 hours after pathogen exposure). **Milestone 2.3:** Efficacy – Clear bloodborne pathogens after delayed exposure **(Month 30).** **Metrics:** • Clear one fungal strain in delayed pathogen challenge model (10^3-fold reduction in blood concentration in <24 hours after pathogen exposure; pathogen exposure delayed up to 48 hours after prophylaxis administration). • Clear one bacterial strain in delayed pathogen challenge model (10^3-fold reduction in blood concentration in <24 hours after pathogen exposure; pathogen exposure delayed up to 48 hours after prophylaxis administration). **Milestone 2.4:** Efficacy – Increase survival against pathogen challenge in a burn model **(Month 36).** **Metrics:** • Achieve a survival rate of >50% in animals after burn + exposure to bacteria (single pathogen challenge) to be measured 7 days after pathogen exposure. • Achieve a survival rate of >50% in animals after burn + exposure to fungi (single pathogen challenge) to be measured 7 days after pathogen exposure. **Milestone 2.5:** Safety – Demonstrate safety of SHIELD prophylaxes **(Month 36).** **Metrics:** • Demonstrate that prophylaxis is non-toxic as measured by toxicity panel. • Demonstrate that prophylaxis has reasonable biodistributions that are similar to comparable platforms (e.g., suitable concentrations to maintain efficacy in target tissues and limited unwanted accumulation in the liver, spleen, and kidneys).
Phase III: Dual protectio	**Milestone 3.1:** Durable Protection – Produce prophylaxes at full scale **(Month 42).** **Deliverable**: Produce prophylaxes at full scales to yield sufficient quantities to support safety and efficacy experiments for Phase III (as prescribed by IV&V team(s)). **Milestone 3.2:** Efficacy –Clear multiple bloodborne pathogens in a blast trauma model **(Month 45).** **Metrics:** • Clear bloodborne bacteria and fungi in a blast + simultaneous dual pathogen challenge (10^4-fold reduction in blood concentration in <24 hours after pathogen exposure in Scenario 1; one bacterial and one fungal pathogen selected from Tables 1 & 2).

Table 3. *Milestones, deliverables, and metrics for SHIELD performers.*	
	• Clear bloodborne fungi and bacteria in blast + delayed dual pathogen challenge (10^4-fold reduction in blood concentration in <24 hours after pathogen exposure in Scenario 2; at least a 72-hour delay between prophylaxis administration and pathogen exposure; one bacterial and one fungal genus selected from Tables 1 & 2, respectively). **Milestone 3.3:** Efficacy & Durable Protection – Increase survival against multiple bloodborne pathogens in a blast trauma model **(Month 48).** **Metrics**: • Achieve a survival rate of >75% in blast + (bacteria + fungi) simultaneous dual pathogen challenge (Scenario 1: limited delay between prophylaxis administration and pathogen exposure; one bacterial and one fungal pathogen selected from Tables 1 & 2). Survival rates to be measured 7 days after pathogen exposure. • Achieve a survival rate of >75% in blast + (bacteria + fungi) delayed dual pathogen challenge (Scenario 2: Prophylaxis administration followed by a 72-hour delay and then pathogen exposure; one bacterial and one fungal pathogen selected from Tables 1 & 2). Survival rates to be measured 7 days after pathogen exposure.

2. Award Information

2.1. GENERAL AWARD INFORMATION

Multiple awards are possible. The amount of resources made available under this BAA will depend on the quality of the proposals received and the availability of funds.

The Government reserves the right to select for negotiation all, some, one, or none of the proposals received in response to this solicitation and to make awards without discussions with proposers. The Government also reserves the right to conduct discussions if it is later determined to be necessary. If warranted, portions of resulting awards may be segregated into pre-priced options. Additionally, DARPA reserves the right to accept proposals in their entirety or to select only portions of proposals for award. In the event that DARPA desires to award only portions of a proposal, negotiations may be opened with that proposer. The Government reserves the right to fund proposals in phases with options for continued work, as applicable.

The Government reserves the right to request any additional, necessary documentation once it makes the award instrument determination. Such additional information may include but is not limited to Representations and Certifications (see Section VI.B.2., "Representations and Certifications"). The Government reserves the right to remove proposers from award consideration should the parties fail to reach agreement on award terms, conditions, and/or cost/price within a reasonable time, and the proposer fails to timely provide requested additional information. Proposals identified for negotiation may result in a procurement contract, cooperative agreement, or other transaction, depending upon the nature of the work proposed, the required degree of interaction between parties, whether or not the research is classified as Fundamental Research, and other factors.

Proposers looking for innovative, commercial-like contractual arrangements are encouraged to consider requesting Other Transactions. To understand the flexibility and options associated with Other Transactions, consult http://www.darpa.mil/work-with-us/contract-management#OtherTransactions.
In accordance with 10 U.S.C. § 4022(f), the Government may award a follow-on production contract or Other Transaction (OT) for any OT awarded under this solicitation if: (1) that participant in the OT, or a recognized successor in interest to the OT, successfully completed the entire prototype project provided for in the OT, as modified; and (2) the OT provides for the award of a follow-on production contract or OT to the participant, or a recognized successor in interest to the OT.

In all cases, the Government contracting officer shall have sole discretion to select award instrument type, regardless of instrument type proposed, and to negotiate all instrument terms and conditions with selectees. DARPA will apply publication or other restrictions, as necessary, if it determines that the research resulting from the proposed effort will present a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense. Any award resulting from such a determination will include a requirement for DARPA permission before publishing any information or results on the program. For more information on publication restrictions, see the section below on Fundamental Research

2.2. FUNDAMENTAL RESEARCH

It is DoD policy that the publication of products of fundamental research will remain unrestricted to the maximum extent possible. National Security Decision Directive (NSDD) 189 defines fundamental research as follows:

> 'Fundamental research' means basic and applied research in science and engineering, the results of which ordinarily are published and shared broadly within the scientific community, as distinguished from proprietary research and from industrial development, design, production, and product utilization, the results of which ordinarily are restricted for proprietary or national security reasons.

As of the date of publication of this solicitation, the Government expects that program goals as described herein may be met by proposers intending to perform fundamental research and does not anticipate applying publication restrictions of any kind to individual awards for fundamental research that may result from this solicitation. Notwithstanding this statement of expectation, the Government is not prohibited from considering and selecting research proposals that, while perhaps not qualifying as fundamental research under the foregoing definition, still meet the solicitation criteria for submissions. If proposals are selected for award that offer other than a fundamental research solution, the Government will either work with the proposer to modify the proposed statement of work to bring the research back into line with fundamental research or else the proposer will agree to restrictions in order to receive an award.

University or non-profit research institution performance under this solicitation will include effort categorized as fundamental research. In addition to Government support for free and open scientific exchanges and dissemination of research results in a broad and unrestricted manner, the

academic or non-profit research performer or recipient, regardless of tier, acknowledges that such research may have implications that are important to U.S. national interests and must be protected against foreign influence and exploitation. As such, the academic or non-profit research performer or recipient agrees to comply with the following requirements:

(a) The University or non-profit research institution performer or recipient must establish and maintain an internal process or procedure to address foreign talent programs, conflicts of commitment, conflicts of interest, and research integrity. The academic or non-profit research performer or recipient must also utilize due diligence to identify Foreign Components or participation by Senior/Key Personnel in Foreign Government Talent Recruitment Programs and agree to share such information with the Government upon request.

i. The above described information will be provided to the Government as part of the proposal response to the solicitation and will be reviewed and assessed prior to award. Generally, this information will be included in the Research and Related Senior/Key Personnel Profile (Expanded) form (SF-424) required as part the proposer's submission through Grants.gov.

1. Instructions regarding how to fill out the SF-424 and its biographical sketch can be found through Grants.gov.

ii. In accordance with USD(R&E) direction to mitigate undue foreign influence in DoD-funded science and technology, DARPA will assess all Senior/Key Personnel proposed to support DARPA grants and cooperative agreements for potential undue foreign influence risk factors relating to professional and financial activities. This will be done by evaluating information provided via the SF-424, and any accompanying or referenced documents, in order to identify and assess any associations or affiliations the Senior/Key Personnel may have with foreign strategic competitors or countries that have a history of intellectual property theft, research misconduct, or history of targeting U.S. technology for unauthorized transfer. DARPA's evaluation takes into consideration the entirety of the Senior/Key Personnel's SF-424, current and pending support, and biographical sketch, placing the most weight on the Senior/Key Person's professional and financial activities over the last 4 years. The majority of foreign entities lists used to make these determinations are publicly available. The DARPA Countering Foreign Influence Program (CFIP) "Senior/Key Personnel Foreign Influence Risk Rubric" details the various risk ratings and factors. The rubric can be seen at the following link:
https://www.darpa.mil/attachments/092021DARPACFIPRubric.pdf

iii. Examples of lists that DARPA leverages to assess potential undue foreign influence factors include, but are not limited to:

1. Executive Order 13959 "Addressing the Threat From Securities Investments That Finance Communist Chinese Military Companies": https://www.govinfo.gov/content/pkg/FR-2020-11-17/pdf/2020-25459.pdf

2. The U.S. Department of Education's College Foreign Gift and Contract Report: College Foreign Gift Reporting (ed.gov)

3. The U.S. Department of Commerce, Bureau of Industry and Security, List of Parties of Concern: https://www.bis.doc.gov/index.php/policy-guidance/lists-of-parties-of-concern
4. Georgetown University's Center for Security and Emerging Technology (CSET) Chinese Talent Program Tracker: https://chinatalenttracker.cset.tech
5. Director of National Intelligence (DNI) "World Wide Threat Assessment of the US Intelligence Community": 2021 Annual Threat Assessment of the U.S. Intelligence Community (dni.gov)
6. Various Defense Counterintelligence and Security Agency (DCSA) products regarding targeting of US technologies, adversary targeting of academia, and the exploitation of academic experts: https://www.dcsa.mil/

(b) DARPA's analysis and assessment of affiliations and associations of Senior/Key Personnel is compliant with Title VI of the Civil Rights Act of 1964. Information regarding race, color, or national origin is not collected and does not have bearing in DARPA's assessment.

(c) University or non-profit research institutions with proposals selected for negotiation that have been assessed as having high or very high undue foreign influence risk, will be given an opportunity during the negotiation process to mitigate the risk. DARPA reserves the right to request any follow-up information needed to assess risk or mitigation strategies.

i. Upon conclusion of the negotiations, if DARPA determines, despite any proposed mitigation terms (e.g. mitigation plan, alternative research personnel), the participation of any Senior/Key Research Personnel still represents high risk to the program, or proposed mitigation affects the Government's confidence in proposer's capability to successfully complete the research (e.g., less qualified Senior/Key Research Personnel) the Government may determine not to award the proposed effort. Any decision not to award will be predicated upon reasonable disclosure of the pertinent facts and reasonable discussion of any possible alternatives while balancing program award timeline requirements.

(d) Failure of the academic or non-profit research performer or recipient to reasonably exercise due diligence to discover or ensure that neither it nor any of its Senior/Key Research Personnel involved in the subject award are participating in a Foreign Government Talent Program or have a Foreign Component with an a strategic competitor or country with a history of targeting U.S. technology for unauthorized transfer may result in the Government exercising remedies in accordance with federal law and regulation.

i. If, at any time, during performance of this research award, the academic or non-profit research performer or recipient should learn that it, its Senior/Key Research Personnel, or applicable team members or subtier performers on this award are or are believed to be participants in a Foreign Government Talent Program or have Foreign Components with a strategic competitor or country with a history of targeting U.S. technology for unauthorized transfer , the performer or recipient

will notify the Government Contracting Officer or Agreements Officer within 5 business days.

1. This disclosure must include specific information as to the personnel involved and the nature of the situation and relationship. The Government will have 30 business days to review this information and conduct any necessary fact-finding or discussion with the performer or recipient.
2. The Government's timely determination and response to this disclosure may range anywhere from acceptance, to mitigation, to termination of this award at the Government's discretion.
3. If the University receives no response from the Government to its disclosure within 30 business days, it may presume that the Government has determined the disclosure does not represent a threat.

ii. The performer or recipient must flow down this provision to any subtier contracts or agreements involving direct participation in the performance of the research.

(e) Definitions

i. Senior/Key Research Personnel

1. This definition would include the Principal Investigator or Program/Project Director and other individuals who contribute to the scientific development or execution of a project in a substantive, measurable way, whether or not they receive salaries or compensation under the award. These include individuals whose absence from the project would be expected to impact the approved scope of the project.
2. Most often, these individuals will have a doctorate or other professional degrees, although other individuals may be included within this definition on occasion.

ii. Foreign Associations/Affiliations

1. Association is defined as collaboration, coordination or interrelation, professionally or personally, with a foreign government-connected entity where no direct monetary or non-monetary reward is involved.
2. Affiliation is defined as collaboration, coordination, or interrelation, professionally or personally, with a foreign government-connected entity where direct monetary or non-monetary reward is involved.

iii. Foreign Government Talent Recruitment Programs

1. In general, these programs will include any foreign-state-sponsored attempt to acquire U.S. scientific-funded research or technology through foreign government-run or funded recruitment programs that target scientists, engineers, academics, researchers, and entrepreneurs of all nationalities working and educated in the U.S.
2. Distinguishing features of a Foreign Government Talent Recruitment Program may include:

a. Compensation, either monetary or in-kind, provided by the foreign state to the targeted individual in exchange for the individual transferring their knowledge and expertise to the foreign country.

b. In-kind compensation may include honorific titles, career advancement opportunities, promised future compensation or other types of remuneration or compensation.

c. Recruitment, in this context, refers to the foreign-state-sponsor's active engagement in attracting the targeted individual to join the foreign-sponsored program and transfer their knowledge and expertise to the foreign state. The targeted individual may be employed and located in the U.S. or in the foreign state.

d. Contracts for participation in some programs that create conflicts of commitment and/or conflicts of interest for researchers. These contracts include, but are not limited to, requirements to attribute awards, patents, and projects to the foreign institution, even if conducted under U.S. funding, to recruit or train other talent recruitment plan members, circumventing merit-based processes, and to replicate or transfer U.S.-funded work in another country.

e. Many, but not all, of these programs aim to incentivize the targeted individual to physically relocate to the foreign state. Of particular concern are those programs that allow for continued employment at U.S. research facilities or receipt of U.S. Government research funding while concurrently receiving compensation from the foreign state.

3. Foreign Government Talent Recruitment Programs DO NOT include:

a. Research agreements between the University and a foreign entity, unless that agreement includes provisions that create situations of concern addressed elsewhere in this section,

b. Agreements for the provision of goods or services by commercial vendors, or

c. Invitations to attend or present at conferences.

iv. Conflict of Interest

1. A situation in which an individual, or the individual's spouse or dependent children, has a financial interest or financial relationship that could directly and significantly affect the design, conduct, reporting, or funding of research.

v. Conflict of Commitment

1. A situation in which an individual accepts or incurs conflicting obligations between or among multiple employers or other entities.

2. Common conflicts of commitment involve conflicting commitments of time and effort, including obligations to dedicate time in excess of

institutional or funding agency policies or commitments. Other types of conflicting obligations, including obligations to improperly share information with, or withhold information from, an employer or funding agency, can also threaten research security and integrity and are an element of a broader concept of conflicts of commitment.

vi. Foreign Component

1. Performance of any significant scientific element or segment of a program or project outside of the U.S., either by the University or by a researcher employed by a foreign organization, whether or not U.S. government funds are expended.
2. Activities that would meet this definition include, but are not limited to:
    a. Involvement of human subjects or animals;
    b. Extensive foreign travel by University research program or project staff for the purpose of data collection, surveying, sampling, and similar activities;
    c. Collaborations with investigators at a foreign site anticipated to result in co-authorship;
    d. Use of facilities or instrumentation at a foreign site;
    e. Receipt of financial support or resources from a foreign entity; or
    f. Any activity of the University that may have an impact on U.S. foreign policy through involvement in the affairs or environment of a foreign country.
3. Foreign travel is not considered a Foreign Component.

vii. Strategic Competitor

1. A nation, or nation-state, that engages in diplomatic, economic or technological rivalry with the United States where the fundamental strategic interests of the U.S are under threat.

Proposers should indicate in their proposal whether they believe the scope of the research included in their proposal is fundamental or not. While proposers should clearly explain the intended results of their research, the Government shall have sole discretion to determine whether the proposed research shall be considered fundamental and to select the award instrument type. Appropriate language will be included in resultant awards for non-fundamental research to prescribe publication requirements and other restrictions, as appropriate. This language can be found at http://www.darpa.mil/work-with-us/additional-baa.
For certain research projects, it may be possible that although the research to be performed by a potential awardee is non-fundamental research, its proposed subawardee's effort may be fundamental research. It is also possible that the research performed by a potential awardee is fundamental research while its proposed subawardee's effort may be non-fundamental research. In all cases, it is the potential awardee's responsibility to explain in its proposal which proposed

efforts are fundamental research and why the proposed efforts should be considered fundamental research.

3. Eligibility Information

3.1. ELIGIBLE APPLICANTS

All responsible sources capable of satisfying the Government's needs may submit a proposal that shall be considered by DARPA. Historically Black Colleges and Universities, Small Businesses, Small Disadvantaged Businesses and Minority Institutions are encouraged to submit proposals and join others in submitting proposals; however, no portion of this announcement will be set aside for these organizations' participation due to the impracticality of reserving discrete or severable areas of this research for exclusive competition among these entities.

3.1.1. Federally Funded Research and Development Centers (FFRDCs) and Government Entities

FFRDCs

FFRDCs are subject to applicable direct competition limitations and cannot propose to this solicitation in any capacity unless they meet the following conditions. (1) FFRDCs must clearly demonstrate that the proposed work is not otherwise available from the private sector. (2) FFRDCs must provide a letter, on official letterhead from their sponsoring organization, that (a) cites the specific authority establishing their eligibility to propose to Government solicitations and compete with industry, and (b) certifies the FFRDC's compliance with the associated FFRDC sponsor agreement's terms and conditions. These conditions are a requirement for FFRDCs proposing to be awardees or subawardees.

Government Entities

Government Entities (e.g., Government/National laboratories, military educational institutions, etc.) are subject to applicable direct competition limitations. Government Entities must clearly demonstrate that the work is not otherwise available from the private sector and provide written documentation citing the specific statutory authority and contractual authority, if relevant, establishing their ability to propose to Government solicitations and compete with industry. This information is required for Government Entities proposing to be awardees or subawardees.

Authority and Eligibility

At the present time, DARPA does not consider 15 U.S.C. § 3710a to be sufficient legal authority to show eligibility. While 10 U.S.C.§ 4892 may be the appropriate statutory starting point for some entities, specific supporting regulatory guidance, together with evidence of agency approval, will still be required to fully establish eligibility. DARPA will consider FFRDC and Government Entity eligibility submissions on a case-by-case basis; however, the burden to prove eligibility for all team members rests solely with the proposer.

3.1.2. Non-U.S. Organizations

Non-U.S. organizations and/or individuals may participate to the extent that such participants comply with any necessary nondisclosure agreements, security regulations, export control laws, and other governing statutes applicable under the circumstances.

3.2. ORGANIZATIONAL CONFLICTS OF INTEREST

FAR 9.5 Requirements

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

Agency Supplemental OCI Policy

In addition, DARPA has a supplemental OCI policy that prohibits contractors/performers from concurrently providing Scientific Engineering Technical Assistance (SETA), Advisory and Assistance Services (A&AS) or similar support services and being a technical performer. Therefore, as part of the FAR 9.5 disclosure requirement above, a proposer must affirm whether the proposer or *any* proposed team member (subawardee, consultant) is providing SETA, A&AS, or similar support to any DARPA office(s) under: (a) a current award or subaward; or (b) a past award or subaward that ended within one calendar year prior to the proposal's submission date. If SETA, A&AS, or similar support is being or was provided to any DARPA office(s), the proposal must include:

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

Government Procedures

In accordance with FAR 9.503, 9.504 and 9.506, the Government will evaluate OCI mitigation plans to avoid, neutralize or mitigate potential OCI issues before award and to determine whether it is in the Government's interest to grant a waiver. The Government will only evaluate OCI mitigation plans for proposals that are determined selectable under the solicitation evaluation criteria and funding availability.

The Government may require proposers to provide additional information to assist the Government in evaluating the proposer's OCI mitigation plan.

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

3.3. COST SHARING/MATCHING

Cost sharing is not required; however, it will be carefully considered where there is an applicable statutory condition relating to the selected funding instrument. Cost sharing is encouraged where there is a reasonable probability of a potential commercial application related to the proposed research and development effort.

4. Application and Submission Information

4.1. ADDRESS TO REQUEST APPLICATION PACKAGE

This announcement, any attachments, and any references to external websites herein constitute the total solicitation. If proposers cannot access the referenced material posted in the announcement found at http://www.darpa.mil, contact the administrative contact listed herein.

4.2. CONTACT AND FORM OF APPLICATION SUBMISSION

All submissions, including abstracts and proposals, must be written in English with type no smaller than 12-point font. Smaller font may be used for figures, tables, and charts. The page limitation includes all figures, tables, and charts. All pages shall be formatted for printing on 8-1/2 by 11-inch paper. Margins must be 1-inch on all sides. Copies of all documents submitted must be clearly labeled with the DARPA BAA number, proposer organization, and proposal title/proposal short title.

4.2.1. Abstract Format

Proposers are strongly encouraged to submit an abstract in advance of a proposal to minimize effort and reduce the potential expense of preparing an out of scope proposal. DARPA will respond to abstracts by providing feedback and indicating whether, after preliminary review, there is interest within BTO for the proposed work. DARPA will attempt to reply within **14** calendar days of receipt. Proposals may be submitted irrespective of comments or feedback received in response to the abstract. Proposals are reviewed without regard to feedback given as a result of abstract review. The time and date for submission of proposal abstracts are specified in Part I above.

The abstract is a concise version of the proposal comprising a maximum of 8 pages, including all figures, tables, and charts. All submissions must be written in English with type no smaller than 12-point font. Smaller font may be used for figures, tables, and charts. All pages shall be formatted for printing on 8-1/2 by 11-inch paper. Margins must be 1-inch on all sides. Copies of all documents submitted must be clearly labeled with the DARPA BAA number, proposer organization, and proposal abstract title.

The page limit does NOT include:

- Official transmittal letter (optional);
- Cover sheet;
- Executive summary slide;
- Resumes; and
- Bibliography (optional).

Abstracts must include the following components:

> **A. Cover Sheet (does not count towards page limit):** Include the administrative and technical points of contact (name, address, phone, fax, e-mail, lead organization). Also

include the BAA number, title of the proposed project, primary subcontractors, estimated cost, duration of the project, and the label "ABSTRACT."

B. Executive Summary Slides: The slide template is provided as **Attachment 1** to the BAA posted at https://sam.gov/. Use of this template is required.

C. Goals and Impact: Clearly describe what is being proposed and what difference it will make (qualitatively and quantitatively), including brief answers to the following questions:

1. What is the proposed work attempting to accomplish or do?
2. How is it done today? And what are the limitations?
3. What is innovative in your approach, and how does it compare to the current state-of-the-art (SOA)?
4. What are the key technical challenges in your approach, and how do you plan to overcome these?
5. Who will care, and what will the impact be if you are successful?
6. How much will it cost, and how long will it take?

D. Technical Plan: Outline and address all technical areas and challenges inherent in the approach and possible solutions for overcoming potential problems. This section should provide specific objectives, metrics, and milestones at intermediate stages of the project to demonstrate a plan for accomplishment of the program goals. Propose additional appropriate qualitative and quantitative metrics specific to the approach, as needed. Outline of intermediary milestones should occur at no greater than 6-month increments.

E. Management and Capabilities: Provide a brief summary of expertise of the team, including subcontractors and key personnel.

A principal investigator for the project must be identified, and a description of the team's organization including a breakdown by Technical Area (TA). All teams are strongly encouraged to identify a Project Manager/Integrator to serve as the primary point of contact to communicate with the DARPA Program Manager, IV & V partner, and Contracting Officer's Representative, coordinate the effort across co-performer, vendor, and subcontractor teams, organize regular performer meetings or discussions, facilitate data sharing, and ensure timely completion of milestones and deliverables.

Include a description of the team's organization including roles and responsibilities. Team member descriptions should address the Technical Plan, describe the time and percent effort divisions for members participating across multiple TAs, and delineate individuals to avoid duplication of efforts.

Describe the organizational experience in this area, existing intellectual property required to complete the project, and any specialized facilities to be used as part of the project. List Government-furnished materials or data assumed to be available. Describe

any specialized facilities to be used as part of the project, the extent of access to these facilities, and any biological containment, biosafety, and certification requirements.

F. Cost and Schedule: Provide a cost estimate for resources over the proposed timeline of the project, broken down by phase and major cost items (e.g., labor, materials, etc.). Include cost estimates for each potential subcontractor (may be a rough order of magnitude).

4.2.2. Proposal Format

As soon as the evaluation of all proposals is complete, the proposer will be notified that (1) the proposal has been selected for funding pending award negotiations, in whole or in part, or (2) the proposal has not been selected. These official notifications will be sent via e-mail to the Technical POC and Administrative POC identified on the proposal coversheet.

All full proposals must be in the format given below. Proposals shall consist of two volumes: 1) **Volume I, Technical and Management Proposal**, and 2) **Volume II, Cost Proposal.** All submissions must be written in English with type no smaller than 12-point font. A smaller font may be used for figures, tables, and charts. The page limitation includes all figures, tables, and charts. All pages shall be formatted for printing on 8-1/2 by 11- inch paper. Margins must be 1-inch on all sides. Copies of all documents submitted must be clearly labeled with the DARPA BAA number, proposer organization, and proposal title/proposal short title. Volume I, Technical and Management Proposal, may include an attached bibliography of relevant technical papers or research notes (published and unpublished) which document the technical ideas and approach upon which the proposal is based. Copies of not more than three (3) relevant papers may be included with the submission. The bibliography and attached papers are not included in the page counts given below. The submission of other supporting materials along with the proposals is strongly discouraged and will not be considered for review. **The maximum page count for Volume 1 is 20 pages.** The official transmittal letter is not included in the page count. Volume I should include the following components:

NOTE: Non-conforming submissions that do not follow the instructions herein may be rejected without further review.

a. Volume I, Technical and Management Proposal

Section I. Administrative

A. Cover Sheet (LABELED "PROPOSAL: VOLUME I"):

1. BAA number (HR001123S0037);
2. Lead organization submitting proposal (prime contractor);
3. Type of organization, selected from among the following categories: "LARGE BUSINESS," "SMALL DISADVANTAGED BUSINESS," "OTHER SMALL BUSINESS," "HBCU," "MI," "OTHER EDUCATIONAL," OR "OTHER NONPROFIT";
4. Proposer's reference number (if any);

5. Other team members (if applicable) and type of business for each;
6. Proposal title;
7. Technical point of contact (Program Manager or Principal Investigator) to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax, e-mail;
8. Administrative point of contact (Contracting Officer or Award Officer) to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax, e-mail;
9. Award instrument requested: cost-plus-fixed-free (CPFF), cost-contract—no fee, cost sharing contract – no fee, or other type of procurement contract (*specify*), cooperative agreement, or other transaction;
10. Place(s) of performance, including all subcontractors and consultants;
11. Period of performance;
12. Total funds requested from DARPA, total funds requested per phase and the amount of any cost share (if any);
13. Proposal validity period; AND
14. Date proposal was submitted.

Information on award instruments is available at http://www.darpa.mil/work-with-us/contract-management.

B. Official Transmittal Letter.

C. Executive Summary Slides: The slide template is provided as **Attachment 1** to the BAA posted at https://sam.gov/. Use of this template is required.

Section II. Detailed Proposal Information

A. Executive Summary: Provide a synopsis of the proposed project, including answers to the following questions:

- What is the proposed work attempting to accomplish or do?
- How is it done today, and what are the limitations?
- What is innovative in your approach?
- What are the key technical challenges in your approach, and how do you plan to overcome these?
- Who or what will be affected, and what will be the impact if the work is successful?
- How much will it cost, and how long will it take?

B. Goals and Impact: Clearly describe what the team is trying to achieve and the difference it will make (qualitatively and quantitatively) if successful. Describe the innovative aspects of the project in the context of existing capabilities and approaches, clearly delineating the uniqueness and benefits of this project in the context of the state of the art, alternative approaches, and other projects from the past and present. Describe how the proposed project is revolutionary and how it significantly rises above the current state-of-the-art. Describe the deliverables associated with the proposed project

and any plans to commercialize the technology, transition it to a customer, or further the work.

C. Technical Plan: Outline and address technical challenges inherent in the approach and possible solutions for overcoming potential problems. This section should provide appropriate measurable milestones (quantitative if possible) at intermediate stages of the program to demonstrate progress, plan for achieving the milestones, and must include a simple process flow diagram of their final system concept. The technical plan should demonstrate a deep understanding of the technical challenges and present a credible (even if risky) plan to achieve the program goal. Discuss mitigation of technical risk.

D. Management Plan: Provide a summary of expertise of the team, including any subcontractors, and key personnel who will be doing the work. A Principal Investigator (PI) for the project must be identified, along with a description of the team's organization, including the breakdown by Technical Area. All teams are strongly encouraged to identify a Project Manager/Integrator to serve as the primary point of contact to communicate with the DARPA Program Manager, IV & V partner, and Contracting Officer's Representative, coordinate the effort across co-performer, vendor, and subcontractor teams, organize regular performer meetings or discussions, facilitate data sharing, and ensure timely completion of milestones and deliverables.

Provide a clear description of the team's organization including an organization chart that includes, as applicable: the programmatic relationship of team members; the unique capabilities of team members; the task responsibilities of team members, the teaming strategy among the team members; and key personnel with the amount of effort to be expended by each person during each year. Provide a detailed plan for coordination including explicit guidelines for interaction among collaborators/subcontractors of the proposed effort. Include risk management approaches. Describe any formal teaming agreements that are required to execute this program.

E. Capabilities: Describe organizational experience in relevant subject area(s), existing intellectual property, specialized facilities, and any Government-furnished materials or information. Describe any specialized facilities to be used as part of the project, the extent of access to these facilities, and any biological containment, biosafety, and certification requirements. Discuss any work in closely related research areas and previous accomplishments.

F. Statement of Work (SOW) NOT INCLUDED IN PAGE COUNT: The SOW should provide a detailed task breakdown, citing specific tasks for each Technical Area, and their connection to the milestones and program metrics. Each phase of the program should be separately defined. The SOW must not include proprietary information. It is encouraged, though not required, to use the SOW template provided as **Attachment 2**. SOW is not included in the Volume 1 page count.

For each task/subtask, provide:

- A detailed description of the approach to be taken to accomplish each defined task/subtask.
- Identification of the primary organization responsible for task execution (prime contractor, subcontractor(s), consultant(s), by name).
- A measurable milestone, i.e., a deliverable, demonstration, or other event/activity that marks task completion. Include completion dates for all milestones. Include quantitative metrics.
- A definition of all deliverables (e.g., data, reports, software) to be provided to the Government in support of the proposed tasks/subtasks.

It is recommended that the SOW be developed so that each Technical Area and Phase of the program is separately defined.

G. Schedule and Milestones: Provide a detailed schedule showing tasks (task name, duration, work breakdown structure element as applicable, performing organization), milestones, and the interrelationships among tasks. The task structure must be consistent with that in the SOW. Measurable milestones should be clearly articulated and defined in time relative to the start of the project.

H. Technology Transfer Plan: Provide information regarding the types of partners (e.g., government, private industry) that will be pursued and submit a timeline with incremental milestones toward successful engagement. The plan should include a description of how DARPA will be included in the development of potential technology transfer relationships. If the Technology Transfer Plan includes the formation of a start-up company, a business development strategy must also be provided.

b. Volume II, Cost Management Proposal

Cover Sheet (LABELED "PROPOSAL: VOLUME II"):

1. BAA Number (HR001123S0037);
2. Lead Organization Submitting proposal;
3. Type of organization, selected among the following categories: "LARGE BUSINESS", "SMALL DISADVANTAGED BUSINESS", "OTHER SMALL BUSINESS", "HBCU", "MI", "OTHER EDUCATIONAL", OR "OTHER NONPROFIT";
4. Proposer's reference number (if any);
5. Other team members (if applicable) and type of business for each;
6. Proposal title;
7. Technical point of contact (Program Manager or Principal Investigator) to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), electronic mail (if available);
8. Administrative point of contact (Contracting Officer or Award Officer) to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), and electronic mail (if available);

9. Award instrument requested: cost-plus-fixed-free (CPFF), cost-contract—no fee, cost sharing contract – no fee, or other type of procurement contract (*specify*), cooperative agreement, or other transaction;
10. Place(s) of performance, including all subcontractors and consultants;
11. Period of performance;
12. Total funds requested from DARPA, total funds requested per phase (as defined in Table 1), and the amount of any cost share (if any);
13. Name, address, and telephone number of the proposer's cognizant Defense Contract Management Agency (DCMA) administration office (*if known)*;
14. Name, address, and telephone number of the proposer's cognizant Defense Contract Audit Agency (DCAA) audit office (*if known*);
15. Date proposal was prepared;
16. Unique Entity ID (https://sam.gov/content/duns-uei);
17. Taxpayer ID number (https://www.irs.gov/Individuals/International-Taxpayers/Taxpayer-Identification-Numbers-TIN);
18. Commercial and Government Entity (CAGE) code (https://cage.dla.mil/Home/UsageAgree);
19. Proposal validity period

The Government requires that proposers* use the provided MS Excel™ DARPA Standard Cost Proposal Spreadsheet in the development of their cost proposals. A customized cost proposal spreadsheet may be an attachment to this solicitation. If not, the spreadsheet can be found on the DARPA website at http://www.darpa.mil/work-with-us/contract-management (under "Resources" on the right-hand side of the webpage). All tabs and tables in the cost proposal spreadsheet should be developed in an editable format with calculation formulas intact to allow traceability of the cost proposal. This cost proposal spreadsheet should be used by the prime organization and all subcontractors. In addition to using the cost proposal spreadsheet, the cost proposal still must include all other items required in this announcement that are not covered by the editable spreadsheet. Subcontractor cost proposal spreadsheets may be submitted directly to the Government by the proposed subcontractor via e-mail to the address in Part I of this solicitation. **Using the provided cost proposal spreadsheet will assist the Government in a rapid analysis of your proposed costs and, if your proposal is selected for a potential award, speed up the negotiation and award execution process**.
*University proposers requesting a grant, cooperative agreement, or Other Transaction for Research do not need to use the MS Excel™ DARPA Standard Cost Proposal Spreadsheet. Instead, a proposed budget and justification may be provided using the SF-424 Research & Related Budget forms provided via https://www.grants.gov.

(1) Total program, per phase (Phase I (Base); Phase II (Option); and Phase III (Option)), and per task cost broken down by major cost items to include:
   i. **Direct labor** – provide an itemized breakout of all personnel, listed by name or TBD, with labor rate (or salary), labor hours (or percent effort), and labor category. All senior personnel must be identified by name.
   ii. **Materials and Supplies** – itemized list which includes description of material, quantity, unit price, and total price. If a material factor is used based on historical purchases, provide data to justify the rate.

iii. **Equipment** – itemized list which includes description of equipment, unit price, quantity, and total price. Any equipment item with a unit price over $5,000 must include a vendor quote.

iv. **Animal Use Costs** – itemized list of all materials, animal purchases, and per diem costs, associated with proposed animal use; include documentation supporting daily rates.

v. Travel – provide an itemized list of travel costs to include purpose of trips, departure and arrival destinations, projected airfare, rental car and per GSA approved diem, number of travelers, number of days); provide screenshots from travel website for proposed airfare and rental car, as applicable; provide screenshot or web link for conference registration fee and note if the fee includes hotel cost. Conference attendance must be justified, explain how it is in the best interest of the project. **Plan for two (2) DARPA program review meetings per year.**

vi. Other Direct Costs (e.g., computer support, clean room fees) – Should be itemized with costs or estimated costs. Backup documentation and/or a supporting cost breakdown is required to support proposed costs with a unit price over $5,000. An explanation of any estimating factors, including their derivation and application, must be provided. Please include a brief description of the proposers' procurement method to be used.

vii. **Other Direct Costs** – Consultants: provide executed Consultant Agreement that describes work scope, rate and hours.

viii. **Indirect costs** including, as applicable, fringe benefits, overhead, General and Administrative (G&A) expense, and cost of money (see university vs. company specific requirements below).

ix. **Indirect costs specific to a University performer:** (1) **Fringe Benefit Rate** (provide current Department of Health and Human Services (DHHS) or Office of Naval Research (ONR) negotiated rate package; if calculated by other than a rate, provide University documentation identifying fringe costs by position or HR documentation if unique to each person); (2) **F&A Indirect Overhead Rate** (provide current DHHS or ONR negotiated rate package); (3) **Tuition Remission** (provide current University documentation justifying per-student amount); and (4) **Health Insurance/Fee** (provide current University documentation justifying per student amount, if priced separately from fringe benefits with calculations included in the EXCEL cost file).

Indirect costs specific to a Company performer: (1) **Fee/Profit** (provide rationale for proposed fee/profit percentage using criteria found in DFARS 215.404-70); and (2) **Fringe Benefit/Labor OH/Material OH/G&A Rates** (provide current Forwarding Pricing Rate Proposal (FPRP) or DCMA/DCAA Forward Pricing Rate Recommendation or Agreement (FPRR or FPRA). If these documents are not available, provide company historical data, preferably two years, minimum of one, to include both pool and expense costs used to generate the rates).

(2) A summary of total program costs by Phase I, II, and III and task.

(3) An itemization of Subcontracts. All subcontractor cost proposal documentation must be prepared at the same level of detail as that required of the prime. Subcontractor proposals should include Interdivisional Work Transfer Agreements (IWTA) or evidence of similar arrangements (an IWTA is an agreement between multiple divisions of the same organization). The prime proposer is responsible for compiling and providing all subcontractor proposals for the Procuring Contracting Officer (PCO). The proposal must show how subcontractor costs are applied to each phase and task. If consultants are to be used, proposer must provide consultant agreement or another document that verifies the proposed loaded daily/hourly rate.
(4) An itemization of any information technology (IT) purchase (including a letter stating why the proposer cannot provide the requested resources from its own funding), as defined in FAR Part 2.101.
(5) A summary of projected funding requirements by month for all phases of the project.
(6) A summary of tasks that have animal or human use funding.
(7) The source, nature, and amount of any industry cost-sharing. Where the effort consists of multiple portions that could reasonably be partitioned for purposes of funding, these should be identified as options with separate cost estimates for each.
(8) Identification of pricing assumptions of which may require incorporation into the resulting award instrument (e.g., use of Government Furnished Property/Facilities/Information, access to Government Subject Matter Expert/s, etc.).
(9) Any Forward Pricing Rate Agreement, DHHS rate agreement, other such approved rate information, or such documentation that may assist in expediting negotiations (if available).
(10) Proposers with a Government acceptable accounting system who are proposing a cost-type contract must submit the DCAA document approving the cost accounting system.

Per FAR 15.403-4, certified cost or pricing data shall be required if the proposer is seeking a procurement contract award per the referenced threshold, unless the proposer requests and is granted an exception from the requirement to submit cost or pricing data. Certified cost or pricing data" are not required if the proposer proposes an award instrument other than a procurement contract (e.g., a grant, cooperative agreement, or other transaction.)

Subawardee Proposals

The awardee is responsible for compiling and providing all subawardee proposals for the Procuring Contracting Officer (PCO)/Grants Officer (GO)/Agreements Officer (AO), as applicable. Subawardee proposals should include Interdivisional Work Transfer Agreements (ITWA) or similar arrangements. Where the effort consists of multiple portions which could reasonably be partitioned for purposes of funding, these should be identified as options with separate cost estimates for each.

All proprietary subawardee proposal documentation, prepared at the same level of detail as that required of the awardee's proposal and which cannot be uploaded with the proposed awardee's proposal, shall be provided to the Government either by the awardee or by the subawardee organization when the proposal is submitted. Subawardee proposals submitted to the Government by the proposed subawardee should be submitted via e-mail to the address in Section I.

Other Transaction (OT) Requests

All proposers requesting an OT must include a detailed list of milestones for each phase of the program (I, II, and III). Each milestone must include the following:

- milestone description,
- completion criteria,
- due date, and
- payment/funding schedule (to include, if cost share is proposed, awardee and Government share amounts).

It is noted that, at a minimum, milestones should relate directly to accomplishment of program technical metrics as defined in the BAA and/or the proposer's proposal. Agreement type, expenditure or fixed-price based, will be subject to negotiation by the Agreements Officer. Do not include proprietary data.

4.2.3. Additional Proposal Information

Proprietary Markings

Proposers are responsible for clearly identifying proprietary information. Submissions containing proprietary information must have the cover page and each page containing such information clearly marked with a label such as "Proprietary" or "Company Proprietary." NOTE: "Confidential" is a classification marking used to control the dissemination of U.S. Government National Security Information as dictated in Executive Order 13526 and should not be used to identify proprietary business information.

Unclassified Submissions

DARPA anticipates that submissions received under this BAA will be unclassified. However, should a proposer wish to submit classified information, an *unclassified* e-mail must be sent to the BAA mailbox requesting submission instructions from the Technical Office Program Security Officer (PSO). If a determination is made that the award instrument may result in access to classified information, a Security Classification Guide (SCG) and/or DD Form 254 will be issued by DARPA and attached as part of the award.

Controlled Unclassified Information (CUI) – if anticipated/applicable

For unclassified proposals containing controlled unclassified information (CUI), applicants will ensure personnel and information systems processing CUI security requirements are in place.

If an unclassified submission contains CUI or the suspicion of such, as defined by Executive Order 13556 and 32 CFR Part 2002, the information must be appropriately and conspicuously marked CUI in accordance with DoDI 5200.48. Identification of what is CUI about this DARPA

program will be detailed in a DARPA CUI Guide and will be provided as an attachment to the BAA or may be provided at a later date.

Unclassified submissions containing CUI may be submitted via DARPA's BAA Website (https://baa.darpa.mil) in accordance with Section 4.2.4 of this BAA.

Proposers submitting proposals involving the pursuit and protection of DARPA information designated as CUI must have, or be able to acquire prior to contract award, an information system authorized to process CUI information IAW NIST SP 800-171 and DoDI 8582.01.

Disclosure of Information and Compliance with Safeguarding Covered Defense Information Controls

The following provisions and clause apply to all solicitations and contracts; however, the definition of "controlled technical information" clearly exempts work considered fundamental research and therefore, even though included in the contract, will not apply if the work is fundamental research.
DFARS 252.204-7000, "Disclosure of Information"
DFARS 252.204-7008, "Compliance with Safeguarding Covered Defense Information Controls"
DFARS 252.204-7012, "Safeguarding Covered Defense Information and Cyber Incident Reporting"
The full text of the above solicitation provision and contract clauses can be found at http://www.darpa.mil/work-with-us/additional-baa#NPRPAC.
Compliance with the above requirements includes the mandate for proposers to implement the security requirements specified by National Institute of Standards and Technology (NIST) Special Publication (SP) 800-171, "Protecting Controlled Unclassified Information in Nonfederal Information Systems and Organizations" (see https://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.800-171r2.pdf) and DoDI 8582.01 that are in effect at the time the solicitation is issued.
For awards where the work is considered fundamental research, the contractor will not have to implement the aforementioned requirements and safeguards. However, should the nature of the work change during performance of the award, work not considered fundamental research will be subject to these requirements.

Human Subjects Research (HSR)/Animal Use

Proposers that anticipate involving human subjects or animals in the proposed research must comply with the approval procedures detailed at http://www.darpa.mil/work-with-us/additional-baa, to include providing the information specified therein as required for proposal submission.

Approved Cost Accounting System Documentation

Proposers that do not have a Cost Accounting Standards (CAS) complaint accounting system considered adequate for determining accurate costs that are negotiating a cost-type procurement contract must complete an SF 1408. For more information on CAS compliance, see http://www.dcaa.mil/cas.html. To facilitate this process, proposers should complete the SF 1408 found at http://www.gsa.gov/portal/forms/download/115778 and submit the completed form with the proposal.

Small Business Subcontracting Plan

Pursuant to Section 8(d) of the Small Business Act (15 U.S.C. § 637(d)) and FAR 19.702(a)(1), each proposer who submits a contract proposal and includes subcontractors might be required to submit a subcontracting plan with their proposal. The plan format is outlined in FAR 19.704.

Section 508 of the Rehabilitation Act (29 U.S.C. § 749d)/FAR 39.2

All electronic and information technology acquired or created through this BAA must satisfy the accessibility requirements of Section 508 of the Rehabilitation Act (29 U.S.C. § 749d)/FAR 39.2.

Intellectual Property

All proposers must provide a good faith representation that the proposer either owns or possesses the appropriate licensing rights to all intellectual property that will be utilized under the proposed effort.

For Procurement Contracts

Proposers responding to this BAA requesting procurement contracts will need to complete the certifications at DFARS 252.227-7017. See http://www.darpa.mil/work-with-us/additional-baa for further information. If no restrictions are intended, the proposer should state "none." The table below captures the requested information:

Technical Data Computer Software To be Furnished with Restrictions	Summary of Intended Use in the Conduct of the Research	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
(LIST)	(NARRATIVE)	(LIST)	(LIST)	(LIST)

For All Non-Procurement Contracts

Proposers responding to this BAA requesting a Cooperative Agreement or Other Transaction for Prototypes shall follow the applicable rules and regulations governing these various award instruments, but, in all cases, should appropriately identify any potential restrictions on the Government's use of any Intellectual Property contemplated under the award instrument in question. This includes both Noncommercial Items and Commercial Items. Proposers are encouraged to use a format similar to that described in the section above. If no restrictions are intended, then the proposer should state "NONE."

System for Award Management (SAM) and Universal Identifier Requirements

All proposers must be registered in SAM unless exempt per FAR 4.1102. FAR 52.204-7, "System for Award Management" and FAR 52.204-13, "System for Award Management Maintenance" are incorporated into this solicitation. See http://www.darpa.mil/work-with-us/additional-baa for further information.
International entities can register in SAM by following the instructions in this link: https://www.fsd.gov/sys_attachment.do?sys_id=c08b64ab1b4434109ac5ddb6bc4bcbb8.

4.2.4. Submission Information

DARPA will acknowledge receipt of all submissions and assign an identifying control number that should be used in all further correspondence regarding the submission. DARPA intends to use electronic mail correspondence regarding HR001123S0037. Submissions may not be sent by fax or e-mail; any so sent will be disregarded.

Submissions will not be returned. An electronic copy of each submission received will be retained at DARPA and all other non-required copies destroyed. A certification of destruction may be requested, provided the formal request is received by DARPA within 5 days after notification that a proposal was not selected.

For abstract and proposal submission dates, see Part I., Overview Information. Submissions received after these dates and times may not be reviewed.

Proposal Abstract Submission

Proposal Abstracts submitted in response to HR001123S0037 must be submitted via DARPA's BAA Website (https://baa.darpa.mil). Note: If an account has recently been created for the DARPA BAA Website, this account may be reused. Accounts are typically disabled and eventually deleted following 75-90 days of inactivity – if you are unsure when the account was last used, it is recommended that you create a new account. If no account currently exists for the DARPA BAA Website, visit the website to complete the two-step registration process. Submitters will need to register for an Extranet account (via the form at the URL listed above) and wait for two separate e-mails containing a username and temporary password. After accessing the Extranet, submitters may then create an account for the DARPA BAA website (via the "Register your Organization" link along the left side of the homepage), view submission instructions, and upload/finalize the abstract. Proposers using the DARPA BAA Website may

encounter heavy traffic on the submission deadline date; it is highly advised that the submission process be started as early as possible.

All unclassified concepts submitted electronically through DARPA's BAA Website must be uploaded as zip files (.zip or .zipx extension). The final zip file should be no greater than 50 MB in size. Only one zip file will be accepted per submission. Classified submissions and proposals requesting or cooperative agreements should NOT be submitted through DARPA's BAA Website (https://baa.darpa.mil), though proposers will likely still need to visit https://baa.darpa.mil to register their organization (or verify an existing registration) to ensure the BAA office can verify and finalize their submission.

Technical support for BAA Website may be reached at BAAT_Support@darpa.mil, and is typically available during regular business hours, (9:00 AM- 5:00 PM EST Monday – Friday).

Proposers using the DARPA BAA Website may encounter heavy traffic on the submission deadline date; it is highly advised that the submission process be started as early as possible.

Proposal abstracts will not be accepted if submitted via Grants.gov.

Full Proposal Submission

For Procurement Contracts or Other Transactions only:

Proposers requesting procurement contracts or Other Transactions must submit proposals through one of the following methods: (1) via DARPA's BAA Website (https://baa.darpa.mil) (DARPA-preferred), or (2) hard copy mailed directly to DARPA. If proposers intend to use DARPA's BAA Website as their means of submission, then they must submit their entire proposal through https://baa.darpa.mil; applications cannot be submitted in part electronically and in part as a hard-copy. Proposers using https://baa.darpa.mil do not submit hard-copy proposals in addition to the electronic submission.

Note: If an account has recently been created for the DARPA BAA Website, this account may be reused. Accounts are typically disabled and eventually deleted following 75-90 days of inactivity – if you are unsure when the account was last used, it is recommended that you create a new account. If no account currently exists for the DARPA BAA Website, visit the website to complete the two-step registration process. Submitters will need to register for an Extranet account (via the form at the URL listed above) and wait for two separate e-mails containing a username and temporary password. After accessing the Extranet, submitters may then create an account for the DARPA BAA website (via the "Register your Organization" link along the left side of the homepage), view submission instructions, and upload/finalize the abstract. Proposers using the DARPA BAA Website may encounter heavy traffic on the submission deadline date; it is highly advised that the submission process be started as early as possible.

All unclassified concepts submitted electronically through DARPA's BAA Website must be uploaded as zip files (.zip or .zipx extension). The final zip file should be no greater than 50 MB in size. Only one zip file will be accepted per submission. Classified submissions and proposals requesting or cooperative agreements should NOT be submitted through DARPA's BAA

Website (https://baa.darpa.mil), though proposers will likely still need to visit https://baa.darpa.mil to register their organization (or verify an existing registration) to ensure the BAA office can verify and finalize their submission.

Technical support for BAA Website may be reached at BAAT_Support@darpa.mil, and is typically available during regular business hours, (9:00 AM- 5:00 PM EST Monday – Friday).

Proposers using the DARPA BAA Website may encounter heavy traffic on the submission deadline date; it is highly advised that the submission process be started as early as possible.

For Cooperative Agreements only:

Proposers requesting cooperative agreements must submit proposals through one of the following methods: (1) electronic upload per the instructions at https://www.grants.gov/applicants/apply-for-grants.html (DARPA-preferred); or (2) hard-copy mailed directly to DARPA. If proposers intend to use Grants.gov as their means of submission, then they must submit their entire proposal through Grants.gov; applications cannot be submitted in part to Grants.gov and in part as a hard-copy. Proposers using Grants.gov do not submit hard-copy proposals in addition to the Grants.gov electronic submission.

Submissions: In addition to the volumes and corresponding attachments requested elsewhere in this solicitation, proposers must also submit the three forms listed below.

Form 1: SF 424 Research and Related (R&R) Application for Federal Assistance, available on the Grants.gov website at https://apply07.grants.gov/apply/forms/sample/RR_SF424_2_0-V2.0.pdf. *This form must be completed and submitted.*

To evaluate compliance with Title IX of the Education Amendments of 1972 (20 U.S.C. § 1681 et.seq.), the Department of Defense (DoD) is collecting certain demographic and career information to be able to assess the success rates of women who are proposed for key roles in applications in science, technology, engineering or mathematics disciplines. In addition, the National Defense Authorization Act (NDAA) for FY 2019, Section 1286, directs the Secretary of Defense to protect intellectual property, controlled information, key personnel, and information about critical technologies relevant to national security and limit undue influence, including foreign talent programs by countries that desire to exploit United States' technology within the DoD research, science and technology, and innovation enterprise. This requirement is necessary for all research and research-related educational activities. The DoD is using the two forms below to collect the necessary information to satisfy these requirements. Detailed instructions for each form are available on Grants.gov.

Form 2: The Research and Related Senior/Key Person Profile (Expanded) form, available on the Grants.gov website at https://apply07.grants.gov/apply/forms/sample/RR_KeyPersonExpanded_3_0-V3.0.pdf, will be used to collect the following information for all senior/key personnel, including Project Director/Principal Investigator and Co-Project Director/Co-Principal Investigator, whether or not the individuals' efforts under the project are funded by the DoD. The form includes 3 parts: the main form administrative information, including the Project Role, Degree Type and Degree

Year; the biographical sketch; and the current and pending support. The biographical sketch and current and pending support are to be provided as attachments:

- Biographical Sketch: Mandatory for Project Directors (PD) and Principal Investigators (PI), optional, but desired, for all other Senior/Key Personnel. The biographical sketch should include information pertaining to the researchers:
    - Education and Training.
    - Research and Professional Experience.
    - Collaborations and Affiliations (for conflict of interest).
    - Publications and Synergistic Activities.
- Current and Pending Support: Mandatory for all Senior/Key Personnel including the PD/PI. This attachment should include the following information:
    - A list of all current projects the individual is working on, in addition to any future support the individual has applied to receive, regardless of the source.
    - Title and objectives of the other research projects.
    - The percentage per year to be devoted to the other projects.
    - The total amount of support the individual is receiving in connection to each of the other research projects or will receive if other proposals are awarded.
    - Name and address of the agencies and/or other parties supporting the other research projects
    - Period of performance for the other research projects.

Additional senior/key persons can be added by selecting the "Next Person" button at the bottom of the form. Note that, although applications without this information completed may pass Grants.gov edit checks, if DARPA receives an application without the required information, DARPA may determine that the application is incomplete and may cause your submission to be rejected and eliminated from further review and consideration under the solicitation. DARPA reserves the right to request further details from the applicant before making a final determination on funding the effort.

Form 3: Research and Related Personal Data, available on the Grants.gov website at https://apply07.grants.gov/apply/forms/sample/RR_PersonalData_1_2-V1.2.pdf. *Each applicant must complete the name field of this form, however, provision of the demographic information is voluntary. Regardless of whether the demographic fields are completed or not, this form must be submitted with at least the applicant's name completed.*

Grants.gov Submissions: Grants.gov requires proposers to complete a one-time registration process before a proposal can be electronically submitted. First-time registration can take between three business days and four weeks. For more information about registering for Grants.gov, see http://www.darpa.mil/work-with-us/additional-baa.

For Research Other Transactions only:

Proposers requesting Other Transactions for Research awarded under 10 U.S.C.§ 4021 must include the completed form indicated below. This requirement only applies only to those who expect to receive a Research OT as their ultimate award instrument.

The National Defense Authorization Act (NDAA) for FY 2019, Section 1286, directs the Secretary of Defense to protect intellectual property, controlled information, key personnel, and information about critical technologies relevant to national security and limit undue influence, including foreign talent programs by countries that desire to exploit United States' technology within the DoD research, science and technology, and innovation enterprise. This requirement is necessary for all research and research-related educational activities. The DoD is using the form below to collect the necessary information to satisfy these requirements.

The Research and Related Senior/Key Person Profile (Expanded) form, available on the Grants.gov website at https://apply07.grants.gov/apply/forms/sample/RR_KeyPersonExpanded_3_0-V3.0.pdf, will be used to collect the following information for all senior/key personnel, including Project Director/Principal Investigator and Co-Project Director/Co-Principal Investigator, whether or not the individuals' efforts under the project are funded by the DoD. The form includes 3 parts: the main form administrative information, including the Project Role, Degree Type and Degree Year; the biographical sketch; and the current and pending support. The biographical sketch and current and pending support are to be provided as attachments:

- Biographical Sketch: Mandatory for Project Directors (PD) and Principal Investigators (PI), optional, but desired, for all other Senior/Key Personnel. The biographical sketch should include information pertaining to the researchers:
    - Education and Training.
    - Research and Professional Experience.
    - Collaborations and Affiliations (for conflict of interest).
    - Publications and Synergistic Activities.
- Current and Pending Support: Mandatory for all Senior/Key Personnel including the PD/PI. This attachment should include the following information:
    - A list of all current projects the individual is working on, in addition to any future support the individual has applied to receive, regardless of the source.
    - Title and objectives of the other research projects.
    - The percentage per year to be devoted to the other projects.
    - The total amount of support the individual is receiving in connection to each of the other research projects or will receive if other proposals are awarded.
    - Name and address of the agencies and/or other parties supporting the other research projects
    - Period of performance for the other research projects.

Additional senior/key persons can be added by selecting the "Next Person" button at the bottom of the form. Note that, although applications without this information completed may pass Grants.gov edit checks, if DARPA receives an application without the required information, DARPA may determine that the application is incomplete and may cause your submission to be rejected and eliminated from further review and consideration under the solicitation. DARPA reserves the right to request further details from the applicant before making a final determination on funding the effort.

Hard copy Submissions: Proposers electing to submit cooperative agreement proposals as hard copies must complete the SF 424 R&R form (Application for Federal Assistance), available on the Grants.gov website (https://apply07.grants.gov/apply/forms/sample/SF424_2_1-V2.1.pdf).

Failure to comply with the submission procedures may result in the submission not being evaluated. DARPA will acknowledge receipt of complete submissions via email and assign control numbers that should be used in all further correspondence regarding proposals.

4.3. FUNDING RESTRICTIONS

Not applicable.

4.4. OTHER SUBMISSION INFORMATION

DARPA will post a consolidated Frequently Asked Questions (FAQ) document. To access the posting go to http://www.darpa.mil/work-with-us/opportunities. A link to the FAQ will appear under the HR001123S0037 summary. Submit your question(s) via e-mail to SHIELD@darpa.mil.

5. Application Review Information

5.1. EVALUATION CRITERIA

Proposals will be evaluated using the following criteria, listed in descending order of importance: 5.1.1 Overall Scientific and Technical Merit; 5.1.2 Potential Contribution and Relevance to the DARPA Mission; and 5.1.3 Cost Realism.

5.1.1. Overall Scientific and Technical Merit

The proposed technical approach is innovative, feasible, achievable, and complete.
The proposed technical team has the expertise and experience to accomplish the proposed tasks. Task descriptions and associated technical elements provided are complete and in a logical sequence with all proposed deliverables clearly defined such that a final outcome that achieves the goal can be expected as a result of award. The proposal identifies major technical risks, and planned mitigation efforts are clearly defined and feasible. The timeline for achieving major milestones is aggressive but rationally supported with a clear description of the requirements and risks. The proposer's prior experience in similar efforts must clearly demonstrate an ability to deliver products that meet the proposed technical performance within the proposed budget and schedule. The proposed team has the expertise to manage the cost and schedule.

5.1.2. Potential Contribution and Relevance to the DARPA Mission

The potential contributions of the proposed effort are relevant to the national technology base. Specifically, DARPA's mission is to make pivotal early technology investments that create or prevent strategic surprise for U.S. National Security.

5.1.3. Cost Realism

The proposed costs are realistic for the technical and management approach and accurately reflect the technical goals and objectives of the solicitation. The proposed costs are consistent with the proposer's Statement of Work and reflect a sufficient understanding of the costs and level of effort needed to successfully accomplish the proposed technical approach. The costs for the prime proposer and proposed subawardees are substantiated by the details provided in the proposal (e.g., the type and number of labor hours proposed per task, the types and quantities of materials, equipment and fabrication costs, travel and any other applicable costs and the basis for the estimates).

It is expected that the effort will leverage all available relevant prior research in order to obtain the maximum benefit from the available funding. For efforts with a likelihood of commercial application, appropriate direct cost sharing may be a positive factor in the evaluation. DARPA recognizes that undue emphasis on cost may motivate proposers to offer low-risk ideas with minimum uncertainty and to staff the effort with junior personnel in order to be in a more competitive posture.

5.2. REVIEW OF PROPOSALS

5.2.1. Review Process

It is the policy of DARPA to ensure impartial, equitable, comprehensive proposal evaluations based on the evaluation criteria listed in Section V.A. and to select the source (or sources) whose offer meets the Government's technical, policy, and programmatic goals.

DARPA will conduct a scientific/technical review of each conforming proposal. Conforming proposals comply with all requirements detailed in this solicitation; proposals that fail to do so may be deemed non-conforming and may be removed from consideration. Proposals will not be evaluated against each other since they are not submitted in accordance with a common work statement. DARPA's intent is to review proposals as soon as possible after they arrive; however, proposals may be reviewed periodically for administrative reasons.

Award(s) will be made to proposers whose proposals are determined to be the most advantageous to the Government, consistent with instructions and evaluation criteria specified in the BAA herein, and availability of funding.

5.2.2. Handling of Source Selection Information

DARPA policy is to treat all submissions as source selection information (see FAR 2.101 and 3.104) and to disclose their contents only for the purpose of evaluation. Restrictive notices notwithstanding, during the evaluation process, submissions may be handled by support contractors for administrative purposes and/or to assist with technical evaluation. All DARPA support contractors performing this role are expressly prohibited from performing DARPA-sponsored technical research and are bound by appropriate nondisclosure agreements.

Subject to the restrictions set forth in FAR 37.203(d), input on technical aspects of the proposals may be solicited by DARPA from non-Government consultants/experts who are strictly bound by the appropriate non-disclosure requirements.

5.2.3. Federal Awardee Performance and Integrity Information (FAPIIS)

Per 41 U.S.C. § 2313, as implemented by FAR 9.103 and 2 CFR § 200.205, prior to making an award above the simplified acquisition threshold, DARPA is required to review and consider any information available through the designated integrity and performance system (currently FAPIIS). Awardees have the opportunity to comment on any information about themselves entered in the database, and DARPA will consider any comments, along with other information in FAPIIS or other systems, prior to making an award.

5.2.4. Countering Foreign Influence Program (CFIP)

DARPA's CFIP is an adaptive risk management security program designed to help protect the critical technology and performer intellectual property associated with DARPA's research projects by identifying the possible vectors of undue foreign influence. The CFIP team will create risk assessments of all proposed Senior/Key Personnel selected for negotiation of a fundamental research grant or cooperative agreement award. The CFIP risk assessment process will be conducted separately from the DARPA scientific review process and adjudicated prior to final award.

6. Award Administration Information

6.1. SUBMISSION STATUS NOTIFICATIONS

Proposal Abstracts and Full Proposals submitted in response to HR001123S0037 will be evaluated following the submission deadlines listed in Part 1. DARPA will respond as described below. These official notifications will be sent via e-mail to the Technical Point of Contact (POC) and/or Administrative POC identified on the submission coversheet.

6.1.1. Proposal Abstracts

DARPA will respond to abstracts with a statement as to whether DARPA is interested in the idea. If DARPA does not recommend the proposer submit a full proposal, DARPA will provide feedback to the proposer regarding the rationale for this decision. Regardless of DARPA's response to an abstract, proposers may submit a full proposal. DARPA will review all conforming full proposals using the published evaluation criteria and without regard to any comments resulting from the review of an abstract.

6.1.2. Full Proposals

As soon as the evaluation of a proposal is complete, the proposer will be notified that (1) the proposal has been selected for funding pending award negotiations, in whole or in part, or (2) the proposal has not been selected.

6.2. ADMINISTRATIVE AND NATIONAL POLICY REQUIREMENTS

6.2.1. Meeting and Travel Requirements

There will be a program kickoff meeting in the Arlington, VA vicinity and all key participants are required to attend. Performers should also anticipate regular program-wide PI meetings and periodic site visits at the Program Manager's discretion to the Arlington, VA vicinity. Proposers shall include within the content of their proposal details and costs of any travel or meetings they deem to be necessary throughout the course of the effort, to include periodic status reviews by the Government.

6.2.1. Solicitation Provisions and Award Clauses, Terms and Conditions

Solicitation clauses in the FAR and DFARS relevant to procurement contracts and FAR and DFARS clauses that may be included in any resultant procurement contracts are incorporated herein and can be found at http://www.darpa.mil/work-with-us/additional-baa.

6.2.2. Controlled Unclassified Information (CUI) and Controlled Technical Information (CTI) on Non-DoD Information Systems

Further information on Controlled Unclassified Information identification, marking, protecting, and control, to include processing on Non-DoD Information Systems, is incorporated herein and can be found at http://www.darpa.mil/work-with-us/additional-baa.

6.2.3. Representations and Certifications

In accordance with FAR 4.1102 and 4.1201, proposers requesting a procurement contract must complete electronic annual representations and certifications at https://www.sam.gov/.
In addition, all proposers are required to submit for all award instrument types supplementary DARPA-specific representations and certifications at the time of proposal submission. See http://www.darpa.mil/work-with-us/reps-certs for further information on required representation and certification depending on your requested award instrument.
A small business joint venture offeror must submit, with its offer, the representation required in paragraph (c) of FAR solicitation provision 52.212-3, Offeror Representations and Certifications-Commercial Products and Commercial Services, and paragraph (c) of FAR solicitation provision 52.219-1, Small Business Program Representations, in accordance with 52.204-8(d) and 52.212-3(b) for the following categories: (A) Small business; (B) Service-disabled veteran-owned small business; (C) Women-owned small business (WOSB) under the WOSB Program; (D) Economically disadvantaged women-owned small business under the WOSB Program; or (E) Historically underutilized business zone small business.

6.2.4. Terms and Conditions

For terms and conditions specific to grants and/or cooperative agreements, see the DoD General Research Terms and Conditions (latest version) at http://www.onr.navy.mil/Contracts-Grants/submit-proposal/grants-proposal/grants-terms-conditions and the supplemental DARPA-

specific terms and conditions at http://www.darpa.mil/work-with-us/contract-management#GrantsCooperativeAgreements.

6.3. REPORTING

The number and types of reports will be specified in the award document, but will include as a minimum monthly financial status reports, 6-week technical status reports, and quarterly technical status reports. The reports shall be prepared and submitted in accordance with the procedures contained in the award document and mutually agreed on before award. Reports and briefing material will also be required as appropriate to document progress in accomplishing program metrics. A Final Report that summarizes the project and tasks will be required at the conclusion of the performance period for the award, notwithstanding the fact that the research may be continued under a follow-on vehicle.

6.4. ELECTRONIC SYSTEMS

6.4.1. Wide Area Work Flow (WAWF)

Performers will be required to submit invoices for payment directly to https://wawf.eb.mil, unless an exception applies. Performers must register in WAWF prior to any award under this BAA.

6.4.2. I-EDISON

The award document for each proposal selected for funding will contain a mandatory requirement for patent reports and notifications to be submitted electronically through i-Edison (http://public.era.nih.gov/iedison).

7. Agency Contacts

Administrative, technical or contractual questions should be sent via e-mail to the mailbox listed below.

Points of Contact
The BAA Coordinator for this effort may be reached at:
SHIELD@darpa.mil
DARPA/BTO
ATTN: HR001123S0037
675 North Randolph Street
Arlington, VA 22203-2114

For information concerning agency level protests see http://www.darpa.mil/work-with-us/additional-baa#NPRPAC.

8. Other Information

8.1. PROPOSERS DAY

DARPA will host a Proposers Day in support of the SHIELD program on **July 11, 2023**. The purpose is to provide potential proposers with information on the SHIELD program, promote additional discussion on this topic, address questions, provide a forum to present their capabilities, and encourage team formation.

Interested proposers are not required to attend to respond to the SHIELD BAA, and relevant information and materials discussed at Proposers Day will be made available to all potential proposers in the form of a FAQ posted on the DARPA Opportunities Page.

DARPA will not provide cost reimbursement for interested proposers in attendance. An online registration form and various other meeting details can be found at the registration website, https://events.sa-meetings.com/SHIELDProposersDay/.

Participants are required to register no later than **July 6, 2023.** This event is not open to the Press. The Proposers Day will be open to members of the public who have registered in advance for the event; there will be no onsite registration.

Proposers Day Point of Contact:
SHIELD@darpa.mil

8.2. UNIVERSITY FUNDING

In order to ensure that U.S. scientific and engineering students will be able to continue to make strategic technological advances, DARPA is committed to supporting the work and study of Ph.D. students and post-doctoral researchers that began work under a DARPA-funded program awarded through an assistance instrument. Stable and predictable federal funding enables these students to continue their scientific and engineering careers.
To that end, should a DARPA funded program awarded through a grant or cooperative agreement with a university or a Research Other Transaction pursuant to 10 U.S.C. § 4021 where the university is a participant end (due to termination or down-select) before the planned program completion, DARPA may continue to fund, for no more than two semesters (or equivalent), the documented costs to employ or sponsor Ph.D. students and/or post-doctoral researchers. Should such a circumstance arise, the following will take place:

1) The Government will provide appropriate notification to the University participant by the Agreements Office or through the prime performer.
2) The University must make reasonable efforts to find alternative research or employment opportunities for these students and researchers.
3) Before any costs will be paid, the University must submit documentation describing their due diligence efforts in finding alternative arrangements that is certified by a University official.
4) In addition to this documentation, the affected students and researchers must submit statements of work describing what research activities they will pursue during the period of funding and the final deliverable they will submit when the funding is complete.
5) In determining these costs, DARPA will rely on information from the University's original proposal unless specific circumstances warrant requesting updated proposals. In

no circumstances will this funding be provided when the program is ended because of suspected or actual fraud or negligence.

DARPA Down-Select Definition:

DARPA often structures programs in phases or options that include specific objectives and a designated period of performance. This may result in potentially issuing multiple awards to maximize the number of innovative approaches. This approach allows the Government to monitor progress and enables programmatic decision points based, at a minimum, against stated evaluation criteria, metrics, funding availability, and program goals and objectives. As a result, select performers may advance via award of a subsequent phase or through exercise of a planned option period.

9. APPENDIX 1 – Volume II checklist

Volume II, Cost Proposal
Checklist and Sample Templates

The following checklist and sample templates are provided to assist the proposer in developing a complete cost volume. Full instructions appear in Section 4.2.2 of HR001123S0037. This worksheet must be included with the coversheet of the Cost Proposal.

1. Are all items from Section 4.2.2 (Volume II, Cost Proposal) of **HR001123S0037** included on your Cost Proposal cover sheet?
   ○ **YES** ○ **NO** **Appears on Page(s)** [Type text]
   If reply is "No", please explain:

2. Does your Cost Proposal include (1) a summary cost buildup by Phase, (2) a summary cost buildup by Year, and (3) a detailed cost buildup of for each Phase that breaks out each task and shows the cost per month?
   ○ **YES** ○ **NO** **Appears on Page(s)** [Type text]
   If reply is "No", please explain:

3. Does your cost proposal (detailed cost buildup #3 above in item 2) show a breakdown of the major cost items listed below:
   Direct Labor (Labor Categories, Hours, Rates)
   f○ **YES** ○ **NO** **Appears on Page(s)** [Type text]

   Indirect Costs/Rates (i.e., overhead charges, fringe benefits, G&A)
   ○ **YES** ○ **NO** **Appears on Page(s)** [Type text]

   Materials and/or Equipment
   ○ **YES** ○ **NO** **Appears on Page(s)** [Type text]

   Subcontracts/Consultants
   ○ **YES** ○ **NO** **Appears on Page(s)** [Type text]

   Other Direct Costs
   ○ **YES** ○ **NO** **Appears on Page(s)** [Type text]

   Travel
   ○ **YES** ○ **NO** **Appears on Page(s)** [Type text]

   If reply is "No", please explain:

4. Have you provided documentation for proposed costs related to travel, to include purpose of trips, departure and arrival destinations and sample airfare?
   ○ **YES** ○ **NO** **Appears on Page(s)** [Type text]

If reply is "No", please explain:

5. Does your cost proposal include a complete itemized list of all material and equipment items to be purchased (a priced bill-of-materials (BOM))?
   ○ **YES** ○ **NO** **Appears on Page(s)** [Type text]

   If reply is "No", please explain:

6. Does your cost proposal include vendor quotes or written engineering estimates (basis of estimate) for all material and equipment with a unit price exceeding $5000?
   ○ **YES** ○ **NO** **Appears on Page(s)** [Type text]

   If reply is "No", please explain:

7. Does your cost proposal include a clear justification for the cost of labor (written labor basis-of-estimate (BOE)) providing rationale for the labor categories and hours proposed for each task?
   ○ **YES** ○ **NO** **Appears on Page(s)** [Type text]

   If reply is "No", please explain:

8. Do you have subcontractors/consultants? If YES, continue to question 9. If NO, skip to question 13.
   ○ **YES** ○ **NO** **Appears on Page(s)** [Type text]

9. Does your cost proposal include copies of all subcontractor/consultant technical (to include Statement of Work) and cost proposals?
   ○ **YES** ○ **NO** **Appears on Page(s)** [Type text]

   If reply is "No", please explain:

10. Do all subcontract proposals include the required summary buildup, detailed cost buildup, and supporting documentation (SOW, Bill-of-Materials, Basis-of-Estimate, Vendor Quotes, etc.)?
    ○ **YES** ○ **NO** **Appears on Page(s)** [Type text]

    If reply is "No", please explain:

11. Does your cost proposal include copies of consultant agreements, if available?
    ○ **YES** ○ **NO** **Appears on Page(s)** [Type text]

    If reply is "No", please explain:

12. If requesting a FAR-based contract, does your cost proposal include a tech/cost analysis for all proposed subcontractors?
    ○ **YES** ○ **NO** **Appears on Page(s)** [Type text]

If reply is "No", please explain:

13. Have all team members (prime and subcontractors) who are considered a Federally Funded Research & Development Center (FFRDC), included documentation that clearly demonstrates work is not otherwise available from the private sector AND provided a letter on letterhead from the sponsoring organization citing the specific authority establishing their eligibility to propose to government solicitations and compete with industry, and compliance with the associated FFRDC sponsor agreement and terms and conditions.
○ **YES** ○ **NO** **Appears on Page(s)** [Type text]

If reply is "No", please explain:

14. Does your proposal include a response regarding Organizational Conflicts of Interest?
○ **YES** ○ **NO** **Appears on Page(s)** [Type text]

If reply is "No", please explain:

15. Does your proposal include a completed Data Rights Assertions table/certification?
○ **YES** ○ **NO** **Appears on Page(s)** [Type text]

If reply is "No", please explain: