



Broad Agency Announcement  
Gamma Ray Inspection Technology (GRIT)  
Defense Sciences Office

HR001119S0073

July 4, 2019

## Table of Contents

I.	Funding Opportunity Description.....	4
A.	Introduction.....	4
B.	Background.....	4
C.	Program Description/Scope.....	5
D.	Program Structure.....	5
E.	Technical Area Descriptions.....	7
F.	Schedule/Milestones.....	10
G.	Deliverables.....	11
H.	Government-furnished Property/Equipment/Information.....	11
I.	Other Program Objectives and Considerations.....	12
II.	Award Information.....	12
A.	General Award Information.....	12
B.	Fundamental Research.....	13
III.	Eligibility Information.....	14
A.	Eligible Applicants.....	14
B.	Organizational Conflicts of Interest.....	15
C.	Cost Sharing/Matching.....	16
D.	Other Eligibility Requirements.....	16
IV.	Application and Submission Information.....	17
A.	Address to Request Application Package.....	17
B.	Content and Form of Application Submission.....	17
C.	Submission Dates and Times.....	20
D.	Funding Restrictions.....	20
E.	Other Submission Requirements.....	20
V.	Application Review Information.....	24
A.	Evaluation Criteria.....	24
B.	Review and Selection Process.....	24
C.	Federal Awardee Performance and Integrity Information (FAPIIS).....	25
VI.	Award Administration Information.....	25
A.	Selection Notices.....	25
B.	Administrative and National Policy Requirements.....	26
C.	Reporting.....	31
VII.	Agency Contacts.....	31
VIII.	Other Information.....	31
A.	Frequently Asked Questions (FAQs).....	31
B.	Collaborative Efforts/Teaming.....	32
C.	Proposers Day.....	32

### BAA Attachments:

- A: ABSTRACT SUMMARY SLIDE TEMPLATE
- B: ABSTRACT TEMPLATE
- C: PROPOSAL SUMMARY SLIDE TEMPLATE
- D: PROPOSAL TEMPLATE: VOLUME 1 TECHNICAL & MANAGEMENT VOLUME
- E: PROPOSAL TEMPLATE: VOLUME 2 COST VOLUME
- F: COST PROPOSAL TEMPLATE
- G: PROPOSAL TEMPLATE: VOLUME 3 ADMINISTRATIVE & NATIONAL POLICY REQUIREMENTS VOLUME

## PART I: OVERVIEW INFORMATION

- **Federal Agency Name:** Defense Advanced Research Projects Agency (DARPA), Defense Sciences Office (DSO)
- **Funding Opportunity Title:** Gamma Ray Inspection Technology (GRIT)
- **Announcement Type:** Initial Announcement
- **Funding Opportunity Number:** HR001119S0073
- **Catalog of Federal Domestic Assistance (CFDA) Number(s):** 12.910 Research and Technology Development
- **Dates** (All times listed herein are Eastern Time.)
  - Posting Date: July 4, 2019
  - Proposers Day: July 8, 2019. See Section VIII.C.
  - Abstract Due Date: July 24, 2019, 4:00 p.m.
  - FAQ Submission Deadline: August 26, 2019, 4:00 p.m. See Section VIII.A.
  - Full Proposal Due Date: September 6, 2019, 4:00 p.m.
- **Anticipated Individual Awards:** DARPA anticipates multiple awards
- **Anticipated Funding Available for Award:** The amount of funding will be commensurate with the quality of proposal submissions between TA1 and TA2 and availability of funding. The program will have a greater emphasis on TA1 proposals to address nearer term DoD objectives.
- **Types of Instruments that May be Awarded:** It is anticipated the major instrument used will be procurement contracts. Grants and Cooperative agreements may be used for academic research. Other transactions may also be used at the discretion of DARPA.
- **Agency contacts**
  - **Technical POC:** Mark Wrobel, Program Manager, DARPA/DSO
  - **BAA Email:** [GRIT@darpa.mil](mailto:GRIT@darpa.mil)
  - **BAA Mailing Address:**  
DARPA/DSO  
ATTN: HR001119S0073  
675 North Randolph Street  
Arlington, VA 22203-2114
  - **DARPA/DSO Opportunities Website:** <http://www.darpa.mil/work-with-us/opportunities>
- **Teaming Information:** See Section VIII.B for information on teaming opportunities.
- **Frequently Asked Questions (FAQ):** FAQs for this solicitation may be viewed on the DARPA/DSO Opportunities Website. See Section VIII.A for further information.

## **PART II: FULL TEXT OF ANNOUNCEMENT**

### **I. Funding Opportunity Description**

This Broad Agency Announcement (BAA) constitutes as a public notice of a competitive funding opportunity as described in Federal Acquisition Regulation (FAR) 6.102(d)(2) and 35.016 as well as 2 C.F.R. § 200.203. Any resultant negotiations and/or awards will follow all laws and regulations applicable to the specific award instrument(s) available under this BAA, e.g., FAR 15.4 for procurement contracts.

#### **A. Introduction**

The Defense Sciences Office (DSO) at the Defense Advanced Research Projects Agency (DARPA) is soliciting innovative research proposals in the area of intense, tunable, narrow-bandwidth, and transportable gamma-ray sources for varied national security applications. Proposed research should investigate innovative approaches that can achieve or exceed the performance of current state of the art user facilities with a form factor that allows multiple defense applications to be achieved. Specifically excluded is research that primarily results in evolutionary improvements to the existing state of practice.

#### **B. Background**

The Gamma Ray Inspection Technology (GRIT) program seeks transformational approaches to achieving high intensity, tunable, and narrow-bandwidth gamma-ray production, in a compact form factor suitable for transporting the source to where the capability is needed. Such sources have the potential to help discover smuggled nuclear materials in cargo, provide new non-destructive inspection techniques at various scales, and enable new medical diagnostics and therapies.

Medical and industrial applications requiring x-rays and gamma rays use either Bremsstrahlung (braking) radiation where an accelerated electron is directed to a high atomic number target, or isotopic sources such as Cs-137 or Co-60. In the former case, x-ray sources produce broad band radiation, with peak energies about 1/3 the maximum energy of the electron. Such sources are unsuitable for elemental or nuclear studies because of the large background fields they produce and the subsequent impacts of those fields on detectable signatures. Isotopic sources on the other hand produce specific gamma-ray energies, but their lack of tuneability prevents their use in probing nuclear and elemental structures. Today, tunable and narrow bandwidth sources only exist at highly specialized user facilities that produce quasi-monochromatic, moderate-intensity photon beams using either synchrotron radiation or the principle of inverse Compton scattering (ICS). Major examples of synchrotron facilities include the DESY (Deutsches Elektronen-Synchrotron) PETRA (Positron-Elektron-Tandem-Ring-Anlage) III in Germany and the National Synchrotron Light Source (NSLS) at Brookhaven National Laboratory. These facilities require very large storage rings for the 1-10 GeV electrons used to produce the synchrotron radiation (100 meters to over 2000 meters long), making these facilities massive and with limited maximum energies (< 200 keV typically). ICS sources include the High Intensity Gamma Source (HIGS) at the Tri-Universities Nuclear Laboratory at Duke University and the Extreme Light Infrastructure – Nuclear Physics (ELI-NP) currently in development in Bucharest, Romania. ELI-NP exceeds the desired performance of a gamma source for national security applications (intense ( $10^{13}$   $\gamma$ /s), brilliant  $\gamma$  beam,  $\sim 0.1$  % bandwidth, with  $E_\gamma$  up to 19.5 MeV), but again is a large user-facility best suited for basic research in nuclear physics and related domains.

### **C. Program Description/Scope**

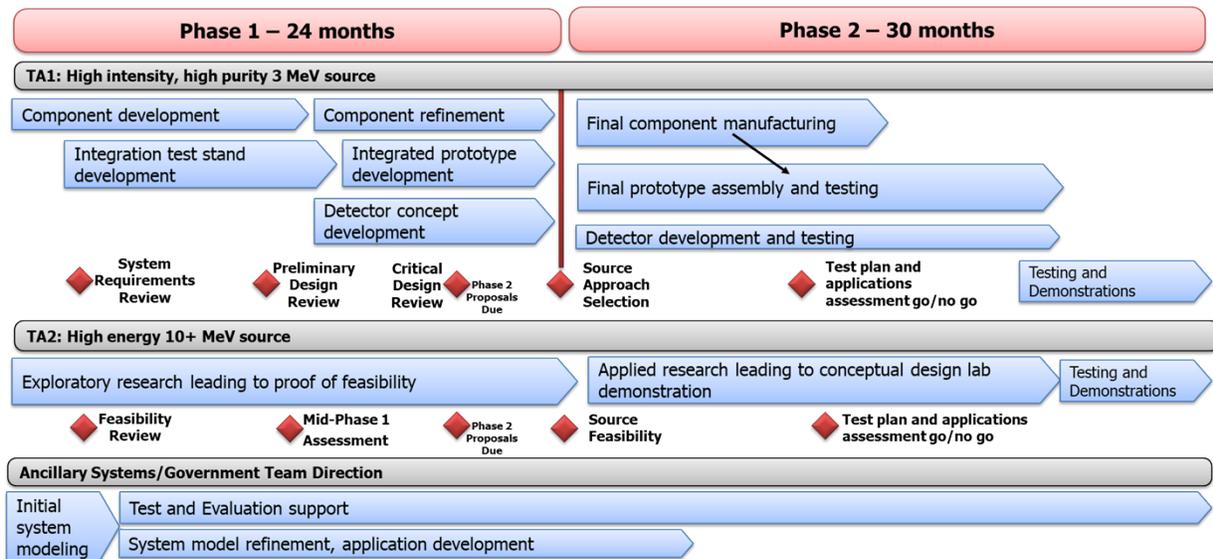
The GRIT program is focused on innovative ideas for beam-like gamma-ray sources with an order of magnitude reduction in size, weight and power, compared to existing user facilities, while maintaining or even improving upon the intensity, tuneability, and band-width required for practical applications. Achieving these goals within the GRIT program's period of performance requires parallel development of source component technologies as well as the rapid integration and optimization of these components within prototype systems. In Phase 1, performers will develop core component-level technologies, integrated system designs, and conduct initial integrated tests. Phase 2 is focused on optimization, assembly, and demonstration of final prototype test-bed systems that achieve the desired performance objectives described in detail in Section I.D.

Proposals to GRIT should clearly explain the research and development required to achieve the program goals and how the proposed technologies exceed the state-of-the-art. Proposals should also identify all major risks involved and clearly describe how those risks are mitigated early on in the proposed effort.

The GRIT program aims to demonstrate two prototype capabilities: 1) a highly functional prototype test-bed with a target technological readiness level (TRL) 6, in a transportable form factor capable of high resolution elemental imaging and isotope detection via nuclear resonance fluorescence, and 2) a lab scale proof of concept system with a target TRL 4 demonstrating high penetration radiography and photofission techniques. Proposers may propose to one or both technical areas, but separate proposals are required for each technical area. Combined proposals will not be accepted.

### **D. Program Structure**

The program will be executed as a four-and-a-half-year effort, with a 24-month Phase 1 and an 30-month Phase 2. Funding for the Phase 2 effort will be based on Phase 1 progress and funding availability. The overall program structure and timeline is shown below.



For TA1 (high purity < 3 MeV source), Phase 1 will focus on component development, unit testing, and early integration activities through test-bed platforms. Given the complexity of a nominal system architecture, integrated teams will be required from the outset of the program. In Phase 1, TA1 performers will go through a system requirements review (SRR), a preliminary design review (PDR), and a critical design review (CDR) of their proposed system. At the end of Phase 1, TA1 performers may be selected to continue into an anticipated Phase 2 of the program. Phase 2 plans to focus on building the final prototype test-bed system at TRL 6 and demonstrating capability through applications of interest to transition partners. These applications will include detection of isotopes including transuranics and elemental imaging.

For TA2 (high energy >10 MeV source), Phase 1 will consist of exploratory research into feasibility and may consist of modeling and preliminary experimental work to validate the technical approach. At the end of Phase 1, the feasibility of TA2 efforts will be evaluated for likely success in meeting overall TA2 program objectives. Phase 2 will emphasize more applied research leading ultimately to a proof of concept design at TRL 4 and demonstrating the capability through applications of interest to transition partners. These applications will include high penetration radiography and detection of shielded special nuclear materials.

The Government will use a phased acquisition approach for the GRIT program under this BAA. At this time, detailed Phase 1 proposals are solicited for TA1 and TA2. Proposals must also provide a plan to meet the final program goals and metrics over Phase 2 in response to this BAA. Proposers are required to submit a rough order of magnitude (ROM) proposal for Phase 2, including ROM costs, a draft statement of work, and any additional information on anticipated program plans. Proposals that do not address these Phase 2 goals may be deemed non-conforming.

DARPA intends to request updated technical and cost proposals for Phase 2 approximately six months prior to the completion of Phase 1. Competition for Phase 2 will be limited to only Phase 1 performers. Participation in Phase 2 will be optional and proposal guidance will be provided towards the end of Phase 1 for performers. Associated proposal preparation costs for

Phase 2 will not be reimbursed under Phase 1 awards. Evaluation of Phase 2 proposals will be based on the evaluation criteria in this BAA, and proposal evaluations will be conducted through a scientific and technical review process in accordance with Section V.B.

The Government reserves the right to change the award instrument or issue a new BAA for Phase 2 if programmatic circumstances dictate. Program continuation beyond Phase 1 will be at the discretion of the Government, and will depend on funding availability and promising Phase 1 results. An initial assessment of progress will take place at the end of the base period. Participation in an early phase does not guarantee funding in subsequent phases, and performer selection and progression to Phase 2 will be contingent on evaluation of the Phase 2 proposals and availability of funding.

### E. Technical Area Descriptions

The GRIT program targets producing beam-like gamma-ray sources across three orders of magnitude of photon energy by segmenting this range into two technical areas that will facilitate addressing anticipated applications. TA1 aims to develop high intensity, high purity, tunable sources suitable for precision applications ranging from electron K-shell imaging<sup>1</sup> and elemental analysis at energies below 100 keV to nuclear resonance fluorescence (NRF) for isotope detection and concentration measurements from 500 keV to 3 MeV. TA2 focuses on even higher energies, though at lower intensity, and is envisioned for penetrative radiography and photo-fission applications. Key metric system parameters are summarized in the two tables below.

#### TA1: High intensity, high purity test-bed source targeting K-shell to NRF applications

Objectives	Parameter	TA1 Phase 1	TA 1 Phase 2
Intensity	Intensity (ph/s)	10 <sup>10</sup>	10 <sup>12</sup>
	Repetition Rate (kHz)	0.5	1
Tunability	Tunable Energy Range (MeV)	0.03 – 1	0.03 – 3
Purity	Bandwidth (dE/E)	< 10%	< 0.1%
Compactness	Size (m) (40' Conex internal dim)	< 2.4 x 2.3 x 12.0	< 2.4 x 2.3 x 12.0
	Weight (kg)	< 16,000	< 16,000
	Power (kW)	< 300	< 300

<sup>1</sup> K-shell (or K-edge) imaging refers to the absorption characteristics of the most tightly bound electrons of an atom. Photons (x-ray or gamma rays) just above K-shell energies will be preferentially absorbed compared to photons just below these energies. Since each element has a unique K-shell energy, elemental imaging is possible through a radiographic technique that can image at energies just above and below a given elements K-shell energy.

**TA2:** High energy, moderate intensity laboratory demonstration source for penetrative radiography and photo-fission applications.

Objectives	Parameter	TA 2 Phase 1	TA 2 Phase 2
<b>Intensity</b>	Intensity (ph/s)	10 <sup>9</sup>	10 <sup>10</sup>
	Repetition Rate (kHz)	0.1	1
<b>Tunability</b>	Tunable Energy Range (MeV)	1 – 10	3 – 15
<b>Purity</b>	Bandwidth (dE/E)	20%	10%
<b>Compactness</b>	Size (m) (20' Conex internal dim)	< 2.4 x 2.3 x 5.9	< 2.4 x 2.3 x 5.9
	Weight (kg)	< 10,000	< 10,000
	Power (kW)	< 200	< 200

For both technical areas, offerors must provide detailed empirical, analytical and/or modeling and simulation evidence of how their approach could achieve or exceed Phase 1 system performance objectives and show feasibility that the technical approach selected can meet the final Phase 2 program objectives.

For both technical areas, compact size is desired such that each system can fit within a standard size Conex cargo container and its weight is within limits of military transportation aircraft such as a C-130. The program goal is for these size, weight, and power (SWaP) characteristics to be achieved for all primary system components as well as all secondary (e.g. cooling), ancillary (e.g. diagnostics), and control systems required for system operation.

There are several recent advances that suggest that both topic area goals are achievable. For example, state-of-art electron accelerator-based ICS is a potential approach for reaching TA1 metrics. More exotic electron acceleration mechanisms such as laser-wakefield acceleration are a potential approach for TA2. Such approaches are anticipated to leverage multiple areas of investment and discovery within the national laboratories, academia, and industry including: compact accelerator structures, compact Joule plus high repetition rate ultra-short pulse laser systems, new compact RF power and control systems, and new abilities to fine tune ICS bandwidth. The above are examples of approaches, DARPA encourages the submission of any alternate approach that can meet the performance metrics indicated.

All proposals must provide detailed component level metrics derived from the Phase 1 and Phase 2 system metrics. Component level descriptions should include the current state of the art and what scientific and technical developments need to be performed to demonstrate metrics can be met. It is critical that technical approaches include a description of all key risks and mitigation strategies for both the system components as well as component integration aspects of the projects. Lack of a detailed risk register may be considered non-responsive to the announcement.

Specific goals for the ability to change output gamma-ray energy over time are not specified. Performers must address energy tuneability necessary to support their intended applications and demonstrations. For TA1, this includes elemental imaging and isotope detection and assay. Very precise energy control is required for these applications and the proposed approaches should describe in detail their strategy for energy control and rates at which energy can be changed. For TA2, high energy radiography and special nuclear materials detection via photofission require

less stringent control of specific energies, but may require more rapid energy tuning. Proposals should discuss means of adjusting energies that would allow, for example, multi-energy radiography approaches. Both topic areas should consider imaging/assaying objects ranging in scale from small samples a few centimeters in diameter to objects several meters in diameter (for example, a cargo container), and how your proposed approaches will support object scanning during the demonstration phase.

Teams are required to propose suitable demonstrations that would achieve DoD and broader national security interests, including the materials to be inspected and the requisite components and subsystems necessary to conduct these demonstrations, such as detectors and imaging arrays. Demonstrations should align to the topic area objectives and descriptors. For example, potential demonstrations for topic TA1 could include 1) high spatial resolution micrographs of new DoD relevant alloys demonstrating their elemental composition, and 2) novel NRF signature exploitation that supports specific DoD relevant applications. TA2 demonstrations would be similarly aligned to the topic areas objective of a very high energy source for penetrative radiography and special nuclear materials detection. Proposers should consider demonstrations that not only indicate the potential of their technical approach to meet BAA goals, but also enable technical transition with DoD, other Federal and potential commercial stakeholders. Proposers should consider approaches that demonstrate early DoD and Federal stakeholder engagement and stakeholder advocacy for requirements generation if approaches are successful.

Although a specific lifetime or reliability objectives have not been identified for these systems at this early stage of the research and development, it is anticipated that any prototype system developed under this program must support at least a year of operation after initial achievement of TA goals. Operations are anticipated to consist of at least monthly runs supporting test and demonstration activities. Proposers should clearly describe if there are expected and/or potential limitations to system lifetimes based on their chosen technical approach and identify appropriate mitigation strategies as needed. Approaches that cannot clearly support operation at the level described above may not be able to achieve program objectives.

Primarily for TA1 performers, but also for consideration by TA2 performers, are a number of secondary performance objectives. Proposals should discuss approaches that address the following:

- Variable format beam (pencil, fan, or cone) geometries
- Variable pulse rate and duty factors
- Tunable intensity and brilliance
- Long term, stable operation (weeks to months)
- Approaches for transportable, ruggedized systems
- Path to ultralow bandwidth (dE/E) of  $10^{-6}$  (TA1 only)

These performance objectives should be specifically addressed to achieve the offerors proposed demonstrations. For example, if a demonstration were to focus on isotope detection in a large object, e.g. cargo container, beam format, duty cycle and requisite intensity should be specifically addressed. In general, all approaches should consider long-term stable operations with the ability to conduct repeated object imaging/scanning over a multi-day period, and being

able to support highly repeatable performance during and between demonstrations that could occur over a year long period. TA1 performers may be required to transport their source to where demonstrations will be conducted, and proposed designs should subsequently account for this.

## **F. Schedule/Milestones**

Subject to the availability of funding, the program is intended to run for approximately 54 months. Proposers should specify the research and technology development schedule for the full period of performance, split between Phase 1 (24 months) and Phase 2 (30 months). Phase 1 should receive rigorous treatment within the proposal, and a nominal Phase 2 plan detailing major activities, risks and mitigation strategies likely to be addressed in a Phase 2 effort should also be included.

Nominal milestones for TA1, Phase 1 include:

- Completion of SRR and integrated master schedule (IMS) that encompasses all major tasks, sub-tasks, metrics, milestones and deliverables.
- Implementation of design review process for component-level development, including test plans, experiments, and tracking of progress towards identified component metrics
- Characterization of subcomponent and subsystem parameter space through modeling and/or experimentation
- Completion of overall system PDR
- Completion of first iteration of component construction and testing
- Completion of initial component integration in relevant testbeds
- Completion of overall system CDR
- Continuous integration of component technology into relevant testbeds
- Demonstration that components meet defined Phase 1 metrics, and Phase 1 integrated system
- Refinement of applications to focus detector/imager development and define Phase 2 demonstration path
- Identification of transition partners and update briefings to facilitate program transition at the end of Phase 2
- Draft of test and demonstration plans for Phase 2

Nominal milestones for TA1, Phase 2 include:

- Completion of final component manufacturing and demonstration of final component performance objectives described at Phase 1 CDR
- Integration of final components into final system
- Completion of detector/imager development
- Final test and demonstration plan
- Test and evaluation of integrated test-bed platform
- Final test results that demonstrate system objectives and produce related artifacts (ie images and/or other metrology results depending on applications selected in Phase 1)

- Completion of demonstrations

TA1 performers may augment the above milestone schedule for their specific technical approach as long as it is consistent with the SRR, PDR, CDR approach presented.

TA2 will follow a more exploratory research milestone schedule, consistent with higher risk approaches, but should also follow a systems engineering approach to realize a design that near the end of Phase 1 has all technical detail necessary to support a Phase 2 effort, if pursued by the Government. Proposers should describe a milestone schedule consistent with their technical approach and describe variations to the nominal schedule presented above.

For Phase 1, principal investigator (PI) meetings will be held approximately every 3-6 months, starting in month 6 of the program. The locations for meetings and other events will be specified by the Government, but for budgeting purposes proposers may assume the meetings will be held in Arlington, Virginia. The goals of the PI meetings will be to: (a) review component development, system architecture, and integration plans; (b) review accomplishments of each performer; (c) enable coordination and teaming.

A target start date of February 2020 may be assumed for planning and budgeting purposes. A two-day kick-off meeting in Arlington, Virginia should be planned for in this time frame.

Regular teleconference meetings will be scheduled with the Government team for progress reporting as well as issue identification and mitigation. Proposers should be prepared to support at least one site visit by DARPA during the course of the program.

A formal design review will be conducted 12 months after the beginning of the program. Component performance and integration feasibility will be assessed. Test plans, experiments, and progress tracking towards this formal design review should be identified in the schedule.

## **G. Deliverables**

All performers are required to provide the following deliverables:

- Monthly technical and financial reports, submitted concurrently with monthly teleconferences
- Reports associated with all major project milestones as discussed above
- Final report concisely summarizing the effort conducted
- Report summarizing demonstration of systems and stakeholders feedback
- Final prototype system at the end of Phase 2

## **H. Government-furnished Property/Equipment/Information**

No Government-furnished property/equipment/information will be provided or required by performers.

## **I. Other Program Objectives and Considerations**

### **1. Collaboration and Teaming**

The capabilities sought under this program are expected to require multi-disciplinary teams to accomplish the full range of research, design, development, integration and testing necessary to reach TA objectives. Further, successful transition of technologies developed under GRIT is a critical objective of the program.

### **2. Intellectual Property (IP)**

Offerors should clearly indicate claimed IP or patents claimed on designs and concepts presented in their proposals. See section VI.B.4 of this BAA and the required proposal templates for more information.

## **II. Award Information**

### **A. General Award Information**

DARPA anticipates multiple awards.

The level of funding for individual awards made under this BAA will depend on the quality of the proposals received and the availability of funds. Awards will be made to proposers<sup>2</sup> whose proposals are determined to be the most advantageous to the Government, all evaluation factors considered. See Section V for further information.

The Government reserves the right to:

- select for negotiation all, some, one, or none of the proposals received in response to this solicitation;
- make awards without discussions with proposers;
- conduct discussions with proposers if it is later determined to be necessary;
- segregate portions of resulting awards into pre-priced options;
- accept proposals in their entirety or to select only portions of proposals for award;
- fund awards in increments with options for continued work at the end of one or more phases;
- request additional documentation once the award instrument has been determined (e.g., representations and certifications); and
- remove proposers from award consideration should the parties fail to reach agreement on award terms within a reasonable time or the proposer fails to provide requested

---

<sup>2</sup> As used throughout this BAA, “proposer” refers to the lead organization on a submission to this BAA. The proposer is responsible for ensuring that all information required by a BAA—from all team members—is submitted in accordance with the BAA. “Awardee” refers to anyone who might receive a prime award from the Government, including recipients of procurement contracts, grants, cooperative agreements, or Other Transactions. “Subawardee” refers to anyone who might receive a subaward from a prime awardee (e.g., subawardee, consultant, etc.).

additional information in a timely manner.

Proposals identified for negotiation may result in a procurement contract, grant, cooperative agreement, or other transaction (OT), depending upon the nature of the work proposed, the required degree of interaction between parties, 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. § 2371b(f), the Government may award a follow-on production contract or Other Transaction (OT) for any OT awarded under this BAA 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.

## **B. 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 BAA, the Government expects that program goals as described herein may be met by proposed efforts for fundamental research and non-fundamental research. Some proposed research may present a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense. Based on the anticipated type of proposer (e.g., university or industry) and the nature of the solicited work, the Government expects that some awards will include restrictions on the resultant research that will require the awardee to seek DARPA permission before publishing any information or results relative to the program.

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.

### **III. Eligibility Information**

#### **A. Eligible Applicants**

All responsible sources capable of satisfying the Government's needs may submit a proposal for DARPA's consideration.

#### **1. Federally Funded Research and Development Centers (FFRDCs) and Government Entities**

##### **a. FFRDCs**

FFRDCs are subject to applicable direct competition limitations and cannot propose to this BAA 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.

##### **b. 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.

### **c. 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. § 2539b 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.

## **2. Foreign Participation**

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. For classified submissions, this includes mitigating any Foreign Ownership Control and Influence (FOCI) issues prior to transmitting the submission to DARPA. Additional information on these subjects can be found at [http://www.dss.mil/isp/foci/foci\\_faqs.html](http://www.dss.mil/isp/foci/foci_faqs.html).

## **B. 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 BAA. 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 BAA 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.

Include any OCIs affirmations and disclosures in Attachment G Proposal Template Vol. 3-Admin and National Policy Requirements.

### **C. 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 (e.g., OTs under the authority of 10 U.S.C. § 2371). Cost sharing is encouraged where there is a reasonable probability of a potential commercial application related to the proposed research and development effort.

For more information on potential cost sharing requirements for Other Transactions for Prototype, see <http://www.darpa.mil/work-with-us/contract-management#OtherTransactions>.

### **D. Other Eligibility Requirements**

#### **1. Ability to Receive Awards in Multiple Technical Areas - Conflicts of Interest**

Proposers may propose to one or both technical areas, but separate proposals are required for each technical area. Combined proposals will not be accepted.

#### **2. Ability to Support Classified Development**

At the time of proposal submission, all proposers wishing to submit classified proposals under Technical Areas 1 or 2 must have personnel with an appropriate clearance that are eligible for and capable of managing the required security clearances and access to facilities with a minimum classification level of SECRET at the time of award and must provide their CAGE code and security point(s) of contact in their proposals.

#### **IV. Application and Submission Information**

Prior to submitting a full proposal, proposers are *strongly encouraged* to first submit an abstract as described below. This process allows a proposer to ascertain whether the proposed concept is: (1) applicable to the GRIT BAA and (2) currently of interest. For the purposes of this BAA, applicability is defined as follows:

- The proposed concept is applicable to the technical areas described herein.
- The proposed concept is important to DSO's current investment portfolio.
- The proposed concept investigates an innovative approach that enables revolutionary advances, i.e., will not primarily result in evolutionary improvements to the existing state of practice.
- The proposed work has not already been completed (i.e., the research element is complete but manufacturing/fabrication funds are required).
- The proposer has not already received funding or a positive funding decision for the proposed concept (whether from DARPA or another Government agency).

Abstracts and full proposals that are not found to be applicable to the GRIT BAA as defined above may be deemed non-conforming<sup>3</sup> and removed from consideration. All abstracts and full proposals must provide sufficient information to assess the validity/feasibility of their claims as well as comply with the requirements outlined herein for submission formatting, content and transmission to DARPA. Validity and feasibility must be based on strong empirical, analytical and/or modeling evidence that proposed concepts are realistic and feasible within the time frames of the proposed program. Abstracts and full proposals that fail to do so may be deemed non-conforming and removed from consideration. Proposers will be notified of non-conforming determinations via letter.

##### **A. Address to Request Application Package**

This document contains all information required to submit a response to this solicitation. No additional forms, kits, or other materials are needed except as referenced herein. No request for proposal or additional solicitation regarding this opportunity will be issued, nor is additional information available except as provided at the Federal Business Opportunities website (<http://www.fbo.gov>), the Grants.gov website (<http://www.grants.gov/>), or referenced herein.

##### **B. Content and Form of Application Submission**

###### **1. Abstract Information**

As stated above, proposers are strongly encouraged to submit an abstract in advance of a full proposal to minimize effort and reduce the potential expense of preparing an out of scope proposal. The abstract provides a synopsis of the proposed project by briefly answering the following questions:

- What is the proposed work attempting to accomplish or do?

---

<sup>3</sup> "Conforming" is defined as having been submitted in accordance with the requirements outlined herein.

- How is it done today, and what are the limitations?
- Who will care and what will the impact be if the work is successful?
- How much will it cost, and how long will it take?

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.

Proposers should note that a favorable response to an abstract is not a guarantee that a proposal based on the abstract will ultimately be selected for award negotiation.

While it is DARPA policy to attempt to reply to abstracts within thirty calendar days, proposers to this solicitation may anticipate a response within approximately three weeks. These official notifications will be sent via email to the Technical POC and/or Administrative POC identified on the abstract coversheet.

- **Abstract Format**

All proposers are required to use Attachment A: Abstract Summary Slide Template and Attachment B: Abstract Template provided to this solicitation on <http://www.fbo.gov> and <http://www.grants.gov>. Attachment A Abstract Summary Slide Template described herein must be in .ppt or .pptx format and should be attached as a separate file to this document.

## **2. Full Proposal Information**

Proposals consist of Volume 1: Technical and Management Volume, Volume 2: Cost Volume, and Volume 3: Administrative and National Policy Requirements Volume).

To assist in proposal development, various attachments have been provided along with the BAA posted on <http://www.fbo.gov> (Attachment C: Proposal Summary Slide Template, Attachment D: Proposal Template Volume 1 Technical & Management Volume, Attachment E: Proposal Template Volume 2 Cost Volume, Attachment F: Cost Proposal Template, and Attachment G: Proposal Template Volume 3 Administrative & National Policy Requirements Volume).

Full proposals requesting a procurement contract or other transaction (OT) must use the following attachments:

- Attachment C
- Attachment D
- Attachment E
- Attachment F
- Attachment G

Full proposals requesting a grant or cooperative agreement must use the following attachments in

addition to the Grants.gov application package:

- Attachment C
- Attachment D
- Attachment F
- Attachment G

\*Note – Budget Justification should be provided as Section L of the SF 424 Research & Related Budget form provided via Grants.gov. The Budget Justification should include the following information for the recipient and all subawardees: (1) Direct Labor: Detail the total number of persons and their level of commitment for each position listed (in sections A and B), as well as which specific tasks (as described in the SOW) they will support.(2) Equipment (section C) Provide an explanation for listed requested equipment exceeding \$5,000, properly justifying their need to meet the objectives of the program. (3) Travel (section D) Provide the purpose of the trip, number of trips, number of days per trip, departure and arrival destinations, number of people, etc. (4) Other Direct Costs (section F). Provide a justification for the items requested and an explanation of how the estimates were obtained.

Proposals not meeting the format prescribed herein may not be reviewed.

- **Full Proposal Format**

All proposers are required to use the templates provided as attachments to this solicitation on <http://www.fbo.gov> and <http://www.grants.gov>. Formatting instructions are provided therein.

### **3. Proprietary Information**

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. See Section V.B.1 for additional information.

### **4. Security Information**

DARPA anticipates that submissions received under this BAA will be unclassified. However, should a proposer wish to submit classified information, an *unclassified* email must be sent to the BAA mailbox requesting submission instructions from the DARPA/DSO Program Security Officer (PSO).

Security classification guidance and direction via a Security Classification Guard (SCG) and/or DD Form 254, “DoD Contract Security Classification Specification,” will not be provided at this time, since DARPA is soliciting ideas only. If a determination is made that the award instrument may result in access to classified information, a SCG and/or DD Form 254 will be issued by DARPA and attached as part of the award.

## **C. Submission Dates and Times**

Proposers are warned that submission deadlines as outlined herein are in Eastern Time and will be strictly enforced. When planning a response to this solicitation, proposers should take into account that some parts of the submission process may take from one business day to one month to complete (e.g., registering for a Data Universal Numbering System (DUNS) number or Taxpayer Identification Number (TIN)).

DARPA will acknowledge receipt of *complete* submissions via email and assign identifying numbers that should be used in all further correspondence regarding those submissions. If no confirmation is received within two business days, please contact the BAA Administrator at [GRIT@darpa.mil](mailto:GRIT@darpa.mil) to verify receipt.

### **1. Abstracts**

Abstracts must be submitted per the instructions outlined herein *and received by DARPA* no later than the due date and time listed in Part One: Overview Information. Abstracts received after this time and date may not be reviewed.

### **2. Full Proposals**

Full proposal packages--full proposal (Volume 1: Technical and Management Volume, Volume 2: Cost Volume, and Volume 3: Administrative and National Policy Requirements Volume) and, as applicable, proprietary subawardee cost proposals, classified appendices to unclassified proposals-- must be submitted per the instructions outlined herein *and received by DARPA* no later than the due date and time listed in Part One: Overview Information. Proposals received after this time and date may not be reviewed.

## **D. Funding Restrictions**

Not applicable.

## **E. Other Submission Requirements**

Proposers must submit all parts of their submission package using the same method; submissions cannot be sent in part by one method and in part by another method nor should duplicate submissions be sent by multiple methods. Email submissions will not be accepted. Failure to comply with the submission procedures outlined herein may result in the submission being deemed non-conforming and withdrawn from consideration.

### **a. Abstracts**

DARPA/DSO will employ an electronic upload submission system (<https://baa.darpa.mil/>) for all UNCLASSIFIED abstracts sent in response to this solicitation. *Abstracts must not be submitted via Grants.gov.*

First time users of the DARPA BAA Submission website must complete a two-step account creation process. The first step consists of registering for an extranet account by going to the

URL listed above and selecting the “Account Request” link. Upon completion of the online form, proposers will receive two separate emails; one will contain a user name and the second will provide a temporary password. Once both emails have been received, the second step requires proposers to go back to the submission website and log in using that user name and password. After accessing the extranet, proposers may then create a user account for the DARPA BAA Submission website by selecting the “Register your Organization” link at the top of the page. Once the user account is created, proposers will be able to see a list of solicitations open for submissions, view submission instructions, and upload/finalize their abstract.

Proposers who already have an account on the DARPA BAA Submission website may simply log in at <https://baa.darpa.mil/>, select this solicitation from the list of open DARPA solicitations and proceed with their abstract submission. Note: proposers who have created a DARPA BAA Submission website account to submit to another DARPA Technical Office’s solicitations do not need to create a new account to submit to this solicitation.

All abstracts submitted electronically through the DARPA BAA Submission website must meet the following requirements: (1) uploaded as a zip file (.zip or .zipx extension); (2) only contain the document(s) requested herein; (3) only contain unclassified information; and (4) must not exceed 100 MB in size. Only one zip file will be accepted per abstract and abstracts not uploaded as zip files will be rejected by DARPA.

Technical support for the DARPA BAA Submission website is available during regular business hours, Monday – Friday, 9:00 a.m. – 5:00 p.m. Requests for technical support must be emailed to [BAAT\\_Support@darpa.mil](mailto:BAAT_Support@darpa.mil) with a copy to [GRIT@darpa.mil](mailto:GRIT@darpa.mil). Questions regarding submission contents, format, deadlines, etc. should be emailed to [GRIT@darpa.mil](mailto:GRIT@darpa.mil). Questions/requests for support sent to any other email address may result in delayed/no response.

*Since proposers may encounter heavy traffic on the web server, DARPA discourages waiting until the day abstracts are due to request an account and/or upload the submission.*

*Note: Proposers submitting an abstract via the DARPA BAA Submission site MUST (1) click the “Finalize” button in order for the submission to upload AND (2) do so with sufficient time for the upload to complete prior to the deadline. Failure to do so will result in a late submission.*

## **b. Proposals Requesting a Procurement Contract or Other Transaction**

Proposers requesting procurement contracts or other transactions may submit full proposals through ONE of the following methods: (1) electronic upload (DARPA-preferred); or (2) direct mail/hand-carry.

### **i. Electronic Upload**

DARPA/DSO encourages proposers to submit UNCLASSIFIED proposals via the DARPA BAA Submission website at <https://baa.darpa.mil/>.

First time users of the DARPA BAA Submission website must complete a two-step account creation process. The first step consists of registering for an extranet account by going to the URL listed above and selecting the “Account Request” link. Upon completion of the online

form, proposers will receive two separate emails; one will contain a user name and the second will provide a temporary password. Once both emails have been received, the second step requires proposers to go back to the submission website and log in using that user name and password. After accessing the extranet, proposers may then create a user account for the DARPA BAA Submission website by selecting the “Register your Organization” link at the top of the page. Once the user account is created, proposers will be able to see a list of solicitations open for submissions, view submission instructions, and upload/finalize their proposal.

Proposers who already have an account on the DARPA BAA Submission website may simply log in at <https://baa.darpa.mil/>, select this solicitation from the list of open DARPA solicitations and proceed with their proposal submission. *Note: proposers who have created a DARPA BAA Submission website account to submit to another DARPA Technical Office’s solicitations do not need to create a new account to submit to this solicitation.*

All full proposals submitted electronically through the DARPA BAA Submission website must meet the following requirements: (1) uploaded as a zip file (.zip or .zipx extension); (2) only contain the document(s) requested herein; (3) only contain unclassified information; and (4) must not exceed 100 MB in size. Only one zip file will be accepted per full proposal and full proposals not uploaded as zip files will be rejected by DARPA.

Technical support for the DARPA BAA Submission website is available during regular business hours, Monday – Friday, 9:00 a.m. – 5:00 p.m. Requests for technical support must be emailed to [BAAT\\_Support@darpa.mil](mailto:BAAT_Support@darpa.mil) with a copy to [GRIT@darpa.mil](mailto:GRIT@darpa.mil). Questions regarding submission contents, format, deadlines, etc. should be emailed to [GRIT@darpa.mil](mailto:GRIT@darpa.mil). Questions/requests for support sent to any other email address may result in delayed/no response.

*Since proposers may encounter heavy traffic on the web server, DARPA discourages waiting until the day proposals are due to request an account and/or upload the submission. Note: Proposers submitting a proposal via the DARPA BAA Submission site MUST (1) click the “Finalize” button in order for the submission to upload AND (2) do so with sufficient time for the upload to complete prior to the deadline. Failure to do so will result in a late submission.*

## **ii. Direct Mail/Hand-carry**

Proposers electing to submit procurement contract or other transaction proposals via direct mail or hand-carried must provide one paper copy and one electronic copy on CD or DVD of the full proposal package. All parts of the proposal package must be mailed or hand-carried in a single delivery to the address noted in Section VII below.

## **c. Proposals Requesting a Grant or Cooperative Agreement**

Proposers requesting grants or cooperative agreements may only submit proposals through ONE of the following methods: (1) electronic upload at Grants.gov (DARPA-preferred); or (2) direct mail/hand-carry to DARPA.

To evaluate compliance with Title IX of the Education Amendments of 1972 {20 U.S.C. A§ 1681 Et. Seq.}, the Department of Defense 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 STEM disciplines. To enable this assessment, each application must include the two following forms completed as instructed: the Research and Related Senior/Key Person Profile (Expanded) form and the Research and Related Personal Data form. Both forms are provided with the application package in Grants.gov.

#### **i. Electronic Upload**

DARPA encourages grant and cooperative agreement proposers to submit their proposals via electronic upload at <http://www.grants.gov/web/grants/applicants/apply-for-grants.html>. Proposers electing to use this method must complete a one-time registration process on Grants.gov before a proposal can be electronically submitted. *If proposers have not previously registered, this process can take up to four weeks so registration should be done in sufficient time to ensure it does not impact a proposer's ability to meet required submission deadlines.* Registration requirements and instructions are outlined at <http://www.grants.gov/web/grants/register.html>.

Carefully follow the DARPA submission instructions provided with the solicitation application package on Grants.gov. Only the required forms listed therein (e.g., SF-424 and Attachments form) should be included in the submission. *Note: Grants.gov does not accept zipped or encrypted proposals.*

Once Grants.gov has received an uploaded proposal submission, Grants.gov will send two email messages to notify proposers that: (1) the proposal has been received by Grants.gov; and (2) the proposal has been either validated or rejected by the system. *It may take up to two business days to receive these emails.* If the proposal is validated, then the proposer has successfully submitted their proposal. If the proposal is rejected, the submission must be corrected, resubmitted and revalidated before DARPA can retrieve it. If the solicitation is no longer open, the rejected proposal cannot be resubmitted. Once the proposal is retrieved by DARPA, Grants.gov will send a third email to notify the proposer. DARPA will send a final confirmation email as described in Section IV.C.

*To avoid missing deadlines, Grants.gov recommends that proposers submit their proposals to Grants.gov 24-48 hours in advance of the proposal due date to provide sufficient time to complete the registration and submission process, receive email notifications and correct errors, as applicable.*

Technical support for Grants.gov submissions may be reached at 1-800-518-4726 or [support@grants.gov](mailto:support@grants.gov).

#### **ii. Direct Mail/Hand-carry**

Proposers electing to submit grant or cooperative agreement proposals via direct mail or hand-carried must provide one paper copy and one electronic copy on CD or DVD of the full proposal package. Proposers must complete the SF 424 R&R form (Application for Federal Assistance, Research and Related) provided at Grants.gov as part of the opportunity application package for this BAA and include it in the proposal submission. All parts of the proposal package must be mailed or hand-carried to the address noted in Section VII below.

## **V. Application Review Information**

### **A. Evaluation Criteria**

Proposals will be evaluated using the following criteria listed in descending order of importance: Overall Scientific and Technical Merit; Potential Contribution and Relevance to the DARPA Mission; Plans and Capability to Accomplish Technology Transition; and Cost Realism.

- **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 proposed schedule aggressively pursues performance metrics in an efficient time frame that accurately accounts for the anticipated workload.

- **Potential Contribution and Relevance to the DARPA Mission**

The potential contributions of the proposed effort bolster the national security technology base, and support DARPA's mission to make pivotal early technology investments that create or prevent technological surprise. Offeror's should detail their specific demonstration objectives for the end of Phase 2 and describe how they will benefit the DoD and U.S. National Security mission.

- **Plans and Capability to Accomplish Technology Transition**

The proposer has the capability and a feasible plan to transition the technology to the research, industrial, and/or operational military communities in such a way as to enhance U.S. defense capabilities. The proposed intellectual property restrictions (if any) will not significantly impact the Government's ability to transition the technology.

- **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).

### **B. Review and Selection Process**

DARPA will conduct a scientific/technical review of each conforming proposal. Conforming proposals comply with all requirements detailed in this BAA; 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.

The review process identifies proposals that meet the evaluation criteria described above and are, therefore, selectable for negotiation of awards by the Government. DARPA policy is to ensure impartial, equitable, comprehensive proposal evaluations and to select proposals that meet DARPA technical, policy, and programmatic goals. Proposals that are determined selectable will not necessarily receive awards (see Section II). Selections may be made at any time during the period of solicitation. For evaluation purposes, a proposal is defined to be the document and supporting materials as described in Section IV.

- **Handling of Source Selection Information**

DARPA policy is to treat all submissions as source selection information (FAR 2.101 and 3.104), and to only disclose their contents to authorized personnel. Restrictive notices notwithstanding, 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), DARPA may also request input on technical aspects of the proposals from other non-Government consultants/experts who are strictly bound by the appropriate non-disclosure requirements.

Submissions will not be returned. The original of each submission received will be retained at DARPA and all other non-required copies destroyed. A certification of destruction may be requested via email to the BAA mailbox, provided the formal request is received within 5 days after being notified of submission status.

### **C. Federal Awardee Performance and Integrity Information (FAPIIS)**

Following the review and selection process described above, but prior to making an award above the simplified acquisition threshold (FAR 2.101), DARPA is required<sup>4</sup> to review and consider any information available through the designated integrity and performance system (currently FAPIIS). Selectees have the opportunity to comment on any information about themselves entered in the database. DARPA will consider any comments and other information in FAPIIS or other systems prior to making an award.

## **VI. Award Administration Information**

### **A. Selection Notices**

After proposal evaluations are complete, proposers will be notified as to whether their proposal was selected for award negotiation as a result of the review process. Notification will be sent by

---

<sup>4</sup> Per 41 U.S.C. 2313, as implemented by FAR 9.103 and 2 CFR § 200.205.

email to the Technical and Administrative POCs identified on the proposal cover sheet. If a proposal has been selected for award negotiation, the Government will initiate those negotiations following the notification.

## **B. Administrative and National Policy Requirements**

### **1. Solicitation Provisions and Award Clauses, Terms and Conditions**

Solicitation provisions relevant to DARPA BAAs are listed on the Additional BAA Content page on DARPA's website at [www.darpa.mil/work-with-us/additional-baa](http://www.darpa.mil/work-with-us/additional-baa). This page also lists award clauses that, depending on their applicability, may be included in the terms and conditions of awards resultant from DARPA solicitations. This list is not exhaustive and the clauses, terms and conditions included in a resultant award will depend on the nature of the research effort, the specific award instrument, the type of awardee, and any applicable security or publication restrictions.

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>.

The above information serves to put potential proposers and awardees on notice of proposal requirements and award terms and conditions to which they may have to adhere.

### **2. 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 BAA. 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/fsd-gov/answer.do?sysparm\\_kbid=dbf8053adb119344d71272131f961946&sysparm\\_search=KB0013221](https://www.fsd.gov/fsd-gov/answer.do?sysparm_kbid=dbf8053adb119344d71272131f961946&sysparm_search=KB0013221).

NOTE: new registrations can take an average of 7-10 business days to process in SAM. SAM registration requires the following information:

- DUNS number
- TIN
- Commercial and Government Entity (CAGE) Code. If a proposer does not already have a CAGE code, one will be assigned during SAM registration.
- Electronic Funds Transfer information (e.g., proposer's bank account number, routing number, and bank phone or fax number).

### **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, resultant procurement contracts will require supplementary DARPA-specific representations and certifications. See <http://www.darpa.mil/work-with-us/additional-baa> for further information.

### **4. Intellectual Property**

Proposers should note that the Government does not own the intellectual property or technical data/computer software developed under Government contracts. The Government acquires the right to use the technical data/computer software. Regardless of the scope of the Government's rights, awardees may freely use their same data/software for their own commercial purposes (unless restricted by U.S. export control laws or security classification). Therefore, technical data and computer software developed under this solicitation will remain the property of the awardees, though DARPA will have, at a minimum, Government Purpose Rights (GPR) to technical data and computer software developed through DARPA sponsorship.

If proposers desire to use proprietary computer software or technical data or both as the basis of their proposed approach, in whole or in part, they should: (1) clearly identify such software/data and its proposed particular use(s); (2) explain how the Government will be able to reach its program goals (including transition) within the proprietary model offered; and (3) provide possible nonproprietary alternatives in any area that might present transition difficulties or increased risk or cost to the Government under the proposed proprietary solution. Proposers expecting to use, but not to deliver, commercial open source tools or other materials in implementing their approach may be required to indemnify the Government against legal liability arising from such use.

All references to "Unlimited Rights" or "Government Purpose Rights" are intended to refer to the definitions of those terms as set forth in the Defense Federal Acquisition Regulation Supplement (DFARS) 227.

#### **a. Intellectual Property Representations**

All proposers must provide a good faith representation of either ownership or possession of appropriate licensing rights to all other intellectual property to be used for the proposed project. Proposers must provide a short summary for each item asserted with less than unlimited rights that describes the nature of the restriction and the intended use of the intellectual property in the conduct of the proposed research.

#### **b. Patents**

All proposers must include documentation proving ownership or possession of appropriate licensing rights to all patented inventions to be used for the proposed project. If a patent application has been filed for an invention, but it includes proprietary information and is not publicly available, a proposer must provide documentation that includes: the patent number,

inventor name(s), assignee names (if any), filing date, filing date of any related provisional application, and summary of the patent title, with either: (1) a representation of invention ownership; or (2) proof of possession of appropriate licensing rights in the invention (i.e., an agreement from the owner of the patent granting license to the proposer)..

### c. Procurement Contracts

- **Noncommercial Items (Technical Data and Computer Software):** Proposers requesting a procurement contract must list all noncommercial technical data and computer software that it plans to generate, develop, and/or deliver, in which the Government will acquire less than unlimited rights and to assert specific restrictions on those deliverables. In the event a proposer does not submit the list, the Government will assume that it has unlimited rights to all noncommercial technical data and computer software generated, developed, and/or delivered, unless it is substantiated that development of the noncommercial technical data and computer software occurred with mixed funding. If mixed funding is anticipated in the development of noncommercial technical data and computer software generated, developed, and/or delivered, proposers should identify the data and software in question as subject to GPR. In accordance with DFARS 252.227-7013, “Rights in Technical Data - Noncommercial Items,” and DFARS 252.227-7014, “Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation,” the Government will automatically assume that any such GPR restriction is limited to a period of 5 years, at which time the Government will acquire unlimited rights unless the parties agree otherwise. The Government may use the list during the evaluation process to evaluate the impact of any identified restrictions and may request additional information from the proposer, as may be necessary, to evaluate the proposer’s assertions. Failure to provide full information may result in a determination that the proposal is non conforming. A template for complying with this request is provided in Section IV.B.2.
- **Commercial Items (Technical Data and Computer Software):** Proposers requesting a procurement contract must list all commercial technical data and commercial computer software that may be included in any noncommercial deliverables contemplated under the research project, and assert any applicable restrictions on the Government’s use of such commercial technical data and/or computer software. In the event a proposer does not submit the list, the Government will assume there are no restrictions on the Government’s use of such commercial items. The Government may use the list during the evaluation process to evaluate the impact of any identified restrictions and may request additional information from the proposer to evaluate the proposer’s assertions. Failure to provide full information may result in a determination that the proposal is non-conforming. A template for complying with this request is provided in Section IV.B.2.

### d. Other Types of Awards

Proposers requesting an award instrument other than a procurement contract shall follow the applicable rules and regulations governing those award instruments, but in all cases should appropriately identify any potential restrictions on the Government’s use of any intellectual property contemplated under those award instruments. This includes both noncommercial items

and commercial items. The Government may use the list as part of the evaluation process to assess the impact of any identified restrictions, and may request additional information from the proposer, to evaluate the proposer's assertions. Failure to provide full information may result in a determination that the proposal is non-conforming. A template for complying with this request is provided in Section IV.B.2.c.

## **5. Program-generated Data**

Data are increasingly the key product of research and engineering endeavors. To ensure the reproducibility of results and access to source data for future research, awardees will be required to maintain and deliver any data generated during award performance ("program-generated data") that is needed to accomplish these goals. Awardees shall be expected to document both the proprietary and non-proprietary products of their research to ensure the retention and potential reusability of this information. This may include:

- Raw unprocessed data, software source code and executables, build scripts, process sequence, programmatic communication and other collaboration activities;
- Data sets: rarified, experimental, test and measurement data;
- Design of experiments and simulations;
- Models or simulations (computational or mathematical);
- Recordings of various physical phenomena (including images, videos, sensor data, etc.);
- Access to and use of institutional, organizational or scientific community repositories and archives

When possible, DARPA may share some or all of the program-generated data with the broader research community as open data (with permission to access, reuse, and redistribute under appropriate licensing terms where required) to the extent permitted by applicable law and regulations (e.g., privacy, security, rights in data, and export control). DARPA plans to enable reproducibility of results through data sharing and to establish (or contribute to) digital collections that can advance this and other scientific fields.

## **6. 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.

## **7. Controlled Unclassified Information (CUI) on Non-DoD Information Systems**

All proposers and awardees will be subject to the DARPA requirements related to Controlled Unclassified Information on Non-DoD Information Systems as detailed at [www.darpa.mil/work-with-us/additional-baa](http://www.darpa.mil/work-with-us/additional-baa).

## **8. Electronic Invoicing and Payments**

Awardees will be required to submit invoices for payment electronically via Wide Area Work

Flow (WAWF) at <https://wawf.eb.mil>, unless an exception applies. Registration in WAWF is required prior to any award under this BAA.

## **9. Electronic and Information Technology**

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) and FAR 39.2.

## **10. Publication of Grant Awards**

Per Section 8123 of the Department of Defense Appropriations Act, 2015 (Pub. L. 113-235), all grant awards must be posted on a public website in a searchable format. To comply with this requirement, proposers requesting grant awards must submit a maximum one (1) page abstract that may be publicly posted and explains the program or project to the public. The proposer should sign the bottom of the abstract confirming the information in the abstract is approved for public release. Proposers are advised to provide both a signed PDF copy, as well as an editable (e.g., Microsoft word) copy. Abstracts contained in grant proposals that are not selected for award will not be publicly posted.

## **11. 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://doi.org/10.6028/NIST.SP.800-171r1>) that are in effect at the time the BAA 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.

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.

## **C. Reporting**

### **1. Technical and Financial Reports**

The number and types of technical and financial reports required under the contracted project will be specified in the award document, and will include, as a minimum, monthly financial status reports and a yearly status summary. A final report that summarizes the project and tasks will be required at the conclusion of the performance period for the award. The reports shall be prepared and submitted in accordance with the procedures contained in the award document.

### **2. Patent Reports and Notifications**

All resultant awards will contain a mandatory requirement for patent reports and notifications to be submitted electronically through i-Edison (<https://public.era.nih.gov/iedison>).

## **VII. Agency Contacts**

DARPA will use email for all technical and administrative correspondence regarding this solicitation.

- **Technical POC:** Mark Wrobel, Program Manager, DARPA/DSO
- **BAA Email:** [GRIT@darpa.mil](mailto:GRIT@darpa.mil)
- **BAA Mailing Address:**  
DARPA/DSO  
ATTN: HR001119S0073  
675 North Randolph Street  
Arlington, VA 22203-2114
- **DARPA/DSO Opportunities Website:** <http://www.darpa.mil/work-with-us/opportunities>

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

## **VIII. Other Information**

### **A. Frequently Asked Questions (FAQs)**

Administrative, technical, and contractual questions should be emailed to [GRIT@darpa.mil](mailto:GRIT@darpa.mil).

All questions must be in English and must include the name, email address, and the telephone number of a point of contact.

DARPA will attempt to answer questions in a timely manner; however, questions submitted within 10 days of the proposal due date may not be answered. DARPA will post an FAQ list at: <http://www.darpa.mil/work-with-us/opportunities>. The list will be updated on an ongoing basis until the BAA expiration date as stated in Part I.

### **B. Collaborative Efforts/Teaming**

DARPA highly encourages teaming before proposal submission and, as such, will facilitate the formation of teams with the necessary expertise. Interested parties should submit a one-page profile including the following information:

- Contact information to include name, organization, email, telephone number, mailing address, organization website (if applicable).
- A brief description of the proposer's technical competencies.
- Desired expertise from other teams, if applicable.

All profiles must be emailed to [GRIT@darpa.mil](mailto:GRIT@darpa.mil) no later than 4:00 p.m. July 22, 2019. Following the deadline, the consolidated teaming profiles will be sent via email to the proposers who submitted a valid profile. Specific content, communications, networking, and team formation are the sole responsibility of the participants. Neither DARPA nor the DoD endorses the information and organizations contained in the consolidated teaming profile document, nor does DARPA or the DoD exercise any responsibility for improper dissemination of the teaming profiles. Teams need not be finalized at the time of abstract submission.

### **C. Proposers Day**

The GRIT Proposers Day will be held via webcast on July 8, 2019 beginning at 2:00 PM. Advance registration is required for viewing the webcast. See DARPA-SN-19-59 posted at <http://www.fbo.gov> for all details. Viewing the GRIT Proposers Day webcast is voluntary and is not required to propose to this solicitation.