



Broad Agency Announcement
High Operational Temperature Sensors (HOTS)
Microsystems Technology Office
HR001123S0036
May 16, 2023
Amendment 01
July 20, 2023

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PART I: OVERVIEW INFORMATION

- **Federal Agency Name:** Defense Advanced Research Projects Agency (DARPA), Microsystems Technology Office (MTO)
- **Funding Opportunity Title:** High Operational Temperature Sensors (HOTS)
- **Announcement Type:** Amendment
- **Funding Opportunity Number:** HR001123S0036
- **Catalog of Federal Domestic Assistance Numbers (CFDA):** 12.910 Research and Technology Development
- **Dates:** (All times listed herein are Eastern Time)
 - Posting Dates:
 - Initial Announcement: May 16, 2023
 - Amendment 1: July 20, 2023
 - Proposers Day: May 31, 2023
 - Abstract Due Date: on or before 02:00 p.m. ET, June 22, 2023
 - FAQ Submission Deadline: 02:00 p.m. ET, August 1, 2023
 - Proposal Due Date: on or before 02:00 p.m. ET, August 31, 2023
 - Estimated period of performance start: January 17, 2024
- **Concise description of the funding opportunity:** The High Operational Temperature Sensors (HOTS) program will develop high-bandwidth, high-dynamic-range analog sensor microelectronics technologies that operate at high temperature. HOTS will demonstrate a pressure sensor module consisting of integrated transducer and signal-conditioning microelectronics.
- **Anticipated individual awards:** Multiple awards are anticipated.
- **Anticipated funding type:** 6.2
- **Types of instruments that may be awarded:** Procurement contract, cooperative agreement or other transaction.
- **Agency contact:**
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 BAA Coordinator: HR001123S0036@darpa.mil
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PART II: FULL TEXT OF ANNOUNCEMENT

I. Funding Opportunity Description

The Defense Advanced Research Projects Agency (DARPA) often selects its research efforts through the Broad Agency Announcement (BAA) process. This BAA is being issued, and any resultant selection will be made, using the procedures under Federal Acquisition Regulation (FAR) 6.102(d)(2) and 35.016 and 2 C.F.R. § 200.203. Any negotiations and/or awards for FAR-based procurement contracts will use procedures under FAR 15.4, Contract Pricing. Proposals received as a result of this BAA shall be evaluated in accordance with evaluation criteria specified herein through a scientific review process.

DARPA BAAs are posted on the System for Award Management (SAM) website, under the Contract Opportunities link, at <https://sam.gov/>, and, as applicable, the grants.gov website at <http://www.grants.gov/>. The following information is for those wishing to respond to the BAA.

The Microsystems Technology Office at DARPA seeks innovative proposals towards the development of sensor microelectronics consisting of transducers, signal-conditioning microelectronics, and integration that operate at extreme temperatures (i.e., at least 800 °C). Performance will be validated with the specific demonstration of a pressure sensor module consisting of integrated transducer and signal-conditioning microelectronics. Proposed research should investigate innovative approaches that enable revolutionary advances in science, devices, or systems. Specifically excluded is research that primarily results in evolutionary improvements to the existing state of practice.

A. Background

Many commercial and defense systems, including oil-and-gas, geothermal, automotive, turbine, and hypersonic systems, experience thermal environments beyond the capability of today's high-performance physical sensors. Due to uncertain conditions in the harsh thermal environment, such systems today must typically be designed to operate with reduced performance and/or excessive margins. Physical sensors that can operate in the high-temperature environment will enable systems to operate closed-loop with accurate state-of-health monitoring.

Microelectronic sensors are formed by transducers integrated with signal-conditioning microelectronics. High-bandwidth, large-dynamic-range sensors typically use low-loss integration technologies to combine high electromechanical sensitivity, limited-bandgap transducers with high gain-bandwidth product, and silicon complementary metal-oxide-semiconductor (CMOS) transistor signal-conditioning microelectronics. However, these technologies are constrained to operate in low-temperature zones (<225 °C¹ ambient temperature) due to intrinsic material limitations.

Today, physical sensors for thermally harsh environments consist of low-performance transducers operating in the hot zone (>225 °C) coupled via lossy electrical connections to temperature-

¹ B. W. Ohme and M. R. Larson, "SOI CMOS for Extreme Temperature Application," Plymouth, Minnesota, USA, 2012

constrained silicon CMOS signal-conditioning microelectronics remotely located in a separate cold zone (<225 °C). As a result, such physical sensors do not, without very aggressive active cooling, have the combination of frequency bandwidth and dynamic range to enable DoD high-temperature missions (e.g., at 800 °C).

B. Program Description

The HOTS program will develop a technology for high-bandwidth, high-dynamic-range sensing at high temperature. Performance will be validated through the development and demonstration of a pressure sensor module (i.e., integrated transducer and signal-conditioning microelectronics) achieving the following performance goals:

Table 1 HOTS high-temperature microelectronic pressure sensor module goals

Operating Temperature: 800 °C	Dynamic Range: > 90 dB*
Operating Lifetime at Temperature: > 1 hour	Bandwidth: > 1 MHz
No Active Cooling	

*Pressure resolution: < 1 Pa

Wide-bandgap materials, such as silicon carbide (SiC) or gallium nitride (GaN), have potential as sensor microelectronics at high temperature due to their significantly lower intrinsic carrier concentration. However, today they do not support sensor microelectronics with high bandwidth and large dynamic range at high operating temperature for useful lifetimes.

There are multiple mechanisms that limit sensor microelectronics at a high temperature. Mechanical cracking occurs due to thermally induced stress at high temperatures generated by mismatch in the coefficient of thermal expansion (CTE). Normally insulating materials at room temperature begin to experience appreciable leakage currents at high temperature due to the increase in thermal carriers. Electrical breakdowns can occur, such as agglomeration or electromigration of metal lines. Material states stable at room temperature can degrade at high temperature. For example, a poled ferroelectric material will lose polarization and its electromechanical sensitivity beyond its Curie temperature.

To achieve the program objectives, HOTS will overcome three key technical challenges (TCs):

TC1: Achieving both long lifetime and large bandwidth transistors at high temperature. Current approaches include:

1. *AlGaN/GaN high-electron-mobility transistors (HEMTs)* have demonstrated unity-gain bandwidth > 100 GHz² and mean-time-to-failure (MTTF) lifetime > 10⁶ hours at 225 °C. But since transistor lifetime degrades by approximately 50% for every 10 °C increase in temperature, lifetime at 800 °C would not be operationally useful. Transistor lifetime is primarily limited by degradation in the AlGaN barrier layer and failure in the passivation and contact metallization. The AlGaN barrier layer forms lattice defects, cracks, and

² An f_T at least 100x greater than the maximum sensor bandwidth is required to support the formation of signal conditioning electronics

dislocations due to thermally induced strain³. Surface passivation further exacerbates the strain-induced dislocations at the barrier layer due to CTE mismatch⁴. Contact metallization failures at elevated temperatures are caused by electromigration, agglomeration, and diffusion⁵.

2. *SiC top-gated junction field effect transistors (JFETs)* have demonstrated performance at 800 °C⁶. However, the top-gated transistor topology based on multiple epitaxially-grown layers does not have sufficient unity-gain bandwidth at 800 °C to support signal conditioning electronics with 1 MHz bandwidth.

TC2: Achieving a high-sensitivity transducer at high temperature. Current approaches include:

1. *Conventional transducer materials, such as lead zirconate titanate (PZT)*, exhibit high electromechanical sensitivity because of strong spontaneous polarization and extrinsic piezoelectric contributions arising from ferroelectric domain response. However, these are limited by their Curie temperature to less than 250 °C, above which the material loses its electromechanical response due to a loss in polarization⁷.
2. *Wide-bandgap materials, such as GaN and SiC*, are robust at temperatures well beyond 250 °C. But these materials are limited in their electromechanical sensitivities due to their small spontaneous polarization and negligible ferroelectric domain response⁸.

TC3: Integrating a high operating temperature sensor without degrading performance. Current approaches include:

1. *Multiple-chip-modules (MCM)* integrate discrete transducers and signal-conditioning microelectronics on substrates. At high temperatures (800 °C), MCMs suffer from electrical leakage through the substrate, degraded circuit performance, and failures of interconnects between discrete components.⁹
2. *Heterogeneous integration (HI)* approaches use transducer materials deposited directly on top of signal conditioning microelectronics to form direct interconnects at the device level without the need for an additional substrate. Relatively low temperature HI methods have relied on direct growth of transducer materials on top of signal conditioning electronics. However, devices demonstrated using direct growth have relied on material interfaces (e.g., aluminum) that are not compatible with high-temperature operation.¹⁰

³ C. Zeng, X. Liao, R. Li, Y. Wang, Y. Chen, W. Su, Y. Liu, L. W. Wang, P. Lai, Y. Huang and Y. En, "Investigation of abrupt degradation of drain current caused by under-gate crack in AlGaIn/GaN high electron mobility transistors during high-temperature operation stress," *Journal of Applied Physics*, vol. 118, no. 12, p. 124511, 2015.

⁴ M. Hou, S. R. Jain, H. So, T. A. Heuser, X. Xu, A. J. Suria and D. G. Senesky, "Degradation of 2DEG Transport Properties in GaN-capped AlGaIn/GaN Heterostructures at 600° C in Oxidizing and Inert Environments," *Journal of Applied Physics*, vol. 122, no. 19, p. 195102, 2017.

⁵ D. Maier, M. Alomari, E. Kohn, M.-A. Diforte-Poisson, S. Delage, S. L. Delage, N. Grandjean, J.-F. Carlin, A. Chuvilil and U. Kaiser, "High Temperature Stability of Nitride-based Power HEMTs," in *18th International Conference on Microwaves, Radar and Wireless Communications*, 2010.

⁶ G. Neudeck, D. J. Spry, L. Chen, N. F. Prokop and M. J. Krasowski, "Demonstration of 4H-SiC Digital Integrated Circuits above 800° C," *IEEE Electron Device Letters*, vol. 38, no. 8, pp. 1082-1085, 2017.

⁷ T. P. Comyn, P. I. Cowin and T. Stevenson, "High Strength Piezoelectric Materials for Extreme Environments," in *IEEE Sensors*, 2021.

⁸ M. Rais-Zadeh, V. J. Gokhale, A. Ansari, M. Faucher, D. Theron, Y. Cordier and L. Buchailot, "Gallium Nitride as an Electromechanical Material," *Journal of Microelectromechanical Systems*, vol. 23, no. 6, pp. 1252-1271, 2014.

⁹ P. G. Neudeck, D. J. Spry, L. Chen, N. F. Prokop and M. J. Krasowski, "Demonstration of 4H-SiC Digital Integrated Circuits above 800° C," *IEEE Electron Device Letters*, vol. 38, no. 8, pp. 1082-1085, 2017.

¹⁰ G. Esteves, M. Berg, K. D. Wrasman, M. H. David, B. A. Griffin and E. A. Douglas, "CMOS Compatible Metal Stacks for Suppression of Secondary Grains in Sc0.125Al0.875N," *Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films*, vol. 37, no. 2, p. 021511, 2019.

The HOTS program will leverage recent advances in wide-bandgap transistors, demonstrations of thermally robust transducer materials, and insight from HI techniques to overcome the technical challenges and form highly-integrated, thermally hardened sensors.

Proposals should demonstrate an understanding of the HOTS Technical Challenges described above and explain how and why the approach will address all applicable Technical Challenges in the respective program phases.

Details of the program structure are contained in the following section. DARPA expects that diverse expertise from across academia, small business, national laboratories, and the defense industrial base research community may be applicable to achieving all program goals. While not required, DARPA is open to teaming amongst the community as appropriate and when strategic to achieve program outcomes. Solutions that use domestic manufacturing capabilities to achieve program goals are preferred, as DARPA seeks to strengthen DoD access to differentiating technologies.

C. Program Structure

HOTS will be a 36-month program with a single technical area (TA) executed across two phases: an 18-month Phase 1 (base) and 18-month Phase 2 (option). As described below, a potential program expansion into a third phase is possible depending on success in the first two phases. The number of funded performers may decrease at the conclusion of each phase. Performers will continue into subsequent phases at the Government's sole discretion based on technical progress against the metrics and milestones defined in this BAA and funding availability.

Phase 1 will demonstrate individual devices and integration methods addressing the technical challenges at 800 °C. Phase 1 will also design full circuits and simulate performance of the integrated sensor system based on measured component results. Phase 2 will demonstrate full sensor module integration meeting the performance goals at 800 °C.

A potential Phase 3 will package and harden the sensor with a flush sensing element to withstand dynamic environmental conditions meeting heating/cooling rates, thermal cycling, and chemical species, as defined by mission needs. The Government intends to issue a Statement-of-Objectives (SOO) detailing Phase 3 goals to performers where Phase 2 has been exercised. It is anticipated that the SOO will be provided in Month 12 of Phase 2. Phase 2 performers may submit a proposal in response to this SOO. The Government will not reimburse Phase 3 proposal preparation costs if proposers choose to respond to this SOO. If awarded, the Government anticipates incorporating Phase 3 into current HOTS awards, unless the contracting officer determines a more appropriate contracting approach. Lastly, it is the Government's intent to negotiate and award Phase 3 no later than the Phase 2 end date.

While Phase 3 proposals are not being requested at this time, proposers must ensure that the Phase 1 and Phase 2 technical proposal demonstrates foresight for successful transition to Phase 3.

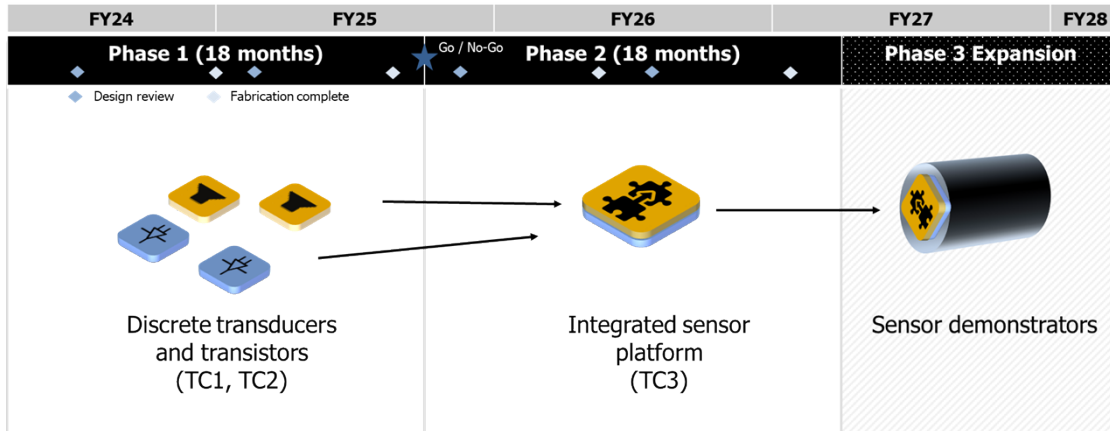


Figure 1 Program timeline and phases

D. Technical Areas

The HOTS program has one technical area that focuses on developing sensor microelectronics technologies, including transducer, signal-conditioning microelectronics, and integration. The program will orient itself around the goal of developing a pressure sensor that operates at least 800 °C with performance comparable to temperature-limited high-performance pressure sensors. Overcoming the key technical challenges will require an understanding of the impact of material quality on high-temperature performance, accurate multi-physics simulations of discrete devices, integration, and sensor module performance, and temperature-dependent device models. Proposers are therefore expected to submit a plan that collectively addresses discrete transistors and transducers, integration, signal-conditioning microelectronics, and an integrated sensor module.

Table 2 presents the program metrics by phase and technical challenge. Note that while the numeric metrics between Phase 1 and Phase 2 are consistent, the level of integration increases from demonstration using discrete components in Phase 1 to a fully integrated sensor module in Phase 2. The implication is that, to meet the performance metrics in the fully integrated sensor module, discrete performance should be at least maintained in Phase 2. All submitted proposals are expected to address the sensor goals and all three Technical Challenges described in the above Section B of this solicitation throughout all phases of HOTS.

Table 2 HOTS metrics by phase and technical challenge

	Metric ⁽¹⁾	Phase 1 (18 months) Discrete components	Phase 2 (18 months) Integrated sensor module
	Environmental test condition	> 1 hr at 800 °C in air	> 1 hr at 800 °C in air
Sensor	Dynamic range ⁽²⁾	> 90 dB (simulated)	> 90 dB (integrated)
	Bandwidth ⁽³⁾	> 1 MHz (simulated)	> 1 MHz (integrated)
	Unity-gain bandwidth (f_T)	> 100 MHz	
Transistors (TC1)	I_{ON}/I_{OFF} ⁽⁴⁾	> 1000	
	Threshold voltage variability	< $\pm 10\%$	
	MDS ^{transducer} ⁽⁵⁾	< 1 Pa/ $\sqrt{\text{Hz}}$	
Transducers (TC2)	Linear pressure ⁽⁶⁾	> 33 kPa	
	Bandwidth ⁽³⁾	> 1 MHz	
	Interconnect parasitic load ⁽⁸⁾	Performer defined	
Integration ⁽⁷⁾ (TC3)	Interconnect survivability ⁽⁹⁾	at 800 °C	

- (1) All metrics are to be reported at 1 hr operation at 800 °C in air
- (2) 1 Pa/ $\sqrt{\text{Hz}}$ pressure resolution measured at 1 kHz
- (3) Bandwidth defined as the upper frequency range at which sensitivity is constant to within ≤ 3 dB
- (4) I_{ON}/I_{OFF} = transistor current ratio
- (5) $MDS^{\text{transducer}}$ = transducer limited minimum detectable signal
- (6) < 1 dB deviation from linear device sensitivity
- (7) Integrated total sensor surface area (i.e., sensing element plus other support structure flush with the sensing element) < 30 mm²
- (8) Expected performer defined parasitic loads include resistance and capacitive loads, with quantitative metrics derived and supported by baseline model and simulation as well as test structures
- (9) Survivability based on meeting or exceeding the interconnect parasitic load metrics for 1 hour

All submitted proposals should outline technical tasks regarding developing test plan and capability to demonstrate meeting or exceeding the metrics above. Innovations in test to support demonstration of program metrics are acceptable and expected where proposals demonstrate necessity. Direct experimental demonstrations of program metrics are strongly encouraged. A combination of experimental tests or a combination of testing and simulations may be appropriate if viability can be proven.

If planning to leverage government test facility capabilities, please see section III. Eligibility Information.

E. Schedule/Milestones

HOTS will be a 36-month program with an anticipated start in January 2024. The program will have two phases with an 18-month Phase 1 (base) and 18-month Phase 2 (option). A program expansion into a third phase is possible based on success in the first two phases, as described above. A mandatory program kickoff meeting will be held to present the technical approaches, discuss technical and programmatic items of concern, and interact with the government team and other program performers. The end of each phase represents a major technical milestone in the program. End-of-phase review meetings will be scheduled approximately one quarter before the end of each phase's period of performance. These meetings will be used to communicate the technical progress made, particularly with respect to the metrics, during the entire phase. Technical progress towards the goals of the program represents the major deciding factor in funding decisions for the subsequent phase, and will be monitored through videoconference on a minimum quarterly

cadence and occasional site visits by the DARPA program manager along with other members of the government team.

All proposers should construct a research program with milestones to meet or exceed the metrics outlined in Table 2. This should include milestones for:

- Program kickoff meeting to be held at program start.
- Preliminary design review (PDR) of the hardware demonstration within three months of each phase kickoff, including:
 - Detailed analysis of transistor, transducer, and integration designs, outlining materials, structures, fabrication methods, etc.
 - Multi-physics simulations of sensor performance (i.e., sensitivity, noise, etc.), with models of the transducer, signal conditioning circuit, and integration, that meet sensor performance metrics.
 - Schedule of process development and fabrication runs.
 - Proposed integration test structures to support assessment of proposer defined metrics.
 - Test plan that maps out the test protocols for the discrete transducers and transistors integration test structures, and sensor modules, specifies the equipment required for such tests, and defines the manner in which the test data will be conveyed to the IV&V team.
- Demonstration of all technical metrics of each phase, approximately one month prior to the end of each period of performance.
- Delivery of working transistor, sensor and integrated parts (described below in Section F).

All hardware deliverables (Section F) must include test data showing that the milestone/metric has been achieved.

Proposals should address the availability and access to any required specialized fabrication equipment as well as the development of test capabilities. Proposals should specifically address the scheduled risks that these factors present to meeting program milestones on schedule.

F. Deliverables

Spend Plans and Status

All performers will be expected to deliver detailed spend plans (or detailed program plans for fixed-price award instruments) at program kickoff and execution of subsequent option awards, quarterly technical status reports in slide presentation format, monthly technical updates, and monthly financial reports including updated commitments and expenditures.

Briefing Materials

All performers will be expected to prepare and submit briefing materials and participate in quarterly progress reviews, either via teleconference or at the performer's site at the discretion of DARPA. All performers shall participate in and support program-wide reviews held annually and scheduled at the Program Manager's discretion. All performers should be prepared to respond to

off-schedule delivery of technical updates and summary slides at the DARPA Program Manager's request.

Prior to the completion of each phase, performers must provide to the Government an end-of-phase Final Technical Report that includes:

- a) Material property measurements over temperature correlated with material growth techniques and material quality measurements
- b) A description of the discrete transistor and transducer devices, signal conditioning circuit design, and integration
- c) A description of the sensor module principle of operation, including integrated sensor module design, modeling, and simulations
- d) Temperature dependent multi-physics simulations of discrete transistor and transducer devices, signal conditioning circuits, integration, and sensor module performance
- e) Temperature dependent transistor, transducer, and integration models based on measurements
- f) Method of discrete transistor and transducer construction as well as method of integration
- g) Component lab test results at 800 °C or above
- h) Charts and explanations of how well the sensor module under development met, exceeded, or fell short of specified program metrics (as described in Table 2)

Hardware Deliverables

Performers will be required to deliver the following hardware to the IV&V team:

- Phase 1: Discrete transistors, transducers, and integration test structures approximately one quarter prior to the end of the Phase 1 period of performance.
- Phase 2: Integrated sensor module(s) approximately one quarter prior to the end of the Phase 2 period of performance.

The delivered hardware will be submitted to the IV&V team one quarter before the conclusion of each phase. Sufficient documentation and support for testing at a government lab will be submitted with the IV&V hardware. All design files will be delivered to the Government team at the end of each phase to include, but not limited to mechanical drawings, schematic and layout databases of chips, and packages and circuit boards (as applicable).

Other

Other negotiated deliverables specific to the objectives of the individual efforts also may be included. These may include registered reports, experimental protocols, publications, data management plan, intermediate and final versions of software libraries, code, and APIs, including documentation and user manuals, and/or a comprehensive assemblage of design documents, models, modeling data and results, and model validation data.

G. Government Furnished Equipment/Property/Information

No Government Furnished Equipment, Property, or Information will be provided for this effort..

H. Intellectual Property

Any use of proposer-defined intellectual property (patents, proprietary information, etc.) should be clearly marked as such within the proposal. Include all proprietary claims to the results, prototypes, intellectual property, or systems supporting the effort and/or necessary for the use of the research, results and/or prototype. If there are no proprietary claims, this should be stated. For forms to be completed regarding intellectual property, see Section IV.B.10.

I. Community Engagement

HOTS will focus on a high-temperature pressure sensor. Although other sensor types will present somewhat different engineering challenges, solving the key technical challenges for this representative example is expected to lead to: 1) a fundamental understanding of the impact of material quality on high temperature performance, 2) accurate multi-physics simulations of device and sensor system performance, and 3) measurement-based, temperature-dependent models of the transistor, transducer, and integration structures. As a result, it is expected that these results (along with sample devices) will be shared with the community, potentially through literature and conference engagement when appropriate.

II. Award Information

A. General Award Information

Multiple awards are anticipated. 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 at the end of one or more of the phases, as applicable.

Awards under this BAA will be made to proposers on the basis of the evaluation criteria listed below (see section labeled "Application Review Information," Sec. V.), and program balance to provide overall value to the Government. 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.4., “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 cost/price within a reasonable time or 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

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 solicitation, 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.

University or non-profit research institution performance under this solicitation may 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 \(ed.gov\)](https://www.ed.gov/collegeforeigngiftreporting)
 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 \(dni.gov\)](https://www.dni.gov/2021-annual-threat-assessment)
 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.

III. Eligibility Information

A. Eligible Applicants

All responsible sources capable of satisfying the Government's needs may submit a proposal that shall be considered by DARPA.

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.

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 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.

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. § 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.

2. Other Applicants

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.

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 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.

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. 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> and <https://acquisitioninnovation.darpa.mil>.

IV. Application and Submission Information

PROPOSERS ARE CAUTIONED THAT EVALUATION RATINGS MAY BE LOWERED AND/OR PROPOSALS REJECTED IF PROPOSAL PREPARATION (PROPOSAL FORMAT, CONTENT, ETC.) AND/OR SUBMITTAL INSTRUCTIONS ARE NOT FOLLOWED.

A. 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 www.darpa.mil, contact the administrative contact listed herein.

B. Content and Form of Application Submission

All submissions, including abstracts and proposals must be written in English with type not smaller than 12-point font. Smaller font may be used for figures, tables, and charts. Copies of all documents

submitted must be clearly labeled with the DARPA BAA number, proposer organization, and proposal title/proposal short title.

1. Abstract Format

Proposers are strongly encouraged to submit an abstract in advance of a full proposal. Abstracts should follow the format described below in this section. The cover sheet should be clearly marked “ABSTRACT” and the total length of Section II should not exceed 5 pages. Abstracts should include all phases described herein.

Section I. Administrative

A. Cover sheet to include:

- (1) BAA number (HR001123S0036);
- (2) Lead Organization submitting abstract;
- (3) Type of organization, selected among the following categories:
Large Organization, Small Disadvantaged Organization, Other Small Organization, HBCU, MI, Other Educational, Other Nonprofit;
- (4) Proposer’s internal reference number (if any);
- (5) Other team members (if applicable) and type of organization for each;
- (6) Proposal title;
- (7) Technical point of contact to include:
Salutation, last name, first name, street address, city, state, zip code (+4), telephone, fax (if available), electronic mail;
- (8) Administrative point of contact to include:
Salutation, last name, first name, street address, city, state, zip code (+4), telephone, fax (if available), electronic mail;
- (9) Total funds requested from DARPA, and the amount of cost share (if any); AND
- (10) Date proposal abstract was submitted.

(Note: An official transmittal letter is not required when submitting a Proposal Abstract.)

Section II. Abstract Details

This section provides an overview of the proposed work as well as an introduction to the associated technical and management issues.

A. Innovative Claims

Summary of innovative claims for the proposed research. This section is the centerpiece of the abstract and should succinctly describe the uniqueness and benefits of the proposed approach relative to the current state-of-art alternate approaches.

B. Technical Approach

Technical rationale, technical approach, and constructive plan for accomplishment of technical goals in support of innovative claims and deliverable production. The technical approach must explicitly address each of the technical challenges as well as describe how the proposed

approach will meet the overall DARPA program metrics and goals. Clearly state and justify any proposer-defined metrics.

C. Deliverables

Deliverables associated with the proposed research and the plans and capability to accomplish technology transition and commercialization.

D. Cost and Schedule

Provide a cost estimate for resources (e.g. labor, materials) and any subcontractors over the proposed timeline of the project, broken down by Government fiscal year.

2. Full Proposal Format

All full proposals must be in the format given below. Proposals shall consist of two volumes: Volume I – Technical and Management Proposal (3 sections), and Volume II – Cost Proposal (4 sections). The submission of other supporting materials along with the proposals is strongly discouraged and will not be considered for review. Section II of Volume I, Technical and Management Proposal, shall not exceed 22 pages. The page limitation for full proposals includes all figures, tables, and charts. There is no page limit for Volume II, Cost Proposal.

A summary slide of the proposed effort, in PowerPoint format, should be submitted with the proposal. A template slide is provided as Attachment 2 to the BAA. Submit this PowerPoint file in addition to Volumes I and II of your full proposal. This summary slide does not count towards the total page count.

a. Volume I, Technical and Management Proposal

Section I. Administrative

A. Cover sheet to include:

- (1) BAA number (HR001123S0036);
- (2) Lead Organization submitting proposal;
- (3) Type of organization, selected among the following categories:
Large Organization, Small Disadvantaged Organization, Other Small Organization, HBCU, MI, Other Educational, Other Nonprofit;
- (4) Proposer's internal reference number (if any);
- (5) Other team members (if applicable) and type of organization for each;
- (6) Proposal title;
- (7) Technical point of contact to include:
Salutation, last name, first name, street address, city, state, zip code (+4), telephone, fax (if available), electronic mail;
- (8) Administrative point of contact to include:
Salutation, last name, first name, street address, city, state, zip code (+4), telephone, fax (if available), electronic mail;
- (9) Total funds requested from DARPA, and the amount of cost share (if any); AND
- (10) Date proposal was submitted.

B. Official transmittal letter.

The transmittal letter should identify the BAA number, the proposal by name, and the proposal reference number (if any), and should be signed by an individual who is authorized to submit proposals to the Government.

Section II. Detailed Proposal Information

A. Executive Summary

Summarize the technical approach, anticipated performance, and expected outcomes of the proposed effort. The executive summary should be concise and to the point. Tables, graphs, and diagrams can be used as supplemental material along with narrative to convey the information.

B. Technical Approach

This section is the centerpiece of the proposal and should succinctly summarize the innovative claims for the proposed research and clearly describe the proposed approach without using any jargon. This section should demonstrate that the proposer has a clear understanding of the state-of-the-art and should provide sufficient justification for the feasibility of the proposed approach(es). This section should include a detailed technical rationale, technical approach, and constructive plan for accomplishment of technical goals in support of innovative claims and deliverable creation. The technical approach must explicitly address each of the technical challenges as well as describe how the proposed approach will meet the overall DARPA program metrics and goals. Clearly state and justify any proposer-defined metrics.

While Phase 3 proposals are not being requested at this time, proposers must ensure that the Phase 1 and Phase 2 technical proposal demonstrates foresight for successful transition to Phase 3.

C. Statement of Work (SOW)

In plain English, clearly define the technical tasks/subtasks to be performed, their durations, and dependencies among them. The page length for the SOW will be dependent on the amount of the effort. The SOW must not include proprietary information. For each task/subtask, provide:

1. A general description of the objective (for each defined task/activity);
2. A detailed description of the approach to be taken to accomplish each defined task/activity;
3. Identification of the primary organization responsible for task execution (prime, sub, team member, by name, etc.);
4. The completion criteria for each task/activity - a product, event or milestone that defines its completion.
5. Define all deliverables (reporting, data, reports, software, etc.) to be provided to the Government in support of the proposed research tasks/activities; AND
6. Clearly identify any tasks/subtasks (prime or subcontracted) that will be accomplished on-campus at a university, if applicable.

*Note: Each phase of the program must be separately defined in the SOW. Include a SOW for each subcontractor and/or consultant in the **Cost Proposal Volume**. Do not include any proprietary information in the SOW(s).*

D. Schedules and measurable milestones

Schedules and measurable milestones for the proposed research. (Note: Measurable milestones should capture key development points in tasks and should be clearly articulated and defined in time relative to start of effort.) Where the effort consists of multiple portions which could reasonably be partitioned for purposes of funding, these should be identified as options. Additionally, proposals should clearly explain the technical approach(es) that will be employed to meet or exceed each program metric and provide ample justification as to why the approach(es) is/are feasible. The milestones must not include proprietary information.

E. Vision for Technology Transfer and Manufacturing

Description of the results, products, transferable technology, and expected technology transfer.

Address how technologies developed under the effort may be matured and made available to commercial users and the defense industrial base after the conclusion of the program. This section should describe:

- Plans and capabilities to transition technologies developed under this effort to U.S. national security applications and/or to U.S. industry. The proposer may also discuss previous technology transitions to the benefit of U.S. interests.
- Technology readiness level (TRL) and Manufacturing readiness level (MRL) estimation and discussion of the expected activities required to advance the maturity of the end-of-program hardware, fabrication, and assembly processes.
- Mitigation of life-cycle and sustainment risks associated with transitioning intellectual property for U.S. military applications, if applicable. See also Section IV.B.11, "Intellectual Property." If there are no proprietary claims, this should be stated.
- Technical elements of the proposed solution that support the ability to scale up manufacturing to future volumes of 1,000 to >10,000 units per year. This discussion should also identify the critical components or processes, if any, that will require the use of non-domestic sources, and project how these elements could be on-shored or otherwise incorporated into a secure supply chain for the DoD.

F. Risk Analysis and Mitigation Plan

Identify the major technical and programmatic risks in the program. Include a risk matrix. For each risk, assign a probability of occurrence on a scale of 1-10, where 10 indicates a high likelihood that the risk will impact program success, as well as an assessment of impact, also on a scale of 1-10, where 10 indicates that this risk would maximally limit the program from delivering prototypes on schedule or meeting performance objectives. For each item with total risk (likelihood × impact) exceeding 40, include a plan for mitigating the risk and assessing risk reduction.

G. Ongoing Research

Comparison with other ongoing research indicating advantages and disadvantages of the proposed effort.

H. Proposer Accomplishments

Discussion of proposer's previous accomplishments and work in closely related research areas.

I. National Security Impact Statement

To reduce the potential for unintended foreign access to critical U.S. national security technologies developed under this effort, proposals shall describe:

- How the proposed work contributes to U.S. national security and U.S. technological capabilities. The proposer may also summarize previous work that contributed to U.S. national security and U.S. technological capabilities.
- Plans and capabilities to transition technologies developed under this effort to U.S. national security applications and/or to U.S. industry. The proposer may also discuss previous technology transitions to the benefit of U.S. interests.
- Discussion as to potential goals for Phase 3 expansion to demonstrate HOTS technology as a packaged sensor for National Security applications.
- Any plans to transition technologies developed under this effort to foreign governments or to companies that are foreign owned, controlled or influenced. The proposer may also discuss previous technology transition to these groups.
- How the proposer will assist its employees and agents performing work under this effort to be eligible to participate in the U.S. national security environment.

J. Facilities and Equipment

Description of the facilities and equipment that would be used for the proposed effort and how they will support meeting program metrics.

K. Teaming

Describe the formal teaming arrangements which will be used to execute this effort. Describe the programmatic relationship between investigators and the rationale for choosing this teaming strategy. Present a coherent organization chart for the program team which includes, as applicable: (1) the programmatic relationship of team member; (2) the unique capabilities of team members; (3) the task of responsibilities of team members; (4) the teaming strategy among the team members; (5) the principal investigator (PI), co-PI, and program manager (if applicable) for each team member to include subcontractor's PI, co-PI, and program manager; and (6) the key personnel along with the amount of effort to be expended by each person during each year.

L. Security Management (as applicable)

Describe security management architecture and/or approach for the proposed effort. Detail unique additional security requirements information system certification expertise for controlled unclassified information (CUI) or classified processing, OPSEC, program protection planning, test planning, transportation plans, work being performed at different classification levels, and/or utilizing test equipment not approved at appropriate classification level (may not be applicable for fundamental research).

Section III. Additional Information (does not count toward page limit)

Information in this section may include a brief bibliography of relevant technical papers and research notes (published and unpublished) which document the technical ideas upon which the proposal is based. Copies of not more than three (3) relevant prior papers may be included in the submission.

b. Volume II, Cost Proposal – {No Page Limit}

All proposers, including FFRDCs, must submit the following:

Section I. Administrative

Cover sheet to include:

- (1) BAA number (HR001123S0036);
- (2) Lead Organization submitting proposal;
- (3) Type of organization, selected among the following categories:
Large Organization, Small Disadvantaged Organization, Other Small Organization, HBCU, MI, Other Educational, Other Nonprofit;
- (4) Proposer's internal reference number (if any);
- (5) Other team members (if applicable) and type of organization for each;
- (6) Proposal title;
- (7) Technical point of contact to include:
Salutation, last name, first name, street address, city, state, zip code (+4), telephone, fax (if available), electronic mail (if available);
- (8) Administrative point of contact to include:
Salutation, last name, first name, street address, city, state, zip code (+4), telephone, fax (if available), and electronic mail (if available);
- (9) Award instrument requested:
Cost-Plus-Fixed Fee (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) and period(s) of performance;
- (11) Total proposed cost separated by basic award and option(s), if any, by calendar year and by government fiscal year;
- (12) Name, address, and telephone number of the proposer's cognizant Defense Contract Management Agency (DCMA) administration office (*if known*);

- (13) Name, address, and telephone number of the proposer's cognizant Defense Contract Audit Agency (DCAA) audit office (*if known*);
- (14) Date proposal was prepared;
- (15) DUNS number;
- (16) TIN number;
- (17) CAGE Code;
- (18) Subcontractor Information;
- (19) Proposal validity period (120 days is recommended); AND
- (20) Any Forward Pricing Rate Agreement, other such approved rate information, or such documentation that may assist in expediting negotiations (if available).

Attachment 1, the Cost Volume Proposer Checklist, must be included with the coversheet of the Cost Proposal.

Section II. Detailed Cost Information (Prime and Subcontractors)

The proposers', to include eligible FFRDCs', cost volume shall provide cost and pricing information (See Note 1), or other than cost or pricing information if the total price is under the referenced threshold, in sufficient detail to substantiate the program price proposed (e.g., realism and reasonableness). In doing so, the proposer shall provide, for **both the prime and each subcontractor**, a "Summary Cost Breakdown" by phase and performer fiscal year, and a "Detailed Cost Breakdown" by phase, technical task/sub-task, and month. The breakdown/s shall include, at a minimum, the following major cost items along with associated backup documentation:

Total program cost broken down by major cost items:

A. Direct Labor

A breakout clearly identifying the individual labor categories with associated labor hours and direct labor rates, as well as a detailed Basis-of-Estimate (BOE) narrative description of the methods used to estimate labor costs;

B. Indirect Costs

Including Fringe Benefits, Overhead, General and Administrative Expense, Cost of Money, Fee, etc. (must show base amount and rate);

C. Travel

Provide the purpose of the trip, number of trips, number of days per trip, departure and arrival destinations, number of people, etc.;

D. Other Direct Costs

Itemized with costs; back-up documentation is to be submitted to support proposed costs;

E. Material/Equipment

(i) An itemization of any information technology (IT) purchase, as defined by FAR 2.101 – Documentation supporting the reasonableness of the proposed equipment costs (vendor quotes, past purchase orders/purchase history, detailed engineering estimates, etc.) shall be provided, including a letter stating why the proposer cannot provide the requested resources from its own funding for prime and all sub-awardees.

(ii) A priced Bill-of-Material (BOM) clearly identifying, for each item proposed, the quantity, unit price, the source of the unit price (i.e., vendor quote, engineering estimate, etc.), the type of property (i.e., material, equipment, special test equipment, information technology, etc.), and a cross-reference to the Statement of Work (SOW) task/s that require the item/s. At time of proposal submission, any item that exceeds \$2,000 must be supported with basis-of-estimate (BOE) documentation such as a copy of catalog price lists, vendor quotes or a written engineering estimate (additional documentation may be required during negotiations, if selected).

(iii) If seeking a procurement contract and items of Contractor Acquired Property are proposed, exclusive of material, the proposer shall clearly demonstrate that the inclusion of such items as Government Property is in keeping with the requirements of FAR Part 45.102. In accordance with FAR 35.014, “Government property and title,” it is the Government’s intent that title to all equipment purchased with funds available for research under any resulting contract will vest in the acquiring nonprofit institution (e.g., Nonprofit Institutions of Higher Education and Nonprofit Organizations whose primary purpose is the conduct of scientific research) upon acquisition without further obligation to the Government. Any such equipment shall be used for the conduct of basic and applied scientific research. The above transfer of title to all equipment purchased with funds available for research under any resulting contract is not allowable when the acquiring entity is a for-profit organization; however, such organizations can, in accordance with FAR 52.245-1(j), be given priority to acquire such property at its full acquisition cost.

F. Consultants

If consultants are to be used, proposer must provide a copy of the consultant’s proposed SOW as well as a signed consultant agreement or other document which verifies the proposed loaded daily / hourly rate and any other proposed consultant costs (e.g. travel);

G. Subcontracts

Itemization of all subcontracts. Additionally, the prime contractor is responsible for compiling and providing, as part of its proposal submission to the Government, subcontractor proposals prepared at the same level of detail as that required by the prime. Subcontractor proposals include Interdivisional Work Transfer Agreements (ITWA) or similar arrangements. If seeking a procurement contract, the prime contractor shall provide a cost reasonableness analysis of all proposed subcontractor costs/prices. Such analysis shall indicate the extent to which the prime contractor has negotiated subcontract costs/prices and whether any such subcontracts are to be placed on a sole-source basis.

All proprietary subcontractor proposal documentation, prepared at the same level of detail as that required of the prime, which cannot be uploaded to the DARPA BAA website (<https://baa.darpa.mil>, BAAT) or Grants.gov as part of the proposer’s submission, shall be

made immediately available to the Government, upon request, under separate cover (i.e., mail, electronic/email, etc.), either by the proposer or by the subcontractor organization. This does not relieve the proposer from the requirement to include, as part of their submission (via BAAT or Grants.gov, as applicable), subcontract proposals that do not include proprietary pricing information (rates, factors, etc.).

A Rough Order of Magnitude (ROM), or similar budgetary estimate, is not considered a fully qualified subcontract cost proposal submission. Inclusion of a ROM, or similar budgetary estimate, may result in the full proposal being deemed non-conforming or evaluation ratings may be lowered;

H. Cost-Sharing

The amount of any industry cost-sharing (the source and nature of any proposed cost-sharing should be discussed in the narrative portion of the cost volume).

I. Fundamental Research

Written justification required per Section II.B, “Fundamental Research,” pertaining to prime and/or subcontracted effort being considered Contracted Fundamental Research.

Note 1:

(a) “Cost or Pricing Data” as defined in FAR 15.403-4 shall be required if the proposer is seeking a procurement contract per the referenced threshold, but please see the exceptions in (c) and (d) below. Further, please note that adequate price competition is not considered to exist under this BAA, as all proposers are proposing unique solutions that are not in accordance with a common work statement.

(b) Per DFARS 215.408(5), DFARS 252.215-7009, Proposal Adequacy Checklist, applies to all proposers/proposals seeking a FAR-based award (contract).

(c) In accordance with DFARS 215.403-1(4)(D), DoD has waived cost or pricing data requirements for nonprofit organizations (including educational institutions) on cost-reimbursement-no-fee contracts. In such instances where the waiver stipulated at DFARS 215.403-1(4)(D) applies, proposers shall submit information other than cost or pricing data to the extent necessary for the Government to determine price reasonableness and cost realism; and cost or pricing data from subcontractors that are not nonprofit organizations when the subcontractor’s proposal exceeds the cost and pricing data threshold at FAR 15.403-4(a)(1).

(d) Per Section 873 of the FY2016 National Defense Authorization Act (Pub L. 114-92), “Pilot Program For Streamlining Awards For Innovative Technology Projects,” as modified by Sections 896 of the NDAA for FY 2017 (Pub. L. 114-328) and 832 of the NDAA for FY 2021 (Pub. L. 116-283), small businesses and nontraditional defense contractors (as defined therein) are alleviated from submission of certified cost and pricing data for new contract awards valued at less than \$7,500,000. In such instances where this “waiver” applies, proposers seeking a FAR-based contract shall submit information other than certified cost or pricing data to the extent necessary for the Government to determine price reasonableness and cost realism; and certified cost or pricing data from subcontractors that are not small businesses or nontraditional defense contractors when such subcontract proposals exceed the cost and pricing data threshold at FAR 15.403-4(a)(1)

Note 2:

Proposers requesting an Other Transaction who meet the definition of “nontraditional defense contractor,” as defined at 10 U.S. Code § 3014, should submit information similar to “data other than certified cost or pricing data,” as defined at FAR 2.101, to the maximum extent possible to allow for the Government to evaluate cost realism. Proposers (to include subcontractors) who do not meet the definition of a nontraditional defense contractor (who are, therefore, considered a traditional defense contractor) shall submit “data other than certified cost or pricing data.” It is incumbent on a proposer requesting an Other Transaction to provide an adequate amount of cost information needed in order for the Government to be able to evaluate cost realism. Failure to provide an adequate amount of cost information will result in the proposal being deemed non-conforming.

Note 3:

Proposers are required to provide the aforementioned cost breakdown as an editable MS Excel spreadsheet, inclusive of calculations formulae, with tabs (material, travel, ODC’s) provided as necessary. The Government also requests and recommends that the Cost Proposal include MS Excel file(s) that provide traceability between the Bases of Estimate (BOEs) and the proposed costs across all elements and phases. This includes the calculations and adjustments that are utilized to generate the Summary Costs from the source labor hours, labor costs, material costs, etc. input data. It is requested that the costs and Subcontractor proposals be readily traceable to the Prime Cost Proposal in the provided MS Excel file(s) – although this is not a requirement, providing information in this manner will assist the Government in understanding what is being proposed both technically and in terms of cost realism. NOTE: If the PDF submission differs from the Excel submission, the PDF will take precedence.

Note 4:

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 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>.

Any questions pertaining to use of the DARPA Standard Cost Proposal Spreadsheet, to include permitted changes and prohibited changes thereto, should be directed to costproposal@darpa.mil. Please read the instructions provided within the DARPA Standard Cost Proposal Spreadsheet, "General" tab, to include the General Spreadsheet Instruction document embedded therein. It is very important that proposers not make changes to the format of the spreadsheet where specifically instructed not to do so.

Section III. Other Transaction Request, if applicable

All proposers requesting an Other Transaction (OT) must include a detailed list of payment milestones (Milestone Plan). Each milestone must include the following:

- Milestone description
- Completion/Exit criteria (to include identifying all associated data deliverables excluding those specifically providing project status)
- Due date
- Payment/funding schedule (to include, if cost share is proposed, awardee and Government share amounts)
- For each data deliverable, identify the proposed Government data rights (keeping in mind how each data deliverable will need to be used by the Government given the goals and objectives of the proposed project)

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.

Section IV. Other Cost Information

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.

The cost proposal should include identification of pricing assumptions of which may require incorporation into the resulting award instrument (i.e., use of Government Furnished Property/Facilities/Information, access to Government Subject Matter Experts, etc.).

The proposer should include supporting cost and pricing information in sufficient detail to substantiate the summary cost estimates and should include a description of the method used to estimate costs and supporting documentation.

Cost proposals submitted by FFRDC's (prime or subcontractor) will be forwarded, if selected for negotiation, to their sponsoring organization contracting officer for review to confirm that all required forward pricing rates and factors have been used.

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.

4. Security Information

a. Program Security Information

Proposers should include with their proposal any proposed solution(s) to program security requirements unique to this program. Common program security requirements include but are not limited to: operational security (OPSEC) contracting/sub-contracting plans; foreign participation or materials utilization plans; program protection plans (which may entail the following) manufacturing and integration plans; range utilization and support plans (air, sea, land, space, and cyber); data dissemination plans; asset transportation plans; classified test activity plans; disaster recovery plans; classified material / asset disposition plans and public affairs / communications plans.

b. Controlled Unclassified Information (CUI)

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

i. CUI Proposal Markings

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 (pick one of the following and delete the text not applicable): a DARPA CUI Guide and will be provided as an attachment to the BAA or may be provided at a later date OR the General MTO Controlled Unclassified Information Guide (CUIG) and is provided as Attachment 3 to the BAA.

ii. CUI Submission Requirements

Unclassified submissions containing CUI may be submitted via DARPA’s BAA Website (<https://baa.darpa.mil>) in accordance with Section IV.C.2. 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.

c. Unclassified Submissions

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 notifying the Technical Office PSO of the submission and the below guidance must be followed.

Security classification guidance and direction via a Security Classification Guide (SCG) and/or DD Form 254, “DoD Contract Security Classification Specification,” will not be provided at this time. 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.

5. 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.

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. Approved Cost Accounting System Documentation

Proposers that do not have a Cost Accounting Standards (CAS) compliant 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. To complete the form, check the boxes on the second page, then provide a narrative explanation of your accounting system to supplement the checklist on page one. For more information, see (http://www.dcaa.mil/preaward_accounting_system_adequacy_checklist.html).

8. 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 § 794d)/FAR 39.2.

9. 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 is a large business concern and seeking a procurement contract that has subcontracting possibilities is required to submit a subcontracting plan with their proposal. The plan format is outlined in FAR 19.704. As of the date of publication of this BAA, per FAR 19.702, the threshold for submission of a small business subcontracting plan is \$750,000 (total contract amount including options).

10. 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.

a. For Procurement Contracts

Proposers responding to this BAA requesting procurement contracts will need to complete the certifications at DFARS 252.227-7017. See 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)

b. For All Non-Procurement Contracts

Proposers responding to this BAA requesting a Cooperative Agreement, Technology Investment 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 use a format similar to that described in Paragraph a. above. If no restrictions are intended, then the proposer should state "NONE."

11. Patents

Include documentation proving your ownership of or possession of appropriate licensing rights to all patented inventions (or inventions for which a patent application has been filed) that will be utilized under your proposal for the DARPA program. If a patent application has been filed for an invention that your proposal utilizes, but the application has not yet been made publicly available and contains proprietary information, you may provide only the patent number, inventor name(s), assignee names (if any), filing date, filing date of any related provisional application, and a summary of the patent title, together with either: (1) a representation that you own the invention, or (2) proof of possession of appropriate licensing rights in the invention.

12. 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.

13. Funding Restrictions

Not applicable.

C. 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 HR001123S0036. Submissions may not be submitted 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.

All administrative correspondence and questions on this solicitation, including requests for clarifying information on how to submit an abstract or full proposal to this BAA should be directed to HR001123S0036@darpa.mil. DARPA intends to use electronic mail for correspondence regarding HR001123S0036. Proposals and abstracts may not be submitted by fax or e-mail; any

so sent will be disregarded. DARPA encourages use of the Internet for retrieving the BAA and any other related information that may subsequently be provided.

1. Submission Dates and Times

a. Abstract Due Date

Abstracts must be submitted to DARPA/MTO on or before 02:00 p.m. ET, Eastern Time, June 22, 2023. Abstracts received after this time and date may not be reviewed.

b. Full Proposal Date

Full proposals must be submitted to DARPA/MTO on or before 02:00 p.m. ET, **August 31, 2023**, in order to be considered during the single round of selections. Proposals received after this deadline will not be reviewed.

Failure to comply with the submission procedures may result in the submission not being evaluated.

c. Frequently Asked Questions (FAQ)

DARPA will post a consolidated Question and Answer (FAQ) document on a regular basis. To access the posting go to: <http://www.darpa.mil/work-with-us/opportunities>. Under the HR001123S0036 summary will be a link to the FAQ. Submit your question/s by e-mail to HR001123S0036@darpa.mil. In order to receive a response sufficiently in advance of the proposal due date, send your question/s on or before 02:00 p.m. ET, August 1, 2023.

2. Abstract Submission Information

Proposers are strongly encouraged to submit an abstract in advance of a full proposal in order to provide potential proposers with a rapid response and to minimize unnecessary effort in proposal preparation and review. DARPA will acknowledge receipt of the submission and assign a control number that should be used in all further correspondence regarding the abstract.

All abstracts sent in response to HR001123S0036 shall be submitted via DARPA's BAA Website (<https://baa.darpa.mil>). 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 submission process be started as early as possible.

All abstracts submitted electronically through the DARPA BAA Submission website must be uploaded as zip files (.zip or .zipx extension). The final zip file should only contain the document(s) requested herein and must not exceed 100 MB in size. Only one zip file will be accepted per abstract; abstracts not uploaded as zip files will be rejected by DARPA.

NOTE: YOU MUST CLICK THE 'FINALIZE PROPOSAL ABSTRACT' BUTTON AT THE BOTTOM OF THE CREATE PROPOSAL ABSTRACT PAGE. FAILURE TO DO SO WILL RESULT IN YOUR ABSTRACT NOT BEING OFFICIALLY SUBMITTED TO THIS BAA AND THEREFORE NOT BEING REVIEWED.

Please note that the DoD-issued certificate associated with the BAA website is not recognized by all commercial certificate authorities, resulting in untrusted connection errors/messages. You can either bypass the warning (possibly by adding <https://baa.darpa.mil> to your listed of trusted sites, or arpa.mil as a trusted domain), or visit DISA's site to download the Root Certificate Authority (CA): <https://public.cyber.mil/from-iase/>.

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

Note: DO NOT SUBMIT ABSTRACTS TO GRANTS.GOV.

3. Proposal Submission Information

The typical proposal should express a consolidated effort in support of one or more related technical concepts or ideas. Disjointed efforts should not be included into a single proposal. Proposals not meeting the format described in the BAA may not be reviewed.

a. For Proposers Requesting Cooperative Agreements:

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.*

b. For Proposers Requesting Technology Investment Agreements

Proposers requesting Technology Investment Agreements (TIA) 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 TIA 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.

c. For Proposers Requesting Procurement Contracts or Other Transaction Agreements and submitting to a DARPA-approved Proposal Submissions Website

Proposers requesting contracts or other transaction agreements must submit proposals via DARPA's BAA Website (<https://baa.darpa.mil>). Note: If an account has already been created for the DARPA BAA Website, this account may be reused. 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 proposal. Proposers using the DARPA BAA Website may encounter heavy traffic on the submission deadline date; it is highly advised that submission process be started as early as possible.

All unclassified full proposals submitted electronically through the DARPA BAA website must be uploaded as zip files (.zip or .zipx extension). The final zip file should not exceed 50 MB in size. Only one zip file will be accepted per submission and submissions not uploaded as zip files will be rejected by DARPA.

NOTE: YOU MUST CLICK THE ‘FINALIZE FULL PROPOSAL’ BUTTON AT THE BOTTOM OF THE CREATE FULL PROPOSAL PAGE. FAILURE TO DO SO WILL RESULT IN YOUR PROPOSAL NOT BEING OFFICIALLY SUBMITTED TO THIS BAA AND THEREFORE NOT BEING REVIEWED.

Classified submissions and proposals requesting assistance instruments (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.

Please note that the DoD-issued certificate associated with the BAA website is not recognized by all commercial certificate authorities, resulting in untrusted connection errors/messages. You can either bypass the warning (possibly by adding <https://baa.darpa.mil> to your listed of trusted sites, or arpa.mil as a trusted domain), or visit DISA's site to download the Root Certificate Authority (CA): <https://public.cyber.mil/from-iase/>.

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

4. Other Submission Requirements

Not applicable.

V. Application Review Information

A. Evaluation Criteria

Proposals will be evaluated using the following criteria, listed in descending order of importance:

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 technical approach for Phases 1 and 2 demonstrates sufficient foresight for a successful transition to Phase 3.

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.

The proposer clearly demonstrates its plans and capabilities to contribute to U.S. national security and U.S. technological capabilities. The evaluation will consider the proposer's plans and capabilities to transition proposed technologies to U.S. national security applications and to U.S. industry. The evaluation may consider the proposer's history of transitioning or plans to transition technologies to foreign governments or to companies that are foreign owned, controlled, or

influenced. The evaluation will also consider the proposer's plans and capabilities to assist its employees and agents to be eligible to participate in the U.S. national security environment.

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 proposals that contain cost share, the proposer has provided sufficient rationale as to the appropriateness of the cost share arrangement relative to the objectives of the proposed solution (e.g., high likelihood of commercial application, etc.).

B. Review and Selection Process

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, all factors considered, including the potential contributions of the proposed work to the overall research program and the availability of funding for the effort.

It is the policy of DARPA to ensure impartial, equitable, comprehensive proposal evaluations based on the evaluation criteria listed above and to select the source (or sources) whose offer meets the Government's technical, policy, and programmatic goals. Pursuant to FAR 35.016, the primary basis for selecting proposals for acceptance shall be technical, importance to agency programs,

and fund availability. In order to provide the desired evaluation, qualified Government personnel will conduct reviews and (if necessary) convene panels of experts in the appropriate areas.

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.

3. Federal Awardee Performance and Integrity Information (FAPIS)

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 FAPIS). 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 FAPIS or other systems prior to making an award.

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 cooperative agreement award. The CFIP risk assessment process will be conducted separately from the DARPA scientific review process and adjudicated prior to final award.

VI. Award Administration Information

A. Selection Notices

1. 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.

2. 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 contract negotiations, in whole or in part, or (2) the proposal has not been selected. These official notifications will be sent via email to the Technical POC identified on the proposal coversheet.

B. Administrative and National Policy Requirements

1. Meeting and Travel Requirements

All key participants are required to attend the program kickoff meeting. Performers should also anticipate regular program-wide PI Meetings and periodic site visits at the Program Manager's discretion.

2. 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 www.darpa.mil/work-with-us/additional-baa.

3. 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 www.darpa.mil/work-with-us/additional-baa.

4. 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/reprs-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.

Proposers requesting an Other Transaction are required to complete the Other Transaction Certifications document provided as Attachment 4 to the BAA.

5. Terms and Conditions

For terms and conditions specific to 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>.

C. Reporting

The number and types of reports will be specified in the award document, but will include as a minimum quarterly technical and financial 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.

D. Electronic Systems

1. Wide Area Work Flow (WAWF)

Unless using another means of invoicing, performers will be required to submit invoices for payment directly via to <https://wawf.eb.mil>. Registration in WAWF will be required prior to any award under this BAA.

2. i-Edison

The award document for each proposal selected for funding will contain a mandatory requirement for invention disclosures (and associated elections, confirmatory instruments, etc.) and patent reports to be submitted electronically through i-Edison (<https://public.era.nih.gov/iedison>).

3. Vault

The award document for each proposal selected for funding will contain a mandatory requirement for technical and status reports to be submitted electronically through DARPA's Vault (or similar) web-based tool.

4. DARPA Embedded Entrepreneurship Initiative (EEI)

Awardees pursuant to this solicitation may be eligible to participate in the DARPA Embedded Entrepreneurship Initiative (EEI) during the award's period of performance. EEI is a limited scope program offered by DARPA, at DARPA's discretion, to a small subset of awardees. The goal of DARPA's EEI is to increase the likelihood that DARPA-funded technologies take root in the U.S. and provide new capabilities for national defense. EEI supports DARPA's mission "to make pivotal investments in breakthrough technologies and capabilities for national security" by accelerating the transition of innovations out of the lab and into new capabilities for the Department of Defense (DoD). EEI investment supports development of a robust and deliberate Go-to-Market strategy for selling technology product to the government and commercial markets and positions DARPA awardees to attract U.S. investment. The following is for informational and planning purposes only and does not constitute solicitation of proposals to the EEI.

There are three elements to DARPA's EEI: (1) A Senior Commercialization Advisor (SCA) from DARPA who works with the Program Manager (PM) to examine the business case for the awardee's technology and uses commercial methodologies to identify steps toward achieving a successful transition of technology to the government and commercial markets; (2) Connections to potential industry and investor partners via EEI's Investor Working Groups; and (3) Additional funding on an awardee's contract for the awardee to hire an embedded entrepreneur to achieve specific milestones in a Go-to-Market strategy for transitioning the technology to products that serve both defense and commercial markets. This embedded entrepreneur's qualifications should include business experience within the target industries of interest, experience in commercializing early stage technology, and the ability to communicate and interact with technical and non-technical stakeholders. Funding for EEI is typically no more than \$250,000 per awardee over the duration of the award. An awardee may apportion EEI funding to hire more than one embedded entrepreneur, if achieving the milestones requires different expertise that can be obtained without exceeding the awardee's total EEI funding. The EEI effort is intended to be conducted concurrent with the research program without extending the period of performance.

EEI Application Process:

After receiving an award under the solicitation, awardees interested in being considered for EEI should notify their DARPA Program Manager (PM) during the period of performance. Timing of such notification should ideally allow sufficient time for DARPA and the awardee to review the awardee's initial transition plan, identify milestones to achieve under EEI, modify the award, and conduct the work required to achieve such milestones within the original award period of performance. These steps may take 18-24 months to complete, depending on the technology. If the DARPA PM determines that EEI could be of benefit to transition the technology to product(s) the Government needs, the PM will refer the performer to DARPA Commercial Strategy.

DARPA Commercial Strategy will then contact the performer, assess fitness for EEI, and in consultation with the DARPA technical office, determine whether to invite the performer to participate in the EEI. Factors that are considered in determining fitness for EEI include DoD/Government need for the technology; competitive approaches to enable a similar capability or product; risks and impact of the Government's being unable to access the technology from a sustainable source; Government and commercial markets for the technology; cost and affordability; manufacturability and scalability; supply chain requirements and barriers; regulatory

requirements and timelines; Intellectual Property and Government Use Rights, and available funding.

Invitation to participate in EEI is at the sole discretion of DARPA and subject to program balance and the availability of funding. EEI participants' awards may be subsequently modified bilaterally to amend the Statement of Work to add negotiated EEI tasks, provide funding, and specify a milestone schedule which will include measurable steps necessary to build, refine, and execute a Go-to-Market strategy aimed at delivering new capabilities for national defense. Milestone examples are available at: <https://www.darpa.mil/work-with-us/contract-management>.

Awardees under this solicitation are eligible to be considered for participation in EEI, but selection for award under this solicitation does not imply or guarantee participation in EEI.

VII. Agency Contacts

Administrative, technical or contractual questions should be sent via e-mail to HR001123S0036@darpa.mil. All requests must include the name, email address, and phone number of a point of contact.

The technical POC for this effort is:

Dr. Todd Bauer, Program Manager
DARPA/MTO
ATTN: HR001123S0036
675 North Randolph Street
Arlington, VA 22203-2114
BAA Email: HR001123S0036@darpa.mil

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

VIII. Other Information

A. Proposers Day

The HOTS Proposers Day will be held on May 31, 2023 in Tysons/McLean, Virginia. Advance registration is required for both the physical meeting and the webcast. See DARPA-SN-23-59 posted at <https://sam.gov> for all details. Attendance at the HOTS Proposers Day is not required to propose to this solicitation.

B. University Student and Researcher 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.