Broad Agency Announcement

Coded Visibility (CV)

Defense Sciences Office

HR001122S0007

November 2, 2021

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PART I: OVERVIEW INFORMATION

- **Federal Agency Name:** Defense Advanced Research Projects Agency (DARPA), Defense Sciences Office (DSO)
- **Funding Opportunity Title:** Coded Visibility (CV)
- **Announcement Type:** Initial Announcement
- **Funding Opportunity Number:** HR001122S0007
- **Catalog of Federal Domestic Assistance (CFDA) Number(s):** N/A
- **Dates** (All times listed herein are Eastern Time.)
  - Posting Date: November 2, 2021
  - Proposers Day: October 21, 2021. See Section VIII.A.
  - Abstract Due Date: November 23, 2021, 4:00 p.m.
  - FAQ Submission Deadline: December 10, 2021, 4:00 p.m. See Section VIII.B.
  - Full Proposal Due Date: January 7, 2022, 4:00 p.m.
- **Anticipated Individual Awards:** DARPA anticipates one or more awards for Technical Area 1 and one or more awards for Technical Area 2.
- **Types of Instruments that May be Awarded:** Award instruments will be limited to procurement contracts and Other Transactions.
- **Agency contacts**
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  - **DARPA/DSO Opportunities Website:** http://www.darpa.mil/work-with-us/opportunities
- **Frequently Asked Questions (FAQ):** FAQs for this solicitation may be viewed on the DARPA/DSO Opportunities Website. See Section VIII.B for further information.
- **Security:** The Coded Visibility Program will be unclassified and will comprise two Controlled Unclassified Information (CUI) Technical Areas (Controlled Technical Information (CTI), Export-Controlled). Proposals are expected to be unclassified. For further details, please see sections IV.B.4 and IV.B.5.

PART II: FULL TEXT OF ANNOUNCEMENT

I. Funding Opportunity Description

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

A. Introduction

The Defense Sciences Office (DSO) at the Defense Advanced Research Projects Agency (DARPA) is soliciting innovative research proposals in the area of tailorable, tunable, and safe obscurants that provide U.S. and allied forces with an asymmetric advantage by degrading an adversary's visibility without concomitant degradation of our own vision. 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.

B. Background

Obscurants are used in confined urban spaces to prevent detection by adversary night vision systems and digital infrared sensors. Obscurants aim to provide critical operational concealment, enhancing both the safety and performance of U.S. and allied forces. Despite decades of development, current obscurants continue to have three critical limitations: (1) they simultaneously degrade the visual capability of friendly forces and adversaries; (2) once deployed, their performance is fixed and cannot be tuned in real time; and (3) they pose a serious health risk, often requiring the use of respirators.

The goal of the DARPA Coded Visibility program is to address these limitations by developing next generation obscurant systems that provide U.S. and allied forces an asymmetric advantage by enhancing their visibility while suppressing adversary visibility and detection. Specifically, the program aims to develop obscurants that are:

1. **Tailorable**: Investigate new fundamental insights in tailoring absorption and scattering performance of obscurants that allow for an asymmetric vision capability for our forces. Current obscurants weakly absorb and scatter photons, requiring widespread deployment to sufficiently degrade visibility.

2. **Tunable:** Investigate new approaches in active modulation that could tune obscurant performance in real-time, opening the pathway for new methods to control obscurants. The ability to actively tune absorption and scattering performance of an obscurant after it has been deployed could provide our forces with enhanced visibility and protection.

3. **Safe**: Current obscurants are based on metal flakes that are known to pose a risk to respiratory health and the environment, requiring the use of gas masks and respirators. New materials and morphologies could enable tailorable and tunable

performance, while also being inherently safe for use on the battlefield.

Coded Visibility will investigate all of the above avenues to enable obscurants that provide U.S. and allied forces with an asymmetric vision capability on the battlefield. Importantly, by the end of the program, Coded Visibility aims to gain fundamental insights into obscurant performance at the single-particle level and transition these insights to plume-scale demonstrations in relevant environments.

C. Program Description/Scope

The primary thrusts of Coded Visibility are:

1. **Passive Asymmetry**: Achieving an asymmetric vision capability through tailorable obscurants.

2. **Active Asymmetry:** Using active modulation obscurants (i.e. tailorability) to achieve a tunable, asymmetric vision capability.

Within the Coded Visibility program, asymmetry is defined as any method that provides enhanced visibility in one direction over another, purely using a plume composed of tailored (passive) or tunable (active) obscurants. Specifically, DARPA will evaluate asymmetric methods that provide a suitably high probability of identification (P_{ID}) – the ability to correctly detect and identify a specific object, e.g., an enemy vehicle – for our personnel, while providing a sufficiently low probability of detection (P_D) –the ability to detect the presence of some unidentifiable object – for our enemies. Both passive and active methods should achieve such asymmetry, assuming identical sensors are used on either end of the plume. Across both thrusts, Coded Visibility is interested in developing obscurants that are safe for all personnel.

Passive asymmetry

Visibility through obscurants is traditionally limited due to the absorption and scattering of photons, which lead to reductions in the brightness and contrast of images. It has recently been experimentally demonstrated that absorption can serve to counteract the unfavorable effects of scattering by reducing haze and improving contrast.[1]

Coded Visibility will develop methods to demonstrate passive asymmetry in a single plume. Passive asymmetry requires breaking symmetry using absorption and scattering and will likely require multiple types of particulates in a single plume to demonstrate this. Achieving this will require investigations into the fundamental limits of total light attenuation (absorption + scattering) per unit mass ("mass extinction"), design of new particulates that approach such limits, and exploration of the trade space of absorption and scattering in obscurant particles. Importantly, development of simulation tools to integrate absorption and scattering from multiple particulates into plume level assessments will be critical to success.

Active Asymmetry

[1] [1] Alyones, S., et al. "One-way visibility using two parallel aerosol clouds." *Appl. Optics* 54.1 (2015): 12-17.

Active modulation of tunable obscurants could enable capabilities beyond passive asymmetry, providing U.S. and allied forces methods to actively control obscurants. Importantly, active asymmetry could allow for enhanced visibility, possibly using a single particulate plume, by modulating a localized volume to achieve an asymmetric vision capability.

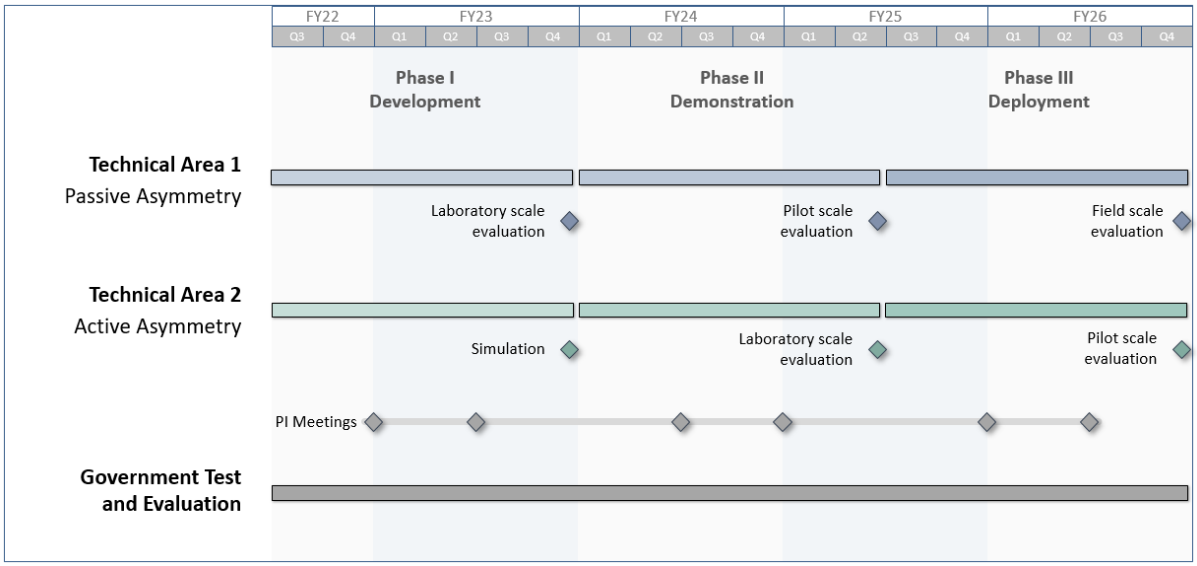
It is well known that external electromagnetic fields can interact with and manipulate particles, impacting their scattering behavior. Generally, manipulation falls under two categories: (1) modulation of the particle's orientation and/or position through the use of electric or magnetic fields and (2) material modulation, such as change in conductivity, absorption, or scattering through the use of electromagnetic sources. DARPA is interested in these and other approaches to tune obscurant performance in real-time, provided they address an asymmetric vision capability.

Importantly, Coded Visibility is interested in (1) understanding the fundamental limits in tuning absorption and scattering; (2) charting the tradespace in modulation magnitude, modulation speed, standoff distance, and power required; and (3) demonstrating an active asymmetric vision capability.

For both passive and active asymmetry approaches, Coded Visibility will focus on developing obscurants that are safe. New classes of materials could bring enhanced scattering performance and the ability to engineer chemical linkers for breathability and safety into a single molecular unit. DARPA is interested in exploring such new compounds, assessing their asymmetric obscuration capabilities, and evaluating their inhalation impact on the health of U.S. and allied forces.

D. Program Structure

Coded Visibility is a 54-month research and development effort comprising three 18-month phases as shown in the schedule chart provided below. A target start date of July 2022 may be assumed for planning purposes. Since Coded Visibility will be focused on transitioning capabilities from lab-scale to field demos, the program will include assessments during each phase to demonstrate increasing operational relevance, such as aerosol concentration, duration, volume, and deployment mechanisms. As a result, DARPA expects downselects between phases to ensure efforts successfully transition to deployable capabilities. Further details on the end of phase assessments are provided in Sections E, F, and G.



Proposals should address all three phases and provide detailed proposals for the Phase I base and Phase II option efforts, and a rough order of magnitude (ROM) for Phase III, including ROM costs, a draft Phase III statement of work (SOW), and any additional information on anticiapated program plans. At the conclusion of Phase I, the Government may fund the option for the Phase II effort on one, some, all, or none of the awards, based on funding availability and performance across the Phase I metrics assessment.

DARPA intends to use a phased acquisition approach for the Coded Visibility program. Prior to the completion of Phase II (at approximately Month 30), DARPA intends to issue proposal instructions to the Phase II performers requesting updated technical and cost proposals for Phase III per specifications/guidance provided by DARPA. Participation in the competition for Phase III is optional and will be limited to Phase II performers. Associated proposal preparation costs for Phase III will not be reimbursed under Phase II awards. Evaluation of Phase III proposals will be based on evaluation criteria to be specified in the Phase III proposal requests, and Phase III proposal evaluations will be conducted through a scientific and technical review process. The Phase III evaluation criteria will be consistent with the evaluation criteria in this solicitation, and may be tailored to the Phase III requests for updated proposals. The Government reserves the right to change the award instrument or issue a new solicitation for Phase III if programmatic circumstances dictate.

Participation in Phase I does not guarantee funding for the Phase II option; progression to the Phase II option will be contingent on success in Phase I and availability of funds. Progression from Phase II to Phase III will be contingent on evaluation of Phase III proposals and availability of funds. See Section I.E below for specific milestones and a required timeline.

Coded Visibility development efforts will be divided into two technical areas (TAs):

- **Technical Area 1 (TA 1): Passive Asymmetry**
    - TA 1 performers will explore methods that achieve passive asymmetry in a single plume in relevant environments.

- **Technical Area 2 (TA 2): Active Asymmetry**
    - TA 2 performers will investigate methods to actively modulate a tunable obscurant to enable active asymmetric vision capability.

Proposals must respond to only one TA; proposers who wish to address both TAs must submit separate proposals for each. A Government testing and evaluation (T&E) team will provide an assessment of the obscurants developed under each TA and will host all pilot and field demonstrations.

E. Technical Area Descriptions

Both TAs are anticipated to generate information subject to CUI controls. Potential award instruments for proposals containing CUI will be limited to contracts or Other Transactions. Proposers should review BAA Section VI.B.6 regarding DoD requirements related to protection of CUI and Controlled Technical Information (CTI). In addition, proposers should review Attachment H: CONTROLLED UNCLASSIFIED INFORMATION (CUI) GUIDE to assist in proposal preparation.

Pursuant to the Coded Visibility metrics discussed in Section F, each TA will develop obscurant plumes capable of producing asymmetric vision. Specifically, values of the probability of identification and probability of detection (P_{ID} and P_D, respectively) will be used to assess obscurant performance.

P_{ID} and P_D are defined as follows:

- P_{ID} – probability of correctly identifying a specific object in a scene
- P_D – probability of correctly detecting the presence of an (unidentifiable) object in a scene

These probabilities are impacted by a number of variables, most prominently spatial frequency information and contrast-to-noise ratio. Performers should aim to investigate new particulate designs with tailorable or tunable performance and integrate those insights into plume level assessment models to assess their impact on spatial frequency information and contrast, thereby defining P_{ID} and P_D. To that end, all performers will be provided with the Night Vision Integrated Performance Metric (NVIPM) software,[2,3] a public software package developed by the Army CCDC C5ISR Night Vision and Electronic Sensors Directorate, in order to simulate these probabilities at the plume-level based on optical properties provided at the particulate level. Subject matter experts will be on the Government T&E team to support performer modeling efforts as needed.

Experimental values of P_{ID} and P_D will be measured at the end-of-phase challenge problem demonstrations. DARPA and the Government T&E team will design these challenge problems by defining the sensor, object, and distance from sensor to object, thereby fixing the spatial frequency. Performers should focus on developing methods to achieve varying contrasts on

[2] https://c5isr.ccdc.army.mil/inside_c5isr_center/nvesd/integrated_performance_model/
[3] Brian P. Teaney, David P. Haefner, "Evaluating the performance of an IR imaging system: a tutorial," Proc. SPIE 10625, Infrared Imaging Systems: Design, Analysis, Modeling, and Testing XXIX, 106250K (26 April 2018)

either end of the plume that line up with P_{ID} and P_D metrics as defined below. P_{ID} and P_D metrics will be corroborated via modeling in the NVIPM software and measured data of plume optical properties.

Proposals to Coded Visibility must address one of the following two bands:

- visible and near-infrared (VIS + NIR, "image intensifier band"), or
- mid-wave and long-wave infrared (MWIR + LWIR, "thermal band").

The choice of specific sensor used in the lab demonstrations is left up to the proposer. For Government-hosted pilot and field demonstrations, all approaches will be tested against a representative commercial-off-the-shelf (COTS) sensor chosen by the Government T&E team. Detailed information on selected sensors will be provided at the beginning of Phases II and III for TA1, and beginning of Phase III for TA2 to provide sufficient time for proposers to develop appropriate CV obscurants.

Proposals should consider the full tradespace of the spectral band vs. obscurant approach/performance vs. sensors when making this choice. For example, approaches to address the VIS + NIR band will need to consider the effect of analog intensifier dynamic range and the human eye's response and how that affects P_{ID} and P_D. Additionally, different bands will have different intensities and spectral densities, which must be considered when developing an obscurant for a given performance. In the MWIR + LWIR band, approaches must consider that the overall emission in those bands – and thus total signal – will vary with temperature, and that thermal noise in the detector and obscurant itself (e.g., re-emission) must be accounted for.

These illustrative examples are not meant to constitute an exhaustive list of relevant tradespace considerations. The choice of spectral band must be explicitly stated in each proposal.

1. TA 1 – Passive Asymmetry

TA 1 will focus on developing passive, single-plume solutions to achieve asymmetric contrast through an obscurant. The explicit goal of TA 1 is to develop a single plume based on a novel obscurant that can produce asymmetry with P_{ID} and P_D values that meet the program metrics.

Recently, it was shown that passive asymmetry could be achieved using two plumes – one highly absorbing and one highly scattering.[1] These two plumes lead to a difference in contrast between the left and right side of the two-plume system that results from the absorbing cloud effectively acting as a noise filter – preferentially absorbing multiple scattered photons that would serve only to degrade the image contrast. However, this study was conducted using two spatially separated mediums – one for scattering and one for absorption – that were dispersed in high concentrations in water. These crucial limitations have thus far limited the applicability of this approach.

Furthermore, the aforementioned demonstration had very low overall brightness of the collected image (i.e., low signal), as weak scattering paired with strong absorption severely reduced the number of photons that reached the image sensor. This primarily stems from the poor overall extinction properties of the particles – a trait shared by state-of-the-art battlefield obscurants – which results from a lack of particle-level modeling of scattering behavior.

Recently, significant insights have been made in the fields of particle-level optical modeling and material science, including the definition of fundamental limits of overall extinction and mass extinction coefficient (extinction normalized per unit mass and volume). These discoveries show that resonant properties of scattering particles could lead to an increase in extinction performance by two orders of magnitude in a variety of material platforms.[4] Additionally, controlling the geometry and constituent materials of nanoparticle systems can allow for tuning of the overall extinction behavior of the particle from scattering-dominant to absorption-dominant. Such insights could open the door for the development of new multi-particulate obscurants that can generate asymmetry in a single plume.

Research in this TA should focus on investigations into fundamental limits of mass extinction, design of new scatterers that approach such limits, exploration of the tradespace of absorption and scattering in obscurant particles, and development of simulation tools to integrate particle level simulations with plume level assessments. It is expected that TA 1 proposals will address each of these aspects in order to achieve Coded Visibility goals.

Previous work has attempted to image through scattering media using narrow band approaches using spectrally selective windows and adaptive optics. These approaches do not offer any asymmetric advantages, only a coordination between obscuration and imaging systems, and are, therefore, not within the scope of this BAA. Approaches based purely on blind deconvolution/computational imaging methods are also explicitly out of scope and may be considered non-responsive to this BAA.

Summary of TA 1 Progression

- Phase 1 – Develop modeling tools to explore novel obscurant particles, scale to plume level models, and assess limits of passive asymmetry. Demonstrate passive asymmetry in a lab-based chamber test.
- Phase 2 – Explore new obscurant designs to improve extinction and scale up production of obscurants. Evaluate obscurants against specific sensor modalities dictated by Government T&E team in a Government-hosted pilot demo.
- Phase 3 – Approach fundamental limits in extinction performance and expand to plume scales. Demonstrate passive asymmetry in a Government-hosted outdoor field demonstration. Evaluate performance against specific sensor modalities dictated by the Government T&E team assess time window for asymmetric vision capability.

2. TA 2 – Active Asymmetry

TA 2 will focus on active, single-plume solutions to achieving asymmetry through an obscurant that can be modulated in real-time.

It is well-known that external electric/magnetic/electromagnetic fields can reversibly affect various properties of a particle or material. One such form of external manipulation is particle orientation/position. It has long been understood that particle aspect ratios and their orientation

[4] Shim, H., et al. "Fundamental limits to near-field optical response over any bandwidth." Phys. Rev. X 9.1 (2019)

relative to incident light polarization have a strong impact on scattering behavior. Recently, it has been shown that gold nanorods dispersed in an organic suspension can be dynamically aligned via an applied electric field, resulting in strong modulation of the amplitude of scattered light and creating so-called "dynamic plasmonic pixels."[5] It was shown that if the external field is able to overcome the thermal fluctuations (Brownian motion) of the particles, they can be aligned in the direction of an external electric field.[6] Such control of particle orientation can control their spectral responses and potentially enable active modulation of obscurant plumes. Additionally, it has been shown that various types of optically-active particles are able to be aerosolized.[7]

External fields can also manipulate the fundamental optical properties of a material from standoff distances. The selective heating of nanoparticles via electric or magnetic fields (so-called plasmonic photothermal therapy) is a common practice in targeted oncology treatments, for example. These demonstrations have focused primarily on the thermal response of these particles under external stimuli; however, similar mechanisms can be used to affect the optical properties of a material as well. Electromagnetically-induced thermal excitations can result in structural phase changes, carrier-induced reflectance modification (through direct modification of the material conductivity/permittivity), and carrier induced doping, to name a few representative examples. All of the above have strong impacts on the absorption and scattering behavior of a particle.

The above are given solely as examples that serve to motivate TA 2 and should not be considered an exhaustive list of possible approaches. Other materials and methods to tune obscurant performance in real-time are of interest, provided they address an asymmetric vision capability and are safe to personnel within the plume.

TA 2 seeks to merge these insights to successfully demonstrate asymmetric vision in an active configuration. Specifically, TA 2 will focus on the following challenges, each of which must be addressed in a TA 2 proposal:

- Understanding the fundamental limits of particle mass extinction, absorption, and scattering and the dynamic tuning thereof
- Charting the tradespace in modulation magnitude, modulation speed, standoff distance, and power required to effectively tune absorption and scattering
- Understanding how active particle modulation can lead to asymmetric vision
- Demonstrating an active asymmetric vision capability

Explicitly not of interest to TA 2 are approaches that are limited to contained volumes or methods that focus entirely on modulation mechanisms without a goal of demonstrating an

[5] Greybush, N., et al. "Dynamic plasmonic pixels." ACS Nano 2019, 13, 4, 3875–3883
[6] Fontana, J., et al. "Electric field induced orientational order of gold nanorods in dilute organic suspensions." Applied Physics Letters 108, 081904 (2016).
[7] Geldmeier, Jeffrey, et al. "Plasmonic aerosols." Physical Review B 99.8 (2019): 081112.

asymmetric vision capability; such approaches are out of scope and may be considered non-responsive to this BAA.

Summary of TA 2 Progression

- Phase 1 – Experimentally demonstrate modulation of absorption and scattering of obscurants. Assess achievable active asymmetry through simulations.
- Phase 2 – Experimentally demonstrate active asymmetry in a laboratory setting and explore limits and tradespace of power input to asymmetry achieved.
- Phase 3 – Improve the performance of active obscurants, approach limits in power input to asymmetry achieved, and expand scale of plume manipulation.

Other Considerations for both TAs

Both TAs will need to address the vast tradespace of spectral band, obscurant design, choice of sensor, and degree of asymmetry. TAs should also consider novel materials and morphologies that can allow for obscurants that are potentially safe to both personnel and the environment. To that end, proposals might consider the following fundamental questions. These questions are provided solely to further contextualize the goals of Coded Visibility; proposals need not address them explicitly.

- What is the impact of obscurant plume design on spatial frequency information transferred in either direction?
- How can the total bandwidth, and thus signal intensity, of each approach be maximized? How can this be addressed from a material perspective?
- Are there novel materials (biochemicals, biomaterials, metal-organic frameworks, etc.) that could allow for either passive or active control of absorption and scattering performance?

As mentioned above, Coded Visibility is interested in exploring new compounds, assessing their asymmetric obscuration capabilities, and evaluating their impact on the health of U.S. and allied forces. New classes of compounds could bring enhanced scattering performance and the ability to engineer chemical linkers for breathability and safety into a single molecular unit. Approaches in both TAs should strive to demonstrate breathable obscurants. Respirability is a metric for Phase III, as reflected in the metrics table in Section F.

Proposals seeking to develop a sensor are explicitly not of interest to Coded Visibility and may be considered non-responsive. Proposals should focus on development of novel obscurants that provide an asymmetric vision capability using the standard VIS/NIR and thermal sensors provided above.

Coded Visibility Lab, Pilot, and Field Demonstrations

As described above, the end of each phase will be marked by a demonstration of obscurant performance. TA 1 will produce lab, pilot, and field demonstrations, while TA 2 will produce lab and pilot demonstrations (due to the more nascent aspects of TA 2 relative to TA 1, the

technology development lags by one phase). Pilot and field demonstrations will be hosted by the Government T&E team and used to assess the suitability of the proposed system for further study. The three types of demonstrations are defined as follows:

- Lab-based demonstration (at performer site): ~1 m^3 chamber with nozzle input for injecting obscurants
    - Performed in a controlled laboratory environment using aerosolized obscurants
    - No external considerations (e.g., weather, wind)
    - Intended to demonstrate proof of concept of developed obscurants
- Pilot demonstration (at Government T&E site): ~75 m^3 room with nozzle inputs for injecting obscurants
    - Performed in a controlled laboratory environment using aerosolized obscurants
    - No external considerations
    - Intended to demonstrate scalability of developed obscurants
- Field demonstration (at Government T&E site): full plume assessment in outdoor environment
    - Performed in an outdoor environment in uncontrolled conditions
    - Full effects of weather and environment (e.g., humidity, wind, temperature, ambient sunlight, etc.) will be observed
    - Intended to demonstrate full obscurant capability and transition potential

Government T&E of TA 1 and TA 2

The program will include a Government T&E effort to support and evaluate performer efforts in the following areas:

- Independent characterization of obscurant performance both at low volumes (milligrams) in Phase I and at large plume scales (10s of grams) in Phases II and III.
- Assessing impacts of obscurants on respiratory health through in-vitro tests during Phase II and full animal model tests during Phase III.
- Support modeling obscurants with sensor modalities using tools such as MODerate resolution atmospheric TRANsmission (MODTRAN) code[8] and NVIPM Performers should familiarize themselves with these publicly available tools and aim to develop modeling capabilities that can integrate with them for simulating full plume assessments.

[8] http://modtran.spectral.com/

- Designing, developing, and hosting pilot and field demonstrations during Phase II and Phase III to evaluate asymmetry.

F. Schedule/Milestones/Metrics

Proposers should provide a technical and programmatic strategy that conforms to the entire program schedule and presents an aggressive plan to fully address all program goals, metrics, milestones, and deliverables.

- The task structure must be consistent across the proposed schedule, Statement of Work, and cost volume.
- A target start date of July 2022 may be assumed for planning purposes.
- Schedules will be synchronized across performers, as required, and monitored/revised as necessary throughout the program.
- All proposals must include the following meetings and travel in the proposed schedule and costs:
    - To continue integration and development between TAs, foster collaboration between teams, and disseminate program developments, a two-day Principal Investigator (PI) meeting will be held approximately every six months. For budgeting purposes, plan for nine two-day meetings over the course of 54 months in the Washington, D.C. area.
    - Regular teleconference meetings will be scheduled with the Government T&E team for progress reporting as well as problem identification and mitigation. Proposers should anticipate at least one site visit per phase by the DARPA Program Manager during which they will have the opportunity to demonstrate progress towards agreed-upon milestones.
    - Government-hosted pilot and field demonstrations will take place in the Washington, D.C. area. TA 1 proposers should plan for a two-day meeting in the Washington D.C. area at the end of Phases II and III. TA 2 proposers should plan for a two-day meeting in the Washington D.C. area at the end of Phase III.
- Performer progress will be evaluated using a number of metrics as enumerated below. Attainment of the prescribed metrics for a given phase does not guarantee transition into the next phase of the program. Individual efforts will be judged on their expected ability to have a transformative impact on DoD and DARPA priorities.

TA 1 and TA 2 Metrics

In order to meet the goals of the Coded Visibility Program, performers from both TAs will need to meet P_{ID} and P_D metrics at the end of each phase as outlined in the table below. The P_{ID} metric is always minimum value, applied to friendly forces (blue in the table below) while the P_D metric is always a maximum value, applied to enemy forces (red in the table below).

	Metrics	Phase I Development	Phase II Demonstration	Phase III Deployment
Performer Metrics	TA 1	Lab-based demo of passive asymmetry with >50% P_{ID} and <50% P_D using a single plume	Gov't-hosted pilot demo of passive asymmetry with >80% P_{ID} and <20% P_D using a single plume	Gov't-hosted field demo of passive asymmetry with >90% P_{ID} and <10% P_D using a single, respirable plume
	TA 2	Experiment-informed simulation of active asymmetry with >50% P_{ID} and <50% P_D	Lab-based demo of active asymmetry with >80% P_{ID} and <20% P_D using a single plume	Gov't-hosted pilot demo of active asymmetry with >90% P_{ID} and <10% P_D using a single, respirable plume
	Spectral Bands	Visible (VIS) + Near-infrared (NIR) **OR** Mid-wave Infrared (MWIR) + Long-wave Infrared (LWIR)		

G. Deliverables

All proposals must have a task dedicted to working with the Government T&E teams. Performers will be expected to provide the following deliverables, at a minimum, under this task:

- Comprehensive quarterly technical reports due within ten days of the end of the given quarter, describing progress made on the specific milestones as laid out in the SOW.
- A phase completion report submitted within 30 days of the end of each phase, summarizing the research done.
- Samples for government team should be provided for evaluation at the end of each phase, as follows:
    - Phase I: At month 12, teams must provide a minimum of 1.0 g of obscurant material for evaluation of spectroscopic properties and aerosol dynamics.
    - Phase II: At month 30, teams must provide a minimum of 10 g of obscurant material for plume assessment and asymmetry testing. TA 1 teams should be prepared to travel to the Washington, D.C. area for pilot scale evaluation and characterization.
    - Phase III: At month 51, teams must provide a minimum of 100 g of obscurant material for large scale assessment, evaluation of asymmetry, and deployability studies. Both TA 1 and TA 2 teams should be prepared to travel to the Washington, D.C. area for field-scale and pilot-scale evaluations, respectively.
- Other negotiated deliverables specific to the objectives of the individual efforts: 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.
- Reporting as outlined in Section VI.C.

Any CUI or CTI must be marked as described in Section IV.B.4.

H. Other Program Objectives and Considerations

Collaboration

Throughout the course of the program, it will necessary for all performers, regardless of category, to share relevant information regarding their research and development to support the larger program goals. Performers will have specific material deliverables to the Government T&E team at the 12, 30, and 51 month marks, as outlined above in section G. DARPA additionally expects all program performers to work collaboratively with one another to realize the program objectives outlined herein, so proposers should carefully review the goals for the entire program in order to fully understand the context of each program objective, performer category, and TA within the overall program structure. All proposals should describe plans for ensuring transparency of their processes to enable interactions with other program performers. Proposals that fail to include these plans may be deemed non-conforming and removed from consideration.

II. Award Information

A. General Award Information

DARPA anticipates multiple awards.

The level of funding for individual awards made under this BAA will depend on the quality of the proposals received and the availability of funds. Awards will be made to proposers[9] whose proposals are determined to be the most advantageous to the Government, all evaluation factors considered. See Section V for further information.

The Government reserves the right to:

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

[9] As used throughout this BAA, "proposer" refers to the lead organization on a submission to this BAA. The proposer is responsible for ensuring that all information required by a BAA--from all team members--is submitted in accordance with the BAA. "Awardee" refers to anyone who might receive a prime award from the Government, including recipients of procurement contracts or Other Transactions. "Subawardee" refers to anyone who might receive a subaward from a prime awardee (e.g., subawardee, consultant, etc.).

additional information in a timely manner.

Proposals identified for negotiation may result in a procurement contract, or Other Transaction (OT) depending upon the nature of the work proposed, the required degree of interaction between parties, and other factors.

Proposers looking for innovative, commercial-like contractual arrangements are encouraged to consider requesting Other Transactions. To understand the flexibility and options associated with Other Transactions, consult http://www.darpa.mil/work-with-us/contract-management#OtherTransactions.
In accordance with 10 U.S.C. § 2371b(f), the Government may award a follow-on production contract or Other Transaction (OT) for any OT awarded under this 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 either cannot be met by proposers intending to perform fundamental research or the proposed research is anticipated to present a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense. Therefore, the Government anticipates restrictions on the resultant research that will require the awardee to seek DARPA permission before publishing any information or results relative to the program.
Proposers should indicate in their proposal whether they believe the scope of the research included in their proposal is fundamental or not. While proposers should clearly explain the intended results of their research, the Government shall have sole discretion to determine whether the proposed research shall be considered fundamental and to select the award instrument type. Appropriate language will be included in resultant awards for non-fundamental

research to prescribe publication requirements and other restrictions, as appropriate. This language can be found at http://www.darpa.mil/work-with-us/additional-baa.

For certain research projects, it may be possible that although the research to be performed by a potential awardee is non-fundamental research, its proposed subawardee's effort may be fundamental research. It is also possible that the research performed by a potential awardee is fundamental research while its proposed subawardee's effort may be non-fundamental research. In all cases, it is the potential awardee's responsibility to explain in its proposal which proposed efforts are fundamental research and why the proposed efforts should be considered fundamental research.

III. Eligibility Information

A. Eligible Applicants

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

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

a. FFRDCs

FFRDCs are subject to applicable direct competition limitations and cannot propose to this 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.§ 2539b may be the appropriate statutory starting point for some entities, specific supporting regulatory guidance, together with evidence of agency approval, will still be required to fully establish eligibility. DARPA will consider FFRDC and Government Entity eligibility submissions on a case-by-case basis; however, the burden to prove eligibility for all team members rests solely with the proposer.

2. 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. Include any OCIs affirmations and disclosures in Attachment G: VOLUME 3: ADMINISTRATIVE & NATIONAL POLICY REQUIREMENTS.

C. Cost Sharing/Matching

Cost sharing is not required; however, it will be carefully considered where there is an applicable

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

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

IV. Application and Submission Information

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

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

Abstracts and full proposals that are not found to be applicable to the Coded Visibility BAA as defined above may be deemed non-conforming[10] and removed from consideration. All abstracts and full proposals must provide sufficient information to assess the validity/feasibility of their claims as well as comply with the requirements outlined herein for submission formatting, content and transmission to DARPA. Abstracts and full proposals that fail to do so may be deemed non-conforming and removed from consideration. Proposers will be notified of non-conforming determinations via letter.

A. Address to Request Application Package

This document contains all information required to submit a response to this solicitation. No additional forms, kits, or other materials are needed except as referenced herein. No request for proposal or additional solicitation regarding this opportunity will be issued, nor is additional information available except as provided at the SAM.gov website (https://sam.gov/) or referenced herein.

B. Content and Form of Application Submission

1. Abstract Information and Formatting

[10] "Conforming" is defined as having been submitted in accordance with the requirements outlined herin

As stated above, proposers are strongly encouraged to submit an abstract in advance of a full proposal to minimize effort and reduce the potential expense of preparing an out of scope proposal. All proposers are required to use Attachment A: BLIND ABSTRACT SUMMARY SLIDE TEMPLATE and Attachment B: BLIND ABSTRACT TEMPLATE provided with this solicitation on https://sam.gov/ and http://www.grants.gov. Attachment A: BLIND ABSTRACT SUMMARY SLIDE TEMPLATE described herein must be in .ppt, .pptx or .pdf format and should be attached as a separate file to this document.

The abstract provides a synopsis of the proposed project by briefly answering the following questions:

- What is the proposed work attempting to accomplish or do?
- How is the work performed today (what is the state of the art or practice), and what are the limitations?
- Who will care, and what will the impact be if the work is successful?
- How much will it cost, and how long will it take?
- What is new in your approach, and why do you think it will be successful?

Please note that DARPA is using a blind Abstract review process for the Coded Visibility program. Please follow the instructions provided in Attachment A and B to conform with the blind Abstract review process. The cover sheet in Attachment B will be removed from the Abstract prior to commencement of the review process. Please DO NOT include any company identifying information or personnel names, including the proposed Principle Investigator, or the names of any subcontractor institutions or companies on any pages except for the cover sheet. Abstracts that include identifying company information or personnel names on a page other than the cover sheet may be deemed non-conforming, and may not be evaluated.

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

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

2. Full Proposal Information and Formatting

a. Proposal Volumes

Full proposals must consist of all 3 volumes described below. To assist in proposal development, templates for these volumes are posted as attachments to this solicitation on

https://sam.gov/. The templates are specific to each volume, as outlined below.

Full proposals requesting a procurement contract or Other Transaction (OT) must use the following attachments in each volume:

- **Volume 1**
  - Attachment C: PROPOSAL SUMMARY SLIDE TEMPLATE
  - Attachment D: PROPOSAL TEMPLATE VOLUME 1: TECHNICAL & MANAGEMENT
- **Volume 2**
  - Attachment E: PROPOSAL TEMPLATE VOLUME 2: COST
  - Attachment F: MS Excel™ DARPA COST PROPOSAL SPREADSHEET
- **Volume 3**
  - Attachment G: PROPOSAL TEMPLATE VOLUME 3: ADMINISTRATIVE & NATIONAL POLICY REQUIREMENTS

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**.
All proposers are required to use the appropriate templates based on the type of award requested. Templates are provided as attachments to this solicitation on https://sam.gov/ and http://www.grants.gov. Full Proposals that do not include the appropriate attachments as detailed here may be deemed non-conforming and may not be evaluated.

b. DARPA Embedded Entrepreneur 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 technology transition plan 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.

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

Proposers and awardees are subject to the DoD requirements related to protection of CUI and CTI IAW Executive Order 13556, *Controlled Unclassified Information*, DFARS 252.204-7000, *Disclosure of Information*, DFARS 252.204-7012, *Safeguarding Covered Defense Information and Cyber Incident Reporting*, DoD Instruction 5200.48, Controlled Unclassified Information, DoD Instruction 8582.01, *Security of Non-DoD Information Systems Processing Unclassified Nonpublic DoD Information*. See http://www.darpa.mil/work-with-us/additional-baa for additional guidance on protecting CUI on Non-DoD Information Systems.

CUI is defined as unclassified information that requires safeguarding or dissemination controls, pursuant to and consistent with applicable law, regulations, and Government-wide policies.

Controlled Technical Information (CTI) is defined as technical information with military or space application that is subject to controls on its access, use, reproduction, modification, performance, display, release, disclosure, or dissemination. The term CTI does not include information that is lawfully publicly available without restrictions.

DoD considers "technical information" to be technical data or computer software, as those terms are defined in Defense Federal Acquisition Regulation Supplement clause 252.227-7013, "Rights in Technical Data - Noncommercial Items" (48 CFR 252.227-7013). Examples of technical information include research and engineering data; engineering drawings and associated lists; specifications, standards, process sheets, manuals, technical reports, technical orders, catalog-item identifications, data sets, studies and analyses and related information; and computer software code. Note that such technical information may or may not be controlled (i.e., CTI), depending on whether it has military or space application.

Proposers should indicate in their proposal if their proposed solution includes CUI. All proposals indicating CUI requirements must include a draft CUI protection plan in Attachment G, PROPOSAL TEMPLATE VOLUME 3: ADMINISTRATIVE & NATIONAL POLICY REQUIREMENTS detailing how CUI will be protected at performance sites as well as sub-contractor locations. The draft CUI protection plan is not a source selection criterion, and there is no page limit. During selection and negotiation, DARPA will determine additional requirements

and clarification required of the CUI protection plan. DARPA has generated and provided an Unclassified CUI Guide and included it with this BAA as Attachment H: CONTROLLED UNCLASSIFIED INFORMATION (CUI) GUIDE to assist in proposal and CUI protection plan preparation. Potential award instruments for proposals containing CUI will be limited to contracts or Other Transactions.

As part of Attachment D: PROPOSAL TEMPLATE VOLUME 1: TECHNICAL & MANAGEMENT, the proposer should include a Statement of Work with a breakdown of all research tasks and subtasks and indicate the proposed classification for each. For all tasks and subtasks proposed to be unclassified, proposers should distinguish between work proposed to be Fundamental Research versus work proposed to be CUI. Proposers will provide a short explanation for why each subtask should be categorized as Fundamental Research or CUI.

If CUI tasks are proposed in the Statement of Work, proposers must provide a plan for protecting Controlled Unclassified Information as part of Attachment G: PROPOSAL TEMPLATE VOLUME 3: ADMINISTRATIVE & NATIONAL POLICY REQUIREMENTS, Section 8.

CTI is to be marked "DISTRIBUTION C. Distribution authorized to U.S. Government agencies and their contractors; Critical Technology; [current date]. Other requests for this document shall be referred to DARPA, DSO" in accordance with Department of Defense Instruction 5203.24, "Distribution of Statements on Technical Documents."

5. Security Information

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

a. Program Security Information

i. Program Security

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; and a CUI protection plan.

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. It is expected that both TA 1 and TA 2 efforts will generate CUI. As a result, all performers in both TAs are required to comply with DoD requirements related to CUI. Proposers should indicate in their proposal if their proposed solution includes CUI. All proposals indicating CUI requirements must include a draft CUI protection plan as part of Attachment G: PROPOSAL TEMPLATE VOLUME 3: ADMINISTRATIVE & NATIONAL POLICY REQUIREMENTS (Section 8) detailing how CUI will be protected at performer sites as well as sub-contractor locations, as well as explicitly stating which entities will be generating and maintaining CUI, and which will not. The draft CUI protection plan is not part of the source selection criteria, and there is no page limit. During selection and negotiation, DARPA will determine additional requirements and

clarification required of the CUI protection plan. Attachment H: CONTROLLED UNCLASSIFIED INFORMATION (CUI) GUIDE is provided with this BAA to assist with preparation of the draft CUI protection plan.

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

ii. CUI Submission Requirements

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

iii. CUI Authorized Systems

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.

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

Proposers choosing to submit classified information from other collateral classified sources (i.e., sources other than DARPA) must ensure: (1) they have permission from an authorized individual at the cognizant Government agency (e.g., Contracting Officer, Program Manager); (2) the submission is marked in accordance with the source Security Classification Guide (SCG) from which the material is derived; and (3) the source SCG is provided along with the submission. Proposers submitting classified information must have, or be able to obtain prior to award, cognizant security agency approved facilities, information systems, and appropriately cleared/eligible personnel to perform at the classification level proposed. This includes ensuring all industrial, personnel, and information systems processing security requirements are in place and at the appropriate level (e.g., Facility Clearance Level, Automated Information Security, Assessment and Authorization). Furthermore, all proposed personnel who will be performing Information Assurance (IA)/Cybersecurity related duties on classified Information Systems shall meet the requirements set forth in DoD Manual 8570.01-M (Information Assurance Workforce Improvement Program).

Additional information on the subjects discussed in this section may be found at https://www.dcsa.mil/.

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

Proposers and awardees are subject to the DoD requirements related to protection of CUI and CTI IAW Executive Order 13556, *Controlled Unclassified Information*, DFARS 252.204-7000, *Disclosure of Information*, DFARS 252.204-7012, *Safeguarding Covered Defense Information*

and Cyber Incident Reporting, DoD Instruction 5200.48, *Controlled Unclassified Information*, DoD Instruction 8582.01, *Security of Non-DoD Information Systems Processing Unclassified Nonpublic DoD Information*. See http://www.darpa.mil/work-with-us/additional-baa for additional guidance on protecting CUI on Non-DoD Information Systems.

CUI is defined as unclassified information that requires safeguarding or dissemination controls, pursuant to and consistent with applicable law, regulations, and Government-wide policies.

Controlled Technical Information (CTI) is defined as technical information with military or space application that is subject to controls on its access, use, reproduction, modification, performance, display, release, disclosure, or dissemination. The term CTI does not include information that is lawfully publicly available without restrictions.

DoD considers “technical information” to be technical data or computer software, as those terms are defined in Defense Federal Acquisition Regulation Supplement clause 252.227-7013, "Rights in Technical Data - Noncommercial Items" (48 CFR 252.227-7013). Examples of technical information include research and engineering data; engineering drawings and associated lists,; specifications, standards, process sheets, manuals, technical reports, technical orders, catalog-item identifications, data sets, studies and analyses and related information; and computer software code. Note that such technical information may or may not be controlled (i.e., CTI), depending on whether it has military or space application.

It is anticipated that TA 1 and TA 2 proposals may generate information subject to CUI controls. Proposers should indicate in their proposal if their proposed solution includes CUI. All proposals indicating CUI requirements must include a draft CUI protection plan in Attachment G: PROPOSAL TEMPLATE VOLUME 3: ADMINISTRATIVE & NATIONAL POLICY REQUIREMENTS (Section 8) detailing how CUI will be protected at performance sites as well as sub-contractor locations. The draft CUI protection plan is not a source selection criteria, and there is no page limit. During selection and negotiation, DARPA will determine additional requirements and clarification required of the CUI protection plan. DARPA has generated and provided an Unclassified CUI Guide and included it with this BAA as Attachment H: CONTROLLED UNCLASSIFIED INFORMATION (CUI) GUIDE to assist in proposal and CUI protection plan preparation. Potential award instruments for proposals containing CUI will be limited to contracts or Other Transactions.

As part of Attachment D: PROPOSAL TEMPLATE VOLUME 1: TECHNICAL & MANAGEMENT, the proposer must include a Statement of Work with a breakdown of all research tasks and subtasks and indicate the proposed classification for each. For all tasks and subtasks proposed to be unclassified, proposers must distinguish between work proposed to be Fundamental Research versus work proposed to be CUI. Proposers must provide a short explanation for why each subtask should be categorized as Fundamental Research or CUI.

If CUI tasks are proposed in the Statement of Work, proposers must provide a plan for protecting Controlled Unclassified Information as part of Attachment G: PROPOSAL TEMPLATE VOLUME 3: ADMINISTRATIVE & NATIONAL POLICY REQUIREMENTS (Section 8).

CTI is to be marked “DISTRIBUTION C. Distribution authorized to U.S. Government agencies and their contractors; Critical Technology; [current date]. Other requests for this document shall be referred to DARPA, DSO” in accordance with Department of Defense Instruction 5203.24, “Distribution of Statements on Technical Documents.”

C. Submission Dates and Times

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

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

1. Abstracts

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

2. Full Proposals

Full proposal packages as detailed in Section IV.B.2 above, and, as applicable, proprietary subawardee cost proposals and classified appendices to unclassified proposals, must be submitted per the instructions outlined herein *and received by DARPA* no later than the due date and time listed in Part One: Overview Information. Proposals received after this time and date may not be reviewed.

D. Funding Restrictions

Not applicable.

E. Other Submission Requirements

1. Unclassified Submission Instructions

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

a. Abstracts

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

First time users of the DARPA BAA Submission website must complete a two-step account creation process. The first step consists of registering for an extranet account by going to the URL listed above and selecting the "Account Request" link. Upon completion of the online form, proposers will receive two separate emails; one will contain a user name and the second will provide a temporary password. Once both emails have been received, the second step requires proposers to go back to the submission website and log in using that user name and password. After accessing the extranet, proposers may then create a user account for the DARPA

BAA Submission website by selecting the "Register your Organization" link at the top of the page. Once the user account is created, proposers will be able to see a list of solicitations open for submissions, view submission instructions, and upload/finalize their abstract.

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

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

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

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

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

b. Proposals Requesting a Procurement Contract or Other Transaction

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

i. Electronic Upload

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

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

Proposers who already have an account on the DARPA BAA Submission website may simply

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

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

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

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

ii. Direct Mail/Hand-carry

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

V. Application Review Information

A. Evaluation Criteria

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

- **Overall Scientific and Technical Merit**

The proposed technical approach is innovative, feasible, achievable, and complete.

The proposed technical team has the expertise and experience to accomplish the proposed tasks. Task descriptions and associated technical elements provided are complete and in a logical sequence with all proposed deliverables clearly defined such that a final outcome that achieves the goal can be expected as a result of award. The proposal identifies major technical risks, and planned mitigation efforts are clearly defined and feasible. The proposed schedule aggressively pursues performance metrics in an efficient time frame that accurately accounts for the anticipated workload.

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

The potential contributions of the proposed effort bolster the national security technology base and support DARPA's mission to make pivotal early technology investments that create or prevent technological surprise. The proposed intellectual property restrictions (if any) will not significantly impact the Government's ability to transition the technology.

- **Cost Realism**

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

B. Review and Selection Process

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

1. Handling of Source Selection Information

DARPA policy is to treat all submissions as source selection information (FAR 2.101 and 3.104), and to only disclose their contents to authorized personnel. Restrictive notices notwithstanding, submissions may be handled by support contractors for administrative purposes and/or to assist with technical evaluation. All DARPA support contractors performing this role are expressly prohibited from performing DARPA-sponsored technical research and are bound by appropriate nondisclosure agreements. Subject to the restrictions set forth in FAR 37.203(d), DARPA may also request input on technical aspects of the proposals from other non-Government consultants/experts who are strictly bound by the appropriate non-disclosure requirements.

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

C. Federal Awardee Performance and Integrity Information (FAPIIS)

Following the review and selection process described above, but prior to making an award above the simplified acquisition threshold (FAR 2.101), DARPA is required[11] to review and consider any information available through the designated integrity and performance system (currently FAPIIS). Selectees have the opportunity to comment on any information about themselves entered in the database. DARPA will consider any comments and other information in FAPIIS or other systems prior to making an award.

VI. Award Administration Information

A. Selection Notices

After proposal evaluations are complete, proposers will be notified as to whether their proposal was selected for award negotiation as a result of the review process. Notification will be sent by email to the Technical and Administrative POCs identified on the proposal cover sheet. If a proposal has been selected for award negotiation, the Government will initiate those negotiations following the notification.

B. Administrative and National Policy Requirements

1. Solicitation Provisions and Award Clauses, Terms and Conditions

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

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

2. System for Award Management (SAM) and Universal Identifier Requirements

All proposers must be registered in SAM unless exempt per FAR 4.1102. FAR 52.204-7, "System for Award Management" and FAR 52.204-13, "System for Award Management Maintenance" are incorporated into this 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.

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

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

[11] Per 41 U.S.C. 2313, as implemented by FAR 9.103 and 2 CFR § 200.205.

number, and bank phone or fax number).

3. Representations and Certifications

In accordance with FAR 4.1102 and 4.1201, proposers requesting a procurement contract must complete electronic annual representations and certifications at https://www.sam.gov/.
In addition, all proposers are required to submit for all award instrument types supplementary DARPA-specific representations and certifications at the time of proposal submission. See http://www.darpa.mil/work-with-us/reps-certs for further information on required representation and certification depending on your requested award instrument.

4. Intellectual Property

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

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

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

a. Intellectual Property Representations

All proposers must provide a good faith representation of either ownership or possession of appropriate licensing rights to all other intellectual property to be used for the proposed project. Proposers must provide a short summary for each item asserted with less than unlimited rights that describes the nature of the restriction and the intended use of the intellectual property in the conduct of the proposed research. See Attachment G: PROPOSAL TEMPLATE VOLUME 3: ADMINISTRATIVE & NATIONAL POLICY REQUIREMENTS, Section 4.

b. Patents

All proposers must include documentation proving ownership or possession of appropriate licensing rights to all patented inventions to be used for the proposed project. If a patent application has been filed for an invention, but it includes proprietary information and is not publicly available, a proposer must provide documentation that includes: the patent number, inventor name(s), assignee names (if any), filing date, filing date of any related provisional

application, and summary of the patent title, with either: (1) a representation of invention ownership; or (2) proof of possession of appropriate licensing rights in the invention (i.e., an agreement from the owner of the patent granting license to the proposer).

c. Procurement Contracts

i. Noncommercial Items (Technical Data and Computer Software)

Proposers requesting a procurement contract must list all noncommercial technical data and computer software that it plans to generate, develop, and/or deliver, in which the Government will acquire less than unlimited rights and to assert specific restrictions on those deliverables. In the event a proposer does not submit the list, the Government will assume that it has unlimited rights to all noncommercial technical data and computer software generated, developed, and/or delivered, unless it is substantiated that development of the noncommercial technical data and computer software occurred with mixed funding. If mixed funding is anticipated in the development of noncommercial technical data and computer software generated, developed, and/or delivered, proposers should identify the data and software in question as subject to GPR. In accordance with DFARS 252.227-7013, "Rights in Technical Data - Noncommercial Items," and DFARS 252.227-7014, "Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation," the Government will automatically assume that any such GPR restriction is limited to a period of 5 years, at which time the Government will acquire unlimited rights unless the parties agree otherwise. The Government may use the list during the evaluation process to evaluate the impact of any identified restrictions and may request additional information from the proposer, as may be necessary, to evaluate the proposer's assertions. Failure to provide full information may result in a determination that the proposal is non-conforming. A template for complying with this request is provided in Attachment G: PROPOSAL TEMPLATE VOLUME 3: ADMINISTRATIVE & NATIONAL POLICY REQUIREMENTS, Section 4.

ii. Commercial Items (Technical Data and Computer Software)

Proposers requesting a procurement contract must list all commercial technical data and commercial computer software that may be included in any noncommercial deliverables contemplated under the research project and assert any applicable restrictions on the Government's use of such commercial technical data and/or computer software. In the event a proposer does not submit the list, the Government will assume there are no restrictions on the Government's use of such commercial items. The Government may use the list during the evaluation process to evaluate the impact of any identified restrictions and may request additional information from the proposer to evaluate the proposer's assertions. Failure to provide full information may result in a determination that the proposal is non-conforming. A template for complying with this request is provided in Attachment G: PROPOSAL TEMPLATE VOLUME 3: ADMINISTRATIVE & NATIONAL POLICY REQUIREMENTS, Section 4.

d. Other Types of Awards

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

assess the impact of any identified restrictions and may request additional information from the proposer, to evaluate the proposer's assertions. Failure to provide full information may result in a determination that the proposal is non-conforming. A template for complying with this request is provided in Attachment G: PROPOSAL TEMPLATE VOLUME 3: ADMINISTRATIVE & NATIONAL POLICY REQUIREMENTS, Section 4.

5. Program-generated Data

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

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

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

6. Human Subjects Research (HSR)/Animal Use

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

7. Electronic Invoicing and Payments

Awardees will be required to submit invoices for payment electronically via Wide Area Work Flow (WAWF), accessed through the Procurement Integrated Enterprise Environment at https://piee.eb.mil/, unless an exception applies. Registration in WAWF is required prior to any award under this BAA.

8. 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.

C. Reporting

1. Technical and Financial Reports

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

2. Patent Reports and Notifications

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

VII. Agency Contacts

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

- **Technical POC**: Rohith Chandrasekar, Program Manager, DARPA/DSO
- **BAA Email:** CodedVisibility@darpa.mil
- **BAA Mailing Address:**

  DARPA/DSO
  ATTN: HR001122S0007
  675 North Randolph Street
  Arlington, VA 22203-2114

- **DARPA/DSO Opportunities Website:** http://www.darpa.mil/work-with-us/opportunities

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

VIII. Other Information

A. Proposers Day

The Coded Visibility Proposers Day will be held via webcast on October 21, 2021. Advance registration is required for this meeting. See DARPA-SN-22-01 posted at https://sam.gov/ for all details. Participation in the Coded Visibility Proposers Day is voluntary and is not required to propose to this solicitation.

B. Frequently Asked Questions (FAQs)

Administrative, technical, and contractual questions should be emailed to CodedVisibility@darpa.mil. All questions must be in English and must include the name, email address, and the telephone number of a point of contact.

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