



Broad Agency Announcement

Enhanced Night Vision in eyeglass form factors (ENVision)

Defense Sciences Office

HR001121S0013

January 12, 2021

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BAA Attachments:

- Attachment A: ABSTRACT SUMMARY SLIDE TEMPLATE
- Attachment B: ABSTRACT TEMPLATE
- Attachment C: PROPOSAL SUMMARY SLIDE TEMPLATE
- Attachment D: PROPOSAL TEMPLATE VOLUME 1: TECHNICAL & MANAGEMENT
- Attachment E: PROPOSAL TEMPLATE VOLUME 2: COST
- Attachment F: MS Excel™ DARPA COST PROPOSAL SPREADSHEET
- Attachment G: PROPOSAL TEMPLATE VOLUME 3: ADMINISTRATIVE & NATIONAL POLICY REQUIREMENTS
- Attachment H: CONTROLLED UNCLASSIFIED INFORMATION (CUI) GUIDE

PART I: OVERVIEW INFORMATION

- **Federal Agency Name:** Defense Advanced Research Projects Agency (DARPA), Defense Sciences Office (DSO)
- **Funding Opportunity Title:** Enhanced Night Vision in eyeglass form factors (ENVision)
- **Announcement Type:** Initial Announcement
- **Funding Opportunity Number:** HR001121S0013
- **Catalog of Federal Domestic Assistance (CFDA) Number(s):** 12.910 Research and Technology Development
- **Dates** (All times listed herein are Eastern Time.)
 - Posting Date: January 12, 2021
 - Proposers Day: January 21, 2021. See Section VIII.B.
 - Abstract Due Date: February 2, 2021, 4:00 p.m.
 - FAQ Submission Deadline: March 9, 2021, 4:00 p.m. See Section VIII.A.
 - Full Proposal Due Date: March 23, 2021, 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:** Procurement contracts, cooperative agreements or Other Transactions. Award instruments will be limited to procurement contracts and Other Transactions for Proposers whose proposed solution includes Controlled Unclassified Information (CUI).
- **Agency contacts**
 - **Technical POC:** Dr. Rohith Chandrasekar, Program Manager, DARPA/DSO
 - **BAA Email:** ENVision@darpa.mil
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675 North Randolph Street
Arlington, VA 22203-2114
- **DARPA/DSO Opportunities Website:** <https://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.A for further information.
- **Security:** The ENVision Program will be unclassified and will comprise one Controlled Unclassified Information (CUI) Technical Area (Controlled Technical Information (CTI), Export-Controlled), and one fundamental research Technical Area. 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 as well as 2 C.F.R. § 200.203. Any resultant negotiations and/or awards will follow all laws and regulations applicable to the specific award instrument(s) available under this BAA, e.g., FAR 15.4 for procurement contracts.

A. Introduction

The Defense Sciences Office (DSO) at the Defense Advanced Research Projects Agency (DARPA) is soliciting innovative research proposals in the area of direct-view night vision (NV) systems in eyeglass form factors. 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

Current night vision (NV) systems are bulky (> 10 cm length) and heavy (>1 kg), resulting in a large torque on the wearer's neck. This torque greatly limits the wearer's agility and often leads to chronic injury over prolonged use. Additionally, these systems provide the wearer with a narrow field of view (FOV) and generally have limited spectral access to the near-infrared (NIR), greatly limiting situational awareness. All of these limitations can be derived directly from the two technologies employed by the NV system, both of which have remained largely the same since their inception: refractive optics for imaging, and image intensifier (I2) tubes for image intensification.

The DARPA ENVision program will overcome these limitations to develop enhanced direct-view NV systems with the following capabilities:

- lightweight systems in near-eyeglass form factors;
- extended visual access beyond NIR to include short-wave (SWIR, 1.5-3 μm), mid-wave (MWIR, 3-5 μm), or long-wave infrared (LWIR, 8-12 μm) through a common aperture;
- expanded FOV to near natural eyesight (100°).

NV systems have been developed in an attempt to overcome the challenges of limited situational awareness by expanding the FOV or adding the capability to see the LWIR. However, in order to achieve the desired improvements, these systems have included additional optical channels, each requiring its own set of refractive optics and detection schemes. Thus, these improvements in performance have necessarily come with a proportional increase in overall system size and weight, further exacerbating the issue of neck torque.

Recent advances in materials science and nanofabrication open up the possibility of replacing bulk refractive optics and I2 tubes with ultrathin planar optics and planar image intensifiers. ENVision will leverage these advances to demonstrate a disruptive advancement in NV technology that eliminates the current tradeoff between performance and neck torque.

ENVision also seeks to explore the next technical leap in NV technologies by investigating the possibility of achieving direct vision of the infrared through photon upconversion. While current NV systems use a multi-step process, the physics to directly upconvert IR photons to visible

(VIS) in a single step has been known since the invention of the laser in 1960. Direct photon upconversion involves the absorption of two or more photons and re-emission of a photon of higher energy. Currently, these processes are inefficient and are limited in the bandwidth of light that can be upconverted simultaneously. Recent advances in material systems such as polaritonic structures and sensitized core-shell nanoparticles have opened up new avenues in exploring photon upconversion. Photon upconversion-based night vision would eliminate the need for multiple components and could lead to even simpler, all-optical NV systems in the future, such as NV contact lenses.

C. Program Description/Scope

The primary goals of ENVision are to:

1. Enable direct vision of multiple IR bands through a common aperture with wide FOV in an eyeglass form-factor
2. Investigate novel photon upconversion processes to enable future all-optical NV systems

Enable direct vision of multiple IR bands through a common aperture with wide FOV.

Planar optics and planar image intensifiers could enable direct vision of multiple IR bands through a single common aperture. Structured materials such as diffractive optics and metamaterials allow one to embed optical functionalities far beyond those of traditional refractives into a single optical element. It has been demonstrated that wide FOV, broad bandwidth, and high imaging quality are all achievable individually; however, combining these traits in practice remains a challenge. In addition to planar optics, image intensification is needed in order to convert the often weak IR light into visible photons detectable by the naked eye. Extremely-wide bandgaps in thin materials could lead to transduction across multiple IR bands. However, combining these materials with a detection scheme that allows for wavelength discrimination remains a challenge. Novel low-noise photoamplification techniques could also replicate microchannel plate (MCP) function in monolithic devices, enabling low-light image intensification. ENVision seeks to address the aforementioned challenges in planar optics and broadband transduction in order to develop an eyeglass form-factor, direct-view NV system that leverages advances in planar optics and transduction materials and leads to revolutionary advances in NV technology.

Investigate novel photon upconversion processes to enable all-optical NV systems.

Several approaches exist for photon upconversion. Nonlinear optical processes can upconvert photons across broad spectral ranges but generally require high intensity laser light to activate such processes. The efficiency of such processes also depends on the interaction time between light and an upconverting medium, requiring either large-volume crystals or gases to achieve high efficiencies. Linear upconversion can achieve high efficiencies at much lower input intensities, due to the use of energy-cascading processes. However, linear upconversion has thus far been unable to achieve a broad spectral separation between incident and upconverted photons – the photons are only upconverted by a small amount of energy. This is primarily a result of the relatively weak light-matter interactions at play. Despite the potential of photon upconversion methodologies to greatly simplify NV systems, these limitations in interaction strength and volume have thus far inhibited their adoption; a new paradigm in our approach to photon upconversion is needed. Structured materials, such as core-shell nanoparticles and metamaterials, can greatly enhance light-matter interactions in very small interaction volumes. Deeper understanding of upconversion processes and structured media to enhance their efficiencies and

bandwidths could enable upconversion of ambient IR photons to VIS at intensities detectable by the human eye.

D. Program Structure

The ENVision program is a 48-month research and development effort comprising two 24-month phases.

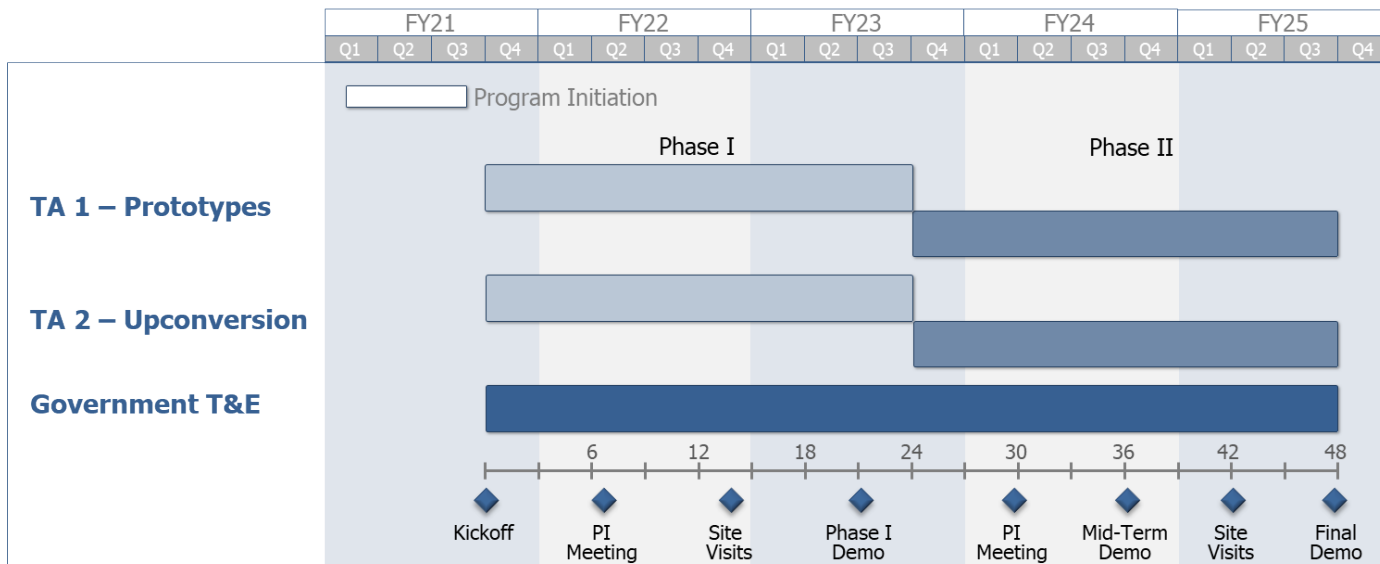


Figure 1 – High-Level Program Schedule

Proposers should address both phases and provide details for the Phase I (base) and Phase II (option) efforts as outlined in Section F below.

The ENVision Program will be executed in two phases and development efforts will be divided into three primary areas:

- **Technical Area 1 (TA 1): Prototypes**
 - Performers in TA1 will develop prototypes of enhanced NV systems in eyeglass form-factors.
- **Technical Area 2 (TA 2): Upconversion**
 - Performers in TA2 will investigate novel methods for broadband direct photon upconversion.
- **Government Test and Evaluation (T&E) and Independent Verification and Validation (IV&V) (not being solicited under this BAA)**
 - Government T&E and IV&V efforts will provide an assessment of the prototype systems developed under TA1.

E. Technical Area Descriptions

The ENVision Program is divided into two TAs.

TA 1 is anticipated to generate information subject to Controlled Unclassified Information (CUI) controls. Proposers should review BAA Section IV.B.4 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.

1. TA 1 – Prototypes

TA 1 will focus on prototype development of low-torque NV systems that provide visual access to multiple infrared bands. The explicit goal of TA 1 is to develop prototype wide-FOV, multi-band, analog-based direct-view NV systems that induce far less torque than our current NV systems. In Phase I, Performers will analyze the planar optics and transduction tradespaces and identify devices that can meet the individual component metrics. They will then integrate these devices and co-optimize them to demonstrate an initial brassboard prototype. In Phase II, Performers will then refine prototypes and improve their performance. Successful systems will provide visual access to NIR and one IR band through a single common aperture and optical chain. In parallel during Phase II, a Government IV&V prototyping team will develop a wearable prototype based on selected Phase I designs.

TA 1 will comprise two main thrusts: optics and image intensification. These thrusts serve to facilitate the co-design of a device/system that can replace refractive optics and I2 tubes, while simultaneously granting increased visual access to the infrared through a single common aperture. TA1 proposals must address both of these thrusts and present a detailed technical approach towards realizing the aforementioned, explicit TA1 goal.

- Thrust 1: Optics

Optical assemblies of NV systems account for approximately 40% of the total weight of the system. Recent breakthroughs in planar optics have resulted in demonstrations of extreme optical functionalities in planar form factors. Through the use of wavelength- and subwavelength-scale structuring, light-matter interactions can be significantly enhanced, leading to stronger optical responses and unprecedented control of light propagation and behavior in both meta- and diffractive optics. Additionally, the use of layered or tiered structures allows for the control of multiple properties of light (e.g., polarization, wavelength, etc.) using a single component. However, there still exists a significant challenge in demonstrating large aperture (cm-scale), achromatic, wide-FOV planar lenses. While independent examples of each of these attributes has been demonstrated,^{1,2,3} they are typically at odds with one another – a positive change in one generally results in a corresponding negative change in another. Understanding the tradespace between these three attributes for planar optics is key to achieving the ENVision program goals. Proposers should provide an initial assessment of this tradespace in their proposal and outline an approach to developing designs that can meet the ENVision program goals and metrics.

Research in this thrust may consider any planar optics approach that addresses the aforementioned tradespace and meets the TA 1 metrics listed in Section F. This includes metalenses, diffractive optics, microlenses, and other planar approaches not previously considered. Hybrid optics (i.e., a refractive or GRIN optic combined with a structured meta- or diffractive layer) are also acceptable, provided that they can meet the TA 1 program metrics

¹ *Optics Express* 2018, 26, 2, 1573-1585

² *Nano Lett.* 2020, 20, 10, 7429-7437

³ arXiv:2001.03684v1 [physics.optics]

listed in Table 1 below. Explicitly not of interest to TA 1 are approaches that utilize multiple apertures in order to achieve broad bandwidths and increased FOVs.

- Thrust 2: Image Intensification

In order to achieve wide-FOV with multi-band imaging, image intensification is needed due to the low ambient IR illumination from moonlight and starlight. Intensification is currently achieved using a photocathode that converts photons to electrons that are then significantly amplified using a microchannel plate, followed by a phosphor screen that converts electrons back into photons. This process requires a significant physical length and, therefore, strongly drives the torque of the full NV system. Furthermore, these processes require high vacuum and high voltage to ensure optimal operation.

Recent advances in materials science have led to novel materials that can convert thermal energy into electrons over broad bandwidths and with low signal-to-noise ratios (SNRs) in extremely compact form factors^{4,5,6}. Many of these materials are two-dimensional (2D), so-called Van der Waals materials, that may enable high optical input bandwidths capable of sufficiently-high frame rates – a critical characteristic for capturing real-time motion. Additionally, new insights have also allowed for the creation of tunable material absorption bands that may enable one to capture multiple IR bands through switchability that is synchronized in time. Achieving this at kilohertz (kHz) frame rates could allow an NV system to provide full-motion imagery. To date, however, these novel material approaches have not been implemented for multi-band transduction, let alone into a full detector format. As such, the materials and integration approaches required to do so remain an open challenge.

Research in this thrust may consider approaches to achieving multi-band image intensification in planar form-factors. These approaches should be able to detect low-intensity NIR signals and efficiently convert them to a visible signal viewable to the human eye. Research in this thrust should focus on low-power, analog-based approaches compatible with direct-vision NV system architectures, and should strive for frame rates approaching 60 Hz to enable full-motion imagery. Specifically not of interest to ENVision are approaches that integrate existing detector technologies and augmented reality/virtual reality technologies to achieve enhanced night vision.

Based on the scopes defined in the above two thrust descriptions, TA 1 proposals might consider the following fundamental questions related to planar optics and planar, multi-band image intensifiers. These questions are provided solely to further contextualize TA 1; proposals need not address them explicitly.

- What is the limit of bandwidth, FOV, and aperture size for a planar imaging lens, and how will this trade space be addressed?
- Can planar optics be integrated with the detection/transduction materials into a cohesive design prototype?

⁴ *Appl. Phys. Lett.* 2017, 111, 101104.

⁵ *Nature* 2017, 544, 340–343.

⁶ *Nature* 2020, 578, 75–81.

- What are the fundamental limits to bandwidth of transduction in a single layer? Is it possible to differentiate between bands without significant loss in spatial or temporal resolution?
- Can broadband optical detection, transduction, photoamplification, and visible-photon emission be integrated into monolithic structures, while retaining information about the incident photon wavelength?

Summary of TA 1 Progression

In Phase I, TA 1 will analyze the planar optics and transduction tradespaces and identify devices that can meet the individual component metrics. Performers will then quickly progress to the integration and co-optimization of these devices to demonstrate an initial brassboard prototype that meets the metrics listed in Table 1. In Phase II, performers will further refine prototypes and improve their performance pursuant to the Phase II metrics listed in Table 1. In parallel in Phase II, a Government prototyping team will work with selected TA 1 Performers to demonstrate a wearable prototype based on their Phase I design.

Government T&E and IV&V of TA 1

Government efforts in Phase I and II will (1) assess the torque of developed NV systems using computer aided design tools and (2) characterize the optical and electronic performance of NV system prototypes in simulated low-light environments. At the end of Phase I, the Government prototyping team will assist DARPA in choosing Phase I designs for prototyping into a full NV prototype in Phase II.

2. TA 2 – Upconversion

TA 2 will be a fundamental research activity aimed at better understanding the physics and fundamental limits of all-optical photon upconversion. The goal of this TA is to develop novel upconversion methodologies capable of taking low-intensity, broadband IR radiation and converting it into a single visible wavelength, without the need for electronic amplification. Key to this technical area will be understanding the limits of upconversion bandwidth and efficiency of low-intensity infrared signals to a single visible wavelength. If successful, these new upconversion techniques will enable future NV systems that do not require any image intensifiers or (potentially) optics.

Recent work in enhanced light-matter interactions⁷ has shown that direct upconversion from NIR to VIS can be achieved at low input intensities (~ 10 mW/cm²) and efficiencies of $\sim 20\%$. However, given the low irradiance of nightglow in low-light environments ($\sim \mu$ W/cm²), such processes would need to be amplified significantly to provide any visual access to the IR. TA 2 will investigate new methods to increase the efficiency and bandwidth of such upconversion processes, including novel light-matter interactions that could allow for direct upconversion from LWIR to VIS. Additionally, TA 2 proposers are expected to propose a model framework to determine the fundamental limits of direct photon upconversion bandwidth and efficiency within the context of their approach. If successful, these new upconversion modalities will enable direct upconversion NV systems without the need for additional optics.

⁷ *Nature Communications* 2018, 9, 2415.

TA 2 is interested in both linear and nonlinear upconversion modalities. It is expected that external pumping requirements will increase with input wavelength; hence, efforts focused on NIR and SWIR bands should aim to operate without the need for external optical pumping. Methods for upconversion exploiting electrical biasing are of interest provided that a route to low-power systems exists. TA 2 is only interested in approaches that are able to convert a low-intensity, broadband IR spectrum to a single wavelength in the visible. Here, the visible spectrum is defined by a wavelength range of 400 nm – 700 nm. The choices of visible wavelength and IR band are left to the proposer. Approaches that convert a single IR wavelength to a single visible wavelength are explicitly discouraged.

In order to achieve the ENVision program goals, TA 2 proposals might consider the following fundamental questions related to photon upconversion. These questions are provided solely to further contextualize TA 2; proposals need not address them explicitly.

- Can upconversion from a broad IR band to a single wavelength in the VIS exploit natural illumination, much like an I2 tube?
- What is the potential of integrating electronic biases to enhance the upconversion process (note: specifically not image intensification as defined in TA 1, but using an electrical signal as a “pump” source to seed the upconversion process, for example)?
- Can symmetries be used to drive selection rules to guide upconversion from multiple IR bands into the visible?
- Can low-threshold nonlinear optical processes enable broadband upconversion under low-light illumination?
- Are there avalanche processes that can be exploited to enhance the efficiency and bandwidth of direct photon upconversion from the infrared to visible?

The following approaches are explicitly not of interest to TA 2:

- Upconversion platforms requiring a transduction step
- Upconversion of a single infrared wavelength into the visible band

Summary of TA 2 Progression

TA 2 performers will explore novel light-matter interactions that amplify upconversion processes from IR to VIS under ambient IR illumination. DARPA is interested in approaches for upconversion from any single IR band to VIS, with greater interest in approaches that could enable upconversion from multiple bands. In Phase I, teams will explore new upconversion processes and materials that can generate VIS intensities as given in the metrics in Table 2. In Phase II, teams will further enhance upconversion methods to meet Phase II metrics under ambient IR illumination.

3. Proposing to Multiple TAs

Proposers wishing to propose to both TA 1 and TA 2 must submit separate technical and cost proposals for each. DARPA may deem single proposals that address both TAs non-conforming and remove them from consideration. Proposers should strive to provide a clear understanding of the cost, risk, and organizational expertise to be used within each proposed effort.

F. Schedule/Metrics

Performers 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

- **TA 1**

In order to meet the goals of the ENVision Program, TA 1 Performers must meet the following metrics for an NV system:

| TA 1 Metric | State of the Art | Phase I | Phase II |
|-------------|------------------------|---|---------------------------------------|
| Torque | 1.1 N-m | 0.4 N-m ⁽⁸⁾ (NTE 6 cm length, 0.4 kg) | 0.15 N-m (NTE 3 cm length, 0.1 kg) |
| Bandwidth | 0.75-0.9 μm | Full NIR band ⁽⁹⁾ | NIR + 1 IR band |
| FOV | 40° | 60° | 100° |
| Resolution | >64 lp/mm | 30 lp/mm ⁽¹⁰⁾ | >64 lp/mm ⁽¹¹⁾ |

Note: NTE = Not To Exceed

Table 1: TA 1 metrics by Phase.

Note that all resolution metrics have an accompanying illumination (lux) value corresponding to typical moonlight/starlight illumination levels. Proposals must address these corresponding illumination levels in their approach. Exact IR nightglow spectra will be provided at the start of the program as Government Furnished Information (GFI) as described below in Section H. Specific definitions of each IR band are also given in the footnotes below. TA 1 proposals should present a clear path towards achieving each of these metrics within the timeframe of the ENVision program.

The Government T&E team will provide modeling and benchtop testing capabilities to assess the torque of NV systems based on Phase I and II designs. The Government team will also test and evaluate imaging capabilities of Phase I and II designs under low-light illumination, including the bandwidth of operating, FOV, and the resolution in line pairs/millimeter (lp/mm) using Air Force targets.

- **TA 2**

In order to meet the goals of the ENVision Program, TA 2 performers will develop upconversion methodologies capable of all-optical upconversion from at least one IR band into a single visible wavelength. Input IR intensities must be comparable or equal to IR ambient nightglow intensities, which are typically on the order of $\mu\text{W}/\text{cm}^2$ across the IR. Exact infrared nightglow

⁸ Systems should achieve these torque metrics without any counterbalancing. Not to exceed (NTE) length and weight correspond with NV systems that meet Phase I and II torque metrics.

⁹ NIR = 0.75-1.55 μm , SWIR = 1.55-3 μm , MWIR = 3-5 μm , LWIR = 8-12 μm

¹⁰ Resolution will be assessed at 0.01 lux illumination level, which corresponds with quarter moon illumination.

¹¹ Resolution will be assessed at 0.002 lux illumination level, which corresponds with clear sky starlight illumination.

spectra will be provided at the start of the program as Government Furnished Information (GFI) as described below in Section H. The target intensity metrics for the upconverted visible light are as follows:

| TA 2 Metric | State of the Art | Phase I | Phase II |
|---|------------------|------------------------|-----------------------|
| Intensity of single- λ VIS light generated via upconversion with ambient IR input | N/A | 0.1 nW/cm ² | 10 nW/cm ² |

Table 2: TA 2 metrics by Phase.

The human eye is able to detect visible intensities around 0.2 nW/cm². Hence, the Phase I metric and goal is to demonstrate upconversion with ambient IR illumination that generates sufficient intensity that is barely detectable by the human eye. Phase II goal is to further enhance upconversion to intensities that could enable direct vision of the infrared. Performers are expected to propose approaches capable of meeting the above metrics within the specified phase of the program. Approaches requiring optical pumping or electrical biasing should strive to minimize power requirements.

Other Proposal Properties

- Proposers should provide a technical and programmatic strategy that addresses the entire program schedule and presents an aggressive plan to fully address all TA 2 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 September 15, 2021 may be assumed for planning purposes.
- 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, multiple two-day Principal Investigator (PI) meetings will be held in each phase, with locations split between the East and West Coasts of the United States. For budgeting purposes, plan for four (4) two-day meetings over the course of Phase I and Phase II: two (2) meetings in the Washington, D.C. area and two (2) meetings in the San Francisco, CA area. The kickoff meetings should be budgeted for the Washington, D.C. area.
 - Regular teleconference meetings will be scheduled with the Government Team for progress reporting as well as problem identification and mitigation. Proposers should also 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.

G. Deliverables

Performers will be expected to provide at a minimum the following deliverables:

- 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.
- 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.
- Final CUI Protection Plan due within 60 days of contract award and updated annually.
- Reporting as outlined in Section VI.C.

Any Controlled Unclassified Information (CUI) or Controlled Technical Information (CTI) must be marked as described in Section IV.B.4.

H. Government-furnished Property/Equipment/Information

To support research and development in both TAs, DARPA will supply performer(s) with measured nightglow intensities across the NIR. These values will be provided at the start of the program and should be used to inform design of TA 1 systems and TA 2 upconversion methodologies.

I. Other Program Objectives and Considerations

1. Collaboration

Throughout the course of the program, it is likely to be necessary for all performers—regardless of category (academic, industry, government and service labs)—to share relevant information regarding their research and development to support the larger program goals. DARPA 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 proposers¹² whose proposals are determined to be the most advantageous to the Government, all evaluation factors considered. See Section V for further information.

¹² 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, cooperative agreements, or Other Transactions. “Subawardee” refers to anyone who might receive a subaward from a prime awardee (e.g., subawardee, consultant, etc.).

The Government reserves the right to:

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

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

Proposers looking for innovative, commercial-like contractual arrangements are encouraged to consider requesting Other Transactions. To understand the flexibility and options associated with Other Transactions, consult <http://www.darpa.mil/work-with-us/contract-management#OtherTransactions>.

In accordance with 10 U.S.C. § 2371b(f), the Government may award a follow-on production contract or Other Transaction (OT) for any OT awarded under this BAA if: (1) that participant in the OT, or a recognized successor in interest to the OT, successfully completed the entire prototype project provided for in the OT, as modified; and (2) the OT provides for the award of a follow-on production contract or OT to the participant, or a recognized successor in interest to the OT.

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

B. Fundamental Research

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

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

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

Proposers should indicate in their proposal whether they believe the scope of the research included in their proposal is fundamental or not. While proposers should clearly explain the intended results of their research, the Government shall have sole discretion to determine whether the proposed research shall be considered fundamental and to select the award instrument type. Appropriate language will be included in resultant awards for non-fundamental research to prescribe publication requirements and other restrictions, as appropriate. This language can be found at <http://www.darpa.mil/work-with-us/additional-baa>.

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

III. Eligibility Information

A. Eligible Applicants

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

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

a. FFRDCs

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

b. Government Entities

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

c. Authority and Eligibility

At the present time, DARPA does not consider 15 U.S.C. § 3710a to be sufficient legal authority to show eligibility. While 10 U.S.C. § 2539b may be the appropriate statutory starting point for some entities, specific supporting regulatory guidance, together with evidence of agency approval, will still be required to fully establish eligibility. DARPA will consider FFRDC and Government Entity eligibility submissions on a case-by-case basis; however, the burden to prove eligibility for all team members rests solely with the proposer.

2. 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. For classified submissions, this includes mitigating any Foreign Ownership Control and Influence (FOCI) issues prior to transmitting the submission to DARPA. Additional information on these subjects can be found at <https://www.dcsa.mil/mc/ctp/foci/>.

B. Organizational Conflicts of Interest

FAR 9.5 Requirements

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

Agency Supplemental OCI Policy

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

If SETA, A&AS, or similar support is being or was provided to any DARPA office(s), the proposal must include:

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

Government Procedures

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

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

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

Include any OCIs affirmations and disclosures in Attachment G: PROPOSAL TEMPLATE VOLUME 3: ADMINISTRATIVE & NATIONAL POLICY REQUIREMENTS, Section 3.

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 ENVision 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 ENVision BAA as defined above may be deemed non-conforming¹³ 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 beta.SAM.gov website (<https://beta.sam.gov/>), the Grants.gov website (<http://www.grants.gov/>), or referenced herein.

B. Content and Form of Application Submission

1. Abstract Information and Formatting

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

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

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

Proposers should note that a favorable response to an abstract is not a guarantee that a proposal

¹³ "Conforming" is defined as having been submitted in accordance with the requirements outlined herein.

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://beta.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

Full proposals requesting a cooperative agreement must use the following attachments in addition to the Grants.gov application package:

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

* Full proposals requesting a cooperative agreement do not need to include Attachment E. Instead, Budget Justification should be provided as Section L of the SF 424 Research & Related Budget form provided via <http://www.grants.gov> (see section IV.E.1.c for additional details). The Budget Justification should include the following information for the recipient and all

subawardees:

- **Direct Labor (sections A and B)** - Detail the total number of persons and their level of commitment for each position listed (as well as which specific tasks (as described in the SOW) they will support.
- **Equipment (section C)** - Provide an explanation for listed requested equipment exceeding \$5,000, properly justifying why it is required to meet the objectives of the program.
- **Travel (section D)** - Provide the purpose of the trip, number of trips, number of days per trip, departure and arrival destinations, number of people, etc.
- **Other Direct Costs (section F)** - Provide a justification for the items requested and an explanation of how the estimates were obtained.
- **Participant/Trainee Support Costs section E** - Provide details on Tuition/ Fees/ Health Insurance, Stipends, Travel and Subsistence costs.

The Government requires that proposers use the provided Attachment F: MS Excel™ DARPA COST PROPOSAL SPREADSHEET in the development of their cost proposals. 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://beta.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 Entrepreneur 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 to 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 Transition Working Groups; and (3) Additional funding for awardees to hire an embedded entrepreneur to achieve specific commercialization milestones and work towards the delivery of a robust transition plan for 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 commercial milestones to deliver 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's Commercial Strategy team.

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

Invitation to participate in EEI is at the sole discretion of DARPA and subject to program balance and the availability of funding. EEI participants' awards may be subsequently modified bilaterally to amend the Statement of Work to add negotiated EEI tasks, provide funding, and specify a milestone schedule which will include measurable steps necessary to build, refine, and execute a Go-to-Market strategy aimed at delivering new capabilities for national defense.

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. 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 anticipated that TA 1 will require access to CTI and Export-Controlled information and technology. As a result, TA 1 performers are required to comply with DoD requirements related to CUI. Proposers should indicate in their proposal if their proposed solution includes CUI. All TA 1 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 at sub-contractor locations. 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 Attachment H: CONTROLLED UNCLASSIFIED INFORMATION (CUI) GUIDE.

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.** 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.

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

5. 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 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 ENVision@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 Grants.gov.*

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

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

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

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

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

ii. Direct Mail/Hand-carry

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

c. Proposals Requesting a Cooperative Agreement

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

Grants.gov and in part as a hard-copy. Proposers using Grants.gov do not submit hard-copy proposals in addition to the Grants.gov electronic submission.

Submissions: Proposers must submit the three forms listed below.

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

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

The Research and Related Senior/Key Person Profile (Expanded) form will be used to collect the following information for all senior/key personnel, including Project Director/Principal Investigator and Co-Project Director/Co-Principal Investigator, whether or not the individuals' efforts under the project are funded by the DoD:

- Degree Type and Degree Year.
- Current and Pending Support, including:
 - A list of all current projects the individual is working on, in addition to any future support the individual has applied to receive, regardless of the source.
 - Title and objectives of the other research projects.
 - The percentage per year to be devoted to the other projects.
 - The total amount of support the individual is receiving in connection to each of the other research projects or will receive if other proposals are awarded.
 - Name and address of the agencies and/or other parties supporting the other research projects
 - Period of performance for the other research projects.

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

Form 2: Research and Related Senior/Key Person Profile (Expanded), available on the Grants.gov website at https://apply07.grants.gov/apply/forms/sample/RR_KeyPersonExpanded_2_0-V2.0.pdf. This form must be completed and submitted.

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

i. Electronic Upload

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

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

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

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

Technical support for Grants.gov submissions may be reached at 1-800-518-4726 or support@grants.gov.

ii. Direct Mail/Hand-carry

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

mailed or hand-carried to the address noted in Section VII below.

V. Application Review Information

A. Evaluation Criteria

Proposals will be evaluated using the following criteria listed in descending order of importance: Overall Scientific and Technical Merit; Potential Contribution and Relevance to the DARPA Mission; 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 BAA; proposals that fail to do so may be deemed non-conforming and may be removed from consideration. Proposals will not be evaluated against each other since they are not submitted in accordance with a common work statement. DARPA's intent is to review proposals as soon as possible after they arrive; however, proposals may be reviewed periodically for administrative reasons.

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

period of solicitation. For evaluation purposes, a proposal is defined to be the document and supporting materials as described in Section IV.

C. 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.

D. 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 required¹⁴ 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

¹⁴ Per 41 U.S.C. 2313, as implemented by FAR 9.103 and 2 CFR § 200.205.

restrictions.

For terms and conditions specific to cooperative agreements, see the DoD General Research Terms and Conditions (latest version) at <http://www.onr.navy.mil/Contracts-Grants/submit-proposal/grants-proposal/grants-terms-conditions> and the supplemental DARPA-specific terms and conditions at <http://www.darpa.mil/work-with-us/contract-management#GrantsCooperativeAgreements>.

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

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

All proposers must be registered in SAM unless exempt per FAR 4.1102. FAR 52.204-7, “System for Award Management” and FAR 52.204-13, “System for Award Management Maintenance” are incorporated into this BAA. See <http://www.darpa.mil/work-with-us/additional-baa> for further information.

International entities can register in SAM by following the instructions in this link:

https://www.fsd.gov/fsd-gov/answer.do?sysparm_kbid=dbf8053adb119344d71272131f961946&sysparm_search=KB0013221.

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

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

3. Representations and Certifications

In accordance with FAR 4.1102 and 4.1201, proposers requesting a procurement contract must complete electronic annual representations and certifications at <https://www.sam.gov/>.

In addition, all proposers are required to submit for all award instrument types (i.e., procurement contract, cooperative agreement, and Other Transaction for Prototype) 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. Representations Regarding Proposed Key Personnel

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

The following information is required for all senior/key personnel, including Project Director/Principal Investigator and Co-Project Director/Co-Principal Investigator, whether or not the individuals' efforts under the project are funded by the DoD. (*NOTE: Proposers requesting a cooperative agreement do not need to complete this section if they have completed Form 2 as part of their Grants.gov application per Section IV.E.1.c*):

- Degree Type and Degree Year
- Current and Pending Support, including:
 - A list of all current projects the individual is working on, in addition to any future support the individual has applied to receive, regardless of the source
 - Title and objectives of the other research projects
 - The percentage per year to be devoted to the other projects

- The total amount of support the individual is receiving in connection to each of the other research projects or will receive if other proposals are awarded
- Name and address of the agencies and/or other parties supporting the other research projects
- Period of performance for the other research projects

9. Disclosure of Information and Compliance with Safeguarding Covered Defense Information Controls

The following provisions and clause apply to all solicitations and contracts; however, the definition of “controlled technical information” clearly exempts work considered fundamental research and therefore, even though included in the contract, will not apply if the work is fundamental research.

DFARS 252.204-7000, “Disclosure of Information”

DFARS 252.204-7008, “Compliance with Safeguarding Covered Defense Information Controls”

DFARS 252.204-7012, “Safeguarding Covered Defense Information and Cyber Incident Reporting”

The full text of the above solicitation provision and contract clauses can be found at <http://www.darpa.mil/work-with-us/additional-baa#NPRPAC>.

Compliance with the above requirements includes the mandate for proposers to implement the security requirements specified by National Institute of Standards and Technology (NIST) Special Publication (SP) 800-171, “Protecting Controlled Unclassified Information in Nonfederal Information Systems and Organizations” (see <https://doi.org/10.6028/NIST.SP.800-171r1>) 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:** Dr. Rohith Chandrasekar, Program Manager, DARPA/DSO
- **BAA Email:** ENVision@darpa.mil
- **BAA Mailing Address:**
DARPA/DSO
ATTN: HR001121S0013
675 North Randolph Street
Arlington, VA 22203-2114
- **DARPA/DSO Opportunities Website:** <http://www.darpa.mil/work-with-us/opportunities>

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

VIII. Other Information

A. Frequently Asked Questions (FAQs)

Administrative, technical, and contractual questions should be emailed to ENVision@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: <https://www.darpa.mil/work-with-us/opportunities>. The list will be updated on an ongoing basis until the BAA expiration date as stated in Part I.

B. Proposers Day

The ENVision Proposers Day will be held on January 21, 2021 via webcast. Advance registration is required. See DARPA-SN-21-08 posted at <https://beta.sam.gov/> for all details. Attendance at the ENVision Proposers Day or viewing the webcast is voluntary and is not required to propose to this solicitation.