



Broad Agency Announcement
Innovative Systems for Military Missions
Tactical Technology Office
DARPA-BAA-16-31
April 28, 2016

Contents

PART I: OVERVIEW INFORMATION	3
PART II: FULL TEXT OF ANNOUNCEMENT	4
I. Funding Opportunity Description	4
A. Program Overview	4
B. TTO Mission and Strategy	6
C. Detailed Description of TTO Focus Areas	8
II. Award Information	14
III. Eligibility Information	17
A. Eligible Applicants	17
B. Procurement Integrity, Standards of Conduct, Ethical Considerations, and Organizational Conflicts of Interest.....	18
C. Cost Sharing/Matching	18
IV. Application and Submission Information	18
A. Address to Request Application Package.....	18
B. Content and Form of Application Submission	19
V. Application Review Information	35
A. Evaluation Criteria	35
B. Review and Selection Process	37
VI. Award Administration Information	37
A. Selection Notices	37
B. Administrative and National Policy Requirements	38
C. Reporting	43
D. Electronic Systems	44
VII. Agency Contacts	44
VIII. Other Information	44
A. Intellectual Property Procurement Contract Proposers	44
B. Non-Procurement Contract Proposers – Noncommercial and Commercial Items (Technical Data and Computer Software)	46
C. All Proposers – Patents.....	46
D. All Proposers – Intellectual Property Representations	47

PART I: OVERVIEW INFORMATION

- **Federal Agency Name** – Defense Advanced Research Projects Agency (DARPA), Tactical Technology Office (TTO)
- **Funding Opportunity Title** – Innovative Systems for Military Missions
- **Announcement Type** – Initial Announcement
- **Funding Opportunity Number** – DARPA-BAA-16-31
- **Catalog of Federal Domestic Assistance Numbers (CFDA)** – 12.910 Research and Technology Development
- **Dates**
 - Posting Date: 28 April 2016
 - Proposal Due Date: 4 PM Eastern Time on 28 April 2017
- **Concise description of the funding opportunity** – The Tactical Technology Office of the Defense Advanced Research Projects Agency is soliciting executive summaries, white papers and proposals for advanced research, development and demonstration of innovative systems for military missions.
- **Anticipated individual awards** – Multiple awards are anticipated.
- **Types of instruments that may be awarded** -- Procurement (FAR-based) contract, grant, cooperative agreement or other transaction.
- **Agency contact** – The BAA Coordinator for this effort can be reached via: DARPA-BAA-16-31@darpa.mil

DARPA/Tactical Technology Office
ATTN: DARPA-BAA-16-31
675 North Randolph Street
Arlington, VA 22203-2114
PHONE: (703) 248-1512

PART II: FULL TEXT OF ANNOUNCEMENT

I. Funding Opportunity Description

The Defense Advanced Research Projects Agency often selects its research efforts through the Broad Agency Announcement (BAA) process. This BAA is being issued, and any resultant selection will be made, using procedures under Federal Acquisition Regulation (FAR) 35.016 and the Department of Defense Grant and Agreement Regulatory System (DoDGARS) Part 22 for Grants and Cooperative Agreements. Any negotiations and/or awards will use procedures under FAR 15.4, Contract Pricing, as specified in the BAA (including DoDGARS Part 22 for Grants and Cooperative Agreements). Proposals received as a result of this BAA shall be evaluated in accordance with evaluation criteria specified herein through a scientific review process.

This BAA will first appear on the Federal Business Opportunities (FedBizOpps) website, <https://www.fbo.gov/>, and the Grants.gov website at <http://www.grants.gov/>. It will then appear on the agency website, <http://www.darpa.mil/work-with-us/opportunities>. The following information is for those wishing to respond to the BAA.

A. Program Overview

The Tactical Technology Office (TTO) of the Defense Advanced Research Projects Agency (DARPA) is soliciting executive summaries, white papers and proposals for advanced research, development and demonstration of innovative systems for military missions. Innovative systems are platforms, weapons, integrated systems or critical systems components that often incorporate emerging advanced technologies and enable revolutionary improvements to the capability, efficiency and effectiveness of the military.

TTO seeks responses relating to the following Focus Areas:

1. Ground Systems
 - a. Soldier/Squad Technologies
 - b. Combat Vehicles
 - c. Tactical Operations in Urban and Complex Environments
2. Maritime/Undersea Systems
 - a. Expanded Platform Performance and Cross Domain Applications
 - b. Defense of Maritime Forces
3. Air Systems
 - a. Novel Air Vehicles
 - b. Hypersonic Platforms
4. Space Systems
 - a. Spacecraft Technologies
 - b. Space Situational Awareness
 - c. Systems for Access
 - d. Future Space Operations and Architectures

This solicitation focuses on the very high payoff, high risk development, integration, demonstration, and evaluation of innovative systems or critical systems components enabled by, and incorporating, new or emerging technologies. Proposed efforts must also show significant promise to provide the U.S. military with revolutionary new mission capabilities, enable significant increases in mission effectiveness, or dramatically reduce system costs.

Innovative system concepts of interest for TTO typically address emerging technical opportunities, advanced systems concepts, emergent threats, or new technology-enabled concepts of operation. TTO strongly encourages proposers to adopt a complete systems engineering approach to the problems. Proposers must address life cycle costs when considering mission application. Proposers should address agile systems development (time focused) approaches as part of their systems approach.

The submission of an executive summary and white paper is an opportunity for proposers to have DARPA review their proposed technical concept and receive feedback regarding the relevance of their idea to the TTO mission. Proposers are strongly encouraged to initially submit a one (1) page executive summary describing the technology area, the key technical innovation, and new ideas of interest prior to submitting a white paper or proposal. Executive summaries will be reviewed as they are received. Based on a favorable review of an executive summary, proposers will be encouraged to submit a six (6) page white paper describing the proposed concept prior to submitting a full proposal. A DARPA Program Manager may contact you to further discuss the idea in your executive summary or white paper. This procedure is intended to minimize unnecessary cost and effort in proposal preparation and review; however, submission of an executive summary and/or white paper is not required prior to submitting a full proposal.

Proposers are encouraged to review and monitor TTO's public website at <http://www.darpa.mil/about-us/offices/tto> in order to better understand past and current TTO mission systems development efforts.

For the purposes of this BAA, relevance to the TTO mission applies to all submissions and is evaluated as follows:

1. The proposed technical effort is evaluated as applicable to the Focus Areas.
2. The submission is important to TTO's areas of responsibility as outlined in this Broad Agency Announcement (BAA).
3. The submission is structured to produce a TTO systems-level demonstration or product.
4. The submission substantiates a revolutionary military capability within the TTO portfolio.
5. The proposed approach clearly identifies current limitations that will be overcome.
6. The submission identifies barriers to implementing new operational concepts and postulates solutions.

7. The proposed effort conveys technology significantly beyond the state-of-the-art.
8. The submitted work provides sufficient information to assess the technical performance claims which enable new capabilities beyond the state-of-the-art.

The determination of relevance to the TTO mission need not be based on a detailed technical evaluation of the submission, but may take into account the technical risks of the proposed work. Executive summaries and white papers that are determined not to be relevant per the above description will receive a “No Interest” or “Discourage” letter. All full proposals must first be deemed acceptable under the evaluation criterion “Potential Contribution and Relevance to the DARPA/TTO Mission” (see Section V.A) in order to receive a full review. Proposals that are determined not to be relevant to the TTO mission or which fall outside of areas outlined in this BAA will receive a “Non-Responsive” letter.

TTO will respond to executive summaries with a letter of “Interest” or “No Interest” in the topic based on relevance to the TTO mission and interest in the technology topic. A letter of interest will encourage the submission of a white paper. Otherwise, a letter discouraging submission of a white paper will be sent to the proposer.

TTO will respond to white papers with a letter encouraging or discouraging the submission of a full proposal. This recommendation will be based on the proposed effort’s relevance to the TTO mission, a preliminary assessment of the scientific or technical merit, and interest in the technology concept.

All proposals deemed “Relevant to the DARPA/TTO Mission” in accordance with Section V.A will be fully reviewed and evaluated. The submission of an executive summary or white paper, or a favorable review of an executive summary or white paper, is not required prior to submitting a proposal.

A favorable response to an executive summary or white paper is not an assurance that a full proposal on the executive summary or white paper’s topic will ultimately be selected for contract award.

During the open period of this solicitation, TTO may publish amendments to this solicitation to seek executive summaries, white papers and proposals for special and/or specific topics. Proposers are encouraged to monitor FedBizOpps (<http://www.fedbizopps.gov>) or Grants.gov (<http://www.grants.gov>) for such modifications to DARPA TTO DARPA-BAA-16-31.

B. TTO Mission and Strategy

1. TTO Mission

TTO will rapidly develop new prototype military capabilities that create an asymmetric technological advantage and provide U.S. forces with decisive superiority and the ability to overwhelm our opponents. TTO seeks very high payoff technology

approaches to new platforms in Ground Systems, Maritime/Undersea Systems, Air Systems, and Space Systems. TTO also focuses on the following cross-cutting themes: autonomy/cooperative unmanned systems, cost inversion/imposition, weapons, power and propulsion, as well as agile development approaches.

2. TTO Strategy

The TTO strategy is focused on preventing and creating strategic surprise. TTO seeks global capabilities with endurance, precision, and survivability in all environments. TTO seeks the development and demonstration of system-level technologies and prototypes which outpace projected adversary capabilities and force structures. TTO investments are structured across a range of focus areas, encompassing multiple mission domains and cross-cutting enabling capabilities:

Agile Development - TTO is interested in submissions that address “agile” software and hardware development methods as part of their systems solution. TTO's interest includes agile approaches that substantially compress technology development timelines. Demonstration and prototype technologies may emphasize rapid, and parallel development processes, novel adaptation of open systems and/or nearly mature technologies, and simulation-augmented sprint cycles. TTO is interested in use of novel materials and agile design practices such as additive manufacturing techniques for efficient design and/or fabrication of complex platform structures that cannot currently be produced by traditional means. Of special interest are agile techniques that can be cost effectively applied across all steps in system development to include: design, prototyping, engineering development, production, and sustainment.

Cost Inversion/Imposition - TTO is interested in approaches that enable reduced systems cost and lifecycle affordability. TTO seeks to develop/employ cost imposing strategies on our adversaries by demonstrating novel systems which cost much less to satisfy current and future missions against adversaries, or force adversaries to expend great resources to mitigate our new capabilities (“invert the cost equation”). As part of new system demonstrations, TTO is interested in agile time-to-market-driven approaches for systems development, which explicitly use a “design to cost” paradigm, within a fixed period of time. Such approaches should optimize the period of U.S. asymmetric advantage prior to adversary development and deployment of countermeasures.

Autonomous/Cooperative Unmanned Systems - TTO is interested in advanced autonomy across all described Focus Areas and platform systems. TTO seeks supervised autonomy and novel human-machine/machine-machine interfaces that lead to breakthrough unmanned system capabilities. These capabilities should enable cooperation in complex environments among multiple manned/unmanned teams operating across all physical domains. TTO is interested in autonomous systems and automation technologies to enhance warfighter capabilities, improve platform efficiency, reduce resources, reduce/optimize bandwidth demands, and perform critical mission tasks. TTO seeks innovation in the interaction of autonomous robotics system behaviors with sparse supervisory human control applied to combat operations. TTO has significant

interest in model-based approaches to enable autonomy, swarming, counter-swarming, multi-platform coordination, and multi-modal human interaction optimized for warfighter needs. TTO seeks novel approaches for design, implementation, and assessment for offensive and defensive swarming of unmanned systems. TTO's interest includes tactics and cooperative/non-cooperative interactions between swarms of heterogeneous platform systems. TTO is also interested in new technologies which enable rapid and/or autonomous concepts of deployment for large number swarms, addressing challenges in manpower limitations, transportation, storage, resupply, platform launch/recovery, and support infrastructure.

Weapons - TTO seeks advanced weapon technologies demonstrating non-traditional effects integrated with tailorable lethality and radical improvements in precision and/or yield at relevant effective ranges. Technologies should address high lethality within weight/range considerations as well as conformal shapes, compatibility with high-speed platforms, and other integration challenges. TTO is also interested in weapon system technologies that enable strategic and tactical engagement across all domains including time sensitive targets. TTO is interested in adaptable weapon systems, including autonomy-enabled rapid response and engagement at extremely short range without fratricide. Additionally, TTO seeks capabilities for engaging in all environments under degraded visual conditions, as well as effects that are rapidly tailorable from non-lethal through lethal and across a wide range of target hardness. The projection of effects at standoff that are easily portable for extended dismounted or light tactical vehicle missions are also of high interest.

Power and Propulsion – TTO is seeking propulsion technologies that enable new missions or deliver increased power, power density, and/or an order of magnitude increase in key performance parameters (thrust, endurance, top speed, and time on target). TTO is interested in advanced propellants of a solid and liquid nature, in terms of variable thrust, electronic control, control actuation, and novel formulations for weapons system applications. TTO seeks breakthrough, non-traditional ground vehicle propulsion technologies that promise dramatically improved power-to-weight ratios. TTO is looking for advanced propulsion, control surfaces, and maneuver techniques enabling agile and efficient flight characteristics. TTO also seeks advanced space propulsion capabilities. TTO's particular interest area is developmental technologies that expand the operational regions, range, and performance of space vehicles, as well as innovative power generation and propulsion for rockets and spacecraft.

TTO is explicitly not interested in approaches or technologies that make incremental or evolutionary advancements over the state-of-the-art. TTO is interested in far-reaching research, design, development, and demonstration of systems which create a decisive overmatch or asymmetric capability in accordance with the TTO mission. Proposers should consider how things are done today and clearly show the disruptive scale/scope of the performance improvements promised by their approaches.

C. Detailed Description of TTO Focus Areas

1. Ground Systems

TTO is interested in developing systems and technologies to define the next evolution of ground combat. Interests include enhancing the capabilities of the individual soldier, small unit/squad, and ground combat/sustainment vehicles. TTO is interested in enhancing the mobility, performance, health, lethality, and survivability of individual soldiers and the ability to operate in complex environments – with a priority focused on minimizing size, weight, and power. TTO is interested in improving the aggregate performance of small units, including tactical movement, logistics, robotics, weapons, sensing, and communications. TTO is interested in developing next generation combat vehicles focused on trading or balancing total system performance against size, weight and cost, with emphasis on agility, extreme mobility, lethal and non-lethal precision, endurance, and survivability. TTO is interested in platform systems which support clandestine/low-profile special operations and leverage the advantages of speed, surprise, non-attribution, and/or precise application of overwhelming force against specified targets. TTO is also interested in defeat/counters for the range of dismounted, mounted, aerial, subterranean, and unmanned threats to forces. The integration of manned, unmanned, and autonomous systems into mixed teams and/or swarms of platforms into any aspect of ground operations is a special area of TTO interest. Key areas of interest include:

a. Soldier/Squad Technologies

1. TTO is interested in technologies that dramatically enhance the dismounted and mounted capabilities of the individual soldier and small unit/squad by an order of magnitude. Approaches are sought to improve the quality and scope of situational awareness, to include knowledge of the status of friendly forces, hostile forces, and the environment both in visual range and beyond. Of special interest are improvements in the small unit's ability to neutralize or overwhelm opposing forces rapidly using high precision, integrated and networked munitions, advanced reactive materials, electromagnetic- and hybrid warheads, as well as precisely tailorable non-kinetic capabilities. TTO also seeks approaches to improve small unit mobility, survivability, and endurance (mounted and dismounted), especially in urban environments.
2. TTO has high interest in integrating autonomous systems with sparse supervisory human control into force application scenarios to reduce costs of manpower and operator burden/workload, enhance force protection, and/or enable distributed (vs. consolidated) operations with equivalent or improved massing of effects. Autonomous technology areas of interest include those enabling efficient human-robot/system interaction, advanced perception and control, control of swarms, enhanced security, tactical cyber effects, small unit communication, planning, and execution, as well as multi-use technologies also suitable for humanitarian assistance and disaster relief scenarios.

b. Combat Vehicles

1. TTO seeks technology innovations for combat vehicles (platforms) that disrupt traditional trades between weight, survivability, and agility, as enabled by rapid reconfiguration, disaggregation, adaptive survivability, reduced crewing, autonomous augmentation, and long-term endurance.
2. TTO is interested in revolutionary vehicle mission systems that enable effective reconnaissance in close contact to rapidly develop situational awareness, enable manned-unmanned teaming, extend standoff ranges for detection/neutralization of threats as well as precision lethal/non-lethal effects, and provide innovative thermal management and acoustic signature reduction.

c. Tactical Operations in Urban and Complex Environments

1. TTO seeks a variety of means to enhance tactical operations and mobility in megacities and complex natural environments, including the vertical dimension, below ground, throughout urban structures, and among densely foliated/forested environments. TTO also seeks capabilities to selectively and reversibly disable infrastructure and transportation platforms, effective for controlling or enabling freedom of movement.
2. TTO is interested in means to improve precise situational awareness in all environments, including detecting, tracking, and targeting of mobile/fixed threats throughout complex urban/natural environments and extreme weather.
3. TTO seeks rapidly and/or autonomously deployable capabilities that enable dynamic sensing, mapping, protection, and/or exploitation of the electromagnetic spectrum in small unit tactical operations by forces on-the-move and without requiring specialized local control.
4. TTO is interested in adaptable weapon systems, including autonomy-enabled rapid response and engagement at extremely short range without fratricide. Additionally, TTO seeks capabilities for engaging in all environments under degraded visual conditions, as well as effects that are rapidly tailorable from non-lethal through lethal and across a wide range of target hardness.

2. Maritime/Undersea Systems

TTO is interested in demonstrator platforms to test and evaluate new technologies that significantly advance functionality and radically expand the performance envelope and capabilities beyond current maritime/undersea platform operations. These

technologies should explore multi-platform and cross-domain innovations, enabling easy transition and operation across aerial to surface to sub-surface domains. TTO seeks transformational platform shapes and system designs that expand operations throughout dynamic and adverse weather/sea-state conditions as well. Central themes for maritime/undersea systems include:

a. Expanded Platform Performance and Cross Domain Applications

1. TTO seeks platform technologies that enable a dramatic improvement in key operating parameters of maritime and sub-surface vessels (speed and endurance in high sea state, crush and cruising depth, etc.).
2. TTO seeks novel technologies that cost-effectively expand and bridge maritime and sub-surface platform use with other domains such as: maritime-to-air, maritime-to-space, sub-surface-to-ground, and sub-surface-to-air.
3. TTO is interested in sea-based, unmanned air vehicles, focusing on innovative aero designs and novel launch and recovery of unmanned platforms. These new designs would expand operational reach of the maritime surface vessels with limited deck space.
4. TTO seeks sensing and control technologies to improve the ability of agile manned and unmanned vessels to operate in high sea states through wave awareness, prediction, and adaptation.

b. Defense of Maritime Forces

1. TTO seeks non-lethal approaches to disable maritime platforms that are interspersed with non-combatant surface vessels.
2. TTO is interested in advanced extended range high-speed propulsive agile torpedo engagement with reduced signatures.
3. TTO is looking for innovations in rail gun, coil gun, light gas gun, and advanced cannon technologies to propel high speed or long range projectiles.
4. TTO seeks kinetic and non-kinetic defeat of non-traditional threats and high volume precision engagement against near-peer offensive maritime systems.

3. Air Systems

TTO has an interest in a full range of hypersonic systems, novel air vehicles, and X-plane demonstrator technologies all aimed at expanding a spectrum of performance capabilities within the field of aerodynamics. These innovations may encompass air-breathing and non-air-breathing propulsion concepts, advanced rotor inventions, aerodynamic structures, thermal management, guidance, navigation, flight controls, sensors, and advanced payloads. TTO is interested in platform systems that support execution of special operations in a low-profile manner, are capable of achieving the advantage of speed and surprise in tactical environments, and can apply overwhelming force against specified targets. Air systems include augmentation of tailored lethality through the use of enhanced precision, electromagnetics, plasma, atmospheric, acoustics,

intelligent projectiles, micro-robotics, variable yield capabilities, novel energetics, or reformulation of explosives. TTO is interested in technologies that enable innovative, cost effective, and efficient means to detect, track, identify, and engage low, slow, and small unmanned air vehicles within operationally relevant environments (urban, tactical, and strategic domains). Key areas of interest include:

a. Novel Air Vehicles

1. TTO is interested in technologies that support extreme range, high speed, low cost, quiet unmanned air vehicle system operations and advances in design which could enable extended loiter.
2. TTO seeks research in emergent materials, devices, and tactics for both fixed and rotary wing air vehicle applications.
3. TTO seeks novel air vehicle technologies that include, but are not limited to: vertical take-off and landing, sustained hover, and purposeful autorotation. In addition, concepts related to rotary-wing and powered-lift platforms are of interest, as well as related sub-system technologies. These may include concepts for distributed propulsion, heterogeneous power systems, and aircraft control systems. Relevant sub-systems that increase the capabilities of VTOL aircraft are also of interest, such as actuators, landing gear, downwash footprint control concepts, signatures, and maneuverability. Aircraft concepts may include manned or unmanned configurations, and span the range of weight classes.
4. TTO is interested in advanced multifunctional engines with greatly enhanced power to weight ratio, reduced specific fuel consumption, reduced parts count, and enhanced reliability.

b. Hypersonic Platforms

1. TTO seeks technologies that enable hypersonic platforms to attain a wide range of operational altitudes from sea level to low earth orbit, depending on application. These hypersonic platforms operate through moderate-to-extremely high g-loads while experiencing moderate-to-extremely high heat stresses, depending on application.
2. TTO seeks novel materials and design approaches for airframe structures that enable hypersonic air-breathing platforms, space access, and long range strike weapons. Relevant technologies include light-weight, high strength hypersonic airframe structures for fuselage, lifting surfaces, flight controls, propulsion tanks, propulsion system flow paths, etc.
3. TTO seeks new/novel materials and design approaches for thermal protection/management to enable the previously referenced hypersonic platform applications.
4. TTO is interested in advanced manufacturing technology that enables the use of new/novel aerospace materials and agile design practices for fabrication of hypersonic airframe structures, such as additive manufacturing techniques that enable the design and fabrication of

complex hypersonic airframe structures that cannot currently be produced by traditional material removal machining approaches. Of notable interest are additive techniques that can be cost effectively used across all steps in system development, such as: design, prototyping, engineering development, and production.

5. TTO is interested in advanced guidance, navigation, and control technologies, which include energy management and optimal trajectory approaches for hypersonic vehicles.

4. Space Systems

TTO is interested in innovative approaches across a wide range of space technologies and concepts which will improve the resilience and enable protection and survivability of space assets. Real-time, integrated situational awareness is required for our own operations and to detect and effectively respond to threats. TTO is interested in rapid, responsive, and affordable access to all orbital regimes along with freedom of movement within these regimes. TTO's focus on affordability includes: techniques that radically reduce launch costs, pioneering advancements in hybrid robotic/satellite technology, modular and resilient space architectures, enabling architectures that are adaptable to multiple space vehicles, and technologies that enable extreme performance in space systems. Key areas of interest include:

a. Spacecraft Technologies

1. TTO seeks advanced technologies that support existing force structure against disruption and degradation.
2. TTO is interested in technologies that reduce space operation cost, increase efficiency in space manufacturing processes, and advance space sensor and nano-micro satellite innovations that enable new military missions and capabilities. Desired innovations include technologies that can reduce the size, weight, and power of satellite subsystems that lead to dramatic improvements in space system performance. TTO is interested in advanced space-based systems, including light weight optics and structures, sparse aperture imaging systems, and algorithms to include novel imaging approaches.

b. Space Situational Awareness

1. TTO is interested in technologies and concepts of operations that enable twenty-four hours/seven days a week (24/7) space situational awareness, from search/detect/track to initial/in-depth object characterization, in all orbital regimes using multiple or new/novel phenomenologies.
2. TTO is interested in the development of advanced space situational awareness data fusion algorithms, enhancing the nation's ability to effectively respond to threats to our space capabilities.
3. TTO is interested in the development and validation of real-time space domain awareness architectures and technologies.

c. Systems for Access

1. TTO is interested in technologies that provide a robust, reliable, affordable, and innovative means for achieving access to space. The focus is on revolutionizing the responsiveness and flexibility of space systems by introducing rapid and pervasive "aircraft-like" space access.
2. TTO is interested in technologies that advance the state-of-the-art in launch to include new propellants, additively manufactured rocket components, and other novel breakthrough technologies that enable very affordable, on-demand augmentation or reconstitution of space capabilities.
3. TTO is interested in space vehicle technologies that enable access to a wide range of altitudes and inclinations as well as highly efficient on-orbit maneuvers. TTO is interested in non-traditional orbit concepts. TTO is interested in advanced propellants of a solid and liquid nature, in terms of variable thrust, electronic control, and novel formulation

d. Future Space Operations and Architectures

1. TTO is interested in technologies that provide increased resilience and reduced vulnerability of present and future space assets. These technologies could reside on-orbit or be capable of rapid delivery to orbit. They could also enable on-orbit replacement of modular spacecraft components leading to upgrades to current capabilities, life extensions, new missions, on-orbit assembly, depots, and on-orbit manufacturing.
2. TTO is interested in technologies that leverage on-orbit robotic systems to provide increased space system performance, throughput, affordability, and resilience.
3. TTO is interested in ideas that take advantage of robotic assembly, inspection, manipulation, upgrading, and reconfiguration.

II. Award Information

Multiple awards are anticipated. The amount of resources made available under this BAA will depend on the quality of the proposals received and the availability of funds. In general, initial awards are anticipated to be for less than \$1 million and less than 18 months duration, although options that follow the base effort may also be proposed.

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

be opened with that proposer. The Government reserves the right to fund proposals in phases with options for continued work at the end of one or more of the phases.

Awards under this BAA will be made to proposers on the basis of the evaluation criteria listed below (see section labeled “Application Review Information,” Section V.), and program balance to provide overall value to the Government. The Government reserves the right to request any additional, necessary documentation once it makes the award instrument determination. Such additional information may include, but is not limited to, Representations and Certifications. The Government reserves the right to remove proposers from award consideration, should the parties fail to reach agreement on award terms, conditions and cost/price within a reasonable time or the proposer fails to provide requested additional information in a timely manner. Proposals identified for negotiation may result in a procurement contract, grant, cooperative agreement, or other transaction, depending upon the nature of the work proposed, the required degree of interaction between parties, whether or not the research is classified as Fundamental Research, and other factors. Any requests for or assumptions regarding Government Furnished Equipment (GFE) or Government Furnished Information (GFI) should be clearly stated in the proposal.

In all cases, the Government contracting officer shall have sole discretion to select award instrument type and to negotiate all instrument terms and conditions with selectees. Proposers are advised that regardless of the instrument type proposed, DARPA personnel, in consultation with the Government contracting officer, may select other award instruments, as they deem appropriate. 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.

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 established the national policy for controlling the flow of scientific, technical, and engineering information produced in federally funded fundamental research at colleges, universities, and laboratories. The Directive 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 cannot identify whether the work under this BAA may be considered fundamental research and may award both fundamental and non-fundamental.

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 select award instrument type and to negotiate all instrument terms and conditions with selectees. Appropriate clauses will be included in resultant awards for non-fundamental research to prescribe publication requirements and other restrictions, as appropriate.

For certain research projects, it may be possible that although the research being performed by the prime contractor is restricted research, a subawardee may be conducting fundamental research. In those cases, it is the prime contractor's responsibility to explain in its proposal why its subawardee's effort is fundamental research.

The following statement or similar provision will be incorporated into any resultant non-fundamental research procurement contract or other transaction:

There shall be no dissemination or publication, except within and between the contractor and any subawardees, of information developed under this contract or contained in the reports to be furnished pursuant to this contract without prior written approval of DARPA's Public Release Center (DARPA/PRC). All technical reports will be given proper review by appropriate authority to determine which Distribution Statement is to be applied prior to the initial distribution of these reports by the contractor. With regard to subawardee proposals for Fundamental Research, papers resulting from unclassified fundamental research are exempt from prepublication controls and this review requirement, pursuant to DoD Instruction 5230.27 dated October 6, 1987.

When submitting material for written approval for open publication, the contractor/awardee must submit a request for public release to the DARPA/PRC and include the following information: (1) Document Information: document title, document author, short plain-language description of technology discussed in the material (approx. 30 words), number of pages (or minutes of video) and document type (e.g., briefing, report, abstract, article, or paper); (2) Event Information: event type (conference, principal investigator meeting, article or paper), event date, desired date for DARPA's approval; (3) DARPA Sponsor: DARPA Program Manager, DARPA office, and contract number; and (4) Contractor/Awardee's Information: POC name, email and phone. Allow four weeks for processing; due dates under four weeks require a

justification. Unusual electronic file formats may require additional processing time. Requests may be sent either via email to public_release_center@darpa.mil or by mail at 675 North Randolph Street, Arlington VA 22203-2114, telephone (571) 218-4235. Refer to the following for link for information about DARPA's public release process: <http://www.darpa.mil/work-with-us/contract-management/public-release>."

III. Eligibility Information

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

A. Eligible Applicants

Federally Funded Research and Development Centers (FFRDCs) and Government entities (e.g., Government/National laboratories, military educational institutions, etc.) 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; and (2) FFRDCs must provide a letter on official letterhead from their sponsoring organization citing the specific authority establishing their eligibility to propose to Government solicitations and compete with industry, and their compliance with the associated FFRDC sponsor agreement's terms and conditions. This information is required for FFRDCs proposing to be prime contractors or subawardees. 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. 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.

All proposers are expected to address transition (see Section IV.B.7, "Proposal Format"); transition is part of the evaluation criteria in Section V.A. However, given their special status, FFRDCs should describe how and when a proposed technology/system will transition to which Non-FFRDC organization(s).

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

B. Procurement Integrity, Standards of Conduct, Ethical Considerations, and Organizational Conflicts of Interest

Current federal employees are prohibited from participating in particular matters involving conflicting financial, employment, and representational interests (18 U.S.C. §§ 203, 205, and 208). Once the proposals have been received, and prior to the start of proposal evaluations, the Government will assess potential conflicts of interest and will promptly notify the proposer if any appear to exist. The Government assessment does NOT affect, offset, or mitigate the proposer's responsibility to give full notice and planned mitigation for all potential organizational conflicts, as discussed below.

Without prior approval or a waiver from the DARPA Director, in accordance with FAR 9.503, a contractor cannot simultaneously provide scientific, engineering, technical assistance (SETA) or similar support and also be a technical performer. As part of the proposal submission, all members of the proposed team (prime proposers, proposed subawardees, and consultants) must affirm whether they (their organizations and individual team members) are providing SETA or similar support to any DARPA technical office(s) through an active contract or subcontract. All affirmations must state which office(s) the proposer, subawardees, consultant, or individual supports and identify the prime contract number(s). All facts relevant to the existence or potential existence of organizational conflicts of interest (FAR 9.5) must be disclosed. The disclosure must include a description of the action the proposer has taken or proposes to take to avoid, neutralize, or mitigate such conflict. If in the sole opinion of the Government after full consideration of the circumstances, a proposal fails to fully disclose potential conflicts of interest and/or any identified conflict situation cannot be effectively mitigated, the proposal will be rejected without technical evaluation and withdrawn from further consideration for award.

If a prospective proposer believes a conflict of interest exists or may exist (whether organizational or otherwise) or has questions on what constitutes a conflict of interest, the proposer should send his/her contact information and a summary of the potential conflict via email to the BAA email address before time and effort are expended in preparing a proposal and mitigation plan.

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., for any Other Transactions under the authority of 10 U.S.C. §2371b). Cost sharing is encouraged where there is a reasonable probability of a potential commercial application related to the proposed research and development effort.

IV. Application and Submission Information

A. Address to Request Application Package

This solicitation contains all information required to submit a proposal. No additional forms, kits, or other materials are needed. This notice constitutes the total solicitation. No additional information is available, except as provided at FBO.gov or Grants.gov, nor will a formal Request for Proposal (RFP) or additional solicitation regarding this announcement be issued. Requests for the same will be disregarded.

B. Content and Form of Application Submission

1. Proprietary and Security Information

NOTE: If submissions are classified, the submissions must indicate the classification level of not only the submission itself, but also the anticipated award document classification level.

Prior to sending any classified submissions, performers must provide advance notification to the BAA Coordinator via DARPA-BAA-16-31@darpa.mil. For instructions on how to provide advanced notification at an unclassified level, refer to Section IV.B.2.

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

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

a. 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.

b. Security Information

Classified submissions shall be transmitted in accordance with the following guidance. Additional information on the subjects discussed in this section may be found at <http://www.dss.mil/>.

If a submission contains Classified National Security Information as defined by Executive Order 13526, the information must be appropriately and conspicuously marked with the proposed classification level and declassification date. Similarly, when the classification of a submission is in question, the submission must be appropriately and conspicuously marked with the proposed classification level and declassification date. Submissions requiring DARPA to make a final classification determination shall be marked as follows:

“CLASSIFICATION DETERMINATION PENDING. Protect as though classified _____ (insert the recommended classification level, e.g., Top Secret, Secret or Confidential)”

NOTE: Classified submissions must indicate the classification level of not only the submitted materials, but also the classification level of the anticipated award.

Proposers submitting classified information must have, or be able to obtain prior to contract award, cognizant security agency approved facilities, information systems, and appropriately cleared/eligible personnel to perform at the classification level proposed. All proposer personnel performing Information Assurance (IA)/Cybersecurity related duties on classified Information Systems shall meet the requirements set forth in DoD Manual 8570.01-M (Information Assurance Workforce Improvement Program).

Proposers choosing to submit classified information from other collateral classified sources (i.e., sources other than DARPA) must ensure (1) they have permission from an authorized individual at the cognizant Government agency (e.g., Contracting Officer, Program Manager); (2) the proposal is marked in accordance with the source Security Classification Guide (SCG) from which the material is derived; and (3) the source SCG is submitted along with the proposal.

DARPA anticipates that submissions received under this BAA will be unclassified. However, should a proposer wish to submit classified information, an *unclassified* e-mail must be sent to the BAA mailbox requesting submission instructions (see Section IV.B.2).

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

Classified submissions shall be in accordance with the following guidance:

Confidential and Secret Information

Use transmission, classification, handling, and marking guidance provided by previously issued SCGs, the DoD Information Security Manual (DoDM 5200.01, Volumes 1 - 4), and the National Industrial Security Program Operating Manual,

including the Supplement Revision 1, (DoD 5220.22-M and DoD 5200.22-M Sup. 1) when submitting Confidential and/or Secret classified information.

Confidential and Secret classified information may be submitted via ONE of the two following methods:

- Hand-carried by an appropriately cleared and authorized courier to the DARPA CDR. Prior to traveling, the courier shall contact the DARPA Classified Document Registry (CDR) at 703-526-4052 to coordinate arrival and delivery.

OR

- Mailed via U.S. Postal Service (USPS) Registered Mail or USPS Express Mail. All classified information will be enclosed in opaque inner and outer covers and double-wrapped. The inner envelope shall be sealed and plainly marked with the assigned classification and addresses of both sender and addressee.

The inner envelope shall be addressed to:

Defense Advanced Research Projects Agency
ATTN: DARPA/TTO
Reference: DARPA-BAA-16-31
675 North Randolph Street
Arlington, VA 22203-2114

The outer envelope shall be sealed with no identification as to the classification of its contents and addressed to:

Defense Advanced Research Projects Agency
Security & Intelligence Directorate, Attn: CDR
675 North Randolph Street
Arlington, VA 22203-2114

Top Secret Information

Use classification, handling, and marking guidance provided by previously issued SCGs, the DoD Information Security Manual (DoDM 5200.01, Volumes 1 - 4), and the National Industrial Security Program Operating Manual, including the Supplement Revision 1, (DoD 5220.22-M and DoD 5200.22-M Sup. 1). Top Secret information must be hand-carried by an appropriately cleared and authorized courier to the DARPA CDR. Prior to traveling, the courier shall contact the DARPA CDR at 703-526-4052 to coordinate arrival and delivery.

Sensitive Compartmented Information (SCI)

SCI must be marked, managed and transmitted in accordance with DoDM 5105.21 Volumes 1 - 3. Questions regarding the transmission of SCI may be sent to the DARPA Technical Office PSO via the BAA mailbox or by contacting the DARPA Special Security Officer (SSO) at 703-812-1970.

Successful proposers may be sponsored by DARPA for access to SCI. Sponsorship must be aligned to an existing DD Form 254 where SCI has been authorized. Questions regarding SCI sponsorship should be directed to the DARPA Personnel Security Office at 703-526-4543.

Special Access Program (SAP) Information

SAP information must be marked in accordance with DoDM 5205.07 Volume 4 and transmitted by specifically approved methods, which will be provided by the Technical Office PSO or their staff.

Proposers choosing to submit SAP information from an agency other than DARPA are required to provide the DARPA Technical Office Program Security Officer (PSO) written permission from the source material's cognizant Special Access Program Control Officer (SAPCO) or designated representative. For clarification regarding this process, contact the DARPA Technical Office PSO via the BAA mailbox or the DARPA SAPCO at 703-526-4102.

Additional SAP security requirements regarding facility accreditations, information security, personnel security, physical security, operations security, test security, classified transportation plans, and program protection planning may be specified in the DD Form 254.

NOTE: prior to drafting the submission, if use of SAP Information Systems is to be proposed, proposers must first obtain an Authorization-to-Operate from the DARPA Technical Office PSO (or other applicable DARPA Authorization Official) using the Risk Management Framework (RMF) process outlined in the Joint Special Access Program (SAP) Implementation Guide (JSIG), Revision 3, dated October 9, 2013 (or successor document).

2. BAA Website Submissions

Executive summaries, white papers, and proposals sent in response to DARPA-BAA-16-31 should be via DARPA's BAA Website (<https://baa.darpa.mil>). Executive summaries, white papers, and proposals may not be submitted by fax or e-mail; any so sent will be disregarded. Note: if an account has already been created, it may be reused. If no account currently exists, visit the website to complete the two-step registration process. Submitters will need to register for an Extranet account (via the form at the URL listed above) and wait for two separate e-mails containing a username and temporary password. After accessing the Extranet, submitters may then create an account for the DARPA BAA Website (via the "Register your Organization" link along the left side of the homepage), view submission instructions, and upload/finalize the submission.

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

All unclassified concepts submitted electronically through DARPA's BAA Website must be uploaded as zip files (.zip or .zipx extension). The final zip file should be no greater than 50 MB in size. Only one zip file will be accepted per submission, and submissions not uploaded as zip files will be rejected by DARPA. (Please note that the electronic submission form refers to a "proposal abstract," which means the white paper described in this document).

Classified submissions and proposals requesting assistance instruments (grants or cooperative agreements) should NOT be submitted through DARPA's BAA Website (<https://baa.darpa.mil>), though proposers will likely still need to visit <https://baa.darpa.mil> to register their organization (or verify an existing registration) to ensure the BAA office can verify and finalize their submission. Please e-mail DARPA-BAA-16-31@darpa.mil for instructions regarding classified submissions.

Technical support for DARPA's BAA Website may be reached at BAAT_Support@darpa.mil and is typically available during regular business hours, (9:00 AM - 5:00 PM Eastern Time Monday - Friday). Please be sure to Courtesy Copy (CC) the BAA-16-31 mailbox at DARPA-BAA-16-31@darpa.mil.

DARPA will acknowledge receipt of the submission and assign a control number that should be used in all further correspondence regarding the submission.

3. Grants.Gov Submissions

Proposers requesting grants or cooperative agreements may submit proposals through one of the following methods: (1) hard copy mailed directly to DARPA; or (2) electronic upload per the instructions at <http://www.grants.gov/applicants/apply-for-grants.html>. Grant or cooperative agreement proposals may not be submitted through any other means. 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 the Grants.gov do not submit paper proposals in addition to the Grants.gov electronic submission.

Grants.gov requires proposers to complete a one-time registration process before a proposal can be electronically submitted. If proposers have not previously registered, this process can take between three business days and four weeks. See the Grants.gov registration checklist at <http://www.grants.gov/web/grants/register.html> for registration requirements and instructions.

Once Grants.gov has received a proposal submission, Grants.gov will send two e-mail messages to advise proposers as to whether or not their proposals have been

validated or rejected by the system; IT MAY TAKE UP TO TWO DAYS TO RECEIVE THESE E-MAILS. The first e-mail will confirm receipt of the proposal by the Grants.gov system; this e-mail only confirms receipt, not acceptance, of the proposal. The second will indicate that the application has been successfully validated by the system prior to transmission to the grantor agency or has been rejected due to errors. If the proposal is validated, then the proposer has successfully submitted their proposal. If the proposal is rejected, the proposed must be corrected and resubmitted 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, the proposer will receive a third e-mail from Grants.gov. To avoid missing deadlines, proposers should submit their proposals in advance of the final proposal due date with sufficient time to receive confirmations and correct any errors in the submission process through Grants.gov. For more information on submitting proposals to Grants.gov, visit the Grants.gov submissions page at: <http://www.grants.gov/web/grants/applicants/apply-for-grants.html>.

Proposers electing to submit grant or cooperative agreement proposals as hard copies must complete the SF 424 R&R form (Application for Federal Assistance, Research and Related) available on the Grants.gov website http://apply07.grants.gov/apply/forms/sample/RR_SF424_20-V2.0.pdf.

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

All administrative correspondence and questions on this solicitation, including requests for information on how to submit an executive summary, white paper, or full proposal to this BAA, should be directed to DARPA-BAA-16-31@darpa.mil.

DARPA intends to use electronic mail for correspondence regarding DARPA-BAA-16-31. Executive summaries, white papers, and proposals may not be submitted by fax or e-mail; any so sent will be disregarded. DARPA encourages use of the Internet for retrieving the BAA and any other related information that may subsequently be provided.

4. Executive Summary, White Paper, and Proposal Submission Information

Proposers are strongly encouraged to submit an executive summary and, if encouraged, a white paper in advance of a full proposal. A DARPA Program Manager may contact you to further discuss the idea in your executive summary or white paper. This procedure is intended to minimize unnecessary effort and cost in proposal preparation and review. DARPA will acknowledge receipt of all submissions and assign control numbers that should be used in all further correspondence regarding these submissions.

DARPA will respond to executive summaries with a letter of “Interest” or “No Interest” in the topic, based on relevance to the TTO mission and interest in the

technology topic. A letter of interest will encourage the submission of a white paper. TTO will respond to white papers with a letter encouraging or discouraging the submission of a full proposal, based on the proposed effort's relevance to the TTO mission, a preliminary assessment of the scientific or technical merit, and interest in the technology concept.

DARPA will respond to executive summaries and white papers with a statement as to whether DARPA is interested in the idea. DARPA will attempt to reply to executive summaries and white papers in writing within thirty (30) calendar days of receipt. DARPA will attempt to reply to proposals via the same method within forty-five (45) days. If DARPA does not recommend the proposer submit a full proposal, the response letter will provide a statement to the proposer regarding the rationale for this decision. White papers will be reviewed in the order they are received. Early submissions of white papers and full proposals are strongly encouraged because selections may be made at any time during the period of solicitation. Regardless of DARPA's response to an executive summary or a white paper, proposers may submit a full proposal. DARPA will review all full proposals submitted using the published evaluation criteria and without regard to any comments resulting from the review of an executive summary or white paper.

Proposers are required to submit their concepts by the time and date specified in the BAA in order to be considered.

The typical submission should express a consolidated effort in support of one or more related technical concepts or ideas. Disjointed efforts should not be included into a single submission. All concepts mailed via appropriate U.S. Postal Service (USPS) methods (e.g., USPS Registered Mail or USPS Express Mail) are to be submitted separately. Multiple submissions submitted in the same package shall not be reviewed.

Restrictive notices notwithstanding, proposals may be handled for administrative purposes by support contractors. These support contractors are prohibited from competition in DARPA technical research and are bound by appropriate non-disclosure requirements. Submissions may not be submitted by fax or e-mail; any so sent will be disregarded.

Submissions not meeting the format described in the BAA may not be reviewed and will receive a "Non-Responsive" letter. If a submission is deemed not relevant to TTO's Mission, it may be relevant to other DARPA BAA solicitations. Performers are strongly encouraged to review each of DARPA's technical office focus areas prior to submission.

DARPA intends to use electronic mail for correspondence regarding DARPA-BAA-16-31. All administrative correspondence and questions on this solicitation, including requests for information on how to submit an executive summary, white paper, or full proposal, should be submitted to DARPA-BAA-16-31@darpa.mil.

DARPA encourages the use of the Federal Business Opportunities website, <http://www.fedbizopps.gov>, for retrieving the BAA and any other related information that may subsequently be provided.

5. Executive Summary Format

Executive summaries are encouraged in advance of submitting white papers and full proposals in order to provide potential proposers with a rapid response to minimize unnecessary effort. Proposers should specifically and clearly address the innovation of their proposed system or subsystem component development, the scientific or technical basis for innovative claims, and the impact of the proposed development on military mission capabilities, efficiency, or effectiveness. The executive summary should be clearly marked “EXECUTIVE SUMMARY,” and the total length shall not exceed one (1) page. A page is defined as being no larger than an electronically formatted page of 8.5” by 11.0” with type not smaller than 12 point. Smaller font may be used for figures, tables, and charts. All executive summary submissions must be written in narrative form. No formal transmittal letter is required, but submissions must include the organization name, submission title, and technical POC information (e-mail and mailing address). All executive summaries must be written in English.

6. White Paper Format

White paper submissions are encouraged in advance of full proposals in order to provide potential proposers with a rapid response and to minimize unnecessary effort. White papers should follow the same general format as described for Volume I, Technical and Management Proposal (see Section IV.B.7), but should only include Sections I and II described in Proposal Format below. The cover sheet should be clearly marked “WHITE PAPER,” and the total length should not exceed six (6) pages, excluding cover page, official transmittal letter, and quad chart. A page is defined as being no larger than an electronically formatted page of 8.5” by 11.0” with type not smaller than 12 point. Smaller font may be used for figures, tables and charts. The page limitation for white papers includes all figures, tables, and charts. No formal transmittal letter is required. All white papers must be written in English. The white paper must include a statement of the anticipated Rough Order of Magnitude (ROM) cost and the anticipated duration of the proposed effort.

7. Proposal Format

All full proposals must be in the format given below. Nonconforming proposals may be rejected without review. Proposals shall consist of two volumes. All pages shall be electronically formatted for a page of 8.5” by 11.0” with type not smaller than 12 point. Smaller font may be used for figures, tables and charts. The page limitation for full proposals includes all figures, tables, and charts. Volume I, Technical and Management Proposal, described below, may include an attached bibliography of relevant technical papers or research notes (published and unpublished), which document the technical ideas and approach upon which the proposal is based. Copies of not more

than three (3) relevant papers may be included with the submission. The bibliography and attached papers are not included in the page counts given below. The submission of other supporting materials along with the proposals is strongly discouraged and will not be considered for review. Except for the attached bibliography and Section I, Volume I shall not exceed 30 pages (40 pages if the proposal dollar value is > \$1 million). Maximum page lengths for each section are shown in braces { } below. All full proposals must be written in English.

Ensure that each section provides the detailed discussion of the proposed work necessary to enable an in-depth review of the specific technical and managerial issues. Specific attention must be given to addressing both risk and payoff of the proposed work that make it desirable to DARPA.

7.1 Volume I, Technical and Management Proposal

Section I. Administrative {not included in the page count}

- A. Cover sheet {no page limit}
- (1) BAA number (DARPA-BAA-16-31);
 - (2) Proposal title;
 - (3) Technical area;
 - (4) Lead organization submitting proposal;
 - (5) Type of organization, selected among the following categories:
 - i. LARGE BUSINESS,
 - ii. SMALL DISADVANTAGED BUSINESS [identify ethnic group from among the following: Asian-Indian American, Asian-Pacific American, Black American, Hispanic American, Native American, or Other],
 - iii. OTHER SMALL BUSINESS,
 - iv. HBCU,
 - v. MI,
 - vi. OTHER EDUCATIONAL,
 - vii. OTHER NONPROFIT, or
 - viii. FOREIGN CONCERN/ENTITY;
 - (6) All other team members, their Cage Codes (if applicable and including second- and lower-tier subcontractors), and type of organization for each;
 - (7) BAA technical focus area addressed (i.e., Ground Systems);
 - (8) Technical point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), and electronic mail;
 - (9) Administrative point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), and electronic mail;
 - (10) Award instrument requested: cost-plus-fixed-fee (CPFF), cost-contract – no fee, cost sharing contract – no fee, or other type of procurement contract (specify), grant, cooperative agreement, or other transaction;

- (11) Place(s) and period(s) of performance;
- (12) Summary of the costs of the proposed research, including total base cost, estimates of base cost in each year of the effort, estimates of itemized options in each year of the effort, and cost sharing if relevant;
- (13) Name, address, and telephone number of the proposer's cognizant Defense Contract Management Agency (DCMA) administration office (if known);
- (14) Name, address, and telephone number of the proposer's cognizant Defense Contract Audit Agency (DCAA) audit office (if known);
- (15) Date proposal was prepared;
- (16) DUNS number;
- (17) TIN number;
- (18) Cage code (lead organization);
- (19) Proposal validity period (minimum 180 days);
- (20) Affirmation of existing SETA support contacts (see Part III, Section B). If none, state "none";
- (21) Affirmation of Human Subject Research. If none, state "none";
- (22) Affirmation of Animal Research. If none, state "none";
- (23) Statement of Unique Capability Provided by Government or Government-Funded Team Member {no page limit};
- (24) Per Section III.A – Eligible Applicants, proposals that include Government or Government-funded entities (i.e., FFRDC's, National laboratories, etc.) as prime, subcontractor or team member, shall provide a statement that clearly demonstrates the work being provided by the Government or Government-funded entity team member is not otherwise available from the private sector. If none of the team members belongs to a Government or Government-funded entity, then the proposer should state "Not Applicable."

B. Table of Contents {no page limit}

Section II. Summary of Proposal {4}

Note: The Summary of Proposal should not have any unique information not contained in the Detailed Proposal Information.

- 1. Innovation:** Succinctly describe the uniqueness and benefits of the proposed research relative to the current state-of-art or alternate approaches. Provide a basic description of the scientific or technical basis for the innovative claims.
- 2. Results:** Provide a short description of the results, products, transferable technology, and transition path.
- 3. Technical Rationale:** Provide a short description of the impact of the proposed development on military mission capabilities, efficiency, or effectiveness.

4. **Technical Approach:** Provide a short description of the technical approach and constructive plan for accomplishment of technical goals in support of innovative claims and deliverable production.
5. **Experience:** Describe the unique capabilities of project and corporate team members. Describe the proposer's previous accomplishments and work in closely related research areas.
6. **Cost:** Cost, schedule and measurable milestones for the proposed research, including estimates of cost for each task in each year of the effort delineated by the prime and major subcontractors, total cost and company cost share, if applicable. (Note: Measurable milestones should capture key development points in tasks and should be clearly articulated and defined in time relative to start of effort.)
7. **Quad Chart:** Include in PowerPoint format a quad chart that reflects the content and claims in the proposal. The quadrants should be as follows: (1) proposal picture in the upper left-hand quadrant; (2) proposal description in the upper right-hand quadrant; (3) proposal military impact in the lower left-hand quadrant; and (4) proposal budget and schedule. The quad chart will serve as the fourth page.

Section III. Detailed Proposal Information

1. Statement of Work (SOW)

- a. **Objectives:** Provide a general description of the proposal technical objective and a general description of each major task/activity. Provide a detailed description of the uniqueness and benefits of the proposed innovation relative to the current state-of-the-art in DoD, Industry and Academia as applicable.
- b. **Technical Approach:**
 1. Provide a detailed description of the approach to be taken to accomplish each major task/activity in support of innovative claims and deliverable production.
 2. Provide a top-level schedule for the major tasks.
 3. Where the effort could reasonably be partitioned into an initial and future phases, the future phases should be identified as options.
- c. **Exit Criteria:** Describe the exit criteria for each major task/activity such as a product, event or milestone that defines its completion.
- d. **Deliverables:** Define all deliverables (reporting, data, reports, hardware, software, technology, products, etc.) to be provided to the Government in support of the proposed tasks/activities.

Note: It is recommended that the SOW be developed so that each phase of the project is distinct and does not overlap. Do not include any proprietary information in the SOW.

2. Technical Rationale:

- a. Provide the technical rationale for the objective requirement, including technology advancements and value-added to DoD capabilities.

- b. Provide technical rationale, scientific basis, and any supporting analysis for the technical approach for each major task/activity.
 - c. Provide a comparison of the technical objectives and technical approach with other ongoing research and existing state-of-the-art, indicating advantages and disadvantages of the proposed effort.
- 3. Risk: Risk and Risk Reduction**
- a. Provide an initial list of critical technology risk areas.
 - b. Describe the formal process for identifying and tracking the risk elements that translate into critical and unique technologies, processes and system attributes associated with technology objective.
 - c. For each proposed risk reduction task:
 - 1. Provide a detailed discussion of the technical objectives of each of the proposed risk reduction task as well as quantifiable success metrics.
 - 2. Describe the technical approach for each risk reduction task.
 - 3. Describe the value of performing the risk reduction activities during the initial phase, as opposed to deferring them until future phases.
 - d. Describe the process for identifying and evaluating applicable technologies available from other Government and industry R&D programs.
- 4. Results:**
- a. Describe the results, products, transferable technology and expected technology transfer/transition paths.
 - b. Provide a description of all proprietary claims to the results, prototypes, intellectual property, or systems. If there are no proprietary claims, this should be stated. For forms to be completed regarding intellectual property, see Section VIII – Intellectual Property. There will be no page limit for the listed forms.
- 5. Experience:** A clearly defined organization chart for the program team which includes, as applicable: (1) the programmatic relationship of team member; (2) the unique capabilities of team members; (3) the task of responsibilities of team members; (4) the teaming strategy among the team members; and (5) the key personnel along with the amount of effort to be expended by each person during each year. DARPA requires key personnel identified in the proposal to be assigned as proposed, and the resulting contract/agreement will indicate no substitution shall be made without prior approval of the Government. Describe the unique capabilities of project and corporate team members. Describe the proposer's previous accomplishments and work in closely related research areas.
- 6. Facilities:** Provide a description of any unique facilities necessary for execution of the proposed effort that would be used for the proposed effort.
- 7. Organization:**
- a. Describe the programmatic relationship of corporate team members.
 - b. Describe the responsibilities of corporate and project team members.
 - c. Describe the teaming strategy among the team members.

- d. Identify the key personnel by name and include descriptions of their roles.
- e. Submit a clearly defined organization chart for the project team.

8. Project Management:

a. Management Plan:

1. Describe program management process that will be utilized to obtain the technical objective.
2. Include a description of how the team will function and share technical and financial information among the team members and with the Government.
3. Provide short resumes for the key personnel in key disciplines/risk areas.

b. Schedule: Provide a detailed integrated schedule of all initial phase activities, including risk reduction tasks. Proposals below \$1 million should provide an Integrated Master Schedule (IMS) at a minimum at WBS Level 2. Proposals that exceed \$1 million should provide an IMS at WBS Level 3.

1. Measurable critical milestones should occur every two (2) to three (3) months after start of effort. Additional interim non-critical management milestones are also highly encouraged at regular intervals.
2. Top-level schedules are required for optional phases and should be based on the proposer's initial risk reduction strategy.
3. Include key events and demonstrations as appropriate for the technology concept.
 - a. An electronic copy of the IMS in MS Project shall be included with proposal submittals.
4. All tasks in the IMS shall be linked and the ability to display the critical path shall be implemented.

Section IV. Additional Information {No page limit}

Proposals should contain all relevant information required to review the proposed research effort, including a brief bibliography of relevant technical papers and research notes which document the technical ideas upon which the proposal is based. Copies of not more than three (3) relevant papers may be included in the submission as supporting information.

7.2 Volume II, Cost Proposal – {No Page Limit}

Section I. Administrative

All proposers, including FFRDCs, must submit the following:

- A. Cover sheet to include:
 - (1) BAA number (DARPA-BAA-16-31);
 - (2) Proposal title;
 - (3) Lead organization submitting proposal;

- (4) Type of organization, selected among the following categories: “LARGE BUSINESS,” “SMALL DISADVANTAGED BUSINESS,” “OTHER SMALL BUSINESS,” “HBCU,” “MI,” “OTHER EDUCATIONAL,” OR “OTHER NONPROFIT”;
- (5) Proposer’s reference number (if any);
- (6) All team members, their Cage Code(s) (if applicable) and type of organization for each;
- (7) BAA Technical Focus Area Addressed (i.e., Space Systems);
- (8) Technical point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), and electronic mail;
- (9) Administrative point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), and electronic mail;
- (10) Award instrument requested: cost-plus-fixed-fee (CPFF), cost-contract—no fee, cost sharing contract – no fee, or other type of procurement contract (specify), grant, cooperative agreement, or other transaction;
- (11) Place(s) and period(s) of performance;
- (12) Total proposed cost separated by basic award and option(s) (if any);
- (13) Name, address, and telephone number of the proposer’s cognizant Defense Contract Management Agency (DCMA) administration office (if known);
- (14) Name, address, and telephone number of the proposer’s cognizant Defense Contract Audit Agency (DCAA) audit office (if known);
- (15) Date proposal was prepared;
- (16) DUNS number;
- (17) TIN number;
- (18) CAGE Code (lead organization);
- (19) Subcontractor Information; and
- (20) Proposal validity period.

Section II. Detailed Cost Proposal

Note that nonconforming proposals may be rejected without review.

Proposers without an accounting system considered adequate for determining accurate costs must complete an SF 1408 if a cost type contract is to be negotiated. To facilitate this process, proposers should complete the SF 1408 found at <http://www.gsa.gov/portal/forms/download/115778> and submit the completed form with the proposal. To complete the form, check the boxes on the second page, then provide a narrative explanation of your accounting system to supplement the checklist on page one. For more information, please see http://www.dcaa.mil/preaward_accounting_system_adequacy_checklist.html.

1. Cost Proposal Format and Guidance

- a. The Government strongly encourages that tables included in the cost proposal also be provided in an editable (e.g., MS Excel) format with calculation formulas intact to allow traceability of the cost proposal numbers across the prime and

- subcontractors. This includes the calculations and adjustments that are utilized to generate the Summary Costs from the source labor hours, labor costs, material costs, etc. input data. The Government prefers receiving cost data as Excel files; however, this is not a requirement. If the PDF submission differs from the Excel submission, the PDF will take precedence.
- b. The prime contractor is responsible for compiling and providing all subcontractor proposals for the Procuring Contracting Officer (PCO).
 - c. Subcontractor proposals should include Interdivisional Work Transfer Agreements (ITWA) or similar arrangements.
 - d. Where the effort consists of multiple portions that could reasonably be partitioned for purposes of funding, these should be identified as options with separate cost estimates for each.
 - e. For IT and equipment purchases, include a letter stating why the proposer cannot provide the requested resources from its own funding.
 - f. Each copy must be clearly labeled with the DARPA BAA number, proposer organization, and proposal title (short title recommended).
- 2. Costs.** Detailed cost breakdown to include:
- a. Provide the total program cost and costs broken down by initial phase and options.
 - b. Provide costs broken down for the initial phase, including at a minimum:
 1. Direct labor, including labor categories and man-hours, and labor rates;
 2. Cost by the prime and major subcontractors;
 3. Cost by major risk/activity;
 4. Materials;
 5. Other Direct Costs (ODCs) (e.g., travel, equipment, etc.);
 6. Overhead/Indirect charges, and rates used to calculate overhead/indirect costs;
 7. Provide the source, nature, and amount of any industry cost-sharing.
 - c. Identify the pricing assumptions that may require incorporation into the resulting award instrument (e.g., use of Government Furnished Property/facilities/Information, access to Government Subject Matter Expert/s, etc.).
- 3. Supporting Cost Data.** Supporting cost and pricing information
- a. Provide sufficient detail to substantiate the summary cost estimates above.
 - b. Include a description of the method used to estimate costs and supporting documentation.
 - c. All proprietary subcontractor proposal documentation, prepared at the same level of detail as that required of the prime and which cannot be uploaded with the proposed prime contractor's proposal, shall be provided to the Government either by the prime contractor or by the subcontractor organization by e-mail (DARPA-BAA-16-31@darpa.mil) when the proposal is submitted. The subject line of the e-mail shall contain the lead organization's proposal title, lead organization name, lead organization proposal submission date, and subcontractor name.
 - d. Cost Notes:

1. Per FAR 15.403-4, certified cost or pricing data shall be required if the proposer is seeking a procurement contract award per the referenced threshold, unless the proposer requests and is granted an exception from the requirement to submit cost or pricing data. Certified cost or pricing data are not required if the proposer proposes an award instrument other than a procurement contract (e.g., a grant, cooperative agreement, or other transaction.)
2. The Government may award either a Federal Acquisition Regulation (FAR) based contract or an Other Transaction for Prototype (OT) agreement for prototype system development.
3. All proposers requesting an Other Transaction (OT) for Prototypes must include a detailed list of milestones. Each milestone must include the following: milestone description, completion criteria, due date, and payment/funding schedule (to include, if cost share is proposed, contractor and Government share amounts). It is noted that, at a minimum, milestones should relate directly to accomplishment of program technical metrics as defined in the BAA and/or the proposer's proposal. Agreement type, fixed price or expenditure based, will be subject to negotiation by the Agreements Officer. Do not include proprietary data. If the proposer requests award of an OT for Prototype as a non-traditional contractor (defined as an entity that is not currently performing or has not performed in the last one-year period any contract or subcontract for the Department of Defense that is subject to full coverage under the cost accounting standards), information must be included in the cost proposal to support the claim.

Per Section 8123 of the Department of Defense Appropriations Act, 2015 (Division C of the Consolidated and Further Continuing Appropriations Act, 2015, Pub. L. 113-235), all grant awards must be posted on a public website in a searchable format. To facilitate this task, proposers requesting grant awards must submit a maximum one (1) page abstract that may be publicly posted to comply with the requirement of Section 8123. This abstract should explain the project or program to the public and should only contain information that the proposer confirms is releasable to the public; **DO NOT INCLUDE ANY PROPRIETARY INFORMATION OR INFORMATION THAT CANNOT BE DISPLAYED ON A PUBLIC WEBSITE.** The proposer should sign the bottom of the abstract confirming the information in the abstract is approved for public release. Proposers are advised to provide both a signed PDF copy, as well as an editable (e.g., Microsoft word) copy. Abstracts contained in grant proposals that are not selected for award will not be publicly posted.

NOTE: PROPOSERS ARE CAUTIONED THAT PROPOSALS MAY BE REJECTED IF SUBMITTAL INSTRUCTIONS ARE NOT FOLLOWED.

8. Submission Dates and Times

Executive summaries, white papers, and full proposals must be submitted on or before 4:00 p.m. Eastern Time, 28 April 2017. Full proposals submitted after this time and date may not be evaluated.

No e-mailed or faxed submissions will be accepted. DARPA may evaluate executive summaries, white papers, and proposals received after this date for a period up to one year (365 days) from the date of posting on FedBizOpps and Grants.gov.

DARPA will acknowledge receipt of complete submissions via e-mail and assign control numbers that should be used in all further correspondence regarding submissions.

9. Funding Restrictions

Not applicable

V. Application Review Information

A. Evaluation Criteria

Proposals will be evaluated using the following criteria, listed in descending order of importance: (1) Overall Scientific and Technical Merit; (2) Potential Contribution and Relevance to the DARPA/TTO Mission; (3) Cost Realism; (4) Realism of Proposed Schedule; and (5) Proposer’s Capabilities and/or Related Experience.

All proposals will first be rated as “Relevant” or “Not Relevant” under evaluation criterion (2). Proposals must first be deemed “Relevant” in order to receive a full review. Proposals deemed “Not Relevant” to the TTO mission will receive a “Non-Responsive” letter. Proposals deemed “Relevant” under evaluation criterion (2) will then be evaluated using criteria (1), (2), (3), (4), and (5) in descending order of importance. Proposals will not be evaluated against each other since they are not submitted in accordance with a common work statement. TTO’s intent is to review proposals as soon as possible after they arrive; however, proposals may be reviewed periodically for administrative reasons. The following are descriptions of the above listed criteria:

1. Overall Scientific and Technical Merit

The proposed technical approach is feasible, achievable, complete and supported by a proposed technical team that has the expertise and experience to accomplish the proposed tasks.

The approach is innovative and the 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.

2. Potential Contribution and Relevance to the DARPA/TTO Mission

The potential contributions of the proposed effort are relevant to the national technology base. Specifically, DARPA's mission is to maintain the technological superiority of the U.S. military and prevent technological surprise from harming our national security by sponsoring revolutionary, high-payoff research that bridges the gap between fundamental discoveries and their application.

The proposer will be evaluated on their capability to transition the technology to the research, industrial, and/or operational military communities in such a way as to enhance U.S. defense. In addition, the evaluation will take into consideration the extent to which the proposed intellectual property (IP) rights will potentially impact the Government's ability to transition the technology to the research, industrial, and operational military communities.

3. Cost Realism

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

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

4. Realism of Proposed Schedule

The proposer's abilities to aggressively pursue performance metrics in the shortest timeframe and to accurately account for that timeframe will be evaluated, as well as the proposer's ability to understand, identify, and mitigate any potential risk in schedule.

5. Proposer's Capabilities and/or Related Experience

The proposer's prior experience in similar efforts clearly demonstrates an ability to deliver products that meet the proposed technical performance within the proposed budget and schedule. The proposed team has the expertise to manage the cost and schedule, and the key personnel are identified. Similar efforts completed/ongoing by the

proposer in this area are fully described, including identification of other Government sponsors.

B. Review and Selection Process

DARPA will conduct a scientific/technical review of each conforming proposal. Proposals will not be evaluated against each other since they are not submitted in accordance with a common work statement. DARPA’s intent is to review proposals as soon as possible after they arrive; however, proposals may be reviewed periodically for administrative reasons.

Award(s) will be made to proposers whose proposals are determined to be the most advantageous to the Government, all factors considered, including the potential contributions of the proposed work to the overall research program and the availability of funding for the effort.

It is the policy of DARPA to ensure impartial, equitable, comprehensive proposal evaluations and to select the source (or sources) whose offer meets the Government's technical, policy, and programmatic goals. Pursuant to FAR 35.016, the primary basis for selecting proposals for acceptance shall be technical, importance to agency programs, and fund availability. In order to provide the desired evaluation, qualified Government personnel will conduct reviews and (if necessary) convene panels of experts in the appropriate areas.

For evaluation purposes, a proposal is the document described in “Proposal Format,” Section IV.B.7. Other supporting or background materials submitted with the proposal will be considered for the reviewer's convenience only and not considered as part of the proposal.

Restrictive notices notwithstanding, proposals may be handled for administrative purposes by support contractors. These support contractors are prohibited from competition in DARPA technical research and are bound by appropriate non-disclosure requirements.

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

VI. Award Administration Information

A. Selection Notices

As soon as the evaluation of a proposal is complete, the proposer will be notified that (1) the proposal has been selected for funding pending contract negotiations, or (2) the proposal has not been selected. These official notifications will be sent e-mail to the Technical POC identified on the proposal coversheet.

B. Administrative and National Policy Requirements

1. Meeting and Travel Requirements

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

2. Human Subjects Research

All research selected for funding involving human subjects, to include use of human biological specimens and human data, must comply with the federal regulations for human subjects protection. Further, research involving human subjects that is conducted or supported by the DoD must comply with 32 CFR 219, Protection of Human Subjects (and DoD Instruction 3216.02, Protection of Human Subjects and Adherence to Ethical Standards in DoD-Supported Research (<http://www.dtic.mil/whs/directives/corres/pdf/321602p.pdf>)).

Institutions awarded funding for research involving human subjects must provide documentation of a current Assurance of Compliance with Federal regulations for human subjects protection, such as a Department of Health and Human Services, Office of Human Research Protection Federal Wide Assurance (<http://www.hhs.gov/ohrp>). All institutions engaged in human subjects research, to include subawardees, must also hold a valid Assurance. In addition, all personnel involved in human subjects research must provide documentation of completion of human subjects research training.

For all proposed research that will involve human subjects in the first year or phase of the project, the institution must provide evidence of or a plan for review by an Institutional Review Board (IRB) upon final proposal submission to DARPA as part of their proposal, prior to being selected for funding. The IRB conducting the review must be the IRB identified on the institution's Assurance of Compliance with human subjects protection regulations. The protocol, separate from the proposal, must include a detailed description of the research plan, study population, risks and benefits of study participation, recruitment and consent process, data collection, and data analysis. It is recommended that you consult the designated IRB for guidance on writing the protocol. The informed consent document must comply with federal regulations (32 CFR 219.116). A valid Assurance of Compliance with human subjects protection regulations along with evidence of completion of appropriate human subjects research training by all investigators and personnel involved with human subjects research should accompany the protocol for review by the IRB.

In addition to a local IRB approval, a headquarters-level human subjects administrative review and approval is required for all research conducted or supported by the DoD. The Army, Navy, or Air Force office responsible for managing the award can provide guidance and information about their component's headquarters-level review

process. Note that confirmation of a current Assurance of Compliance with human subjects protection regulations and appropriate human subjects research training is required before headquarters-level approval can be issued.

The time required to complete the IRB review/approval process varies depending on the complexity of the research and the level of risk involved with the study. The IRB approval process can last between one and three months, followed by a DoD review that could last between three and six months. Ample time should be allotted to complete the approval process. DoD/DARPA funding cannot be used towards human subjects research until ALL approvals are granted.

3. Animal Use

Award recipients performing research, experimentation, or testing involving the use of animals shall comply with the rules on animal acquisition, transport, care, handling, and use as outlined in: (i) 9 CFR parts 1-4, Department of Agriculture rules that implement the Animal Welfare Act of 1966, as amended, (7 U.S.C. § 2131-2159); (ii) National Institutes of Health Publication No. 86-23, "Guide for the Care and Use of Laboratory Animals" (8th Edition); and (iii) DoD Instruction 3216.01, "Use of Animals in DoD Programs."

For projects anticipating animal use, proposals should briefly describe plans for Institutional Animal Care and Use Committee (IACUC) review and approval. Animal studies in the program will be expected to comply with the Public Health Service (PHS) Policy on Humane Care and Use of Laboratory Animals, available at <http://grants.nih.gov/grants/olaw/olaw.htm>.

All award recipients must receive approval by a DoD-certified veterinarian, in addition to an IACUC approval. No animal studies may be conducted using DoD/DARPA funding until the United States Army Medical Research and Materiel Command (USAMRMC) Animal Care and Use Review Office (ACURO) or other appropriate DoD veterinary office(s) grant approval. As a part of this secondary review process, the award recipient will be required to complete and submit an ACURO Animal Use Appendix, which may be found at https://mrmc-www.army.mil/index.cfm?pageid=Research_Protections.acuro&rn=1.

4. Export Control

Per DFARS 225.7901-4, all procurement contracts, other transactions and other awards, as deemed appropriate, resultant from this solicitation will include the DFARS Export Control clause (252.225-7048).

5. Subcontracting

Pursuant to Section 8(d) of the Small Business Act (15 U.S.C. § 637(d)), it is the policy of the Government to enable small business and small disadvantaged business

concerns to be considered fairly as subcontractors to contractors performing work or rendering services as prime contractors or subcontractors under Government contracts, and to assure that prime contractors and subcontractors carry out this policy. Each proposer who submits a contract proposal and includes subcontractors is required to submit a subcontracting plan in accordance with FAR 19.702(a)(1) and should do so with their proposal. The plan format is outlined in FAR 19.704.

6. Electronic and Information Technology

All electronic and information technology acquired through this solicitation must satisfy the accessibility requirements of Section 508 of the Rehabilitation Act (29 U.S.C. § 794d) and FAR 39.2. Each proposer who submits a proposal involving the creation or inclusion of electronic and information technology must ensure that Federal employees with disabilities will have access to and use of information that is comparable to the access and use by Federal employees who are not individuals with disabilities and members of the public with disabilities seeking information or services from DARPA will have access to and use of information and data that is comparable to the access and use of information and data by members of the public who are not individuals with disabilities.

7. Employment Eligibility Verification

As per FAR 22.1802, recipients of FAR-based procurement contracts must enroll as federal contractors in E-verify and use the system to verify employment eligibility of all employees assigned to the award. All resultant contracts from this solicitation will include FAR 52.222-54, "Employment Eligibility Verification." This clause will not be included in grants, cooperative agreements, or Other Transactions.

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

Unless the proposer is exempt from this requirement, as per FAR 4.1102 or 2 CFR 25.110 as applicable, all proposers must be registered in the System for Award Management (SAM) and have a valid Data Universal Numbering System (DUNS) number prior to submitting a proposal. All proposers must maintain an active registration in SAM with current information at all times during which they have an active Federal award or proposal under consideration by DARPA. All proposers must provide the DUNS number in each proposal they submit.

Information on SAM registration is available at www.sam.gov.

9. Reporting Executive Compensation and First-Tier Subcontract Awards

FAR clause 52.204-10, “Reporting Executive Compensation and First-Tier Subcontract Awards,” will be used in all procurement contracts valued at \$25,000 or more. A similar award term will be used in all grants and cooperative agreements.

10. Updates of Information Regarding Responsibility Matters

Per FAR 9.104-7(c), FAR clause 52.209-9, Updates of Publicly Available Information Regarding Responsibility Matters, will be included in all contracts valued at \$500,000 or more where the contractor has current active Federal contracts and grants with total value greater than \$10,000,000.

11. Representations by Corporations Regarding an Unpaid Delinquent Tax Liability or a Felony Conviction under any Federal Law

The following representation will be included in all awards:

(a) In accordance with section 101(a) of the Continuing Appropriations Act, 2016 (Pub. L. 114-53) and any subsequent FY 2016 appropriations act that extends to FY 2016 funds the same restrictions as are contained in sections 744 and 745 of division E, title VII, of the Consolidated and Further Continuing Appropriations Act, 2015 (Pub. L. 113-235), none of the funds made available by this or any other Act may be used to enter into a contract with any corporation that —

(1) Has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability, where the awarding agency is aware of the unpaid tax liability, unless the agency has considered suspension or debarment of the corporation and made a determination that this further action is not necessary to protect the interests of the Government; or

(2) Was convicted of a felony criminal violation under any Federal law within the preceding 24 months, where the awarding agency is aware of the conviction, unless the agency has considered suspension or debarment of the corporation and made a determination that this action is not necessary to protect the interests of the Government.

(b) The Offeror represents that –

(1) It is [] is not [] a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability,

(2) It is [] is not [] a corporation that was convicted of a felony criminal violation under a Federal law within the preceding 24 months.

12. Cost Accounting Standards (CAS) Notices and Certification

As per FAR 52.230-2, any procurement contract in excess of the referenced threshold resulting from this solicitation will be subject to the requirements of the Cost Accounting Standards Board (48 CFR 99), except those contracts which are exempt as specified in 48 CFR 9903.201-1. Any proposer submitting a proposal which, if accepted, will result in a CAS compliant contract, must submit representations and a Disclosure Statement as required by 48 CFR 9903.202 detailed in FAR 52.230-2. The disclosure forms may be found at http://www.whitehouse.gov/omb/procurement_casb.

13. Controlled Unclassified Information (CUI) on Non-DoD Information Systems

Controlled Unclassified Information (CUI) refers to unclassified information that does not meet the standards for National Security Classification but is pertinent to the national interests of the United States or to the important interests of entities outside the Federal Government and under law or policy requires protection from unauthorized disclosure, special handling safeguards, or prescribed limits on exchange or dissemination. All non-DoD entities doing business with DARPA are expected to adhere to the following procedural safeguards, in addition to any other relevant Federal or DoD specific procedures, for submission of any proposals to DARPA and any potential business with DARPA:

- Do not process DARPA CUI on publicly available computers or post DARPA CUI to publicly available webpages or websites that have access limited only by domain or Internet protocol restriction.
- Ensure that all DARPA CUI is protected by a physical or electronic barrier when not under direct individual control of an authorized user and limit the transfer of DARPA CUI to subawardees or teaming partners with a need to know and commitment to this level of protection.
- Ensure that DARPA CUI on mobile computing devices is identified and encrypted and all communications on mobile devices or through wireless connections are protected and encrypted.

- Overwrite media that has been used to process DARPA CUI before external release or disposal.

14. Safeguarding of Covered Defense Information and Cyber Incident Reporting

Per DFARS 204.7304, DFARS 252.204-7012, “Safeguarding of Covered Defense Information and Cyber Incident Reporting,” applies to this solicitation and all FAR-based awards resulting from this solicitation.

15. Prohibition on Contracting with Entities that Require Certain Internal Confidentiality Agreements

(a) In accordance with section 101(a) of the Continuing Appropriations Act, 2016 (Pub. L. 114-53) and any subsequent FY 2016 appropriations act that extends to FY 2016 funds the same restrictions as are contained in section 743 of division E, title VII, of the Consolidated and Further Continuing Appropriations Act, 2015 (Pub. L. 113-235), none of the funds appropriated (or otherwise made available) by this or any other Act may be used for a contract with an entity that requires employees or subcontractors of such entity seeking to report fraud, waste, or abuse to sign internal confidentiality agreements or statements prohibiting or otherwise restricting such employees or contactors from lawfully reporting such waste, fraud, or abuse to a designated investigative or law enforcement representative of a Federal department or agency authorized to receive such information.

(b) The prohibition in paragraph (a) of this provision does not contravene requirements applicable to Standard Form 312, Form 4414, or any other form issued by a Federal department or agency governing the nondisclosure of classified information.

(c) *Representation.* By submission of its offer, the Offeror represents that it does not require employees or subcontractors of such entity seeking to report fraud, waste, or abuse to sign or comply with internal confidentiality agreements or statements prohibiting or otherwise restricting such employees or contactors from lawfully reporting such waste, fraud, or abuse to a designated investigative or law enforcement representative of a Federal department or agency authorized to receive such information.

C. Reporting

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

continued under a follow-on vehicle. At least one copy of each report will be delivered to DARPA and not merely placed on a SharePoint site.

D. Electronic Systems

i. Representations and Certifications

In accordance with FAR 4.1201, prospective proposers shall complete electronic annual representations and certifications at www.sam.gov.

ii. Wide Area Work Flow (WAWF)

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

iii. i-Edison

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

VII. Agency Contacts

Administrative, technical, or contractual questions should be sent via e-mail to DARPA-BAA-16-31@darpa.mil. All requests must include the name, e-mail address, and phone number of a point of contact.

The Technical POC for this effort is
 Ms. Pamela A. Melroy
 Deputy Director, DARPA/TTO
 E-mail: DARPA-BAA-16-31@darpa.mil

DARPA Tactical Technology Office
 ATTN: BAA-16-31
 675 N. Randolph Street
 Arlington, VA 22203-1714

VIII. Other Information

A. Intellectual Property Procurement Contract Proposers

1. Noncommercial Items (Technical Data and Computer Software)

Proposers responding to this BAA requesting a procurement contract to be issued under the FAR/DFARS shall identify all noncommercial technical data and

noncommercial computer software that it plans to generate, develop, and/or deliver under any proposed award instrument in which the Government will acquire less than unlimited rights, and to assert specific restrictions on those deliverables. Proposers shall follow the format under DFARS 252.227-7017 for this stated purpose. In the event that proposers do not submit the list, the Government will assume that it automatically has “unlimited rights” to all noncommercial technical data and noncommercial computer software generated, developed, and/or delivered under any award instrument, unless it is substantiated that development of the noncommercial technical data and noncommercial computer software occurred with mixed funding. If mixed funding is anticipated in the development of noncommercial technical data and noncommercial computer software generated, developed, and/or delivered under any award instrument, then proposers should identify the data and software in question, as subject to Government Purpose Rights (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 five (5) years in accordance with the applicable DFARS clauses, at which time the Government will acquire “unlimited rights” unless the parties agree otherwise. Proposers are advised that the Government will 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. If no restrictions are intended, then the proposer should state “NONE.” It is noted an assertion of “NONE” indicates that the Government has “unlimited rights” to all noncommercial technical data and noncommercial computer software delivered under the award instrument, in accordance with the DFARS provisions cited above. Failure to provide full information may result in a determination that the proposal is not compliant with the BAA – resulting in nonselectability of the proposal.

A sample list for complying with this request is as follows:

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

2. Commercial Items (Technical Data and Computer Software)

Proposers responding to this BAA requesting a procurement contract to be issued under the FAR/DFARS shall identify all commercial technical data and commercial computer software that may be embedded in any noncommercial deliverables contemplated under the research effort, along with any applicable restrictions on the Government’s use of such commercial technical data and/or commercial computer software. In the event that proposers do not submit the list, the Government will assume

that 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, as may be necessary, to evaluate the proposer’s assertions. If no restrictions are intended, then the proposer should state “NONE.” Failure to provide full information may result in a determination that the proposal is not compliant with the BAA – resulting in nonselectability of the proposal.

A sample list for complying with this request is as follows:

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

B. Non-Procurement Contract Proposers – Noncommercial and Commercial Items (Technical Data and Computer Software)

Proposers responding to this BAA requesting a Grant, Cooperative Agreement, Technology Investment Agreement, or Other Transaction for Prototype shall follow the applicable rules and regulations governing these various award instruments, but in all cases should appropriately identify any potential restrictions on the Government’s use of any Intellectual Property contemplated under those award instruments in question. This includes both Noncommercial Items and Commercial Items. Although not required, proposers may use a format similar to that described in Paragraphs 1.a and 1.b above. 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. If no restrictions are intended, then the proposer should state “NONE.” Failure to provide full information may result in a determination that the proposal is not compliant with the BAA – resulting in nonselectability of the proposal.

C. All Proposers – Patents

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

D. All Proposers – Intellectual Property Representations

Provide a good faith representation that you either own or possess appropriate licensing rights to all other intellectual property that will be utilized under your proposal for the DARPA program. Additionally, proposers shall 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.