



Broad Agency Announcement

NIMBUS

DARPA DSO

DARPA-BAA-10-18

December 16, 2009

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Part One: Overview Information

Required:

- **Federal Agency Name** – Defense Advanced Research Projects Agency (DARPA), DSO
- **Funding Opportunity Title** – Nimbus
- **Announcement Type** – Initial Announcement
- **Funding Opportunity Number** – Broad Agency Announcement (BAA) DARPA-BAA-10-18
- **Catalog of Federal Domestic Assistance Numbers (CFDA)** – 12.910 Research and Technology Development
- **Dates**
 - Posting Date: December 16, 2009
 - Proposal abstracts are due by 4:00PM ET, **January 20, 2010**
 - **Full Proposals are due by 4:00PM ET, February 26, 2010**
 - Closing Date, 4:00PM ET, February 26, 2010.
- **Description of the Funding Opportunity** – DARPA is soliciting innovative research and development (R&D) proposals on the underlying physics of lightning. Proposed research should investigate innovative approaches that enable revolutionary and fundamental advances in atmospheric and ionospheric science relating to lightning.
- Multiple awards are anticipated.
- **Types of instruments that may be awarded** – Procurement contract, grant, cooperative agreement or other transaction for research.
- **Teaming Website** - <http://www.sainc.com/NIMBUS>
- **Agency contact**
 - Points of Contact:
The BAA Technical POC is Dr. Matthew Goodman, who can be reached at DARPA-BAA-10-18@darpa.mil.

The BAA Administrator for this effort can be reached at:
Electronic mail: DARPA-BAA-10-18@darpa.mil
DARPA/DSO
ATTN: DARPA-BAA-10-18
3701 North Fairfax Drive
Arlington, VA 22203-1714

Solicitations can be viewed at:
Web: <http://www.darpa.mil/dso/solicitations/solicit.htm>

Part Two: 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. The BAA will appear first on the FedBizOpps website, <http://www.fedbizopps.gov/>, and the Grants.gov website <http://www.grants.gov/>. The following information is for those wishing to respond to the BAA.

DARPA is soliciting innovative research and development (R&D) proposals on the underlying science of lightning. Proposed research should investigate innovative approaches that enable revolutionary and fundamental advances in atmospheric and ionospheric science relating to lightning. Specifically excluded is research that primarily results in incremental or evolutionary improvements to the existing state of practice or knowledge.

Although significant progress has been made in recent years in our understanding of the lightning discharge and related phenomena, fundamental questions remain unanswered. This program will develop the broad, fundamental science necessary to formulate:

1. An experimentally validated, quantitative model of the natural lightning process, including initiation, propagation, and attachment;
2. An experimentally validated, quantitative model of the rocket-triggered lightning process, including initiation, propagation, and attachment;
3. An experimentally validated quantitative model describing the triggering of transient luminous events (TLEs), lightning-induced electron precipitation, and related ionospheric phenomena;
4. A quantitative model of any other process that is demonstrably fundamental to the understanding of physical phenomena associated with lightning;
5. An optimal strategy to reduce the probability of lightning strikes in a given area in the presence of a thunderstorm.

Solving these challenges will lead to better protection of personnel, assets, and ordnance, as well as improve the performance of radio frequency communications, electronics, and power systems.

BACKGROUND

Lightning causes more than \$1B/year in direct damages to property in addition to the loss of lives, disruption of activities (for example, postponement of satellite launches) and their corresponding costs. A better understanding of the physics underlying lightning discharge, associated emissions, and related processes (for example, tribocharging in the clouds) may lead to revolutionary advances in the state of the art of lightning protection.

The mechanism of lightning initiation inside thunderstorms is one of the major unsolved mysteries in the atmospheric sciences. Until recently it has been the common view that in order for lightning to initiate at some location in a thundercloud, the electric field intensity at that location must reach a value large enough for conventional electrical breakdown to occur (about 2.6×10^6 V/m). However, decades of electric field measurements inside thunderstorms have failed to find electric field strengths close to the conventional breakdown threshold, even when the effects of precipitation and the lower pressure at cloud charge altitudes are taken into account. Alternative hypotheses explaining lightning initiation are various forms of runaway breakdown. All of these can potentially occur at lower electric field strengths than conventional breakdown.

An equally important mystery is how lightning propagates. It is known that in order to travel great distances through air, lightning forms a hot conductive channel called a stepped leader. The leader provides a conductive path for the transport of electrical charge, allowing the lightning to propagate out of the thundercloud into regions with low ambient electric fields. For most lightning, this is accomplished by the negative stepped leader, which propagates in a series of discrete steps, roughly 50 m in length. Exactly how and why lightning moves in this way remains a mystery. Because the lightning stepping process determines where lightning travels and ultimately what it strikes, understanding this process is crucial for lightning protection and safety.

The lightning initiation processes in the thundercloud have been relatively inaccessible to close measurement. However, lightning that is initiated near ground level and propagates upward into the thundercloud charge can be studied at close range using a triggering system. The electrical discharge that is initiated closely resembles the latter portion of natural downward lightning. Nimbus will seek to use rocket-triggered lightning as a tool to investigate the initiation, propagation, and attachment of lightning, as well as the triggering of associated processes (*e.g.*, transient luminous events, lightning-induced electron precipitation, etc.)

PROGRAM GOALS AND MILESTONES

DARPA's interest in lightning and atmospheric electricity centers on protection of personnel, assets, and ordnance from possible injury, damage, or disruption from lightning activity. The major thrust of the Nimbus program is to obtain a solid understanding of lightning and associated physical phenomena in order to devise strategies to protect personnel, assets and ordnance. Specifically, the goals of Nimbus are to produce:

1. Experimentally validated, quantitative models of the natural lightning process, including initiation, propagation, and attachment. Questions include: what measurable quantities are important to understanding these processes? How can they be estimated from ground measurements?
2. Experimentally validated, quantitative models of the rocket-triggered lightning process, including initiation, propagation, and attachment, based on quantities that can be measured from the ground. This model should include predictions, based

- on relevant parameters (*e.g.*, storm type, location, size, electric field strength, rocket speed, etc.), of the probability that lightning can be triggered using a rocket.
3. Experimentally validated, quantitative models of the triggering of transient luminous events (TLEs), lightning-induced electron precipitation, and related ionospheric phenomena, using rocket-triggered lightning.
 4. Experimentally validated, quantitative models of any other process that is demonstrably fundamental to the understanding of physical phenomena associated with lightning. Examples of such phenomena might include: terrestrial gamma ray flashes (TGF), production of x-rays, sferics, compact intra-cloud discharges, tribocharging in clouds, etc.
 5. Optimal strategies to reduce the probability of lightning strikes in a given area in the presence of a thunderstorm. Given an area (size: 1 square kilometer) in the presence of a thunderstorm, is it possible to reduce the probability of a cloud to ground lightning strike in that area? How might lightning initiation be inhibited, or lightning propagation be diverted or blocked to achieve this goal? Is it possible to induce lightning in one region within the storm system, in order to suppress lightning in the region in need of protection? What are the optimal strategies, and the necessary resources, to achieve this goal?

DARPA invites proposals seeking to accomplish one or more of the above goals of the Nimbus program. **Proposals seeking to achieve more than one goal should be structured into options where each option addresses only one goal.** A successful proposal will identify the obstacles to reaching the proposed goals, describe in detail the experimental and theoretical efforts that will overcome these obstacles, and justify that proposed personnel and equipment are sufficient and appropriate to carry out the research effort. Teaming is highly encouraged.

Critical features that will be considered for the entire research activity will be:

Location: The United States is home to thunderstorms of various type, duration, scale and intensity. This program would like to capitalize on the unique geographic features of various locations across the CONUS that offer an increased likelihood of intercepting thunderstorms that exhibit unique characteristics (*e.g.*, elevated, supercellular, multicellular, pulse, etc.).

Experimental Set-up for Triggering Lightning: Bidders should fully describe how they would attempt to trigger lightning and list all potential pieces of equipment necessary to trigger lightning, as well as the equipment necessary to measure and characterize the processes governing lightning initiation, propagation, and attachment.

Equipment for Detecting and Characterizing Transient Luminous Events, Lightning-Induced Electron Precipitation, and Related Phenomena: To gain a comprehensive knowledge of the triggering of transient luminous events, lightning-induced electron precipitation and related phenomena, it is likely that an extensive network of ground-based and/or space-based measuring and data recording equipment must exist. Proposers

must identify what equipment they possess and what items they would seek out to perform any such dedicated experiments.

PROGRAM PHASES

Nimbus proposals must clearly define timelines and measurable milestones for demonstrating progress towards the proposed research goals. Additionally, proposals should define the quantitative metrics that measure incremental progress towards the proposed milestones. The Nimbus program will be divided into two phases: an initial (base) Phase I program and a Phase II program proposed as a priced option. The Phase I research effort is for twenty-four months or less and the Phase II activity will be a research effort of an additional twenty-four months or less.

A successful proposal will thoroughly cover all the technical details, and associated costs, for meeting the milestones set forth by the proposer for both Phase I and Phase II. The experimental approach, specific types of measurements to be made (for example, electric field, radar, etc), sensitivities anticipated for the critical parameters, and how this will be used must be described. Proposers must identify why their approach, if successful, provides a revolutionary advance in the state of the art. Thus, proposals should be submitted as 48-month (or less) efforts encompassing both Phase I and Phase II, including detailed budgets for each phase and for each option. At the end of each phase, performance will be evaluated based on achievement of the stated metrics. Successful completion of Phase I does not guarantee selection in Phase II.

To realize the program vision and meet the Phase I/II Milestones, each research effort may require performers with expertise in atmospheric science, physics, plasma physics, theoretical modeling, and statistics. **Teaming is strongly encouraged**, especially when interdisciplinary approaches to a problem are required.

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.

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”, Sec. V.), and

program balance to provide overall value to the Government. 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, and other factors. 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 timely provide requested additional information.

As of the date of publication of this BAA, DARPA expects that program goals for this BAA may be met by proposers intending to perform 'fundamental research,' i.e., 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. Notwithstanding this statement of expectation, DARPA is not prohibited from considering and selecting research proposals that, while perhaps not qualifying as 'fundamental research' under the foregoing definition, still meet the BAA criteria for submissions. In all cases, the contracting officer shall have sole discretion to select award instrument type and to negotiate all instrument provisions with selectees.

III. ELIGIBILITY INFORMATION

A. Eligible Applicants

All responsible sources capable of satisfying the Government's needs may submit a proposal that shall be considered by DARPA. Historically Black Colleges and Universities (HBCUs), Small Businesses, Small Disadvantaged Businesses and Minority Institutions (MIs) are encouraged to submit proposals and join others in submitting proposals; however, no portion of this announcement will be set aside for these organizations' participation due to the impracticality of reserving discrete or severable areas of this research for exclusive competition among these entities.

Federally Funded Research and Development Centers (FFRDCs) and Government entities (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. FFRDCs must clearly demonstrate that the work is not otherwise available from the private sector AND they must also provide a letter on letterhead from their sponsoring organization citing the specific authority establishing their eligibility to propose to government solicitations and compete with industry in compliance with the associated FFRDC sponsor agreement terms and conditions. This information is required for FFRDCs proposing to be prime or subcontractors. 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 (as well as, where relevant, contractual authority) 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 eligibility submissions on a case-by-case basis; however, the burden to prove eligibility for all team members rests solely with the Proposer.

Foreign participants and/or individuals may participate to the extent that such participants comply with any necessary Non-Disclosure Agreements, Security Regulations, Export Control Laws, and other governing statutes applicable under the circumstances.

Applicants considering classified submissions (or requiring access to classified information during the life-cycle of the program) shall ensure all industrial, personnel, and information system processing security requirements are in place and at the appropriate level (e.g., Facility Clearance (FCL), Personnel Security Clearance (PCL), certification and accreditation (C&A) and any Foreign Ownership Control and Influence (FOCI) issues are mitigated prior to such submission or access). Additional information on these subjects can be found at: <http://www.dss.mil>.

1. 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 USC 203, 205, and 208.). The DARPA Program Manager for this BAA is Dr. Matthew Goodman. 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. (Please note the Government assessment does NOT affect, offset, or mitigate the proposer's own duty to give full notice and planned mitigation for all potential organizational conflicts, as discussed below.)

All Proposers and proposed subcontractors must affirm whether they are providing scientific, engineering, and technical assistance (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 supports and identify the prime contract numbers. Affirmations shall be furnished at the time of proposal submission. All facts relevant to the existence or potential existence of organizational conflicts of interest (FAR 9.5) must be disclosed. The disclosure shall include a description of the action the Proposer has taken or proposes to take to avoid, neutralize, or mitigate such conflict. In accordance with FAR 9.503 and without prior approval or a waiver from the DARPA Director, a Contractor cannot simultaneously be a SETA and Performer. Proposals that fail to fully disclose potential conflicts of interests and/or do not have plans to mitigate this conflict will be rejected without technical evaluation and withdrawn from further consideration for award.

If a prospective Proposer believes that any conflict of interest exists or may exist (whether organizational or otherwise), the Proposer should promptly raise the issue with DARPA by sending Proposer's contact information and a summary of the potential conflict by email to the mailbox address for this BAA at DARPA-BAA-10-18@darpa.mil before time and effort are expended in preparing a proposal and mitigation plan. If, in the sole opinion of the Government after full consideration of the circumstances, any conflict situation cannot be effectively mitigated, the proposal may be rejected without technical evaluation and withdrawn from further consideration for award under this BAA.

B. Cost Sharing/Matching

Cost sharing is not required for any particular program; however, cost sharing 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. § 2371). Cost sharing is encouraged where there is a reasonable probability of a potential commercial application related to the proposed research and development effort.

C. Other Eligibility Criteria (optional)

1. Collaborative Efforts

Collaborative efforts/teaming are encouraged. A teaming website, <http://www.sainc.com/NIMBUS>, will facilitate the formation of teams with the necessary expertise. Specific content, communications, networking, and team formation are the sole responsibility of the participants. Neither DARPA nor the Department of Defense (DoD) endorses the destination website or the information and organizations contained therein, nor does DARPA or the DoD exercise any responsibility at the destination. This website is provided consistent with the stated purpose of this BAA

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 BAA. No additional information is available, nor will a formal Request for Proposal (RFP) or additional solicitation regarding this announcement be issued. Requests for same will be disregarded.

B. Content and Form of Application Submission

1. Security and Proprietary Issues

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

The Government anticipates proposals submitted under this BAA will be unclassified. However, if a proposal is submitted as “Classified National Security Information” as defined by Executive Order 12958 as amended, then the information must be marked and protected as though classified at the appropriate classification level and then submitted to DARPA for a final classification determination.

Proposers choosing to submit a classified proposal from other classified sources must first receive permission from the respective Original Classification Authority in order to use their information in replying to this BAA. Applicable classification guide(s) should also be submitted to ensure the proposal is protected at the appropriate classification level.

Classified submissions shall 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])

Classified submissions shall be in accordance with the following guidance:

Confidential and Secret Collateral Information: Use classification and marking guidance provided by previously issued security classification guides, the Information Security Regulation (DoD 5200.1-R), and the National Industrial Security Program Operating Manual (DoD 5220.22-M) when marking and transmitting information previously classified by another Original Classification Authority. Classified information at the Confidential and Secret level may be mailed via appropriate U.S. Postal Service methods (e.g., (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: (Name of the Technical Office)
Reference: (BAA Number)
3701 North Fairfax Drive
Arlington, VA 22203-1714

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
3701 North Fairfax Drive
Arlington, VA 22203-1714

All Top Secret materials: Top Secret information should 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 (571) 218-4842 to coordinate arrival and delivery.

Special Access Program (SAP) Information: SAP information must be transmitted via approved methods. Prior to transmitting SAP information, contact the DARPA SAPCO at 703-526-4052 for instructions.

Sensitive Compartmented Information (SCI): SCI must be transmitted via approved methods. Prior to transmitting SCI, contact the DARPA Special Security Office (SSO) at 703-248-7213 for instructions.

Proprietary Data: All proposals containing proprietary data should have the cover page and each page containing proprietary data clearly marked as containing proprietary data. It is the proposer's responsibility to clearly define to the Government what is considered proprietary data.

Security classification guidance via a DD Form 254 will not be provided at this time since DARPA is soliciting ideas only. After reviewing the incoming proposals, if a determination is made that the award instrument may result in access to classified information, a DD Form 254 will be issued and attached as part of the award.

Proposers must have existing and in-place prior to execution of an award, approved capabilities (personnel and facilities) to perform research and development at the classification level they propose. It is the policy of DARPA to treat all proposals as competitive information, and to disclose their contents only for the purpose of evaluation. Proposals will not be returned. The original of each proposal 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 unsuccessful notification.

C. Abstract and Proposal Information

Proposers are strongly encouraged to submit a proposal abstract in advance of a full proposal. This procedure is intended to minimize unnecessary effort in proposal preparation and review. The time and date for submission of proposal abstracts is specified in Section IV. D. 1. Proposal Abstract Date. DARPA will acknowledge receipt

of the submission and assign a control number that should be used in all further correspondence regarding the proposal abstract.

DARPA will respond to proposal abstracts with a statement as to whether DARPA is interested in the idea. DARPA will attempt to reply to proposal abstracts via letter within thirty (30) calendar days of receipt. Should a proposer be discouraged from submitting a full proposal, the letter must contain feedback for the proposer regarding the rationale for the decision not to recommend that a full proposal be submitted. Proposal abstracts will be reviewed in the order they are received. Early submissions of proposal abstracts 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 a proposal abstract, 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 a proposal abstract.

Proposers are required to submit full proposals by the time and date specified in the BAA in order to be considered for selection.

The typical proposal should express a consolidated effort in support of one or more related technical concepts or ideas. Disjointed efforts should not be included into a single proposal.

Restrictive notices notwithstanding, proposals may be handled, for administrative purposes only, by a support contractor. This support contractor is prohibited from competition in DARPA technical research and is bound by appropriate non-disclosure requirements. Proposals and proposed abstracts may not be submitted by fax or e-mail; any so sent will be disregarded.

Proposals not meeting the format described in the BAA may not be reviewed.

For Proposers Submitting proposals through DSO's BAA Submission Portal:

Proposals sent in response to DARPA-BAA-10-18 may be submitted via DSO's BAA Website (<https://dsobaa.sainc.com>). Visit the website to register for an account (via the "Create Login" link along the left side of the homepage), view submission instructions, and upload/finalize proposals. All submissions must be compressed and encrypted as described below. Proposers using the DSO BAA Website may encounter heavy traffic on the submission deadline date, it is highly advised that submission process be started as early as possible.

All proposals submitted electronically by means of an Electronic Business Application Tool or proposal submission website (not including Grants.gov) must be encrypted using Winzip or PKZip with 256-bit AES encryption. Please submit the proposal as two separate zipped/encrypted files, Volume I (Technical and Management Proposal) and Volume II (Cost Proposal) and Proposals not zipped/encrypted will be rejected by DARPA. An encryption password form must be completed and emailed to [DARPA-](#)

BAA-10-18@darpa.mil at the time of proposal submission. See <https://dsobaa.sainc.com> for the encryption password form.

Note the word “PASSWORD” must appear in the subject line of the above email and there are minimum security requirements for establishing the encryption password. Failure to provide the encryption password may result in the proposal not being evaluated. For further information and instructions on how to zip and encrypt proposal files, see <https://dsobaa.sainc.com>.

For Proposers Posting to Grants.Gov:

Proposers may elect to use the Grants.gov APPLY function if the applicant is seeking a grant or cooperative agreement. The APPLY function replaces the proposal submission process that other proposers follow. The APPLY function does not affect the proposal content or format. The APPLY function is electronic; proposers do not submit paper proposals in addition to the Grants.gov APPLY electronic submission.

Proposers must complete the following steps before submitting proposals on Grants.gov (these steps are also detailed at www.grants.gov/applicants/get_registered.jsp):

- Proposers must obtain a DUNS number
- Proposers must register their organization in the Central Contractor Registration (CCR) (<https://www.bpn.gov/CCRSearch/Search.aspx>)
- Proposers must obtain a user name and password with an E-Authentication provider
- Proposers must register the Authorized Organization Representative (AOR) in Grants.gov
- Proposers must have the organization’s E-BIZ point of contact authorize the AOR to submit applications.

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://www.grants.gov/agencies/aapproved_standard_forms.jsp#2. Attach the abstract/proposal (if submitting a full proposal please upload two separate documents, Volume I, Technical and Management Proposal and Volume II, the Cost Proposal) as attachments to the application package. No other Grants.gov forms are required. Please note that Grants.gov does not accept zipped or encrypted proposals. More detailed instructions for using Grants.gov can be found on the Grants.gov website.

Grant or cooperative agreement proposals may be submitted to DARPA through Grants.gov, through the DSO Electronic Business Application BAA Tool (<https://dsobaa.sainc.com>), or in hard-copy. If proposers intend to use Grants.gov as their means of submission, then they must submit their entire proposal through Grants.gov; applications can not be submitted in part to Grants.gov and in part as a hard-copy.

Please note that due to the new DARPA security policies, submitters to grants.gov will still need to visit <https://dsobaa.sainc.com/> to register their organization concurrently and are also required to send in a password form via email to ensure the DSO BAA office can verify the security of their submission.

For Proposers Submitting Hard Copies/on CD-ROM:

Proposers who wish to submit their proposal on a CD-ROM or in hard copy format (one copy of either format is acceptable) may do so. Please save the proposal as two separate files, Volume I (Technical and Management Proposal) and Volume II (Cost Proposal). The original hard copy and/or one CD-ROM must be clearly labeled with DARPA-BAA-10-18, the proposer's organization, and the proposal title (short title recommended). The mailing address can be found in Section VIII (Agency Contacts).

Please note that due to the new DARPA security policies, submitters still need to visit <https://dsobaa.sainc.com/> to register their organization concurrently and are required to send in a password form via email to ensure the DSO BAA office can verify the security of their submission.

All administrative correspondence and questions on this solicitation, including requests for information on how to submit a proposal abstract or full proposal to this BAA, should be directed to the administrative addresses below:

BAA Administrator
E-mail: DARPA-BAA-10-18@darpa.mil

DARPA/DSO
ATTN: DARPA-BAA-10-18
3701 North Fairfax Drive
Arlington, VA 22203-1714

<http://www.darpa.mil/dso/solicitations/solicit.htm>

DARPA intends to use electronic mail and fax for correspondence regarding DARPA-BAA-10-18. Proposals and proposal abstracts may not be submitted by fax or e-mail; any so sent will be disregarded. DARPA encourages use of the Internet for retrieving the BAA and any other related information that may subsequently be provided.

1. Proposal Abstract Format

It is STRONGLY ENCOURAGED that a proposal abstract be submitted to determine the acceptability of the proposed concept to the BAA. This allows for comments to the proposer prior to full proposal submission. Proposal abstracts should follow the same general format as described for Volume I under FULL PROPOSAL FORMAT (see below), but include ONLY Sections I and II. (However, no formal transmittal letter is required.) The cover sheet should be clearly marked "PROPOSAL ABSTRACT" and

the total length should not exceed 15 pages, excluding cover page and official transmittal letter. All pages shall be printed on 8-1/2 by 11 inch paper with type not smaller than 12 point. Smaller font may be used for figures, tables and charts. The page limitation for proposal abstracts includes all figures, tables, and charts. No formal transmittal letter is required. All proposal abstracts must be written in English.

2. Full Proposal Format

All full proposals must be in the format given below. Nonconforming proposals may be rejected without review. Proposals shall consist of two separate files, Volume I (Technical and Management Proposal) and Volume II (Cost Proposal). All pages shall be printable on single-spaced, 8-1/2 by 11 inch paper with type not smaller than 12 point font. 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, 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. Intellectual Property/Patents Requirements and the bibliography are not included in the page counts. 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 **35** pages. Maximum page lengths for each section are shown in braces { } below.

Volume I, Technical and Management Proposal

Section I. Administrative

COVER SHEET TO INCLUDE:

- A. Cover sheet to include:
 - (1) BAA number
 - (2) Technical area
 - (3) Lead Organization Submitting proposal
 - (4) Type of business, selected among the following categories: "LARGE BUSINESS," "SMALL DISADVANTAGED BUSINESS," "OTHER SMALL BUSINESS," "HBCU," "MI," "EDUCATIONAL," "NONPROFIT" OR NOT-FOR -PROFIT;
 - (5) Contractor's reference number (if any)
 - (6) Other team members (if applicable) and type of business for each
 - (7) Proposal title
 - (8) Proposal Date
 - (9) Technical point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax, electronic mail
 - (10) Administrative point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax, electronic mail
 - (11) Total proposed cost separated by basic award and option(s) (if any)

Section II. Summary of Proposal

This section provides an overview of the proposed work as well as an introduction to the associated technical and management issues. Further elaboration will be provided in Section III.

- A. Innovative claims for the proposed research. This section is the centerpiece of the proposal and should succinctly describe the uniqueness and benefits of the proposed approach relative to the current state-of-practice alternate approaches.
- B. Deliverables associated with the proposed research and the plans and capability to accomplish technology transition and commercialization. Include in this section all proprietary claims to the results, prototypes, intellectual property, or systems supporting and/or necessary for the use of the research, results, and/or prototype. If there are no proprietary claims, this should be stated. For forms to be completed regarding intellectual property, see Section VIII. There will be no page limit for the listed forms.
- C. 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.)
- D. Technical rationale, technical approach, and constructive plan for accomplishment of technical goals in support of innovative claims and deliverable production. (In the full proposal, this section should be supplemented by a more detailed plan in Section III.)
- E. General discussion of other research in this area.
- F. A clearly defined organization chart for the program team which includes, as applicable: (1) the programmatic relationship of team members; (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.

Section III. Detailed Proposal Information

This 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.

- A. {1} Executive Summary, including the key technical challenges, concise review of the technologies proposed to overcome these challenges and achieve the program goal, and a clear statement of the novelty and uniqueness of the proposed idea.
- B. {3} Statement of Work (SOW) written in plain English, citing specific tasks to be performed and their connection to the interim milestones and program metrics.

The SOW must not include proprietary information. For each task/subtask, provide:

- A general description of the objective (for each defined task/activity);
- A detailed description of the approach to be taken to accomplish each defined task/activity);
- Identification of the primary organization responsible for task execution (prime, sub, team member, by name, etc.);
- The completion criteria for each task/activity - a product, event or milestone that defines its completion.
- Define all deliverables (reporting, data, reports, software, etc.) to be provided to the Government in support of the proposed research tasks/activities.

Note: It is recommended that the SOW should be developed so that each Phase of the program is separately defined. Do not include any proprietary information in the SOW.

- C. {15} Detailed technical approach in support of the innovative claims. Address how the proposed approach is revolutionary and how it rises above the current state of practice. Include a description of the results, products, transferable technology addressing intellectual property rights, and expected technology transfer path. See also Section VIII “Intellectual Property.”
- D. {2} Time-phased schedule and measurable program metrics chart. Phase I will be a research effort not exceeding 24 months. Higher consideration will be given to efforts that will satisfy the milestones in less time. **Note: Measurable program milestones should occur every 3 months after start of effort.** These milestones should enable and support a funding decision for the next part of the effort. Do not include proprietary information with the milestones. Additional interim progress milestones are also highly encouraged at regular intervals. Where the effort consists of multiple portions which could reasonably be partitioned for purposes of funding, these should be identified as options with separate cost estimates for each. Additionally, proposals should clearly explain the technical approach(es) that will be employed to meet or exceed each program metric and provide ample justification as to why the approach(es) is/are feasible. **Clearly describe Program Metrics.** Program Metrics must not include proprietary information.
- E. {2} Deliverables associated with the proposed research and the plans and capability to accomplish technology transition and commercialization. (See Section VIII for guidance on Proprietary Claims and Intellectual Property.)
- F. {5} Organization and Management: A clearly defined organization chart for the program team which includes, as applicable: (1) the programmatic relationship of team members; (2) the unique capabilities of team members; (3) the team members’ responsibilities; (4) the teaming strategy among the team members; (5) the key personnel along with the amount of effort to be expended by each person during each year. A Principal Investigator for the project must be identified and demonstrate expertise in ALL pertinent technical areas. That person will assume all responsibilities for the conduct of the effort. Provide a detailed plan for

coordination including explicit rules for each collaborator/subcontractor of the proposed effort, and a description of the facilities that would be used for the proposed effort. Risk management approaches should be included. In addition details of any formal teaming agreements which are required to execute this program.

- G. {1} Comparison with other ongoing research indicating advantages and disadvantages of the proposed effort. Clearly describe how the proposed technical approach is revolutionary and how it significantly rises above the current state of practice.
- H. {1} Brief discussion of proposer's previous accomplishments and work in closely related research areas.
- I. {1} Description of the facilities that would be used for the proposed effort.
- J. {1} Description of any Government Furnished Equipment (GFE) or Government Furnished Information (GFI).

Section IV. Additional Information

A brief bibliography of relevant technical papers and research notes (published and unpublished) which document the technical ideas upon which the proposal is based. Copies of not more than three (3) relevant papers can be included in the submission.

Volume II, Cost Proposal – {No Page Limit}

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

COVER SHEET TO INCLUDE:

- A. (1) BAA number;
- (2) Technical area;
- (3) Lead Organization Submitting proposal;
- (4) Type of business, selected among the following categories: "LARGE BUSINESS," "SMALL DISADVANTAGED BUSINESS," "OTHER SMALL BUSINESS," "HBCU," "MI," "EDUCATIONAL," "NONPROFIT" OR NOT-FOR -PROFIT;
- (5) Contractor's reference number (if applicable);
- (6) Other team members (if applicable) and type of business for each;
- (7) Proposal title;
- (8) Technical point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax, electronic mail;
- (9) Administrative point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax, 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 or Office of Naval Research (ONR) administration office;
- (14) Name, address, and telephone number of the proposer's cognizant Defense Contract Audit Agency (DCAA) audit office or other cognizant audit office;
- (15) Proposal Date;
- (16) DUNS number;
- (17) TIN number;
- (18) Cage Code;
- (19) Proposal validity period;
- (20) Any Forward Pricing Rate Agreement or HHS Rate Agreement, other such approved rate information, or such documentation that may assist in expediting negotiations (if available).

- B. The proposers cost volume shall provide cost and pricing data, or other than cost or pricing data in sufficient detail to substantiate the program price proposed (e.g., realism and reasonableness). All pages shall be printed on 8-1/2 by 11 inch paper with type not smaller than 12 point. No smaller font may be used. **IN DOING SO, THE PROPOSER SHALL PROVIDE A DETAILED COST BREAKDOWN BY MAJOR PROGRAM TASKS BY GOVERNMENT FISCAL YEAR, BY PHASE and CALENDAR FISCAL YEAR. SEE APPENDIX A AND B FOR THE COST ELEMENT SHEET.** The breakdown shall include:

- (1) Total program cost broken down by major cost items:
 - a. Direct Labor – Including individual labor categories with associated labor hours and direct labor rates;
 - b. Consultants – If consultants are to be used, proposer must provide a copy of the consultant's proposed SOW as well as a signed consultant agreement or other document which verifies the proposed loaded daily / hourly rate, hours and any other proposed consultant costs (e.g. travel);
 - c. Indirect Costs – Including Fringe Benefits, Overhead, General and Administrative Expense, Cost of Money, Fee, etc. (must show base amount and rate);
 - d. Travel – Provide the purpose of the trip, number of trips, number of days per trip, departure and arrival destinations, number of people, etc.;
 - e. Other Direct Costs – Itemized with costs; Back-up documentation is to be submitted to support proposed costs;
 - f. Equipment Purchases – Itemization with costs, including quantities, unit prices, proposed vendors (if known), and the basis of estimate (e.g., quotes, prior purchases, catalog price lists, etc.); Any item that exceeds \$5,000 must be supported with back-up documentation such as a copy of catalog price lists or

- quotes prior to purchase; (NOTE: For equipment purchases, include a letter stating why the proposer cannot provide the requested resources from its own funding);
- g. Materials – Itemization with costs, including quantities, unit prices, proposed vendors (if known), and the basis of estimate (e.g., quotes, prior purchases, catalog price lists, etc.); Any item that exceeds \$5,000 must be supported with back-up documentation such as a copy of catalog price lists or quotes prior to purchase;
 - h. Major program tasks by Government Fiscal Year (GFY = Oct 1 – 30 Sep);
 - i. A summary of projected funding requirements by month.
- (2) A summary of total program costs by phase and calendar fiscal year;
 - (3) A priced Bill-of-Materials (BOM) clearly identifying, for each item proposed, the source of the unit price (i.e., vendor quote, engineering estimate, etc.) and the type of property (i.e., material, equipment, special test equipment, plant equipment, information technology (IT)¹, for each computer hardware cost, computer software cost, and other related costs such as computer maintenance fees or support services costs (NOTE: For IT purchases, include a letter stating why the proposer cannot provide the requested resources from its own funding);
 - (4) An itemization of Subcontracts. **All subcontractor cost proposal documentation must be prepared at the same level of detail as that required of the prime.** Subcontractor proposals should include Interdivisional Work Transfer Agreements (IWTA) or evidence of similar arrangements;
 - (5) The source, nature, and amount of any industry cost-sharing. Where the effort consists of multiple portions which could reasonably be partitioned for purposes of funding, these should be identified as options with separate cost estimates for each; and

• ^{1 1} IT is defined as “any equipment, or interconnected system(s) or subsystem(s) of equipment that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information by the agency. (a) For purposes of this definition, equipment is used by an agency if the equipment is used by the agency directly or is used by a contractor under a contract with the agency which – (1) Requires the use of such equipment; or (2) Requires the use, to a significant extent, of such equipment in the performance of a service or the furnishing of a product. (b) The term “information technology” includes computers, ancillary, software, firmware and similar procedures, services (including support services), and related resources. (c) The term “information technology” does not include – (1) Any equipment that is acquired by a contractor incidental to a contract; or (2) Any equipment that contains imbedded information technology that is used as an integral part of the product, but the principal function of which is not the acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information. For example, HVAC (heating, ventilation, and air conditioning) equipment such as thermostats or temperature control devices, and medical equipment where information technology is integral to its operation, are not information technology.”

- (6) Identification of pricing assumptions of which 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.)
- C. Supporting cost and pricing information in sufficient detail to substantiate the summary cost estimates in B. above. The proposer shall provide a detailed description of the methods used to estimate costs, to include, at a minimum: 1) substantiation of all rates and factors, and 2) labor and material estimates supported by a narrative basis-of-estimate (BOE) providing sufficient detail to substantiate cost estimates. **THE PRIME CONTRACTOR IS RESPONSIBLE FOR COMPILING AND PROVIDING, AS PART OF ITS PROPOSAL SUBMISSION TO THE GOVERNMENT, SUBCONTRACTOR PROPOSALS PREPARED AT THE SAME LEVEL OF DETAIL AS THAT REQUIRED OF THE PRIME.**

IF SEEKING A PROCUREMENT CONTRACT, THE PRIME CONTRACTOR SHALL PROVIDE A COST REASONABLENESS ANALYSIS OF PROPOSED SUBCONTRACTOR PRICES as defined in FAR Subpart 15.404-3. Such analysis shall indicate the extent to which the prime contractor has negotiated subcontract prices. All proprietary subcontractor proposal documentation, prepared at the same level of detail as that required of the prime shall be provided to the Government either by the prime contractor or by the subcontractor organization when the proposal is submitted. Subcontractor proposals submitted to the Government by the prime contractor should be submitted in a sealed envelope that the prime contractor will not be allowed to view. The subcontractor must provide the same number of hard copies and/or electronic proposals as is required of the prime contractor. This does not relieve the proposer from the requirement to include, as part of their submission, subcontract proposals that do not include proprietary pricing information (rates, factors, etc.).

If seeking a procurement contract and items of Contractor Acquired Property are proposed, exclusive of material, the proposer shall clearly demonstrate that the inclusion of such items as Government Property is in keeping with the requirements of FAR Part 45.102.

NOTE: "cost or pricing data" as defined in FAR Subpart 15.4 shall be required if the proposer is seeking a procurement contract award of \$650,000 or greater unless the proposer requests an exception from the requirement to submit cost or pricing data. "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.) Those proposing a grant or cooperative agreement may follow/use the application instructions/form templates (i.e., DARPA BAA Form Package) provided as part of the BAA posting to grants.gov;

however, the costing details requested above should be provided to the maximum extent possible.

The Defense Appropriations Act caps indirect cost rates for any procurement contract, grant or agreement using 6.1 Basic Research Funding at 35% of the total cost of the award. Total costs include all bottom line costs. For grants/agreement awardees subject to cost principles in 2 CFR part 220 (Educational Institutions), indirect costs are all costs of a prime award that are Facilities and Administration costs. For grant/agreement awardees subject to the cost principles in 2 CFR part 225 (State, Local, and Indian Tribal Governments), 2 CFR par 230 (Non-profit Organizations) or 48 CFR part 23 (Federal Acquisition Regulation), indirect costs refer to any cost not directly identified with a single final cost objective, but identified with two or more final cost objectives or with at least one intermediate cost objective. The cost limitations do not flow down to subcontractors.

D. Submission Dates and Times

1. Proposal Abstract Date

Proposal abstracts may be submitted and received at any time until the proposal abstract deadline. **PROPOSAL ABSTRACTS ARE DUE ON OR BEFORE 4:00PM ET, January 20, 2010.** Proposal abstracts received after this time and date may not be reviewed.

2. Full Proposal Date

To receive consideration under this BAA, **FULL PROPOSALS MUST BE RECEIVED ON OR BEFORE 4:00 PM ET, on February 26, 2010** in order to be considered for selection.

DARPA will acknowledge receipt of complete submissions via email and confirm control numbers that should be used in all further correspondence regarding proposals. If no confirmation is received within two business days, please contact the BAA Administrator at DARPA-BAA-10-18@darpa.mil to ensure the proposal was submitted properly.

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

DARPA will post a consolidated Question and Answer page, which will be posted on <http://www.sainc.com/NIMBUS>. Submit your question to DARPA-BAA-10-18@darpa.mil.

Unclassified Addresses for Submission

UNCLASSIFIED proposal abstracts and full proposals should be submitted online via the following website:

<https://dsobaa.sainc.com/> and/or
<http://www.grants.gov>

The Government anticipates that proposal abstracts and full proposals submitted under this BAA will be UNCLASSIFIED.

E. Intergovernmental Review

Not Applicable.

F. Funding Restrictions

Not Applicable.

V. APPLICATION REVIEW INFORMATION

A. Evaluation Criteria

Evaluation of proposals will be accomplished through a scientific/technical review of each proposal using the following mandatory criteria: (a) Overall Scientific and Technical Merit; (b) Potential Contribution and Relevance to the DARPA Mission; (c) Cost Realism; (d) Realism of Proposed Schedule and Ability to Meet Program Goals; and (e) Proposer's Capabilities and/or Related Experience. 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.

(a) 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. Task descriptions and associated technical elements provided are complete and in a logical sequence with all proposed deliverables clearly defined such that a final outcome that achieves the goal can be expected as a result of award. The proposal identifies major technical risks and planned mitigation efforts are clearly defined and feasible. The 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 proposer's ability to understand, identify, and mitigate any potential risk in schedule.

(b) Potential Contribution and Relevance to the DARPA Mission

The potential contributions of the proposed effort with relevance to the national technology base will be evaluated. 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.

(c) Cost Realism

The objective of this criterion is to establish that the proposed costs are realistic for the technical and management approach offered, as well as to determine the proposer's practical understanding of the effort. The proposal will be reviewed to determine if the costs proposed are based on realistic assumptions, reflect a sufficient understanding of the technical goals and objectives of the BAA, and are consistent with the proposer's technical approach (to include the proposed Statement of Work). At a minimum, this will involve review, at the prime and subcontract level, of the type and number of labor hours proposed per task as well as the types and kinds of materials, equipment and fabrication costs proposed. 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. The evaluation criterion 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.

(d) Realism of Proposed Schedule and Ability to Meet Program Goals

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 proposer's ability to understand, identify, and mitigate any potential risk in schedule. The feasibility and likelihood of the proposed approach for satisfying the program goals are explicitly described and clearly substantiated. The proposal reflects a mature and quantitative understanding of the program goals, the statistical confidence with which they may be measured, and their relationship to the concept of operations that will result from successful performance in the program.

(e) Proposer's Capabilities and/or Related Experience

The proposer's prior experience in similar efforts must clearly demonstrate 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. Similar efforts completed/ongoing by the proposer in this area are fully described including identification of other Government sponsors.

B. Review and Recommendation Process

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. Award(s) may be made to any proposer(s) whose proposal(s) is determined selectable regardless of its overall rating.

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.

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.

For evaluation purposes, a proposal consists of the two separate files, Volume I (Technical and Management Proposal) and Volume II (Cost Proposal) described in the Full Proposal Format section above.

All proprietary information should be marked on the full proposal. It is the policy of DARPA to treat all proposals as competitive information and to disclose their contents only for the purpose of evaluation. Restrictive notices notwithstanding, proposals may be handled, for administrative purposes only, by a support contractor. This support contractor is prohibited from competition in DARPA technical research and is 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.

It is the policy of DARPA to treat all proposals as competitive information and to disclose their contents only for the purpose of evaluation. No proposals will be returned. Upon completion of the scientific review process, one copy of proposals that are not selected for funding will be retained in DSO files for one year after the signing of the last instrument resulting from this BAA.

VI. AWARD ADMINISTRATION INFORMATION

A. Award Notices

Proposals will be evaluated against the criteria set forth in this solicitation. Upon completion of the proposal evaluation, 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 via facsimile and/or post 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 Use

All research involving human subjects, to include use of human biological specimens and human data, selected for funding must comply with the federal regulations for human subject protection. Further, research involving human subjects that is conducted or supported by the DoD must comply with 32 CFR 219, *Protection of Human Subjects* (<http://www.dtic.mil/biosys/downloads/32cfr219.pdf>), and DoD Directive 3216.02, *Protection of Human Subjects and Adherence to Ethical Standards in DoD-Supported Research* (<http://www.dtic.mil/whs/directives/corres/html2/d32162x.htm>).

Institutions awarded funding for research involving human subjects must provide documentation of a current Assurance of Compliance with federal regulations for human subject protection, for example 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 subject research, to include subcontractors, must also have a valid Assurance. In addition, personnel involved in human subjects research must provide documentation of completing appropriate training for the protection of human subjects.

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. The IRB conducting the review must be the IRB identified on the institution's Assurance. 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. 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 along with evidence of appropriate training of all investigators should all accompany the protocol for review by the IRB.

In addition to a local IRB approval, a headquarters-level human subjects regulatory 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 and appropriate human subjects protection training is required before headquarters-level approval can be issued.

The amount of time required to complete the IRB review/approval process may vary depending on the complexity of the research and/or the level of risk to study participants. Ample time should be allotted to complete the approval process. The IRB approval process can last between one to three months, followed by a DoD review that could last between three to six months. No DoD/DARPA funding can be used towards human subjects research until ALL approvals are granted.

3. Animal Use

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

For submissions containing 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 PHS Policy on Humane Care and Use of Laboratory Animals, available at <http://grants.nih.gov/grants/olaw/olaw.htm>.

All 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 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 Recipient will be required to complete and submit an ACURO Animal Use Appendix, which may be found at <https://mrmc.amedd.army.mil/AnimalAppendix.asp>

4. Publication Approval

It is the policy of the Department of Defense that the publication of products of fundamental research will remain unrestricted to the maximum extent possible. The definition of Contracted Fundamental Research is:

“Contracted Fundamental Research includes [research performed under] grants and contracts that are (a) funded by budget category 6.1 (Basic Research), whether performed by universities or industry or (b) funded by budget category 6.2 (Applied Research) and performed on-campus at a university. The research shall not be considered fundamental in those rare and exceptional circumstances where the applied research effort presents a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense, and where agreement on restrictions have

been recorded in the contract or grant.” Such research is referred to by DARPA as “Restricted Research.”

Pursuant to DoD policy, research performed under grants and contracts that are (a) funded by budget category 6.2 (Applied Research) and NOT performed on-campus at a university or (b) funded by budget category 6.3 (Advanced Research) does not meet the definition of fundamental research. Publication restrictions will be placed on all such research.

It is anticipated that the performance of research resulting from the BAA is fundamental research.

Proposers are advised if they propose grants or cooperative agreements, DARPA may elect to award other award instruments. DARPA will make this election if it determines that the research resulting from the proposed program 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 and will be considered Restricted Research.

For certain research projects, it may be possible that although the research being performed by the Prime Contractor is Restricted Research, a subcontractor may be conducting Contracted Fundamental Research. In those cases, it is the Prime Contractor’s responsibility to explain in their proposal why its subcontractor’s effort is Contracted Fundamental Research.

The following same or similar provision will be incorporated into any resultant Restricted Research or Non-Fundamental Research procurement contract or other transaction:

There shall be no dissemination or publication, except within and between the Contractor and any subcontractors, of information developed under this contract or contained in the reports to be furnished pursuant to this contract without prior written approval of the DARPA Technical Information Officer (DARPA/TIO). 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 subcontractor proposals for Contracted Fundamental Research, papers resulting from unclassified contracted 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 TIO 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 (briefing, report,

abstract, article, or paper); 2) Event Information: event type (conference, principle 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, e-mail 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 can be sent either via e-mail to tio@darpa.mil or via 3701 North Fairfax Drive, Arlington VA 22203-1714, telephone (571) 218-4235. Refer to www.darpa.mil/tio for information about DARPA's public release process.

5. Export Control

Should this project develop beyond fundamental research (basic and applied research ordinarily published and shared broadly within the scientific community) with military or dual-use applications, the following apply:

(1) The contractor shall comply with all U.S. export control laws and regulations, including the International Traffic in Arms Regulations (ITAR), 22 CFR Parts 120 through 130, and the Export Administration Regulations (EAR), 15 CFR Parts 730 through 799, in the performance of this contract. In the absence of available license exemptions/exceptions, the contractor shall be responsible for obtaining the appropriate licenses or other approvals, if required, for exports of (including deemed exports) hardware, technical data, and software, or for the provision of technical assistance.

(2) The contractor shall be responsible for obtaining export licenses, if required, before utilizing foreign persons in the performance of this contract, including instances where the work is to be performed on-site at any Government installation (whether in or outside the United States), where the foreign person will have access to export-controlled technologies, including technical data or software.

(3) The contractor shall be responsible for all regulatory record-keeping requirements associated with the use of licenses and license exemptions/exceptions.

(4) The contractor shall be responsible for ensuring that the provisions of this clause apply to its subcontractors.

6. 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 (2). The plan format is outlined in FAR 19.704.

7. 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 Subpart 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.

8. Employment Eligibility Verification

As per FAR 22.1802, recipients of FAR-based procurement contracts must enroll as Federal Contractors in E-verify and use E-Verify 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.

C. Reporting

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

D. Electronic Systems

1. Central Contractor Registration (CCR)

Selected proposers not already registered in the Central Contractor Registry (CCR) will be required to register in CCR prior to any award under this BAA. Information on CCR registration is available at <http://www.ccr.gov>.

2. Representations and Certifications

In accordance with FAR 4.1201, prospective proposers shall complete electronic annual representations and certifications at <http://orca.bpn.gov>.

3. Wide Area Work Flow (WAWF)

Unless using another approved electronic invoicing system, performers will be required to submit invoices for payment directly via the Internet/WAWF at <http://wawf.eb.mil>. Registration to WAWF will be required prior to any award under this BAA.

4. i-Edison

The award document for each proposal selected and funded will contain a mandatory requirement for patent reports and notifications to be submitted electronically through i-Edison (<http://s-edison.info.nih.gov/iEdison>) .

VII. AGENCY CONTACTS

E-mail is the preferred method of communication.

Points of Contact

The Technical POC for this effort is Dr. Matthew Goodman.

E-mail: DARPA-BAA-10-18@darpa.mil

The BAA Administrator for this effort can be reached at:

Electronic mail: DARPA-BAA-10-18@darpa.mil

DARPA/DSO

ATTN: DARPA-BAA-10-18

3701 North Fairfax Drive

Arlington, VA 22203-1714

Email: DARPA-BAA-10-18@darpa.mil

VIII. OTHER INFORMATION

A. Intellectual Property – Procurement Contract Proposers

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 admonished that the Government will use the list during the scientific review 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.”

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

NONCOMMERCIAL			
Technical Data Computer Software To be Furnished With Restrictions	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
(LIST)	(LIST)	(LIST)	(LIST)

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 scientific review 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.”

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

COMMERCIAL			
Technical Data Computer Software To be Furnished With Restrictions	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions

(LIST)	(LIST)	(LIST)	(LIST)
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B. Intellectual Property – Non-Procurement Contract Proposers

Noncommercial and Commercial Items (Technical Data and Computer Software)
 Proposers responding to this BAA requesting an other transaction 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 paragraph A. above. The Government may use the list during the scientific review 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.”

C. All Proposers – Patents

Proposers shall include documentation proving their 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 their proposal for the DARPA program. If a patent application has been filed for an invention that the proposal utilizes, but the application has not yet been made publicly available and contains proprietary information, the proposer 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 they own the invention, or 2) proof of possession of appropriate licensing rights in the invention.

D. All Proposers – Intellectual Property Representations

Proposers shall provide a good faith representation that they either own or possess appropriate licensing rights to all other intellectual property that will be utilized under their 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.

APPENDIX A

Contracts Cost Element Summary Sheet

APPENDIX B

Grants Cost Element Summary Sheet