



Broad Agency Announcement  
Quiness: Macroscopic Quantum Communications  
DSO  
DARPA-BAA-12-42  
MAY 15, 2012

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## Part I: Overview Information

- **Federal Agency Name** – Defense Advanced Research Projects Agency (DARPA), Defense Sciences Office
- **Funding Opportunity Title** – Quiness: Macroscopic Quantum Communications
- **Announcement Type** – Initial Announcement.
- **Funding Opportunity Number** – Broad Agency Announcement (BAA) DARPA-BAA-12-42
- **Catalog of Federal Domestic Assistance Numbers (CFDA)** – 12.910 Research and Technology Development
- **Dates**
  - Posting Date: May 15, 2012
  - Proposal Abstracts are due by 4:00 PM ET, June 14, 2012
  - Full Proposals are due by 4:00 PM ET, July 19, 2012
  - Closing date, 4:00 PM ET, July 19, 2012
- **Concise description of the funding opportunity** – DARPA is soliciting innovative research proposals in the area of macroscopic quantum communications (proposals which can combine the security of quantum communications with the distances/rates of macroscopic telecommunications). Proposed research should investigate innovative approaches that enable revolutionary advances in secure quantum communications. Specifically excluded is research that primarily results in evolutionary improvements to the existing state of practice.
- **Anticipated individual awards** – Multiple awards are anticipated.
- **Types of instruments that may be awarded** -- Procurement contract, grant, cooperative agreement or other transaction.
- **Any cost sharing requirements** – None.
- **Agency contact**

Points of Contact:

The BAA Technical POC is Dr. Matthew Goodman, who can be reached at [DARPA-BAA-12-42@darpa.mil](mailto:DARPA-BAA-12-42@darpa.mil)

The BAA Administrator for this effort can be reached at:

E-mail: [DARPA-BAA-12-42@darpa.mil](mailto:DARPA-BAA-12-42@darpa.mil)

DARPA/DSO

ATTN: DARPA-BAA-12-42

675 North Randolph Street

Arlington, VA 22203-2114

Solicitations can be viewed at:

[http://www.darpa.mil/Opportunities/Solicitations/DSO\\_Solicitations.aspx](http://www.darpa.mil/Opportunities/Solicitations/DSO_Solicitations.aspx)

Teaming Information (See Section VIII.E.) can be viewed at:

<https://team.sainc.com/Quiness>

## **Part II: Full Text of Announcement**

### **I. FUNDING OPPORTUNITY DESCRIPTION**

The Defense Advanced Research Projects Agency (DARPA) often selects its research efforts through the Broad Agency Announcement (BAA) process. 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 proposals in the area of macroscopic quantum communications (proposals which can combine the security of quantum communications with the distances/rates of macroscopic telecommunications). Proposed research should investigate innovative approaches that enable revolutionary advances in secure quantum communications. Specifically excluded is research that primarily results in evolutionary improvements to the existing state of practice.

#### **A. Background**

Contemporary information security is algorithmic, and as a result, not provably secure. Examples of algorithmic security include pseudo-random number generation and public key encryption. The security of these algorithmic techniques is based on the assumption that certain mathematical problems are effectively impossible to solve using contemporary computer resources and well-known attacks. However, this type of security is in-principle vulnerable to off-line attacks that can occur long after a secret message has been sent and which exploit unforeseen mathematical insights. Information security techniques that are both provably secure and scalable over the near-term are therefore of considerable interest to the Department of Defense (DoD).

Quantum communications are, in principle capable of providing a provably secure communications channel. Communications protected by quantum security can typically only be attacked “in transit” and are not vulnerable to off-line attacks at some point in the future using newly developed techniques or computational resources. Unfortunately, single photons have proven extremely fragile in the face of loss and noise, effectively limiting the range of quantum communications to thousands of secure bits per second at a range of several hundred kilometers. In contrast, optical communications based on bright coherent states routinely achieve unsecured communications rates exceeding  $10^{10}$  bits per second over distances exceeding 10,000 km. The Quiness program will develop macroscopic quantum communications, i.e., protocols that combine the security of single-photon-based quantum communications with the robustness against loss and noise of bright coherent pulses.

#### **B. Program Goals**

The primary goal of the Quiness program is to demonstrate that quantum communications can generate secure keys at sustainable rates of 1-10 Gbps at distances of 1,000-10,000 km. The Quiness program has two secondary goals: (1) to conclusively demonstrate that secure quantum communications can be extended to entirely new domains, such as underwater and through dirty air, and (2) to extend quantum communications beyond key distribution to other practical, scalable quantum protocols. Note that proposals which use purely classical means of encoding bright coherent states with encrypted information (e.g., using classical phase or amplitude modulation, or relying on pseudo-random algorithms) have not been shown to be secure, and will not be considered for funding as part of this program. For example, proposals utilizing entanglement – if they fulfill all other program requirements – could be considered for funding because they do not rely on purely classical encodings.

All proposals must present a plan for addressing the development of every key technology necessary to demonstrate scalable quantum communications at the rates and distances listed above. Proposals should include plans for a laboratory-scale testbed capable of conclusively demonstrating this scalability. All elements necessary for continuous operation at the rates and distances above should be addressed, with prototypes of each key technology delivered to the testbed at 6-9 month intervals. Key technologies that contribute to program success and which are delivered to the testbed at regular intervals could include devices, theory, and/or code.

All critical program areas should produce prototypes on 6-9 month cycles and deliver them to a central testbed. The testbed should quantitatively characterize the project's ongoing progress and current performance. Testbeds should simulate realistic conditions in fiber and/or free-space environments through the use of, for example, recirculating loops containing fibers, amplifiers, and transparent switches. In addition, the testbed should ideally be able to simulate realistic sources of noise and loss.

At the government's option, a large-scale testbed(s) may be provided for long-distance, high-rate tests under realistic conditions for long-haul communications. This testbed(s) will be developed in year one, with some, none, or all funded teams invited to furnish prototype devices for testing in years two and three. Lab-scale testbeds (see above) will not be required to perform these types of large-scale tests of protocol viability, and proposals should clearly indicate the limits of their respective lab-scale testbeds.

### **C. Program Milestones and Metrics**

Each proposing team should provide quantitative metrics and milestones at 12-month intervals for each critical technology that will be developed as part of this program. Proposals should note the current state of the art in each area, and should explicitly and quantitatively show how the project's secure rates and distances depend on each of the critical technology metrics.

Examples of technologies which could be critical include: high-rate deterministic sources of single photons, entangled photons, or N00N/MnnM states; technologies for photonic serialization/deserialization; novel nonlinearities for coupling photons to bright coherent states; extremely nondegenerate nonlinear optical materials; high-rate, high-min-entropy quantum random number generation; scalable quantum authentication; efficient, high-rate single-photon detection. Depending on their proposed method, a successful proposal could require some, none, or all of the above examples. Successful proposals may also utilize key technologies not listed here.

All proposals must clearly demonstrate how each of the following rate/distance milestones will be achieved:

<b>Deadline</b>	<b>Milestone</b>
12 months	Proof-of-principle demonstration of technique incorporating all key technologies
24 months	Quantum communication over 500 km
36 months	Quantum communication at 1-10 Gbps over 1,000-10,000 km

Current techniques for quantum communication are highly sensitive to loss, with an increase in loss leading to a corresponding drop in bit rate (e.g., 10 dB of loss results in a factor of 10 decrease in secure bit rate). Successful programs are expected to present a method for decoupling loss from secure bit rate (such that 10 dB of loss results in far less than a factor of 10 decrease in secure bit rate).

**D. Project Abstracts**

See Section IV.B.4 for abstract requirements.

**E. Additional Information**

**1. Cryogenic Cooling**

It is known that some technologies require cryogenic cooling. Preference will be given to proposals that do not require cryogenic cooling, but proposals that require cryogenic systems will still be considered for funding.

**2. Relays and Repeaters**

It is possible to extend the distance of classical communications using relay stations set up in between the source and the destination. Intermediate amplifiers, repeaters, and/or regenerative devices are permissible as part of this program, but strong preference will be given to proposals that DO NOT assume that such repeater stations are secure enclaves. All proposals may assume that the source and destination are secure enclaves.

## **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 or applied research performed on campus 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. If proposals are selected for award that offer a solution other than fundamental research, then DARPA will either work with the proposer to modify the proposed statement of work to bring the research back into line with fundamental research or else the proposer will agree to restrictions in order to receive an award. See Section VI.B.4 for further information on fundamental, non-fundamental and restricted research. In all cases, the DARPA 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 address the following conditions. FFRDCs must clearly demonstrate that the proposed work is not otherwise available from the private sector AND 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, and compliance with the associated FFRDC sponsor agreement and 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.

#### **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). 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.)

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. Therefore, all proposers as well as proposed subcontractors 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, subcontractor, consultant, or individual supports and identify the prime contract number(s). 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 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 that any conflict of interest exists or may exist (whether organizational or otherwise) or has questions on what constitutes a conflict of interest, the proposer should promptly raise the issue with DARPA by sending his/her contact information and a summary of the potential conflict to the BAA mailbox before time and effort are expended in preparing a proposal and mitigation plan.

### **C. Cost Sharing/Matching**

Cost sharing is not required for this 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.

### **D. Other Eligibility Criteria**

#### **Collaborative Efforts**

Collaborative efforts/teaming are encouraged. A teaming website, <https://team.sainc.com/Quiness>, 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 DoD endorses the destination website of 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 13526, 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.

Security classification guidance via a DD Form 254, “DoD Contract Security Classification Specification,” 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 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 DoD Information Security Manual (DoDM 5200.01, Volumes 1 - 4), 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 submitted via ONE of the two following methods:

1. 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.

OR

2. 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: Defense Sciences Office  
Reference: DARPA-BAA-12-42  
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

**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 703-526-4052 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 703-526-4052 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.

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.

## **2. Abstract Submission Information**

Proposers who choose to use abstracts are strongly encouraged to submit an 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 abstracts is specified in Section 6. a below. DARPA will acknowledge receipt of the submission and assign a control number that should be used in all further correspondence regarding the abstract.

DARPA will respond to abstracts with a statement as to whether DARPA is interested in the idea. DARPA will attempt to reply to abstracts via e-mail 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 a full proposal be submitted. Abstracts will be reviewed in the order they are received. Early submissions of 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 an 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 an abstract.

### **For Abstracts Being Submitted as Hard Copies/On CD-ROM:**

Proposers must submit an original hardcopy and one (1) electronic copy of the proposal abstract in PDF (preferred) on a CD-ROM to the mailing address listed in Part I. Each copy must be clearly labeled with DARPA-BAA-12-42, proposer organization, technical point of contact, and proposal title (short title recommended).

## **For Proposers Posting Abstracts to Grants.Gov:**

If proposers intend to use Grants.gov as their means of submission, then they must submit their entire proposal abstract through Grants.gov; applications cannot be submitted in part to Grants.gov and in part as a hard-copy. Proposers using Grants.gov do not submit hardcopy proposal abstracts in addition to the Grants.gov electronic submission.

Proposers must complete the following steps in the order listed below before submitting proposal abstracts on Grants.gov (these steps are also detailed at [http://www.grants.gov/applicants/get\\_registered.jsp](http://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/ccr/default.aspx>;
- Proposers must register the Authorized Organization Representative (AOR) in Grants.gov; and
- Proposers must have the organization's E-BIZ point of contact authorize the AOR to submit applications.

Once Grants.gov has received a proposal abstract submission, Grants.gov will send two e-mail messages to advise proposers as to whether or not their proposal abstracts 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 abstract by the Grants.gov system; this e-mail only confirms receipt, not acceptance, of the proposal abstract. 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 abstract is validated, then the proposer has successfully submitted their proposal abstract. If the proposal abstract is rejected, the proposer will have to resubmit their proposal abstract. Once the proposal abstract is retrieved by DARPA, the proposer will receive a third e-mail from Grants.gov. To avoid missing deadlines, proposers should submit their proposal abstract in advance of the due date with sufficient time to receive confirmations and correct any errors in the submission process through Grants.gov. For more information on submitting proposal abstract to Grants.gov, visit the Grants.gov submissions page at: [http://grants.gov/applicants/apply\\_for\\_grants.jsp](http://grants.gov/applicants/apply_for_grants.jsp).

Proposers electing to submit grant or cooperative agreement proposal abstracts 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](http://www.grants.gov/agencies/aapproved_standard_forms.jsp#2).

Technical support for Grants.gov submissions may be reached at 1-800-518-4726 or [support@grants.gov](mailto:support@grants.gov).

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 e-mail to the address listed in Part I ensure the DSO BAA Office can verify the security of their submission.

**For Proposers Submitting to an Electronic Business Application (Not Submitting Hard Copies/CD-ROM):**

Proposal abstracts sent in response to DARPA-BAA-12-42 may be submitted via DSO's BAA website (<https://dsobaa.sainc.com>). Visit the website to register for an account (via the "Register your Organization" link along the left side of the homepage), view submission instructions, and upload/finalize the proposal abstract. 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 proposal abstracts 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. Only one zipped/encrypted file will be accepted per proposal abstract and proposal abstracts not zipped/encrypted will be rejected by DARPA. An encryption password form must be completed and e-mailed to [DARPA-BAA-12-42@darpa.mil](mailto:DARPA-BAA-12-42@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 e-mail 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 abstract files, see <https://dsobaa.sainc.com>.

Upon review, DARPA will provide written feedback on the likelihood of a full proposal being selected and the time and date for submission of a full proposal, which may differ from the originally published date below.

### **3. Proposal Submission Information**

Proposers are required to submit proposals by the time and date specified in the BAA in order to be considered for selection. DARPA may evaluate proposals received after this date for a period up to one year from date of posting on FedBizOpps and Grants.gov. Ability to review late submissions remains contingent on availability of funds.

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 nondisclosure

requirements. Proposals and 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 Full Proposals, as Hard Copies/ On CD-ROM:**

Proposers must submit an original hardcopy, one (1) electronic copy of the full proposal [in PDF (preferred)] on a CD-ROM to the mailing address listed in Part I. Each copy must be clearly labeled with DARPA-BAA-12-42, proposer organization, proposal title (short title recommended).

**For Proposers Posting to Grants.Gov:**

Grant or cooperative agreement proposals may only be submitted to DARPA through Grants.gov or in hard-copy. Grant or cooperative agreement proposals may not be submitted through any other means (including <https://dsobaa.sainc.com> and other comparable systems). If proposers intend to use Grants.gov as their means of submission, then they must submit their entire proposal through Grants.gov; applications cannot be submitted in part to Grants.gov and in part as a hard-copy. Proposers using Grants.gov do not submit hardcopy proposals in addition to Grants.gov electronic submission.

Proposers must complete the following steps in the order listed below before submitting proposals on Grants.gov (these steps are also detailed at [http://www.grants.gov/applicants/get\\_registered.jsp](http://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/ccr/default.aspx>;
- Proposers must register the Authorized Organization Representative (AOR) in Grants.gov; and
- Proposers must have the organization's E-BIZ point of contact authorize the AOR to submit applications.

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 proposer will have to resubmit their proposal. 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://grants.gov/applicants/apply\\_for\\_grants.jsp](http://grants.gov/applicants/apply_for_grants.jsp).

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.

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](http://www.grants.gov/agencies/aapproved_standard_forms.jsp#2).

Technical support for Grants.gov submissions may be reached at 1-800-518-4726 or [support@grants.gov](mailto:support@grants.gov).

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 e-mail to the address listed in Part I to ensure the DSO BAA Office can verify the security of their submission.

**For Proposers Submitting to an Electronic Business Application (Not Submitting Hard Copies/CD-ROM):**

Full proposals sent in response to DARPA-BAA-12-42 may be submitted via DSO's BAA website (<https://dsobaa.sainc.com>). Visit the website to register for an account (via the "Register your Organization" link along the left side of the homepage), view submission instructions, and upload/finalize the proposal. 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 web site (not including Grants.gov) must be encrypted using WinZip or PKZip with 256-bit AES encryption. Only one zipped/encrypted file (containing both proposal volumes) will be accepted per proposal and proposals not zipped/encrypted will be rejected by DARPA. An encryption password form must be completed and e-mailed to [DARPA-BAA-12-42@darpa.mil](mailto:DARPA-BAA-12-42@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 e-mail 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 All:**

All administrative correspondence and questions on this solicitation, including requests for information on how to submit an abstract or full proposal to this BAA, should be directed to one of the administrative addresses below; e-mail is preferred.

BAA Administrator  
E-mail: [DARPA-BAA-12-42@darpa.mil](mailto:DARPA-BAA-12-42@darpa.mil)

DARPA/DSO  
ATTN: DARPA-BAA-12-42  
675 North Randolph Street  
Arlington, VA 22203-2114

[http://www.darpa.mil/Opportunities/Solicitations/DSO\\_Solicitations.aspx](http://www.darpa.mil/Opportunities/Solicitations/DSO_Solicitations.aspx)

DARPA intends to use electronic mail for correspondence regarding DARPA-BAA-12-42. 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. Abstract Format**

Teams may optionally submit a proposal abstract. Proposal abstracts should include an overview of a team's technical approach to the problem and milestones, but should not provide a detailed description of how the project will achieve all program goals. All key technologies (defined as those project foci with regular deliverables to the testbed), along with performer-provided quantitative milestones for each of them, should be summarized in the project abstract. Enough technical detail should be provided so that reviewers are able to make a reasonable judgment as to the project's technical feasibility. A project abstract should describe how its technical approach is different from contemporary single-photon-based quantum key distribution, and specifically how it is capable of decoupling loss from secure bit-rate. Particular attention should be paid to scalability; project abstracts should describe how the final deliverable system will be capable of continuous, authenticated, and secure operation at the target bit rates and distances. Project abstracts should briefly describe plans for the lab-scale testbed and moreover indicate which secondary goals (if any) the project will pursue.

Abstracts are encouraged in advance of full proposals in order to provide potential proposers with a rapid response to minimize unnecessary effort. 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 "ABSTRACT" and the total length should not exceed 8 pages, excluding cover page. 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 abstracts includes all figures, tables,

and charts. No formal transmittal letter is required. All abstracts must be written in English.

## **5. 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 volumes. 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 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. Copies of not more than three (3) relevant papers can 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. Volume I, Technical and Management Proposal, shall not exceed **31** pages. Maximum page lengths for each section are shown in braces { } below. All full proposals must be written in English.

### **a. Volume I, Technical and Management Proposal**

#### Section I. Administrative

- 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”, “NON PROFIT” 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) Technical point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), e-mail (if available);
  - (9) Administrative point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), e-mail (if available);
  - (10) total funds requested from DARPA, separated by Base Award and Options (if any), and the amount of cost share (if any); AND
  - (11) Date proposal was submitted.
- B. Official transmittal letter.

## Section II. Summary of Proposal

- A. {1} 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-art alternate approaches.
- B. {1} 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 not proprietary claims, this should be stated. For forms to be completed regarding intellectual property, see Section VIII, Other Information. There will be no page limit for the listed forms.
- C. {1} 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. {3} 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. {1} General discussion of other research in this area.
- F. {1} 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.

## Section III. Detailed Proposal Information

- A. {3} Statement of Work (SOW) - In plain English, clearly define the technical tasks/subtasks to be performed, their durations, and dependencies among them. The page length for the SOW will be dependent on the amount of the effort. The SOW must not include proprietary information. For each task/subtask, provide:
- 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.

- Clearly identify any tasks/subtasks (prime or subcontracted) that will be accomplished on-campus at a university.

*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.*

- B. {1} Description of the results, products, transferable technology, and expected technology transfer path enhancing that of Section II. B. This should also address mitigation of life-cycle and sustainment risks associated with transitioning intellectual property for U.S. military applications, if applicable. See also Section VIII, Other Information.
- C. {8} Detailed technical approach enhancing and completing that of Section II.
- D. {3} Comparison with other ongoing research indicating advantages and disadvantages of the proposed effort.
- E. {3} Discussion of proposer’s previous accomplishments and work in closely related research areas.
- F. {1} Description of the facilities that would be used for the proposed effort.
- G. {1} Detail support enhancing that of Section II, including formal teaming agreements which are required to execute this program.
- H. {3} Cost, schedules and measurable milestones for the proposed research, including estimates of cost for each task in each year of the effort delineated by the primes and major subcontractors, total cost, and any company cost share. (Note: Measurable milestones should capture key development points in tasks and should be clearly articulated and defined in time relative to start of effort.) Where the effort consists of multiple portions which could reasonably be partitioned for purposes of funding, these should be identified as options 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. The milestones must not include proprietary information.

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.

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

- 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”, “OTHER EDUCATIONAL”, OR “OTHER NONPROFIT”;

- (5) Contractor’s reference number (if any);
- (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 (if available), electronic mail (if available);
- (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 (if available);
- (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 ONR office;
- (14) Name, address, and telephone number of the proposer’s cognizant Defense Contract Audit Agency (DCAA) audit office if applicable;
- (15) Date proposal was prepared;
- (16) DUNS number;
- (17) TIN number;
- (18) Cage Code;
- (19) Subcontractor Information;
- (20) Proposal validity period; and
- (21) Any Forward Pricing 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 proposal shall provide a detailed cost breakdown by major program tasks by government fiscal year, by phase and calendar year. See Appendix A and B for sample cost element summary sheets.** 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; and
  - h. Major program tasks by Government Fiscal Year (GFY = Oct 1 – 30 Sep).
- (2) A summary of total program costs by phase and task;
  - (3) A summary of projected funding requirements by month;
  - (4) 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, as defined in FAR Part 2.101);
  - (5) 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;
  - (6) 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
  - (7) 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 paragraph 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 \$700,000 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.

## **6. Submission Dates and Times**

### **a. Proposal Abstract Date**

The proposal abstract (original and designated number of hard and electronic copies) must be submitted to DARPA/DSO, 675 North Randolph Street, Arlington, VA 22203-2114 (Attn.: DARPA-BAA-12-42) **on or before 4:00 p.m., local time, June 14, 2012**. Proposal abstracts received after this time and date may not be reviewed.

### **b. Full Proposal Date**

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

The full proposal (original and designated number of hard and electronic copies) must be submitted to DARPA/DSO 675 North Randolph Street, Arlington, VA 22203-2114 (Attn.: DARPA-BAA-12-42) **on or before 4:00 p.m., local time, July 19, 2012**, in order to be considered during the initial round of selections; however, proposals received after this deadline may be received and evaluated up to six months (180 days) from date of posting on FedBizOpps. Full proposals submitted after the due date specified in the BAA or due date otherwise specified by DARPA after review of proposal abstracts may be selected contingent upon the availability of funds.

DARPA will acknowledge receipt of complete submissions via e-mail 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-12-42@darpa.mil](mailto:DARPA-BAA-12-42@darpa.mil) to ensure the proposal was submitted properly. DARPA will post a consolidated FAQ, which will be posted on [http://www.darpa.mil/Opportunities/Solicitations/DSO\\_Solicitations.aspx](http://www.darpa.mil/Opportunities/Solicitations/DSO_Solicitations.aspx). In order to receive a response to your question, submit your question to [DARPA-BAA-12-42@darpa.mil](mailto:DARPA-BAA-12-42@darpa.mil).

## **7. Intergovernmental Review**

Not Applicable.

## **8. 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: (a) Overall Scientific and Technical Merit; (b) Potential Contribution and Relevance to the DARPA Mission; (c) Cost Realism; (d) Realism of Proposed Schedule; (e) Proposer's Capabilities and/or Related Experience; and (f) Plans and Capability to Accomplish Technology Transition.

#### **(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.

#### **(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**

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.

**(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.

**(f) Plans and Capability to Accomplish Technology Transition**

The offeror 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.

**B. Review and Selection Process**

Evaluation of proposals will be accomplished through a scientific/technical review of each 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. DARPA’s intent is to review proposals as soon as possible after they arrive; however, proposals may be reviewed periodically for administrative reasons.

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. For evaluation purposes, a proposal is the document described in “Full Proposal Format,” Section IV.B.5. 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.

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. After proposals have been evaluated and selections made, the original of each proposal received will be retained at DARPA and all other copies will be destroyed.

## **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 via e-mail to the Technical and Administrative POCs 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.access.gpo.gov/nara/cfr/waisidx\\_07/32cfr219\\_07.html](http://www.access.gpo.gov/nara/cfr/waisidx_07/32cfr219_07.html)) 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/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

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 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-www.army.mil/index.cfm?pageid=Research\\_Protections.acuro&rn=1](https://mrmc-www.army.mil/index.cfm?pageid=Research_Protections.acuro&rn=1).

#### **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.

Research to be performed as a result of this BAA is expected to be Fundamental. DARPA does not anticipate applying publication restrictions of any kind.

Proposers are advised if they propose grants or cooperative agreements, DARPA may elect to award other award instruments due to the need to apply publication or other restrictions. 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 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 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 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 (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 [prc@darpa.mil](mailto:prc@darpa.mil) or via hard copy to 675 North Randolph Street, Arlington VA 22203-2114, telephone (571) 218-4235. Refer to [http://www.darpa.mil/NewsEvents/Public\\_Release\\_Center/Public\\_Release\\_Center.aspx](http://www.darpa.mil/NewsEvents/Public_Release_Center/Public_Release_Center.aspx) for information about DARPA's public release process.

## 5. Export Control

The following clause will be included in all procurement contracts, and may be included in Other Transactions as deemed appropriate:

(a) *Definition.* "Export-controlled items," as used in this clause, means items subject to the Export Administration Regulations (EAR) (15 CFR Parts 730-774) or the International Traffic in Arms Regulations (ITAR) (22 CFR Parts 120-130). The term includes:

1) “Defense items,” defined in the Arms Export Control Act, 22 U.S.C. 2778(j)(4)(A), as defense articles, defense services, and related technical data, and further defined in the ITAR, 22 CFR Part 120.

2) “Items,” defined in the EAR as “commodities”, “software”, and “technology,” terms that are also defined in the EAR, 15 CFR 772.1.

(b) The Contractor shall comply with all applicable laws and regulations regarding export-controlled items, including, but not limited to, the requirement for contractors to register with the Department of State in accordance with the ITAR. The Contractor shall consult with the Department of State regarding any questions relating to compliance with the ITAR and shall consult with the Department of Commerce regarding any questions relating to compliance with the EAR.

(c) The Contractor's responsibility to comply with all applicable laws and regulations regarding export-controlled items exists independent of, and is not established or limited by, the information provided by this clause.

(d) Nothing in the terms of this contract adds, changes, supersedes, or waives any of the requirements of applicable Federal laws, Executive orders, and regulations,

including but not limited to—

(1) The Export Administration Act of 1979, as amended (50 U.S.C. App. 2401, *et seq.*);

(2) The Arms Export Control Act (22 U.S.C. § 2751, *et seq.*);

(3) The International Emergency Economic Powers Act (50 U.S.C. § 1701, *et seq.*);

(4) The Export Administration Regulations (15 CFR Parts 730-774);

(5) The International Traffic in Arms Regulations (22 CFR Parts 120-130); and

(6) Executive Order 13222, as extended.

(e) The Contractor shall include the substance of this clause, including this paragraph (e), in all subcontracts.

## **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 (b) should do so with their proposal. 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.

## **9. Central Contractor Registration (CCR) 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 Central Contractor Registration (CCR) and have a valid Data Universal Numbering System (DUNS) number prior to submitting a proposal. Information on CCR registration is available at <http://www.ccr.gov>. All proposers must maintain an active CCR registration 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.

DARPA cannot make an assistance award to a proposer until the proposer has provided a valid DUNS number and has maintained an active CCR registration with current information.

## **10. Reporting Executive Compensation and First-Tier Subcontract Awards**

The 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.

## 11. Updates of Information Regarding Responsibility Matters

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

## 12. Representation by Corporations Regarding Unpaid Delinquent Tax Liability or a Felony Conviction Under Any Federal Law

*Each proposer must complete and return the representations in paragraph (b) below with their proposal submission.*

(a) In accordance with sections 8124 and 8125 of Division A of the Consolidated Appropriations Act, 2012 (Pub. L. 112-74) none of the funds made available by that 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, 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.

(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 violated under Federal law within the preceding 24 months.

### **13. Cost Accounting Standards Notices and Certification**

As per FAR 52.230-2, amended by Deviation 2012-00003 (JAN 2012), any procurement contract in excess of \$700,000 resulting from this solicitation will be subject to the requirements of the Cost Accounting Standards Board (48 CFR Chapter 99), except those contracts which are exempt as specified in 48 CFR 9903.201-1. Any offeror submitting a proposal which, if accepted, will result in a cost accounting standards (CAS) compliant contract, must submit representations and a Disclosure Statement as required by 48 CFR 9903.202 detailed in FAR 52.230-2.

### **14. Controlled Unclassified Information 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 subcontractors 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.

#### **C. Reporting**

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

period for the award, notwithstanding the fact that the research may be continued under a follow-on vehicle.

#### **D. Electronic Systems**

##### **1. Representations and Certifications**

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

##### **2. 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.

##### **3. 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 (<http://s-edison.info.nih.gov/iEdison>).

#### **VII. AGENCY CONTACTS**

The preferred method of communication for this BAA is e-mail.

Points of Contact:

The Technical POC for this effort Dr. Matthew Goodman.  
E-mail: [DARPA-BAA-12-42@darpa.mil](mailto:DARPA-BAA-12-42@darpa.mil)

The BAA Administrator for this effort can be reached at:  
E-mail: [DARPA-BAA-12-42@darpa.mil](mailto:DARPA-BAA-12-42@darpa.mil)

DARPA/DSO  
ATTN: DARPA-BAA-12-42  
675 North Randolph Street  
Arlington, VA 22203-2114

**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 admonished 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	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
(LIST)	(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.

#### **E. All Proposers – Teaming**

A teaming website, <https://team.sainc.com/Quiness>, 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.

**APPENDIX A**

**Contracts Cost Element Summary Sheet**

**COST ELEMENT SUMMARY [SAMPLE]**

Year 1				Year 2 or Option Year			
COST ELEMENT	BASE	RATE	AMT	BASE	RATE	AMT	TOTAL PROPOSED AMOUNT
DIRECT LABOR (list each direct labor category separately.)	Hrs	\$	\$	Hrs	\$	\$	\$
TOTAL DIRECT LABOR			\$			\$	\$
FRINGE BENEFITS	\$	%	\$	\$	%	\$	\$
TOTAL LABOR OVERHEAD	\$	%	\$	\$	%	\$	\$
SUBCONTRACTORS, IOTS, CONSULTANTS (List Separately)			\$			\$	\$
MATERIALS & EQUIPMENT			\$			\$	\$
MATERIAL OVERHEAD	\$	%	\$	\$	%	\$	\$
TRAVEL			\$			\$	\$
ODCs			\$			\$	\$
G&A	\$	%	\$	\$	%	\$	\$
IR&D/B&P	\$	%	\$	\$	%	\$	\$
SUBTOTAL COSTS			\$			\$	\$
COST OF MONEY (See DD Form 1861)			\$			\$	\$
TOTAL COST			\$			\$	\$
PROFIT/FEE	\$	%	\$	\$	%	\$	\$
TOTAL PRICE/COST			\$			\$	\$
GOVERNMENT SHARE			\$			\$	\$
RECIPIENT SHARE			\$			\$	\$

**SUBCONTRACTORS/INTERORGANIZATIONAL TRANSFERS (IOT) & CONSULTANTS  
PRICE SUMMARY**

A	B	C	D	E	F
SUBCONTRACTOR, IOT & CONSULTANT NAME	SOW TASKS PERFORMED*	TYPE OF AWARD	SUBCONTRACTOR, IOT & CONSULTANT QUOTED PRICE	COST PROPOSED BY PRIME FOR THE SUBCONTRACTOR, IOT & CONSULTANT	DIFFERENCE (COLUMN D - Column E), IF APPLICABLE
TOTALS					

\*Identify Statement of Work, Milestone or Work Breakdown Structure paragraph or provide a narrative explanation as an addendum to this Table that describes the effort to be performed.

APPENDIX B

**Grants Cost Element Summary Sheet**

**SUMMARY PROPOSAL BUDGET YEAR -**

OFFEROR:

PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR (PI/PD):

A. SENIOR PERSONNEL, PI/PD, Co-PI's, Faculty and Other Senior Associates (List separately with title, A.7. show number in parentheses)		Man Hrs/Mos	Rates	Person Months			Funds Requested by Offeror	
				CAL	ACAD	SMR		
1.							\$	
2.							\$	
3.							\$	
4.							\$	
5.							\$	
6.	OTHERS (LIST INDIVIDUALLY ON SEPARATE WORKSHEET)						\$	
7.	0 TOTAL SENIOR PERSONNEL (1-6)						\$	
B. OTHER PERSONNEL (SHOW NUMBERS)								
1.	POST DOCTORAL ASSOCIATES							
2.	OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)							
3.	GRADUATE STUDENTS							
4.	UNDERGRADUATE STUDENTS							
5.	SECRETARIAL - CLERICAL (if charged directly)							
6.	OTHER							
7.	TOTAL SALARIES AND WAGES						\$	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)								
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)								\$
D. PERMANENT EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.00. ATTACH ADDITIONAL EXPLANATION PAGES, IF NECESSARY.)								
1.			\$					
2.			\$					
3.			\$					
TOTAL PERMANENT EQUIPMENT								\$
E. TRAVEL (LIST DETAILS ON SEPARATE WORKSHEET)								
1.	DOMESTIC (INCLUDE CANADA, MEXICO, AND U.S. POSSESSIONS)							
2.	FOREIGN							
								\$
F. PARTICIPANT SUPPORT COSTS								
1.	STIPENDS							
2.	TRAVEL							
3.	SUBSISTENCE							
4.	OTHER							
TOTAL PARTICIPANT COSTS								\$
G. OTHER DIRECT COSTS (LIST DETAILS ON SEPARATE WORKSHEET)								
1.	MATERIALS AND SUPPLIES							
2.	PUBLICATIONS COSTS/DOCUMENTATION/DISSEMINATION							
3.	CONSULTANT SERVICES							
4.	COMPUTER (ADPE) SERVICES							
5.	SUBAWARDS							
6.	OTHER							
7.	TOTAL OTHER DIRECT COSTS							
H. TOTAL DIRECT COSTS (A THROUGH G)								\$
I. INDIRECT COSTS		Rate	Base	Total				
		Overhead	\$	\$				
		G & A		\$				
		Fringe		\$				
TOTAL INDIRECT COSTS		FCCM		\$				
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)								\$
K. FEE		0%	BASE	\$				\$
L. COST SHARING								\$
M. AMOUNT OF THIS REQUEST								\$
PI/PD NAME (TYPED) & SIGNATURE								DATE
OFFEROR'S AUTHORIZED REP. NAME (TYPED) & SIGNATURE								DATE