

**COMBATING TERRORISM TECHNICAL SUPPORT OFFICE/
Technical Support Working Group
(CTTSO/TSWG)**

**BROAD AGENCY ANNOUNCEMENT (BAA)
15-Q-3358**

Due Date for Receipt of Phase 1 Quad Charts:

**No Later Than March 20, 2015
All submissions are due by 1500; 3:00 p.m.
Eastern Time (ET) on the above date**

- AAC – Advanced Analytic Capabilities**
- CBRNE – Chemical, Biological, Radiological, Nuclear, and Explosives**
- IDD/EC – Improvised Device Defeat/Explosives Countermeasures**
- IFS - Investigative and Forensic Science**
- IW/ET – Irregular Warfare and Evolving Threats**
- PP – Personnel Protection**
- PS – Physical Security**
- SCOS – Surveillance, Collection, and Operations Support**
- TOS – Tactical Operations Support**
- TTD – Training Technology Development**
- BO – Business Operations**

The Broad Agency Announcement Information Delivery System (BIDS) is the system in which all submissions and communications will flow. Communications outside of BIDS may result in expulsion from the competition.

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1. INTRODUCTION.

This is a Combating Terrorism Technical Support Office (CTTSO) Broad Agency Announcement (BAA) issued under the provisions of paragraph 6.102(d)(2)(i) of the Federal Acquisition Regulation (FAR) to provide for the competitive selection of research proposals. Contracts based on responses to this BAA are considered to be the result of full and open competition and in full compliance with the provisions of Public Law (PL) 98-369 Section 2701, "The Competition in Contracting Act." **Awards for submissions under this BAA are planned for Fiscal Year (FY) 2016. Funds may not be available for all requirements under this BAA. No contract awards will be made until appropriated funds are available from which payment for contract purposes can be made.**

1.1. Approach.

A three-phased proposal selection process will be used for this BAA to minimize cost and effort for prospective offerors:

- Phase 1 will consist of the solicitation, receipt, and evaluation of a one-page Quad Chart.
- Phase 2 will consist of the solicitation, receipt, and evaluation of a White Paper and applies to only those submissions that have been accepted in Phase 1.
- Phase 3 will consist of the solicitation, receipt, and evaluation of a Full Proposal and applies to only those submissions that have been accepted in Phase 2. Based on the priority of critical requirements and the availability of funding, Phase 1 submissions can be selected for Phase 3 without a Phase 2 submission.

Clarifications to White Papers and Full Proposals may be requested.

1.2. HBCU, MI, and Small Business Set Aside.

The Government encourages nonprofit organizations, educational institutions, small businesses, small disadvantaged business (SDB) concerns, Historically Black Colleges and Universities (HBCU), Minority Institutions (MI), women-owned businesses, and Historically Underutilized Business zone enterprises as well as large businesses and Government laboratories to submit research proposals for consideration and/or to join others in submitting proposals; however, no portion of the BAA will be set aside for these special entities because of the impracticality of reserving discrete or severable areas of research and development (R&D) in any specific requirement area. A goal of 2.5 percent of total dollars awarded will be considered for HBCU and/or MI, and a goal of 2.5 percent of total dollars awarded will be considered for small businesses for a total goal of 5 percent. The final determination will be made based on the individual technical merits of the proposal and budget constraints within the mission priorities. To ensure full consideration in these programs, registration in the [BAA Information Delivery System \(BIDS\)](#), described later in this document, requires the appropriate business type selection as well as accurate up-to-date information.

1.3. Limitation of Funds.

The Government intends to incrementally fund Cost Reimbursable contracts awarded from this BAA as provided by FAR 52.232-22, "Limitation of Funds." Most contracts awarded are

anticipated to be 6 to 24 months in duration. To facilitate incremental funding, submissions shall include the cost and schedule by a task-phased structure with clear exit criteria, and shall be inclusive of all work to complete the effort including any options. It is anticipated that the entire effort will be negotiated with the initial contract award.

[Note: Based upon the availability of funding, the Government may have to partially fund Fixed Price contracts in accordance with the Limitation of Government's Obligation clause. In such cases, milestone payments will need to be a part of the full proposal. Applicability of this issue will be stated in the email asking for a Phase III proposal.]

1.4. Technical Evaluation Support.

It is the intent of this office to use contractor support personnel in the review, evaluation, and administration of all submissions for this BAA. All contractor support personnel will have access to proprietary data and shall certify that they: (1) will not disclose any information pertaining to this solicitation including any submission, the identity of any submitters, or any other information relative to this BAA; and (2) have no financial interest in any submissions evaluated, reviewed, and administered. Submissions and information received in response to this BAA constitutes permission to disclose that proposal data to certified evaluators under these conditions.

1.5. BAA Package Download.

This BAA Package can be downloaded electronically in its entirety from <https://bids.cttso.gov/> under [BAA Information](#). Registration is not required to download the BAA package; however, a BIDS registration is required to upload a response to the BAA.

1.6. BAA Contractual and Technical Questions.

All contractual and technical questions regarding this BAA, including the published requirements and instructions, must be directed to the Contracting Officer at BIDSHelp@cttso.gov. No other office personnel will not acknowledge, forward, or respond to any inquiries received in any manner concerning the BAA. Contractual questions and answers will be posted periodically under BAA Questions on the [BIDS website](#). All questions must be received at least 72 hours prior to close of the submission.

1.7. BIDS Website Help Requests.

For technical help using BIDS, submit questions to the BIDS administrators at BIDSHelp@cttso.gov or by using the [Request Help](#) link located on the BIDS Homepage. Include a valid email address, your BIDS User Name, and a detailed description of the question or concern in the comments block. The BIDS Website provides other valuable resources under [Online Help](#) and Useful Links, such as [Prerequisites for Working with the Government](#). Reference documents including the *BIDS Submitter Quickcard* and *Quad Chart Sample* are available for download under [Reference Materials](#). Information regarding compliance requirements for using humans and animals in testing is also available from BIDS.

1.8. BIDS Frequently Asked Questions (FAQs).

FAQs are a list of questions and associated responses for general and specific topics. Offerors are encouraged to periodically review BAA Questions located at <https://bids.cttso.gov>.

NOTE: *Persons submitting proposals are advised that only the Contracting Officer can obligate the Government to any agreement involving expenditure of Government funds.*

2. GENERAL INFORMATION.

This section includes information applicable to all awards under this BAA.

2.1. Eligibility.

To be eligible for contract award, a responsible offeror must meet certain minimum standards pertaining to financial solvency and resources, ability to comply with the performance schedule, prior record of satisfactory performance, integrity, organization, experience, operational controls, technical skills, facilities, and equipment. See FAR 9.104.

- All offerors must be registered in the System for Award Management (SAM) database at <https://www.sam.gov/portal/public/SAM/>.

These and other helpful links are also provided on the [BIDS Homepage](#).

2.2. Procurement Integrity, Standards of Conduct, Ethical Considerations.

Certain post-employment restrictions on former federal officers and employees exist including special Government employees (Section 207 of Title 18, United States Code (U.S.C.)). If a prospective offeror believes that a conflict of interest exists, the offeror should make this known to the Contracting Officer for resolution before time and effort are expended in preparing a proposal.

2.3. Reserved.

2.4. Restrictive Markings on Proposals.

All proposals should clearly indicate content disclosure limitations. Submissions can be marked as "Proprietary" or words to that effect; however, markings such as "Company Confidential" or other phrases that could be confused with national security classifications shall not be used. All paragraphs that contain proprietary information must be clearly marked. The Contracting Officer may challenge proprietary markings if they are not substantiated.

2.5. Submission Handling/Rights in Technical Data and Computer Software/Patent Rights.

2.5.1. Procurement Integrity.

The Government shall comply with FAR 3.104 in its treatment of information submitted in response to this BAA solicitation and marked with the individual's or company's legend.

2.5.2. Submission Information and FOIA.

Records or data bearing a restrictive legend can be included in the proposal. However, the offeror is cautioned that portions of the proposal are subject to release under the terms of the Freedom of Information Act (FOIA), 5 U.S.C. 552, as amended. In accordance with

FOIA regulations, the offeror will be afforded the opportunity to comment on, or object to, the release of proposal information.

2.5.3. Rights in Technical Data and Computer Software.

Rights in technical data and computer software and software documentation provided in the proposal are treated in accordance with the Department of Defense Federal Acquisition Regulation Supplement (DFARS) 252.227-7016, “Rights in Bid and Proposal Information.” Rights in technical data, and computer software and computer software documentation in the resultant contract shall be in accordance with DFARS 252.227-7013 (regarding technical data) and DFARS Section 252.227-7014 (regarding computer software and software documentation). Both clauses (DFARS sections 252.227-7013 and 252.227-7014) will be included in any noncommercial contract exceeding the simplified acquisition threshold. Table 1 contains these and related clauses that may be included in the contract.

Table 1. Contract Clauses	
DFARS	Title
252.227-7013	Rights in Technical Data – Noncommercial Items (FILL-IN)
252.227-7014	Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation (FILL-IN)
252.227-7016	Rights in Bid and Proposal Information
252.227-7017	Identification and Assertion of Use, Release, or Disclosure Restrictions (FILL-IN)
252.227-7019	Validation of Asserted Restrictions - Computer Software
252.227-7025	Limitations on the Use or Disclosure of Government Furnished Information Marked with Restrictive Legends
252.227-7027	Deferred Ordering of Technical Data or Computer Software
252.227-7028	Technical Data or Computer Software Previously Delivered to the Government
252.227-7030	Technical Data - Withholding of Payment
252.227-7037	Validation of Restrictive Markings on Technical Data

2.5.4. Patents.

Patents in existence and patent applications pending at the time of the proposal, that relate to the proposed effort, shall be identified in the White Paper and Full Proposal in accordance with the clauses above.

2.6. Product and Deliverable Requirements.

All proposal phases shall include the costs for products and data deliverable requirements. Minimum data (report) requirements include Monthly Status Reports (MSRs) and a Final Technical Report even if the research is to be continued under a follow-on contract or contract option. MSRs document program, technical, and financial status. The Final Technical Report summarizes the project and associated tasks at the conclusion of each contract. Include MSRs, the Final Technical Report, and any products and deliverables specific to the performance of the

proposed effort (e.g., system specification). The Government will provide the offeror with a full listing of data deliverables (i.e., Contract Data Requirements List) in the request for Phase 3 Full Proposal. Additional products and deliverables could include prototype hardware, software, or systems; test plans; test and technical reports; technical data; specifications; requirements documents; computer programs or software; user manuals; drawings; or other products and data. The number, types, and preparation instructions for products and deliverables will be specified in the contract.

2.7. Distribution/Release Limitations.

The offeror should be aware that all resulting contracts or other awards will contain release limitations for all data resulting from the effort in accordance with DFARS 252.204-7000. This includes products, data, information, and services to be performed. The contractor shall protect all data and information from disclosure, and shall not release any data or information by any method of dissemination without prior Government approval.

2.8. 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.

2.9. Animal or Human Testing Compliance.

The contractor shall comply with all laws and regulations governing the use of animals or human subjects in research projects.

2.9.1. Animal Testing.

Any contract resulting from this BAA that potentially involves the testing of animals shall include the following language:

Any contractor performing research on warm blooded vertebrate animals shall comply with the Laboratory Animal Welfare Act of 1966, as amended, 7 U.S.C. §§ 2131 - 2159, and the regulations promulgated thereunder by the Secretary of Agriculture in 9 C.F.R. Parts 1 through 4, pertaining to the care, handling, and treatment of vertebrate animals held or used for research, teaching, or other activities supported by Federal contract awards. In addition, the contractor shall comply with the provisions of Department of Defense Directive (DoDD) 3216.1, as implemented by SECNAVINST 3900.38C, and DFARS 252.235-7002, "Animal Welfare," which is incorporated into this contract.

2.9.2. Human Subjects Testing.

Any contract resulting from this BAA that potentially involves the use of Human Subjects in the research or study shall include the following language:

The contractor shall comply with all regulations promulgated by the Office of the

Secretary of Defense in 32 C.F.R. Part 219, pertaining to the protection of human subjects. In addition, the contractor shall comply with the provisions of DoDI 3216.02. If human subjects are to be used at any time during the project, the contractor shall have a Federal assurance that is acceptable to CTTSO before involving human subjects. Additionally, the protocol shall be approved by a Federally-assured Institutional Review Board (IRB) office named in the institution's assurance. The contractor shall prepare these documents and shall ensure that they are on file with CTTSO prior to the start of research involving human subjects. Collaborators with the contractor, to include IRBs, shall also comply with regulations to protect human subjects for both classified and unclassified research. The contractor shall report all changes in the protocol or consent form to the CTTSO Contracting Officer's Representative as they occur. Release of initial and follow-up funding will be contingent upon initial and continuing reviews, and to other IRB and component requirements.

3. PROPOSAL PREPARATION.

This section provides information and instructions for the preparation and submission of all phases under this BAA. All submissions must meet these requirements including format, content, and structure, and must include all specified information to avoid disqualification, submission rejection, or delays in evaluation.

3.1. BAA Information Delivery System (BIDS).

BIDS at <https://bids.cttso.gov/> is used: (1) to provide public access to the BAA package; (2) to collect all unclassified submissions; and (3) to collect placeholder records for all classified submissions. BIDS also provides submission progress tracking, evaluation comment collection, and results notification back to the submitter.

3.1.1. Submitter Registration.

A BIDS submitter registration is required to respond to this BAA. Existing BIDS accounts are acceptable for a new BAA *if the company contact information is the same or is corrected*. Registrations should reflect the offeror's contracting or business authority. The User Name, created by the offeror, must be unique and is used for BIDS login and submission tracking. Registration acceptance for submitters is automatic, but takes several seconds to be recognized by BIDS. A success email will be sent to indicate that the User Name and account are accepted. BIDS is email dependent and uses the Registration email as the single point of contact (POC) for all notifications associated with the BAA. This email address should be monitored frequently during the BAA process for the notices. Submitters should periodically check status in their account, not receiving a notification email does not constitute grounds to appeal an evaluation decision. Spam blockers and other email security software may cause a notification email to be rejected; check your account. Email addresses included in the submissions or any other data field in BIDS will not be used for contact and notification purposes.

3.1.2. User Accounts and Password Resets.

Registration account information such as the POC, email, and password can be updated

after login. The “Forgot Password?” link on the BIDS Homepage allows registered users with a valid email address to automatically reset a password. The system will verify the account User Name and email to send a new password to that email.

3.1.3. Registration and Account Help.

BIDS Help requests can be emailed to BIDS administrators at BIDSHelp@cttso.gov or submitted via the [Request Help](#) link located on the [BIDS Homepage](#).

3.1.4. Document Identifier.

The offeror shall include the document identifier in the header of each submission. Document identifiers must match the BIDS submission record and should be constructed before upload to BIDS.

3.1.4.1. Constructing Document Identifiers.

Document identifiers, auto-generated in part by BIDS, are based on Subgroup or Mission Area, the requirement number, the user name, and a Submitter Internal Tracking (SIT) number. The underlined portion of the sample shown in Table 2 depicts the segment automatically formed by BIDS.

Table 2. Sample Document Identifier and Components Definition

CB-1112-ABCCORP-10703JT-QC	
From Sample	Document Identifier Component
<u>CB</u>	subgroup or mission area designation - from BAA
<u>1112</u>	requirement number - from BAA
<u>ABCCORP</u>	user name - from BIDS registration
10703JT-QC	SIT number - any alphanumeric combination (with no special characters or spaces) created by the submitter for (<i>submitter</i>) tracking purposes along with the document type suffix

3.1.4.2. Creating Submitter Internal Tracking (SIT) Numbers.

SIT numbers are unique identifiers created by submitters and entered in the submission record during the upload process. SIT numbers can be any alphanumeric combination (no special characters or spaces) chosen by the submitter plus a suffix indicating the document type. BIDS enforces unique SIT numbers and will not allow the submission record to be saved if the SIT number has already been used. Table 3 provides sample SIT numbering formats for each document type.

Table 3. Sample SIT Numbers for an Accepted Submission

Document Type	Auto-generated by BIDS	SIT#
Quad Charts	CB-1112-ABCORP	10703JT-QC
White Papers	CB-1112-ABCORP	10703JT-WP
Full Proposals	CB-1112-ABCORP	10703JT-FP

Offerors uploading more than one submission to the same requirement shall create unique identifiers by adding a numbered sequence to the document type suffix. Table

4 offers sample SIT number formats for multiple submissions to the same requirement.

Table 4. Sample SIT Numbers for Multiple Submissions to the Same Requirement

Submission #	Auto-generated by BIDS	SIT# Sample 1	SIT# Sample 2*
Submission 1	CB-1112-ABCORP	10703JT-QC1	QC1
Submission 2	CB-1112-ABCORP	10703JT-QC2	QC2
Submission 3	CB-1112-ABCORP	10703JT-QC3	QC3
* NOTE: If the submitter does not require an internal tracking number, use the document type designation.			

3.2. BIDS Security and Access Control.

All data uploaded to BIDS is secure from public view and download. All submissions will be considered proprietary/source selection sensitive and protected accordingly. The documents can only be reviewed by the registrant and authorized Government and contractor representatives with no conflict of interest.

3.3. Submission Changes.

Changes to uploaded submissions are permitted up to the closing date and time. If a modification is required, update the original file in the source application and save. Convert to an acceptable format if applicable. In BIDS, open the submission record, click **Edit Proposal**, and update the record information. Click on the trash can icon to delete the old file. Use **Browse** to select the revised document. Click **Submit Proposal** to save the changes. Documents cannot be edited online through the BIDS Web interface. File names must contain no spaces or special characters. Ensure the file size does not exceed the prescribed limits. To completely remove a submission from consideration, select **Delete Proposal**. Changes after the requirement due date and time are not permitted.

3.4. Special Handling Procedures for Classified Information.

If a submission contains classified information, the offeror must first create a placeholder record in BIDS with an unclassified cover page attachment. Identify in the comments section of the submission record that the submission cannot be uploaded due to classification. The BIDS Document Identifier must be clearly identified on the mailed document(s). Classified responses (up to SECRET) must be appropriately and clearly marked (including all paragraphs and pages containing the subject data), packaged, and shipped in accordance with classified material handling procedures and security regulations pertaining to the level of classification for that document.

To obtain mailing instructions for classified submissions, email: Security@cttso.gov.

Classified submissions must be received by the applicable due date and time. Classification in no way eliminates the offeror’s requirement to comply with all BAA instructions.

3.5. Phase 1 Quad Chart Submissions.

Offerors shall prepare and upload a one-page (8 ½ by 11 inches) Quad Chart in response to Phase 1 of this BAA. Use font sizes of 10 point or greater. If more than one page is submitted, only the first page will be evaluated. Quad Charts do not require a Cover Page.

3.5.1. Phase 1 Due Date and Time.

All unclassified Quad Charts must be received electronically through BIDS no later than 1500 (3:00 p.m.) Eastern Time (ET) on the date specified on the cover of this document. Likewise, classified submissions must be received by the same due date and time. Offerors must create a placeholder record in BIDS with an unclassified cover page attachment. Refer to the “Special Handling Procedures for Classified Information” in this document for instructions on classified submissions. BIDS does not allow proposals to be uploaded or classified placeholders to be created after the closing date and time. Any proposal, regardless of classification, submitted by any other means, or that is late, will not be considered by the Government. Avoid the last minute rush; submit early.

3.5.2. Electronic File Format.

The Quad Chart shall be submitted in Microsoft Office (Word or PowerPoint), or Adobe Acrobat (PDF – portable document format). ZIP files and other application formats are not acceptable. The document must be print-capable, without password, and no larger than 1024 KB. File names must contain the appropriate file name extension (.doc/.docx, .ppt/.pptx, or .pdf). File names cannot contain spaces or special characters. Apple/Macintosh users must ensure the entire file name and path are free of spaces and special characters. Submissions that cannot be opened, viewed, or printed will not be considered.

3.5.3. Quad Chart Content.

A Quad chart conveys the essence of the proposed solution for a single requirement. When preparing a submission, the offeror shall ensure that the specific criteria of the requirement are addressed, the solution is clear, and can be accomplished with the proposed technology, cost, and schedule. The Quad Chart includes a document header and four quadrants. The Quad Chart format and sample are provided at the BIDS website under [Reference Materials](#).

3.5.3.1. Header Information.

Header information shall include the BAA Announcement number, the Document Identifier, and the Proposal Title. The date and company name should be included along with the appropriate document markings.

3.5.3.2. Top Left Quadrant, Graphical Depiction.

The top left quadrant is a graphical depiction, photograph, or artist’s concept of the proposed solution or prototype. Include labels or brief descriptive text as needed for clarification. Ideally, this will convey the prototype concept, use, capability, and any relevant size or weight relationships based on the published requirement.

3.5.3.3. Top Right Quadrant, Operational and Performance Capabilities.

The top right quadrant contains the operational and performance capabilities summary. Describe any basic, new, or enhanced capabilities the system will provide to meet the published requirement. In bullet form, list key aspects of performance, capability, operational use, relevant software or hardware specifications, and planned interface and/or compatibility. The offeror is only required to submit past performance information in response to a request for Full Proposal.

3.5.3.4. Bottom Left Quadrant, Technical Approach.

The bottom left quadrant contains the proposed technical approach. Specifically, describe the technology involved, how it will be used to solve the problem, actions done to date, and any related ongoing efforts. Briefly describe the tasks to be performed for each phase. A bullet list is acceptable.

3.5.3.5. Bottom Right Quadrant, Cost and Schedule.

The bottom right quadrant contains the Rough Order of Magnitude (ROM) and Schedule, Products and Deliverables, and Corporate Contact Information. ROM and Schedule shall be proposed by phase and include the cost, period of performance (POP), and exit criteria for each phase. A total cost and POP that combines all phases shall also be included. Products and Deliverables shall include, by phase, a list of all prototype hardware and software along with the required data as described in "Product and Deliverable Requirements" in section 2 of this document. Corporate Contact Information shall include the submitter's company name, POC, phone number, and email address. Include any significant teaming partner (contact information) relevant to the evaluation. (Note that the contact information in the BIDS registration is used for all notices and contact purposes.)

3.5.4. Phase 1 Notification to Offeror.

The Government will notify the offeror when a submission has been accepted or rejected. Notification of acceptance with a request to submit the next phase document will be emailed to the offeror's contracting authority as entered in the BIDS registration and will indicate the next submission type, clarification requests, and due date and time. Likewise, rejection notifications will be emailed to the address provided in the BIDS registration.

Debriefings for Quad Charts will not be conducted due to the nature of BAAs. In general, submissions are not considered for further review when they do not meet the basic requirement, are too costly, or do not fit the mission. All Quad Charts are evaluated in accordance with Section 4, Proposal Evaluation, of this BAA.

3.5.5. Phase 1 Status and Inquiries.

Phase 1 is complete when all submissions have been accepted or rejected in accordance with this BAA. Inquiries by phone concerning the status of Quad Charts will not be accepted. After login to the BIDS website, submitters are able to check the status of their submission(s) under Check My Current Proposals.

3.6. Phase 2 White Paper Submissions.

Offerors shall prepare and upload a White Paper with no more than twelve (12) pages plus a

cover page in response to Phase 2 of this BAA. All submission pages shall be 8 ½ by 11 inches, double-spaced with fonts no smaller than 10 point; all margins shall be one inch. Each page of the submission shall contain the document identifier in the document header. If the White Paper contains more than 12 pages including tables, charts, and figures, only the first 12 pages will be evaluated. All White Paper submissions must include a cover page. The cover page template is provided at the BIDS website under [Reference Materials](#). Cover pages are excluded from the White Paper page count.

3.6.1. Phase 2 Due Date and Time.

All unclassified White Papers must be received electronically through BIDS no later than the due date and time specified in the Phase I Quad Chart acceptance email. Likewise, classified submissions must be received by the same due date and time. Offerors must create a placeholder record in BIDS with an unclassified cover page attachment. Refer to the “Special Handling Procedures for Classified Information” in this document for instructions on classified submissions. BIDS does not allow proposals to be uploaded or classified placeholders to be created after the due date and time. Any proposal, regardless of classification, submitted by any other means, or that is late, will not be considered by the Government.

3.6.2. Electronic File Format.

The White Paper shall be submitted in Microsoft Office (Word or PowerPoint), or Adobe Acrobat (PDF – portable document format) format. ZIP files and other application formats are not acceptable. The document must be print-capable, without password, and no larger than 2048 KB. File names must contain the appropriate file name extension (.doc/.docx, .ppt/.pptx, or .pdf). File names cannot contain spaces or special characters. Apple/Macintosh users must ensure the entire file name and path are free of spaces and special characters. Submissions that cannot be opened, viewed, or printed will not be considered.

3.6.3. Phase 2 Document Upload.

To upload a next phase document use the link back to BIDS provided in the acceptance email, or login to BIDS under **Proposals Due** to open the accepted record. Select **Create Next Submission** and follow the instructions.

3.6.4. White Paper Content.

White Papers shall provide a description of the technical approach, the specific tasks and deliverables by phase, schedule and cost estimate by phase, intellectual property and government rights, transition planning for production, and a capability statement. The offeror shall incorporate all clarification data requests from the acceptance email into the submission. Indicate clarification entries by footnote and reference the requested item(s) in the footer area. The following White Paper sections and details are required.

3.6.4.1. Cover Page.

A cover page template is provided at the BIDS website under [Reference Materials](#). The cover page includes necessary contractual information including the offeror’s contracting POC (name, telephone number, email address, facsimile number, mailing

address) and business information (Data Universal Numbering System (DUNS) number, CAGE code, business type). Include the proposed contract type, total cost, and the duration of all phases/tasks. Cover pages are excluded from the page count.

3.6.4.2. Technical Approach.

Describe the proposed solution relative to the requirement. Focus content on operational capabilities required to address the problem, the underlying theory that supports the operational capability, and suggested concept of operations. Identify end users that could be interested in the proposed solution and describe how the solution will be a benefit. Include drawings, diagrams, charts, and tables needed to explain the effort. Describe if, and where, the proposed technology/solution has been, or is being used. Identify sponsoring agency and funding resources; or if none, so state.

3.6.4.3. Tasks and Deliverables.

Identify the proposed tasks by phase in the order of occurrence. A phase must have clear exit criteria to serve as a “go” or “no-go” decision point to proceed to the next phase. Identify work that will be performed by other organizations or agencies. Identify anticipated technical risks along with planned mitigation efforts. Indicate any Government furnished material (GFM), equipment (GFE), or information (GFI) that will be required with the task and need date; or if none, so state. For each phase include the exit criteria and all products and deliverables as defined in “Product and Deliverable Requirements” in section 2 of this document. If a phase is proposed as an option, so state.

3.6.4.4. Schedule.

Develop a master project schedule preferably in Gantt chart format. The schedule shall indicate the planned start and stop point for each phase with top level subordinate tasks, estimated delivery dates, and completion dates. Indicate the total project POP in months using January 2nd as a notional start date through the completion date.

3.6.4.5. Cost.

Provide the proposed, task-phased budgetary estimate inclusive of any proposed options. At a minimum, this estimate shall detail estimated labor hours and costs, anticipated material costs, product and deliverable costs (see section 2 General Information, “Product and Deliverable Requirements” in this document) and other costs (e.g., subcontracts, indirect rates, fee rate) for each phase/task. Costs allocated to other organizations (e.g., Government testing) shall be clearly shown; or if none, so state. Changes in cost greater than 10 percent from those proposed in the prior submission shall be explained.

3.6.4.6. Intellectual Property, Technical Data, and Software.

Disclose/discuss all intellectual property, technical data, and/or software rights that are intended to be used in connection with this submission. See section 2 General Information, “Submission Handling/Rights in Technical Data and Computer Software/Patent Rights” in this document. For additional information on this topic,

see the DOD Intellectual Property Guide, available for download on the Technology Transition Web page at www.cttso.gov and DFARS 252.227-7013 and DFARS 252.227-7014.

3.6.4.6.1. Patents and Patent Applications.

Identify any existing, applied for, or pending patents that will be used in the conduct of this effort. Provide patent number with date of issue and title or patent application number with filing date and title. Any patent or patent application that resulted from prior government funding should be identified. If no patents or patent applications are relevant, so state. See section 2 General Information, "Submission Handling/Rights in Technical Data and Computer Software/Patent Rights" in this document.

3.6.4.6.2. Rights in Technical Data and Software.

Identify any technical data and/or computer software that will be delivered with less than unlimited rights as prescribed in DFARS 252.227-7013 and DFARS 252.227-7014. If unlimited rights in technical data are proposed, so state. See section 2 General Information, "Submission Handling/Rights in Technical Data and Computer Software/Patent Rights" in this document.

3.6.4.7. Transition from Prototype to Production.

Describe the overall strategy to transition the results of this development effort to production once the funded effort is concluded. Briefly describe the overall strategy for transition, potential partners, transition issues to include any obvious regulatory, liability, interoperability, or financing issues. Discuss the interaction with representative users and the concept for test and evaluation by those users and follow on support of a product resulting from this effort.

3.6.4.8. Organizational Capability Statement.

Describe the offeror's capability and/or experience in doing this type of work. Identify technical team members or principal investigators and associated expertise. If applicable, include a description of co-participants' capabilities and/or experience. State whether an agreement has been reached (or not) with the co-participants. The offeror is only required to submit past performance information in response to a request for Full Proposal.

3.6.5. Phase 2 Notifications to Offeror.

The Government will notify the offeror when a submission has been accepted or rejected. Notification of acceptance with a request to submit the next phase document will be emailed to the offeror's contracting authority as *entered in the BIDS registration* and will indicate the next submission type, clarification requests, and due date and time. Likewise, rejection notifications will be emailed to the address provided in the BIDS registration. **Debriefings for White Papers will not be conducted due to the nature of BAAs.** In general, submissions are not considered for further review when they do not meet the basic requirement, are too costly, do not fit the mission, or funding is not expected. All White Papers are evaluated in accordance with Section 4, Proposal Evaluation, of this

BAA.

3.6.6. Phase 2 Status and Inquiries.

Phase 2 is complete when all submissions have been accepted or rejected in accordance with this BAA. Inquiries by phone concerning the status of White Papers will not be accepted. After login to the [BIDS website](#), submitters are able to check the status of their submission(s) under **Check My Current Proposals**.

3.7. Phase 3 Full Proposal Submissions.

Offerors shall prepare and upload a Full Proposal, consisting of a Technical Proposal and a Cost Proposal, plus a cover page, in response to Phase 3 of this BAA. All pages shall be 8 ½ by 11 inches, double-spaced with fonts no smaller than 10 point; all margins shall be one inch. Each page of the submission shall contain the document identifier in the document header. The Technical Proposal must be no more than 50 pages including tables, charts, and figures. If the document contains more than 50 pages, only the first 50 pages will be evaluated. All paragraphs containing proprietary information must be clearly marked. The Cost Proposal has no page limit; however, unnecessarily elaborate or information beyond those sufficient to present a complete and effective response is not desired.

Disclaimer - To minimize the cost and effort for submitters, Phase 3, Full Proposals, will only be requested for qualifying solutions that have a high probability of award; however, the Government reserves the right to cancel requirements, or any request for proposals for this solicitation, at any time prior to award and shall not be liable for any cost of proposal preparation or submission.

3.7.1. Phase 3 Due Date and Time.

All unclassified Full Proposals must be received electronically through BIDS no later than the due date and time specified in the acceptance email. Likewise, classified submissions must be received by the due date and time. Offerors must create a placeholder record in BIDS with an unclassified cover page attachment. Refer to the “Special Handling Procedures for Classified Information” in this document for instructions on classified submissions. BIDS does not allow proposals to be uploaded or classified placeholders to be created after the due date and time. Any proposal, regardless of classification, submitted by any other means, or that is late, will not be considered by the Government.

3.7.2. Electronic File Format.

The Full Proposal shall be submitted in Microsoft Office (Word or PowerPoint), or Adobe Acrobat (PDF – portable document format). The cost proposal may be submitted in Microsoft Office (Excel) format. ZIP files and other application formats are not acceptable. The document must be print-capable, without password, and no larger than 2048 KB. File names must contain the appropriate file name extension (.doc/.docx, .ppt/.pptx, .xls/.xlsx, or .pdf). File names cannot contain spaces or special characters. Apple/Macintosh users must ensure the entire file name and path are free of spaces and special characters. Submissions that cannot be opened, viewed, or printed will not be considered.

3.7.3. Phase 3 Document Upload.

To upload a next phase document, locate and open the accepted record in BIDS and select **Create Next Submission**.

3.7.4. Full Proposal Components.

Full Proposals shall consist of two major sections described in this document, and can be uploaded to BIDS in two separate files each limited to 2048 KB each. The first section is the Technical Proposal and shall include all information related to the proposal as specified in this BAA including figures, charts, and tables plus the cover page. The second section is the Cost Proposal to include all cost data as well as an explanation of changes in cost greater than 10 percent from those proposed in the prior submission. Additionally, the offeror will include a cover page as follows:

A cover page template is provided at the BIDS website under [Reference Materials](#). The cover page includes necessary contractual information including the offeror's contracting POC (name, telephone number, email address, facsimile number, mailing address) and business information (DUNS number, CAGE code, business type). Include the proposed contract type, total cost, and the duration of all phases/tasks.

3.7.5. Technical Proposal Content.

The Technical Proposal shall provide a technically detailed solution of the problem addressed in the requirement and fully expand the technology proposed in the prior submissions. The following sections and associated data are required. The offeror shall incorporate all clarification data requests in the Phase 2 acceptance email. Indicate clarification entries by footnote and reference the requested item(s) in the footer area.

3.7.5.1. Reserved.**3.7.5.2. Abstract.**

The abstract is a one page (or less) synopsis of the proposal that includes the title and the basic approach to satisfy the requirement. Describe the overall scope of work to be performed for the entire POP inclusive of options. The abstract shall stand alone and be suitable for release under the Freedom of Information Act, 5 U.S.C. 552, as amended.

3.7.5.3. Executive Summary.

An executive summary is a concise description of the technology and solution being proposed. Include key information that demonstrates how the proposed solution meets the published requirement. The executive summary should not introduce any new information not covered in the subsequent content.

3.7.5.4. Technical Approach.

Describe the technical approach for the proposed solution to meet the requirement. Include technical details of the solution and fully expand the technology proposed in the prior phase submission. Include the methodology, underlying theory, system

components, and operational scenario for the intended users. Include drawings, diagrams, charts, and tables needed to explain the effort. Describe relevant prior application of the proposed technology and/or solution, how it is being used, and by whom. Identify sponsoring agency and funding resources; or if none, so state. If subcontractors are proposed, include a detailed description of the effort that they will be performing in support of or in addition to the prime.

3.7.5.5. Project Plan.

The project plan shall be organized by phase and describe the work to be performed along with all associated requirements to successfully complete the proposed effort. Include a summary of the individual phases to follow.

3.7.5.5.1. Phases.

Phases shall be defined by the subset of tasks to be performed, phase objectives to be accomplished, and the required POP to completion. Phases shall be listed in order of occurrence. Identify phases that are optional. Each phase must contain clear exit criteria that is measurable evidence of completion and serves as a “go” or “no-go” decision point. Each phase shall include a total cost.

3.7.5.5.2. Tasks within a Phase.

For each task, provide a detailed description of the work to be performed. Identify any work that will be performed by other organizations or agencies; or if none, so state. Indicate if an agreement is in place for the resources.

3.7.5.5.3. Products and Deliverables.

Identify all deliverables - products as well as documentation and reports - for each Task/Phase. Refer to section 2.6 of this document “Product and Deliverable Requirements” for the minimum report requirements, and additional products and deliverables in performance of the effort proposed.

3.7.5.6. Master Schedule.

Develop a master project schedule that includes phase start and stop dates as well as major milestones, critical tasks, and report and product delivery dates. Assume a start date of January 2nd. Indicate any optional phases.

3.7.5.7. Government Furnished Equipment.

Reasonably identify all Government furnished equipment (GFE), materials, facilities, or information with the need date and suggested source at the time of proposal submission. GFE includes, but is not limited to: Government email accounts, SIPRNET access, Common Access Cards (CACs), and/or space at a CTTSO facility (either permanent residence, temporary residence, or testing). Upon identifying GFE, if an offeror’s proposal is selected for contract award, the proposed GFE will be identified in the resulting contract. Failure to adequately identify necessary GFE may result in contract termination due to the offeror’s inability to perform under this competitive source selection. If Government equipment, materials, facilities, or information are not required, so state.

3.7.5.8. Project Risks and Mitigation.

Identify anticipated technical and management risks along with planned mitigation efforts. Indicate the risk assessment as high, medium, or low.

3.7.5.9. Organizational Capability Statement.

Include a brief description of the offeror's organization. Describe the offeror's capability and/or experience in doing the type of work being proposed. If applicable, include a description of co-participants' capabilities and/or experience. State whether an agreement has been reached with the co-participants. Provide at least three references, to include points of contact, for like or similar work.

3.7.5.10. Organizational Resources.

Identify key technical personnel and principal investigator(s) including alternates and co-participants, if applicable. Include a brief biography, relevant expertise, and a list of recent publications for each. Identify any team members with potential conflicts of interest. Possible conflicts of interest include personnel formerly employed by the federal Government within the past two years from the date of proposal submission. Provide name, duties, employing agency, and dates of employment; or if none, so state.

3.7.5.11. Intellectual Property, Technical Data, and Software.

All anticipated intellectual property, technical data or software rights shall be disclosed. See section 2 General Information, "Submission Handling/Rights in Technical Data and Computer Software/Patent Rights" in this document.

3.7.5.11.1. Patents and Patent Applications.

Identify any existing, applied for, or pending patents that will be used in the conduct of this effort. Provide Patent number or application number and title. Any patent that resulted from prior Government funding should be identified. State if no patents or patent applications are relevant.

3.7.5.11.2. Rights in Technical Data.

Identify any technical data and/or computer software that will be delivered with less than unlimited rights as prescribed in DFARS 252.227-7013 and DFARS 252.227-7014. State if unlimited rights in technical data are proposed.

3.7.5.12. Transition from Prototype to Production.

Describe the approach and issues related to transition or commercialization of the results of this effort to an operationally suitable and affordable product for the intended users to include the following. The cost to prepare the Transition Plan should be included in the proposed costs. The cost to prepare the Transition Plan should be detailed in accordance with BAA Section 3.7.6.1. Additional information regarding the Technology Transition Guidance can be found at the [CTTSO website](#).

NOTE – If the specific requirement will not reasonably result in a prototype (e.g.,

study, service requirement) so state “Not Applicable to this Requirement” and justify why.

3.7.5.12.1. Transition Strategy.

Provide the overall strategy for transition to production (licensing, partnering, or venturing) along with the associated timelines for actions associated with the transition. Describe the roles of current development partners, subcontractors, or other organizations that will be leveraged. If the offeror is not a commercial entity, indicate if a commercial partner has been identified. Discuss barriers to commercialization, such as anticipated regulatory issues (such as environmental, safety, health, and transportation), liability issues, interoperability, and financing, and planned steps to address these barriers.

3.7.5.12.2. Transition Approach.

Describe the type and level of effort envisioned to take the technology from its state at the end of the development effort to a production ready, affordable, operationally suitable product (such as size and/or weight reduction, packaging, environmental hardening, integration, additional test and certification). Provide an estimate of any costs to transition the prototype to low rate initial production. Provide the estimated production unit price for the end users.

3.7.5.12.3. Test and Evaluation.

Describe the plan to involve representative users during the design and development process and the general plan for test and evaluation by representative end users. If the phases of performance include representative user test and evaluation: (1) ensure coordination of user participation is thoroughly discussed in the technical approach; and (2) state “Representative User Participation will occur during contract performance.”

3.7.5.12.4. Operational Support.

Describe the estimated level of training needed to prepare users to utilize the product in an operational environment. Discuss the anticipated support concept such as level(s) of repair, spare parts, warranties, operation and maintenance technical manuals, simulators, and other logistics considerations.

3.7.5.13. Human Subjects and Animal Testing.

The proposal shall provide a statement regarding the anticipated use of human subjects or animals in testing; or if none, so state. If yes, procedures for complying with all laws and regulations governing the use of animals or human subjects in research projects shall be included in the technical proposal. See section 2.9, “Animal or Human Testing Compliance” in this document for details.

3.7.5.14. Environmental Impact.

The proposal shall provide a statement regarding the impact of the work proposed on the environment. State if no impact exists.

3.7.5.15. Classification and Security.

If the offeror is proposing to perform research in a classified area, indicate the level of classification of the research and the level of clearance of the potential principal investigator and all proposed personnel. The contractor shall include facility clearance information. Also, the contractor shall indicate the Government agency that issued the clearances. State if the proposed effort is unclassified.

3.7.5.16. Subcontracting Plan.

If the total amount of the proposal exceeds \$650,000 and the offeror is not a small business, the offeror shall submit a subcontracting plan for small business and small socially and economically disadvantaged business concerns. A mutually agreeable plan will be included in and made a part of the resultant contract. The contract cannot be executed unless the contracting officer determines that the plan provides the maximum practicable opportunity for small business and small disadvantaged business concerns to participate in the performance of the contract. The Subcontracting Plan/information is excluded from page count. The DoD goal for awarding subcontracts to Small Disadvantaged Businesses is 5%.

3.7.6. Cost Proposal.

The offeror and each significant subcontractor, if any, shall prepare and submit cost or pricing data, and supporting attachments in accordance with Table 15-2 of [FAR 15.408](#). All spreadsheet formulas will be accessible. As soon as practicable after agreement on price, but before contract award, the offeror shall submit a Certificate of Current Cost or Pricing Data as prescribed by [FAR 15.406-2](#) for cost type contracts exceeding \$700,000.

[NOTE: To determine the reasonableness of the cost proposal, the Government may request additional supporting documentation for proposed costs.]

3.7.6.1. Cost Summary Section.

Provide a narrative discussing/substantiating elements of the cost proposal. Provide a separate summary of the total cost for each phase and for the total of the entire effort proposed. Indicate optional phases. Explain changes in cost greater than 10 percent from those proposed in the previous submission. The Cost Summary may be submitted in Microsoft Office Word or PDF with Font no smaller than 10 point.

3.7.6.1.1. Other Funding Sources.

The proposal shall provide the names of other federal, state, or local agencies, or other parties receiving the proposal and/or funding or potentially funding the proposed effort. State if no other funding sources or parties are involved.

Additional information/documents to be included in the Cost Summary:

- *Business/Cost Checklist.* The offeror shall complete and include a copy of the Business/Cost Checklist found at the BIDS website under [Reference Materials](#). Information and documents required in the Business/Cost Checklist shall be included in this proposal.

- *Terms & Conditions.* The offeror shall identify any anticipated/proposed contract terms and conditions in the proposal summary.
- *Proposal Validity.* The proposal shall remain valid for a period of no less than 180 days from submission.
- *Forward Pricing Rate Agreement.* If the offeror has an applicable rate agreement with DCAA (or another Federal Agency, e.g., HHS), please include a copy of the agreement and provide a point of contact to your cognizant DCAA office. If the offeror has not previously been audited by DCAA, the procuring office may request an audit to verify the proposal labor direct and indirect rates. This applies to both prime contractors and subcontractors.
- *ACH Form.* The offeror will submit a completed ACH Form. (Found at the BIDS website under [Reference Materials](#).)
- *VETS 100.* The offeror will submit the most recent VETS 100 certificate.
- *Subcontracting Plan.* If the offeror is a large business or other applicable entity operating in the United States, the offeror shall submit a Small Business Subcontracting Plan.
- *Past Performance.* The offeror shall provide information on previous Federal Government prime or subcontracts featuring endeavors relevant (i.e., within the past three years and of similar size and complexity) to the specific requirement.

3.7.6.2. Detailed Cost Estimate.

Provide, in table format, a detailed cost breakdown by phase, of all items identified in the technical portion of the proposal for the following cost elements. Include all options. Submission of Detailed Cost Estimate spreadsheets and tables shall be in Microsoft Office (Excel) format with Font no smaller than 10 point.

3.7.6.2.1. Direct Labor Costs.

Detail the direct labor cost estimate by showing the breakdown of labor hours, rates, cost for each category, and furnish the basis for the estimates.

- *Labor Category.* Include a detailed description of the category.
- *Labor Hours.* Include a Basis of Estimate for the proposed hours. Detail hours to be worked by each labor category proposed per each task, per each fiscal year and cumulatively.
- *Labor Rates.* Rates shall be in accordance with established rate agreements. If no rate agreement exists, use payroll data with actual rates to substantiate the proposed rates. If fully loaded rates are proposed, the offeror shall identify the base rate and build up.
- *Escalation.* Identify the escalation rate, how the rate is applied, and provide justification for the rate used.

3.7.6.2.2. Indirect Costs.

Indicate how the offeror has computed and applied offeror's indirect costs (e.g., overhead, G&A, material burden). Indicate the rates used and provide an appropriate explanation.

3.7.6.2.3. Other Direct Costs.

Identify all other costs directly attributable to the effort and not included in other sections (e.g., special tooling, travel, computer and consultant services, preservation, packaging and packing, spoilage and rework) and provide the basis for pricing.

- *Travel.* The basis for travel estimates will include trip purpose, departure site and destination, number of persons traveling, number of days, ground transportation requirements, and detailed costs for airfare, hotel, rental cars, and per diem allowances per Federal Travel Regulations (FTR).

3.7.6.2.4. Materials and Subcontractors.

- *Materials.* Submit a detailed Bill of Materials identifying each discrete material component. Backup documentation must be submitted to explain the basis of estimate for at least 80% of the total material cost proposed. Backup documentation may include: actual production costs, catalog listings, supplier quotes, actual invoices, or other documentation from a third-party source which verifies the proposed price.
- *Consultants.* If any consultants are to be used, the offeror shall submit consultant quotes for hourly rates, estimated number of hours required, and justification.
- *Subcontractors.* If any subcontractors are to be used, the offeror shall submit complete subcontractor quotes or proposals as part of the proposal. Subcontractor proposals will be evaluated along with the prime's proposal, and they are expected to contain the same level of detail as a prime proposal. Subcontractors providing commercial items may submit a commercial quote instead of a detailed proposal. [NOTE: In order to protect proprietary data, subcontractors may submit their detailed cost proposals directly to the Contracting Officer instead of submitting to the prime contractor. If this occurs, the prime is responsible for ensuring subcontractor's submission is timely and is completed in accordance with these instructions.

3.7.6.2.5. Government Furnished or Contractor Acquired Equipment.

Identify the external property or materials required to perform the task in the summary. Separate items to be acquired with contract funds and those to be furnished by the Government. Reasonably provide the description or title and estimated unit and total costs of each item (i.e., manufacturer, catalog price, or previous purchase price). When such information on individual items is not available, the items should be grouped by class and estimated values indicated. In addition, the offeror shall include a statement of the extent to which the offeror is willing to acquire the items. NOTE: The FAR generally prohibits providing an industrial contractor with facilities (including plant equipment and real property) with a unit acquisition cost of less than \$10,000.

3.7.6.2.6. Fee.

Include the fee proposed for this effort. State if no fee is proposed. Include a discussion, in the summary, of risk, technical difficulty, need for management/oversight, exceptional circumstances, etc.

3.7.6.2.7. Competitive Methods.

For those acquisitions (e.g., subcontract, purchase orders, material orders) over \$150,000 priced on a competitive basis, also provide data showing degree of competition and the basis for establishing the source and reasonableness of price. For inter-organizational transfers priced at other than cost of the comparable competitive commercial work of the division, subsidiary, or affiliate of the contractor, explain the pricing method ([See FAR 31.205-26\(e\)](#)).

3.7.6.2.8. Established Catalog or Market Prices/Prices Set By Law or Regulation.

When an exemption from the requirement to submit cost or pricing data is claimed, whether the item was produced by others or by the offeror, provide justification for the exemption.

3.7.6.2.9. Royalties.

If more than \$250 provide the following information on a separate page for each separate royalty or license fee:

- Name and Address of Licensor
- Date of the License Agreement (*See Note 1 below.*)
- Patent numbers, Patent Application Serial Numbers, or other basis on which the royalty is payable
- Brief description (including any part or model numbers of each contract item or component on which the royalty is payable)
- Percentage or dollar rate of royalty per unit
- Unit price of contract item
- Number of units
- Total dollar amount of royalties

Note 1: A copy of the current license agreement and identification of applicable claims of specific patents shall be provided upon request by the contracting officer. See FAR 27.204 and FAR 31.205.37.

3.7.6.2.10. Facilities Capital Cost of Money.

When the offeror elects to claim facilities capital cost of money as an allowable cost, the offeror must submit Form CASB-CMF and show the calculation of the proposed amount. See [FAR 31.205-10](#).

3.7.7. Phase 3 Notifications to Offerors.

Notification of acceptance or rejection of a Phase 3 submission will be sent via email to the offeror's principal contact as entered in the BIDS registration. Acceptance of a Full

Proposal does not guarantee a contract will be awarded. If the Government does not accept the Phase 3 proposal, the offeror may request a formal pre-award debriefing in accordance with [FAR 15.5](#).

3.7.8. Phase 3 Notifications to Offerors.

Offerors are encouraged to see resolution within the agency before filing a protest. Offerors who choose to submit any protest, must do so directly to the CTTSO Contracting Officer. All such protests will be resolved promptly in accordance with FAR 33.103. Should the offeror choose to submit a protest to the GAO, the Offeror must clearly label protests to GAO as such and submit only to the CTTSO Contracting Officer who will then transmit to the protest to GAO. The Government will deem receipt of the protest by the Contracting Officer as constituting receipt by the GAO for purposes of determining timeliness. Addresses for receipt confirmation can be requested via the BIDS help function.

3.7.9. Phase 3 Status and Inquiries.

Phase 3 is complete when the Government concludes technical evaluations of all submissions and awards any contracts considered under this BAA. Inquiries by phone concerning the status of Full Proposals will not be accepted. After login to the BIDS website, submitters are able to check the status of any submission under **Check My Current Proposals**.

3.8. Clarification Requests.

Should the offeror be asked to submit clarifications to a Phase 2 White Paper or a Phase 3 Full Proposal, the BIDS email from the Contracting Officer will contain instructions on the specific request and associated requirements. BIDS will use CL (Clarification) instead of WP (White Paper), or FP (Full Proposal) as the Document Identifier designation (e.g., **CL** CB-1112-ABCORP-xxxx-CL; where xxxx-CL is the SIT entered by the submitter). The request will contain the due date and time and can be less than the standard 30-day response time depending on the nature of the request.

3.9. Instructions for Offeror “No-bid” and Submission Withdrawal.

From time to time an offeror decides not to submit a subsequent Phase 2 or Phase 3 submission. If this is the case, the offeror shall indicate in BIDS that they are not providing the subsequent submission. The offeror shall follow the steps identified in BIDS to upload a submission and attach a document to indicate the withdrawal of the previous submission(s) and the intent to not participate in further submissions. If possible, the Document Identifier should reflect the submission status (e.g., CB-1112-ABCORP-xxxx-WD or xxxx-NoBid). To withdraw a submission after the due date and time, notify the contracting officer at the BAA email address.

4. PROPOSAL EVALUATION.

This section describes the criteria that will be used to evaluate each submission. The phase of the submission will determine the extent that each criterion applies based on the information requirements described in Section 3. Criteria are not weighted, and submissions are not ranked.

4.1. Evaluation Criteria.

The criteria used to evaluate and select proposals for projects are described as follows. Each proposal will be evaluated on its own merit and relevance to the program requirements rather than against other proposals in the same general research area.

4.1.1. Basic Requirement.

The proposed solution must meet the letter and intent of the stated requirement; all elements within the proposal must exhibit a comprehensive understanding of the problem and the requirements of intended end users. The proposed solution must meet multiple user (U.S. Government or commercial) needs and be fully compliant with all elements of the solicitation including format, content, and structure as well as all BAA instructions.

4.1.2. Technical Performance.

The proposed technical approach must be 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 are to be complete and in a logical sequence. All proposed deliverables must clearly define a final product that meets the requirement and can be expected as a result of the award. The proposal must identify and clearly define technical risks and planned mitigation efforts. Those risks and the associated mitigation must be defined, feasible, and reasonable. The roles of the prime and other participants required must be clearly distinguished and precoordination with all participants (including Government facilities) fully documented. The requirement for and the anticipated use or integration of Government Furnished Equipment/Information (GFE/GFI) including all equipment, facilities, and information, must be fully described including dates when such GFE/GFI will be required. Intellectual property ownership and the planned transition to production must be adequately addressed, including a support concept for the product described. Similar efforts completed by the offeror in this area must be fully described including identification of other Government sponsors.

4.1.3. Cost.

The proposed costs must be both reasonable for the work proposed and achievable. The proposal must document all anticipated costs including those of associate, participating organizations. The proposal must demonstrate that the offeror has fully analyzed budget requirements and addressed resulting cost risks. The proposal must indicate all cost-sharing and leveraging opportunities explored and identified and the intellectual property expectations associated with that cost-sharing. Other sponsors who have funded or are funding this offeror for the same or similar efforts must be identified by agency, program manager name, phone number and email address.

4.1.4. Schedule.

The proposed schedule must be reasonable, achievable, and complete. The proposal must indicate that the offeror has fully analyzed the project's critical path and has addressed the resulting schedule risks.

4.1.5. Contractor Past Performance.

Past performance is a risk assessment based upon the probability of successfully performing the requirement. The offeror's past performance in similar efforts must clearly demonstrate an ability to deliver products that meet the proposed technical performance requirements within the proposed budget and schedule. The proposed project team must have demonstrated expertise to manage the cost, schedule, and technical aspects of the project. The Government's evaluation, at all phases of the BAA, of past performance will rely on evidence provided directly by offerors as well as independent sources of information. If applicable, the offeror shall state if it has no relevant past performance.

5. TECHNOLOGY DEVELOPMENT REQUIREMENTS AND OBJECTIVES.

This section provides the requirement descriptions and overall technical objectives. CTTSO is interested in submissions in the following mission areas of combating terrorism (CbT). The intent of this BAA is to identify technologies and approaches that provide near-, mid-, and long-term solutions that enhance the capabilities of the U.S. Government to combat or mitigate terrorism. The main objective is to provide rapid prototype development focused on current and future critical multi-agency counterterrorism and antiterrorism requirements. The level of detail and order of appearance for a given requirement are not intended to convey any information regarding relative priority.

5.1. Advanced Analytic Capabilities (AAC)

R3944 MICRO CLOUD SERVER (MCS)

Current communications devices for individual Soldiers and Marines operating at the tactical edge have limited data storage, processing, and distribution capabilities. There is no capability to share large amounts of mission-critical data among small units operating within the Infantry Battalion, Company, and Platoon battle space. Intelligence products resulting from utilization of the latest in Big Data and Advanced Analysis technologies are often too large to be made available below the Battalion or Regimental level. The necessity exists to provide two-way intelligence and combat information data flows, in near real-time, between command elements, deployed sensors/collectors, and individual Soldiers or Marines. Utilization of computing power pushed forward to the company level will allow real-time analytics, intelligence, and combat information to be available to the tactical decision makers without the constraints imposed by limited bandwidth.

This requirement is to develop a low-cost, lightweight, hardened manpackable or fixed mount data Micro Cloud Server (MCS) that will store mission-specific data pulled from a Combat Operations Center (COC) cloud server located at the Company Level Intelligence Cell (CLIC) or Battalion COC with the capability to share data in order to allow for intel data analysis, processing, and computation by small unit commanders, Platoon Commanders and Squad Leaders, operating at the tactical edge. Current server based analytical tools are better suited for analysis at a headquarters level with results being provided to the tactical edge while current mobile based mesh networks at the tactical edge level do not have the data storage or processing ability needed to conduct comprehensive analysis. The MCS will provide small unit commanders the capability to maintain situational awareness of the operating environment and the ability to store, collect, process, and share data to other authorized devices within the battle space via a mesh network. The system shall be capable of supplying stored data during disconnected operations or, dependent upon communication paths, auto-syncing data to ensure accurate and updated information is available for mission planning and execution. MCS shall use commercially available interface standards to interoperate with commercial off-the-shelf (COTS) networking equipment and shall use DoD-proprietary protocols to interoperate with existing GOTS tactical radio communications gear.

Specific key performance parameters:

- Allows preloaded mission-specific data to be available during disconnected, intermittent and latent communication (DIL-C) operations
- Connect to DoD network radios PRC-117G, PRC-152A, JTRS-SRW, and JTRS-WNW
- Connect to devices using commercial Wi-Fi 802.11 (b,g,n,ac), GPS, Bluetooth, and 3G and / or 4G cellular technologies
- User interface managed by an Android OS and a Touch Screen LCD
- Powered with external BB-2590 and / or 5590 battery packs or shore power
- IPsec
- FIPS 140-2 Level 3 Encryption
- Network interface support for 36 nodes simultaneously
- Housing tested to MIL-STD 810F standards, weight: NTE 5 lbs

R3947 INTEGRATING WARFIGHTERS USING NEXT GENERATION USER INTERFACES (I-WUN)

There is currently a lack of real-time intelligence (situational awareness) data to/from the tactical edge level user; specifically, the capability to provide the warfighter with an enhanced intelligence and fire control capability focused within the weapon system or for the tactical user to provide real-time intelligence. This requirement is for a weapon mounted platform for intelligence collection, dissemination, and utilization that will enable the user to better accomplish their primary tactical activities and mission by enhancing situational awareness via an intelligence enabled weapon. The system will provide an individual warfighter's weapon advanced capabilities to include intelligence updates, targeting, fire control, and enhanced situational awareness. The system should have functionality enabling navigation, power, and multiple situational awareness components to individual, squad, and crew small arms weapon systems via systems integration that is attached to the weapon. The critical capability of this requirement is the ability to both push data to the warfighter and receive information and situational awareness from the warfighter in order to create enhanced situational awareness that allows for better decision making at multiple command levels. The system should provide tools such as Blue Force Tracking command-and-control software, targeting communication (i.e., ability to transmit a target to the shooter), and any additional situational awareness capabilities that allow both the shooter and command structure enhanced to/from communication. Application of this capability will enable the warfighter at all levels to make better and faster decisions in an operational environment.

The system will use COTS components that are integrated into currently fielded small arms weapon systems, such as the USMC M4 Carbine and the M203 40mm Grenade Launcher, that turns these weapons into a smart weapon with the capability to collect information and disseminate advanced analytic outputs and intelligence analyses to the tactical user on the edge of the battlefield. The system will be implemented via an application "app" based approach that is installed on handheld devices and utilizes an Android based OS. The weapons will be equipped with standard optics and a suite of sensors capable of transmitting data from an attached Android device (phone) to another unattached Android device (tablet). The devices will be synchronized, enabling enhanced situational awareness and a fire control capability. The warfighter at the tactical edge will be able to receive and feed operational data to higher and/or adjacent units. The central processing unit, sensors, and power source will be integrated into the weapon platform (hand guards, pistol grip, etc.) as attachments. The processing power and

analytic backbone will not be resident to the system and analysis will occur at a higher level and be pushed to the instrumented weapon. A secondary power source should be able to be accessed via an external battery that can be carried in a pack or on a military issued vest.

Of critical importance is that the system must enhance situational awareness while never distracting the tactical operator from their mission. Additionally, if the device becomes non-mission capable, the I-WUN must not render the weapon or weapon sight unusable.

Specific key performance parameters:

- Digital Image: Not less than 1280x720 resolution
- Map Point Accuracy: In accordance with Federal Geographic Data Committee; FGDC STD-007-1998
- Blue Force Tracker compatible
- Navigation via dead reckoning
- Rifle metrics via sensors to include: Rounds count, barrel temperature, weapon azimuth bearing and elevation
- COTS Metrics
 - Verify standard commercial interfaces used (USB, RS-232, Ethernet, Bluetooth, Wi-Fi, NFC, etc.
 - Verify Android OS and hardware is commonly available
 - Total system weight: NTE 3 lbs
 - Powered rail endurance (all capabilities are active): No less than 6 hours
- System will use commercially available interface standards (USB, RS-232, Ethernet, Bluetooth, Wi-Fi, NFC, etc.).

R000 AAC FY16 UNSPECIFIED REQUIREMENT

Develop new or improved technologies or emerging technological capabilities pertaining to Advanced Analytics that may be of interest to the CTTSO but were not specifically requested in this BAA and are not commercially available. Proposals submitted shall be timely and relevant, and further combating terrorism.

Although not limited to the following concepts, the Government is interested in the following:

1. Integrated Solutions:

Advanced analytic platforms, tools, and training for integrated solutions that fuse a variety of data sources, tools, and models (including socio-cultural dynamic models) into advanced counterinsurgency and domestic combating terrorism analytical systems useable by interagency and coalition operational communities at the strategic, operational, and tactical levels. This can include near real-time integrated analytical and knowledge management systems that utilize a variety of sensors, devices, and architectures that address a variety of threats and scenarios.

2. Tactical Edge Analytics:

These capabilities are rapidly developed and deliver simple customized analytic tools that allow tactical edge operators to quickly compute and analyze information. Tools utilize advanced

analytic processes while delivering a streamlined user friendly interface thereby reducing process time penalty and distractions so that operators can better allocate mental resources and attention. All capabilities are intended to be low cost to acquire and maintain and have an easy to learn user interface; therefore, are replaceable as technology or user needs progress. Although not limited to, it is anticipated the majority of solutions that fit user needs will be in application “app” format.

3. Motion Imagery and Multi-Intelligence Activity Modeling:

There is currently a lack of activity modeling that provides detection, classification (defining), and modeling of an individual or group activity as observed in motion imagery sources such as wide area motion imagery (WAMI), full motion video (FMV), ground-based surveillance, and handheld video. It is necessary for these abilities to support robust search and discovery of motion imagery content, where primitive actions (e.g., vehicle track) and combinations of activities can be representative of higher level activities. Current efforts for activity modeling require an exorbitant amount of manual activity for analysis to review video for a specific event. This requirement is for the development of an automated prescreening tool in order to decrease the amount of mundane video viewing and allow analysts to work more efficiently in target analysis.

For collaboration and development of community ontologies, activity modeling must be integration-focused, utilizing standard formats and compliance to the Motion Imagery Standards Board (MISB). Standardization Agreement (STANAG) 4676 is the format of interoperable exchange and fusion of multiple ISR sources and tracks.

Unspecified requirements are for proposing unique innovations that have not yet been identified by CTTSO. If CTTSO evaluators determine an unspecified requirement submission is sufficiently promising to merit pursuing, funds may be identified at that point. Because proposed technologies from the unspecified requirements will be competing against proposed technologies for identified and prioritized interagency requirements, CTTSO may not make any awards against the unspecified requirements. Proposed technologies, models, architectures, software, hardware, tools, and other applications not directed toward a training need are not desired and will be rejected without consideration or comment.

5.2 Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE)

R3924 FIRST RESPONDER BIOLOGICAL PERSONAL PROTECTIVE EQUIPMENT
Develop multiple use biological personal protective equipment (PPE) which provides National Fire Protection Association (NFPA) 1999, Standard on Protective Clothing for Emergency Medical Operations, protection. Dual certification to NFPA 1994, Standard on Protective Ensembles for First Responders to CBRN Terrorism Incidents, Class 4 protection is also desired. The PPE shall provide demonstrated material viral penetration resistance and physical durability along with overall garment liquid and aerosol integrity. The PPE must include the integration of all protective elements to include garments, gloves, footwear, and eye/face/respiratory protection.

Breathable garment technologies are required with reduced heat stress. PPE items should provide enhanced comfort and improved ease of donning and doffing. The ensemble design must account for contaminated doffing and the application of appropriate field decontamination methods.

The biological PPE must interface with other wearer equipment and provide needed functionality for mission requirements. A user manual shall be provided with the ensemble that addresses care and maintenance. The cost of the ensemble must not exceed \$250.

R3925 CBRN RESPIRATOR TESTING

Develop appropriate test methodology and recommended performance criteria to determine the resistance of Self Contained Breathing Apparatus (SCBA) and Powered Air Purifying Respirators (PAPRs) to permeation and degradation of a broad range of chemicals beyond chemical warfare agents (CWAs). The methodology should address how SCBA/PAPR facepieces and other components provide protection to the wearer's skin and prevent anything from entering the breathing air supply (via permeation of the SCBA/PAPR materials).

Consideration should be given to how protective clothing materials are currently evaluated for chemical permeation resistance, but also account for the unique geometry of SCBA materials and features of current SCBA/PAPR designs. Existing methodology for assessing chemical compatibility of ensemble materials applied in chemical protective ensemble standards should be reviewed for their applicability including NFPA 991, Standard on Vapor-Protective Ensembles for Hazardous Materials Emergencies; NFPA 992, Standard on Liquid Splash-Protective Ensembles and Clothing for Hazardous Materials Emergencies; and NFPA 994, Standard on Protective Ensembles for First Responders to CBRN Terrorism Incidents. The proposed test procedures should be applied to several SCBA/PAPRs that meet National Institute for Occupational Safety and Health (NIOSH) CBRN certification; NFPA 981, Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services; and future NFPA 986, Standard on Respiratory Protection Equipment for Technical and Tactical Operations, requirements.

Prospective recommended procedures along with the results from this testing should be presented to the appropriate standards development organizations to assist in their development of ensemble chemical compatibility requirements that address the respiratory equipment portions of various protective ensembles. Test data shall be formatted for suitable presentation as part of the TSWG Emergency Response Decision Support Tool.

R3926 CHEMICAL SAMPLING

Rapid, efficient, and cost effective surface identification of "less than bulk" and "less than pure" chemical signatures (Explosives, Drugs, TICs, CWAs) in the field is difficult or impossible. This is further compounded by the desire to maintain these samples for reach-back confirmatory analysis.

Design and develop a small, low-cost or disposable sampler, containment vessel, and adapter to be used in sampling of broad spectrum chemical residues on operational surfaces (wood, metal, plastics, asphalt, concrete, etc.). The adapter must be compatible with commercial off-the-shelf (COTS) non-destructive detectors such as Raman or Fourier Transform Infrared (FTIR) for in-

field identification.

It must also provide safe containment to allow for subsequent confirmatory identification by a reach-back laboratory and be compatible with all common analytical solvents for subsequent solvent extraction prior to confirmatory analysis by an alternate technique. This kit must provide substantial enhancement to the sensitivity and/or selectivity of the associated detector.

R3929 RISK-BASED SELECTION OF PPE TRAINING SUPPORT PACKAGE

Develop a hazmat technician level, skills-based training program to prepare hazmat operators to use risk-based selection mechanisms to determine the appropriate level of personal protective equipment and to maintain that equipment. The training program shall include computer-based instruction and practical exercises necessary to make hazmat technicians effective in choosing personal protective equipment. The government will provide SMEs and oversight. The effort shall include, but not be limited to, a training needs analysis, design of a program of instruction, development of instructional materials, development of visual demonstrations, and the development of a set of guidelines/outlines for exercises.

The training shall incorporate the key concepts contained within the NFPA 472 Standard for Competence of Responders to Hazardous Materials and/or Weapons of Mass Destruction Incidents. Focus shall be given to chemical protective ensemble standards including NFPA 1991, Standard on Vapor-Protective Ensembles for Hazardous Materials Emergencies; NFPA 1992, Standard on Liquid Splash-Protective Ensembles and Clothing for Hazardous Materials Emergencies; and NFPA 1994, Standard on Protective Ensembles for First Responders to CBRN Terrorism Incidents.

R3930 STANDARDIZED TEST METHOD FOR COOLING SYSTEMS

Develop assessment tools and criteria to properly rank and qualify commercial cooling systems. These assessment tools shall be designed to evaluate the effectiveness of cooling systems in reducing the rise of individual wearer core temperature and other physiological measures of individual heat stress using methods that can be standardized for comparing cooling system performance. The assessment tools shall also account for specific cooling system features that discriminate the impact of the cooling system on wearer function and the use of various protective ensembles.

Methodology for ranking cooling systems shall account for cooling system features including, but not limited to: system weight, bulk, logistical requirements, affected wearer body area, anticipated service time under specific work and environmental conditions, ability to decontaminate, and ease of use and reuse. Proposed methodologies shall be demonstrated on selected cooling systems representing a range of cooling system technologies. Specific performance and feature benchmarks shall be identified which will permit end user organization's to compare the performance of devices on the same basis. The proposed methodology and recommended criteria shall be prepared in a format that is suitable for submission to appropriate standards development organizations.

R3931 CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR EVIDENCE PACKAGING

Current evidence bags utilized in Chemical, Biological, Radiological, Nuclear (CBRN) response vary based on locality. The quality and types of evidence bags range from household Ziploc® type bags to heavy duty bags. CBRN evidence bags and other forms of packaging available on the market have limited or no compatibility testing with CBRN threat agents. Furthermore, no standard or recommended types of CBRN evidence bag on the market exist. The first phase of this requirement is to conduct a study of current common packaging products and evidence bags utilized by CBRN responders. This shall include testing the packaging products and evidence bags currently used with CBRN agents to determine permeation and penetration. The results from this phase will identify gaps with the currently used packaging products and evidence bags. Phase I task specifics include:

- Conduct user survey of existing evidence packaging bags for CBRN evidence
- Conduct needs analysis to determine what types of testing and reporting is required for Phase I
- Specifically evaluate the following types of bags:
 - aLoksak® single seal
 - aLoksak® double seal
 - Ziploc® brand – freezer bags, traditional zipper and easy pull zipper
 - Hefty® brand – freezer bags, traditional zipper and easy pull zipper
 - Other evidence bags with Ziploc® type seal and self-adhesive seals
- Conduct leak and seal integrity study
- Conduct chemical compatibility testing
- Conduct air pressure change testing (evaluate the effects of air transportation altitude)
- Conduct pressure testing for the bag and seal

The second phase of this requirement shall be the creation of a next generation, standard, cost effective, durable CBRN evidence bag with an effective seal system and constructed of chemically resistant materials. The final next generation CBRN evidence bags shall come in various sizes.

Phase II task specifics include:

- Conduct a needs analysis to develop specifications for a next generation CBRN evidence bag. The specifications shall include the following sizes (in inches) of bags:
 - 3x5
 - 4x6
 - 6x8
 - 8x10
 - 10x12
 - 12x16
 - 12x36
 - 17x20
 - 20x24
 - 24x24

- 32x32
- 48x48
- The final next generation CBRN evidence bag shall include the following features:
 - Cost effective
 - Easy to use seal
 - Leak proof
 - Capable of withstanding pressure changes during aircraft transportation altitude
 - Location for labeling (writing surface for permanent marker)
 - Ability to adhere pre-printed labels to bag surface
 - Possible anti-static feature/option
 - Clear construction for viewing contents
 - CBRN chemical resistant
- Develop next generation bags

R3932 EVIDENCE-BASED MASS DECONTAMINATION TRAINING SUPPORT PACKAGE

Develop a hazmat technician level, skills-based training program to prepare hazmat operators to use evidence-based selection mechanisms to develop and/or choose the appropriate mass decontamination protocols for a given situation. The training program shall include computer-based instruction and practical exercises necessary to make hazmat technicians effective in implementing mass decontamination processes. The government will provide SMEs and oversight. The effort shall include, but not be limited to, a training needs analysis, design of a program of instruction, development of instructional materials, development of visual demonstrations, and the development of a set of guidelines and/or outlines for exercises.

The training shall incorporate the key concepts contained within the NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents and the DHS/DHHS Patient Decontamination in a Mass Chemical Exposure Incident – National Planning Guidance for Communities.

R3935 INDIVIDUAL AIR MONITOR

Develop a low-cost, detect-to-warn detector for immediate protective actions. It shall rapidly distinguish and alert on aerosol and vapor chemical hazards, Lower Explosive Limit (LEL) hazards, and enriched or deficient oxygen levels from background. The device shall have low size, weight, and power draw (wearable or carried for long periods of time with little or no degrading effect), compatible to work on battlefield, urban, and enclosed spaces, and have minimal training required with minimal logistical burden. It shall have detection sensitivity levels below immediately dangerous to life and health (IDLH), preferably at or close to permissible exposure limits (PEL) or acute exposure guideline levels (AEGL) 1.

The goal is a handheld or wearable detector configuration that will alert those individuals when the surrounding environment contains vapor chemical hazards, Lower Explosive Limit (LEL) hazards, or enriched or deficient oxygen levels.

Capability requirements: less than 325 cm³ and 0.5 kg complete; operate on standard off the shelf commercial batteries for 8 continuous hours between 5°C and 35°C; response time of 30 seconds

to high hazard levels (IDLH) and less than 180 seconds for lower hazard levels; as a threshold, automatically detect (with a goal to identify by chemical class of nerve, blister, or TIC and quantify) and alarm to the CWA and TIC chemical vapors and aerosols. Nerve and blister chemical vapors will have chemical purities greater than 40% (GA,GB,GD,GF,HD,HN3, Lewisite, VX) and TIC chemical vapors will have chemical purities greater than 80% (hydrogen cyanide (AC), cyanogen chloride (CK), phosgene (CG), chlorine, H2S, NH3, NO2, SO2).

R3936 SMALL BAGGAGE SCANNER FOR OUTDOOR ACCESS POINTS

Develop a portable non-contact small baggage scanner for positive identification of explosives and firearms. The system shall provide an image that allows for organic/inorganic discrimination along with identification of specific weapons (i.e., knives and guns). The image shall be of a high enough quality to allow for automatic threat recognition to be developed in future work. Positive detection of ½-pound or more of many types of explosives and firearms concealed in handbags and backpacks is required. The system shall be able to rapidly screen packages at a rate of 6 to 15 per minute with imaging equivalent or better than current capabilities.

The system shall be compatible with operations at a check point or access point at a large venue that has moderate logistical support, such as a temporary outdoor access point. The system shall be environmentally hardened to operate in an outdoor environment with overhead covering, but the capability to withstand an uncovered outdoor environment is desirable. The total weight of the system shall be no greater than 100 pounds to allow for it to be two-man carried into position. The system can come in two pieces if each piece does not exceed 50 pounds. Setting up the system shall take no more than an hour, be user friendly for a person with limited technical knowledge, and include a simple verification that the system is operational. Breaking down the system and removing it from the site shall require no more than thirty minutes. The system shall minimize its power consumption and be able to run on a portable generator at 120V.

The system shall comply with relevant standards and regulations that are required for it to be a commercial product, such as standard 21 CFR 1020.40 and 21 CFR 1010.2 if the system were to be X-ray based.

R000 CBRNE FY16 UNSPECIFIED REQUIREMENT

Develop new or improved technologies or emerging technological capabilities pertaining to CBRNE that may be of interest to TSWG, but were not specifically requested in the BAA and are not commercially available. The Government seeks concepts in the seven CBRNE focus areas: threat characterization and attribution; consequence management; information resources; protection; trace detection; bulk detection; and proximity and standoff detection. Proposed projects shall be timely, relevant, and further worldwide combating terrorism efforts. Areas of particular interest include: next generation materials for personal protective clothing and respiratory protection; decision support tools; explosives detection and sampling; biological detection systems utilizing orthogonal approaches; and mobile learning and performance support applications.

Medical applications (vaccines, pharmaceuticals, clinical diagnostics, and syndromic surveillance systems) will not be considered. These areas and other areas that do not directly relate to CBRNE will be rejected without consideration or comment.

Unspecified requirements (R000) are for proposing unique innovations that have not yet been identified by TSWG. Submissions against a particular subgroup's unspecified requirement should be relevant to that subgroup's mission. TSWG does not budget for unspecified requirements. If the evaluation team determines that an unspecified requirement submission is promising enough to merit pursuing, funds will be identified at that point. Because proposed technologies from the unspecified requirements will be competing against proposed technologies for identified and prioritized interagency requirements, TSWG may not be able to make any awards against the unspecified requirements.

5.3 Improvised Device Defeat/Explosives Countermeasures (IDD/EC)

R3899 IMPROVED BACKSCATTER X-RAY SYSTEM

Develop a lightweight X-ray backscatter system with improved resolution, capable of penetrating dense barrier materials. The system shall be capable of either robotic or manual employment. The system shall be capable of capturing a target of interest that is larger than the field-of-view of the system but is combined in software for a cohesive, single image. The system shall operate using standard COTS batteries and provide in excess of four hours of operational use by using software to combine several images into a cohesive, single image. The target weight of the system shall be less than ten pounds.

R3914 AFFORDABLE RF FIRING SYSTEM

Develop a very low cost RF firing system with a target price under \$20.00 for the receivers. The system shall be capable of firing up to twelve independent receivers from a minimum distance of 500 meters in an urban environment. The system transmitter shall use (1) in excess of 1,000,000 learning code combinations and (2) rapid, multiple firing command transmissions, to assure safe and reliable communication. The transmitter shall be designed for long-term use, be weather proof, capable of operation at night, and by operators wearing gloves. The system shall use standard commercially available batteries. The system receivers shall be designed primarily for one-time use to ensure low cost. ("One-time" use includes setup and testing, plus operational firing.) The receivers shall be compact, with overall external dimensions of four cubic inches or less. The receivers shall be capable of being synced with the transmitter, capable of providing confirmation of circuit continuity and capable of firing two commercial electric blasting caps wired in series or parallel, and be weather resistant. The ability to fire standard shock tube is also desired if this can be accomplished without substantially increasing the cost of the receivers.

R3915 CAD DESIGNS FOR SCALABLE RENDER SAFE PROCEDURE (RSP) TOOLS

Develop scalable 3D CAD models on non-patented bomb squad render safe tools. Examples of render safe tools for consideration include water bottle charges, shaped charges and explosively formed projectiles, and single use disruptors. These models shall be compatible with COTS 3D printers, and produce water-tight tools. The tool designs shall be scalable, but include required constants such as detonator well, detonating cord adapters, and explosive retention tubes if necessary. Tools reproduced from these CAD designs shall perform similarly to manufactured tools of similar design with identical explosive loads.

R3916 CIRCUIT ANALYSIS AND DEVICE DEFEAT SOFTWARE APPLICATION

Develop a circuit analysis and device defeat software application to allow bomb technicians to

select disruption tools based on automated X-ray diagnostics. The software shall determine (1) appropriate disruptor velocity to defeat a circuit before its functioning time, and (2) projectile type to defeat the barrier holding the IED, while (3) staying below the threshold of the shock sensitivity of the explosives in the IED. This software application must perform calculations based on observed power sources, detonators, switches, barriers, and explosives (type of barrier and explosives to be entered manually). The application should use logic, and cross reference with databases containing disruptor characteristics to provide recommended disruptors, based on worst-case parameters. If the IED explosives are known, the application should only suggest disruptors that will not shock initiate the explosives. The software must be compatible with the X-ray Tool Kit (XTK). The software should be compatible with PCs, Macs, tablets, and Android and iOS operating systems. The software must be unclassified. The software must be updatable to incorporate new information of countermeasures and explosives.

R3917 IMPROVED ROBOTIC SPATIAL AWARENESS

Develop an enhanced spatial awareness capability so robot platforms can maintain 360 degree visibility, and sense orientation of all robot parts within a 360 degree radius horizontally, and 180 degrees vertically (i.e., a volumetric sensor bubble encompassing all organic robot parts being used during normal operations). Accelerometer and inclinometer alarms shall be incorporated to alert the operator for to possible platform rollover. For integration into the operator's operational control unit, Picture-in-Picture shall activate automatically when backing up, and a user-selected graphic range overlay to the front and rear camera images shall be available to estimate distances to objects. The system shall be able to alert operator when a robot arm or attached manipulator is in close proximity to another object. The system shall be capable of integration on multiple robotic platforms, have a low power draw, and use open architecture standards such as JAUS. Please note, this requirement is not seeking 3D image mapping of the robot's environment.

R000 IDD/EC FY16 UNSPECIFIED REQUIREMENT

IDD/EC seeks identification and diagnostic tools and technologies for Improvised Device Defeat decision support. These tools and technologies shall be capable of improving the Improvised Device Defeat operator's identification of potential hazards associated with an improvised device. Technologies submitted need not address device defeat, but must support the operator's ability to develop safe and efficient render safe strategies. If software is proposed for the decision support interface, it shall be smart-phone or tablet compatible.

Unspecified requirements are for proposing unique innovations that have not yet been identified by CTTSO. If CTTSO evaluators determine an unspecified requirement submission is sufficiently promising to merit pursuing, funds may be identified at that point. Because proposed technologies from the unspecified requirements will be competing against proposed technologies for identified and prioritized interagency requirements, CTTSO may not make any awards against the unspecified requirements. Proposed technologies, models, architectures, software, hardware, tools, and other applications not directed toward a training need are not desired and will be rejected without consideration or comment.

5.4 Investigative and Forensic Science (IFS)**R3891 VEHICLE IMAGE SEARCH TOOL**

Develop a forensic software application that performs searches, matches, and exclusions of vehicle images. The application shall provide the capability for post-event forensic analysis of video and digital image depictions with an enhanced feature to automatically extract and classify vehicles from video streams in real time. The system shall also have the capability to identify the make and model of the vehicle in a still image or a video clip to narrow the field of candidates that must be searched in an investigation. It shall be able to associate the same vehicle across two different multimedia files. The application shall perform 1:N searches of surveillance quality images of a vehicle against an enrolled set of images and their visual signatures. For lower quality probe images, the application shall allow users to highlight or delineate (“sketch”) key features of the vehicle and the angle of view for boosted searching (e.g., rear window shape, vehicle outline and approximate angle of view will allow the system to consider off-angle views). For high quality video streams, the algorithms and the application shall be capable of automatically sorting and clustering all vehicles presented to the system.

The application or tool shall possess the following capabilities and features.

- Operate in a server or cloud environment and provide remote access to users
- Be able to enroll new vehicle images to be part of a search gallery as well as all the images of the FBI/CTTSO Digital Automotive Image System, 2.2 system
- Be capable of enrolling into the gallery of vehicle images other CCTV-quality images of selected subsets of current vehicles (the specific subset size to be determined)
- Detect automatically 99% of vehicles included in manufacturer provided high resolution marketing photos
- Allow for a user-generated mark-up probe image to highlight salient features of a vehicle to allow “boosted” match performance (i.e., system can be told where vehicle wheels are located, as well as general profile configuration to include front, side, and rear window outlines or front grill details).
- Complete in less than one minute 1:N type searches where N is 100,000 or less
- Search automatically video clips for vehicles and detect vehicles which have been clustered
- Perform video clustering at a “default” match strength and permit user to modify strength of clustering to allow for larger or smaller clusters
- Process video clips at speeds faster than 1:1, that is, the processing must take less than an hour of time to process a one-hour clip
- Operate on commonly used hardware; however, the developer will not have to provide any hardware as a final deliverable

Hardware does not need to be included with the system. The application shall work on common commercially available computer hardware. The U.S. government shall have full government purpose rights for the entire application. Proprietary solutions are unacceptable if the government must pay any licensing fees. The system shall be designed and developed so continual service and maintenance from the developer is not needed or required.

R3892 INVESTIGATIVE AND FORENSIC ANALYSIS OF 3D PRINTED POLYMERIC

FIREARMS

Research and establish the investigative and forensic analysis capabilities and methodologies possible with firearms which have been created by three dimensional (3D) printing. These firearms shall be 3D printed and made with non-metallic substances such as plastic, nylon, ceramic, carbon fiber, and other polymeric materials. The firearms researched shall include those of non-traditional firearm designs and shapes.

The research and development shall be conducted in three phases. The first phase shall concern the detection and identification of 3D printed polymeric firearms in various scenarios. These scenarios shall include, but are not limited to, 3D printed polymeric firearms in the following: traveling bags and luggage when screened through standard metal detectors and X-ray scanners; physical inspections at access control points and points of entry; and crime scene search scenarios. The developer shall provide high quality and resolution images to demonstrate the level of detection and identification in each of these scenarios, which shall include fully assembled firearms and those unassembled into their component parts.

In the second phase, the ability, ease, or difficulty of assembling 3D printed polymeric firearms from their component pieces shall be researched. The scenarios shall include assembly of the parts in public restrooms in airports and government buildings, portable bathrooms, closets, and the restrooms of commercial airliners. The assembly process shall be timed and videoed and conducted by experienced firearms examiners and novices. The main goals shall be to demonstrate the ease or difficulty of creating a potentially viable firearm if the parts have been undetected through screening and access control points in the first phase.

In the third phase, the developer shall research and establish the specific forensic information about a particular weapon relying on the characteristics of 3D printed firearms. The 3D firearms shall be fired and, if successful, the casings, bullets, and other residual evidence shall be examined using traditional forensic methods to describe the extent of useful forensic information. The firings shall be recorded with still images and videos. At a minimum, the following shall be researched from a forensic viewpoint: the chemical make-up of the 3D material; the ability to identify any unique transferred ballistic markings or plastic residue; the method of construction; and viability of collection of fingerprint and DNA evidence from the firearms. The firearms analysis shall be completed using standard protocols, including characteristics and markings of a gun that make it identifiable including caliber, make and mode, rotation, capacity, serial number, barrel length, safeties, magazine information, and visible malfunctions. The analysis shall be documented quantitatively and visually with photos and videos.

While this initial requirement is not classified, outputs of this effort could become classified based on identified vulnerabilities, countermeasures, etc. Vendors responding to requirement must possess the capability to support classified work.

R3893 HEROIN ORIGIN DETERMINATION BY HIGH-RESOLUTION ICP-MS

Design and develop a validated signature method that generates isotope ratios of geographically-variable elements encountered in opium and heroin by using high-resolution inductively coupled plasma mass spectrometry (HR-ICP-MS). The variable elements shall include but are not limited

to lead, strontium, and boron. The method shall include a computational scheme and statistical program to derive a final regional classification. Four specific geographic regions for heroin production shall be targeted; Mexico, South America, Southwest Asia, and Southeast Asia. The government shall provide between 300 to 400 opium and heroin samples which are a mix of authentic and street samples for analysis and profiling. The profiles with the isotope ratio for each region must be successfully validated with authentic samples with a 95% or great confident level. The isotope ratios from the authentic samples shall be correlated with local elemental isotopic profiles when possible.

The developer must have extensive experience in the area of high resolution elemental analysis. Standard industry accepted procedures for elemental analysis must be employed. The maximum amount of the sample required to perform an analysis shall be in the range of 400 to 500 milligrams with significantly lower amounts desired, if possible. The government shall provide the heroin and opium samples needed for analysis and testing. The developer at the beginning of the project must apply for and obtain Drug Enforcement Administration Schedule I and II licenses for the handling and storage of Schedule I and II controlled substances. No proprietary methods, procedures, or protocols shall be developed. The procedures must be sufficiently validated to meet the federal evidence standards including those of the Supreme Court decisions of *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579 (1993); and *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137 (1999).

The developer shall be able to store and generate information at the DEA Sensitive level. Although not classified, this refers to information that requires a certain level of protection from loss or inadvertent or deliberate disclosure, alternation, or destruction and requires protection the Privacy act and information not releasable under the Freedom of Information Act.

R3894 ADVANCED AUTOMATED DOCUMENT ANALYSIS TOOL

Design, develop, and implement improvements, advanced capabilities, and features in a legacy automated document system that analyzes, stores, and categorizes data from counterfeit identification and travel documents. The documents in this system are already known to be counterfeit. This is not a document authentication system to detect counterfeits. The present system stores high resolution images of counterfeit documents and allows users to identify attributes which are common among a larger family of counterfeit documents originating from a common source. In practice, this information provides a means for investigators to link multiple criminal acts to a larger criminal enterprise.

The source code of the legacy system shall be provided as GFE. The additional capabilities and features that shall be designed, developed, and incorporated into the system shall include the following:

- Facial recognition capability that analyzes images of faces on documents and compares them to other faces on other documents' images in the system's database for identification or exclusion
- Upgrades to manual legacy operations and newly developed features to achieve automation
- Ability to link on document printing plate interactions

- Algorithms which produce results achieving a specific scientific degree of certainty
- A robust reporting system that is customizable by the user to query the stored data and develop reports from this information
- An ability to visually display the complex network of links in a clear and precise manner
- Robust reading capabilities of most barcode encoding technologies
- High accuracy of optical character recognition capabilities of at least all serif and sans serif font styles including fonts designed for travel documents
- Automated static image (i.e., fingerprint, barcode, portrait) comparison capability for identifying cloned images found on multiple documents
- An easy means for field agents to electronically submit documents into the system remotely via 1200dpi flatbed scanner and web interface
- Interoperability between various federal agencies
- The ability to easily add additional modules or capabilities in the future
- Easy means to manually validate automated links generated by the system
- Ability to migrate and integrate existing database to the newer software

The developed system must operate on a stand-alone server system that requires minimal use of specialized systems. The images which are stored in the system shall be captured with standard digital scanning equipment or systems. No proprietary systems, software, or products shall be incorporated into the system. Coordination with parent agency to ensure compliance with network security shall be necessary.

R000 IFS FY16 UNSPECIFIED REQUIREMENT

Develop new, advanced, or improved technologies or capabilities pertaining to investigative and forensic science which are not specifically requested in this BAA and are not commercially available. Any proposals shall directly relate to and advance combating terrorism efforts in the federal interagency and/or support current Defense Forensic Enterprise requirements. These may include any one or more of the following:

- Computer Investigative and Electronic Evidence
 - More technically advanced or inclusive detection, retrieval, extraction, analysis, authentication, and interpretation of permanent, perishable, or temporary information and digital data within open computer systems, communication systems, embedded computer systems, and the Cloud.
 - Faster, more effective, comprehensive, accurate, low-cost methods of multimedia exploitation, especially video forensics, which significantly advance present technological capabilities.
 - Rapid data extraction and full imaging from portable electronic data devices. Any proposed tool or technique shall fully function in austere, severe, or remote physical environments; be suitable for employment by covert entry personnel; be undiscoverable by the user; and, where appropriate, be compatible with commonly used digital forensic hardware and software platforms.
 - Data collection, both covert and overt, with subsequent intelligence analysis, of alternative financial payments and transactions of efforts related to terrorism and criminal finance activities.

- Deployable/Expeditionary Forensic Science in Non-Permissive Areas of Operation
 - Faster, more reliable, more widely applicable, more rugged, less costly, or less labor-intensive tools for identification, collection, exploitation, forensic analysis, and preservation of evidence from persons, items, incident scenes, sensitive sites and other locations where operations may be restricted for any reason. Of special interest are technologies involving the forensic analysis of homemade/improvised explosives, their materials and related trace evidence, their precursors, and pre-incident or post-blast residues.
 - Advanced field expedient methodologies and systems for rapid DNA analysis of wire twists collected from homemade/improvised explosive devices and weapons caches. Examination and subsequent analysis of samples or evidence shall provide a DNA profile based on at least five short tandem repeat loci, but ideally detect the Combined DNA Index System core loci.
- Identity Knowledge
 - Develop advanced technologies and processes that reveal identification attributes, such as fingerprints, palm prints, iris, facial, DNA, other phenotypical traits of individuals or groups which distinguish persons-of-interest, terrorists, criminals, and anyone posing a potential threat to the United States.
 - Fast, low-cost methods for profiling and analyzing DNA, including nuclear DNA, mitochondrial DNA, rDNA, short tandem repeats, Y-chromosomal, and single nuclear polymorphisms from mixed multiple or contaminated sources.
 - Non-DNA related technology that at the macro, micro, or nano level can identify, individualize, categorize, or compare biological evidence, materials, or organisms for forensic-enabled intelligence activities. Technologies are especially desired which provide information beyond that obtained from genomic methods.
- Identity Intelligence Exploitation
 - Improve and develop advanced scientifically validated technologies and processes for the collection, analysis, exploitation and management of identity attributes. These technologies and processes may include biometrics, forensic science, electronic and digital media, audio-video equipment, and pre-and-post-blast evidence and trace materials. Other areas of interest are data collection and integration with all-source intelligence to locate, track, and follow unidentified persons and activities geographically and through cyberspace. This includes efforts to provide the military special operations and the intelligence communities a continual analytic capability in near-real time evidence collection response and remote support.

This unspecified requirement is for proposing uniquely innovative and advanced technical solutions to requirements that have not yet been identified or vetted by CTTSO and its partners. CTTSO does not budget funds toward unspecified requirements. If CTTSO evaluators determine an unspecified requirement submission is sufficiently promising to merit pursuing, funds will be identified at that point. Any proposed technology for this requirement will compete against proposed technologies for identified and prioritized interagency requirements. CTTSO may not make any awards against this unspecified requirement. Proposals pertaining to data mining;

report writing; data compilation; detection of concealed bombs, explosives, or weapons; intrusion detection or access control; cybersecurity; or any other technical solutions that are not objective, repeatable, and verifiable should not be submitted and will be rejected without consideration. Solutions and proposals which are proprietary and require the government to pay licensing fees are not desired and shall be rejected.

5.5 Irregular Warfare and Evolving Threats (IW/ET)

R3961 MEASURING SOCIAL MEDIA RESONANCE AND INFLUENCERS TO COUNTER VIOLENT EXTREMISM

Terrorist groups propagate their narratives through internet-enabled social media. The resonance of these narratives underlies terrorist recruitment and is recognized as a key component of terrorism's appeal and persistence as a threat to global security. Locally resonant terrorist narratives are at the root of the radicalization and recruiting process. Social media can also be used to instruct in training, tactics, and procedures, including methods of attack and fundraising. Social media in less-monitored languages, such as Hausa (the predominant language of northern Nigeria and parts of several surrounding countries as well as Sudan), are less understood than such media in more common languages of radicalization, such as English, Arabic, and Urdu. To successfully counter violent and extremist messages in this virtual battlefield, the United States requires different tools and approaches in order to create, enrich, and sustain a persuasive, relevant, and positive narrative.

The Irregular Warfare and Evolving Threats subgroup seeks to develop an assessment methodology that will assist counterterrorism strategic messaging by enhancing the ability to identify key influencers, derive linguistically and culturally accurate insights for message development, and then measure the impact and resonance of such messages. This methodology should leverage existing tools (either commercial or government owned) at the technology readiness level (TRL) 7 or above. The combination of the methodology and tools should allow users to capture and share resonance data with other users, enabling them to create and sustain more effective messaging, and would allow faster adjustment and tailored response to adversary communications.

The proposed solutions should observe the following parameters when submitting:

Identification of core audiences in internet-enabled (online) social media environments catering to Hausa speakers and determination of key influencers in digital dialogue in that language:

- Analysis of social media landscape centered on northern Nigeria, including evaluation of all prominent social media platforms and indigenous organic internet interaction platforms
- Identification and assessment of most influential individuals in the Hausa-language social media sphere

Assessment of audience resonance with messages and key themes:

- Assessments of messaging impact from key leader and influencer engagements
- Temporal assessments of social media network dynamics, key leader interactions and message resonance throughout duration of key leader engagement

- Complete social media network and key leader assessment of content resonance amongst core audiences in and around northern Nigeria

Proposed deliverables include: Assessments of social media network dynamics in northern Nigeria; complete social media network and assessments of key influencers and ways to approach them to propagate certain narratives; assessment of social media content resonance among core Hausa-speaking audience; assessments of the resonance of particular themes injected into the media environment of northern Nigeria as requested by the customer; and assessments of messaging impact and resonance from key leader engagements.

R3962 MICROPAYMENT-ENABLED GAMIFIED CIVIL REPORTING IN CONFLICT ZONES

United States Government (USG) community engagement programs pay for valuable, verified information from civilians regarding force protection, counterterrorist and criminal or gang activities. So-called “tip lines” generically offer a conduit for community reporting on issues relating to force protection, counterterrorism, and anti-crime, and are a standard practice in U.S. community engagement efforts.

In foreign environments, this largely telephone-based approach can present risk of exposure to the “tipper,” potentially reducing the effectiveness of such programs. For example, local telecom providers can run a “dialed digit search” and generate a list of phone numbers that have placed calls to the number in question (i.e., the tipline), potentially exposing the identity of those providing information.

But the problem is not solely one of protecting the source of information (“tipper”) from compromise. The current approach is costly and labor intensive to manage. It fails to realize the potential to dramatically increase the volume and precision of reporting possible through crowdsourcing applications, particularly when they are combined with “rewards” owing to the breakthrough in payment processing afforded by blockchain technology. This means that the threshold for reward currently remains unnecessarily high (often in the thousands of dollars per reward) and focused principally on high-value items of interest (e.g., kingpins). Current practice ignores the “street-level” community information that may provide—for cents rather than thousands of dollars—indicators of instability and violence of interest to the USG and its foreign partners.

Develop an operational concept and application that enables civilians in conflict zones or at-risk areas to be rewarded in near real-time with “tip-sized” amounts of virtual currencies or other stores of value when they share geo-tagged or similarly referenced, verifiable information (photo, video, text) on topics of interest. Successful proposals should include a thorough operational analysis that addresses the pros and cons of varying levels of anonymity; provide suitable levels of anonymity as dictated by mission or concept of operation; integration of blockchain technology; mitigate spoofing of such a system; deploys in culturally and technically appropriate formats (e.g., web-based vs. handheld and/or smartphone) for those using or contributing to such a system. Proposed capability should assume a human administrator remains “in the loop” to determine whether payment for information occurs.

R000 IW/ET FY16 UNSPECIFIED REQUIREMENT

The U.S. government seeks to develop concepts and capabilities that enable operations to counter irregular threats to United States' national security from state actors and non-state actors, including terrorist groups and other transnational threats. The focus of these efforts will apply research and development processes to enable Irregular Warfare (IW) in accordance with the DoD's 2010 Quadrennial Defense Review (QDR), DOD Directive 3000.07, and the IW Joint Operating Concept 2.0. These documents direct the DoD to apply IW in order to utilize full spectrum engagement that favors indirect and asymmetric approaches; inclusive of counter threat operations, shaping and influence operations, and stability operations, in order to erode an adversary's centers of power. The IW toolset includes strategic communications, information operations, civil/military operations, strategic influence, counter threat finance, countering violent extremism, as well as support to law enforcement, intelligence, and counterintelligence operations in which the joint force may engage in to counter irregular threats.

Submit under this number and title relevant strategic, operational, or tactical concepts and capabilities that are achievable within a constrained budget environment to enhance U.S. and partner nations' capability and capacity to conduct Irregular Warfare in support of the DoD mission.

Unspecified requirements are for proposing unique innovations that have not yet been identified by the program. Submissions against an unspecified requirement should be relevant to the Irregular Warfare and Evolving Threat's mission. Funds are not budgeted for unspecified requirements. If the evaluation team determines that an unspecified requirement submission is promising enough to merit pursuing, funds may be identified at that point. Because proposed capabilities from the unspecified requirements will be competing against proposed capabilities for identified and prioritized interagency requirements, the program may be unable to make any awards against the unspecified requirements.

5.6 Personnel Protection (PP)**R3896 EVENT PIN IDENTIFICATION**

Federal agents are assigned a set of event pins to designate their participation in major interagency events. Command post officers perform a visual pin inspection to identify approved personnel. This raises security concerns if a pin is lost, stolen, or duplicated with high fidelity. This requirement is to develop a mechanism to augment the pin identification and agent recognition process. A passive method is preferred to lower visibility outside of the command post. The solution shall detect pins in motion (Threshold – brisk walking, Objective – jogging pace) in a corridor six feet wide (Threshold) to 10 feet wide (Objective) at a range of 30 feet (Threshold) to 60 feet (Objective), then identify and display information regarding the agent to whom the pin is assigned. Displayed information shall include a photo, name, height, and weight, enabling the command post officer to make a valid identification of the agent. The display shall also include the pin serial number, pin status, and a comment field. The system shall provide a visual warning if an active agent with an invalid event pin is detected, and a visual and audible alert if an inactive agent or inactive event pin is detected. The system shall also log all detections. Event pins are typically small (less than one inch wide) and circle, square, or rectangle in shape, and are affixed with a single metal butterfly clutch. Passive solutions shall

not obstruct the markings on the visible pin face. Active solutions shall not visibly alter the pin form factor when worn. Alternate solutions to the pin for identifying agents will be considered; however, shall adhere to the same specifications for range, display capabilities, etc.

The system to detect, identify, display, and log information shall be easy to deploy at temporary locations and require no permanent modifications to the event site. The solution shall support both standalone and networked configurations for use at one or more command posts. All network connections shall be 256-bit encrypted, and each node shall be able to display information from any command post node. The backend server shall be able to forward information to a third-party server (protocol is TBD). The database shall be developed using open source software, and shall be delivered with unlimited rights to the government, including source code. An interface control document shall be delivered so interagency members can easily integrate the detection system with their existing backend databases. The system is intended for indoor use only. The base effort will include delivery of a system with five nodes.

R3897 ENHANCED VEHICLE TRACKER

Tracking vehicle assets enables command center personnel to have situational awareness and improved incident response capabilities. Current vehicle tracking solutions are not well suited for operation in urban environments. Systems place vehicles tens of meters from their true location, have slow update rates, fail to operate in GPS-disadvantaged areas, and have slow start-up times. This requirement is to develop an enhanced tracking solution that overcomes these issues. The system shall achieve location accuracy within 15 meters in open environments as well as urban environments where obstacles (e.g., tall buildings, bridges, tunnels, etc.) may prevent sufficient GPS satellite acquisition and locking. This may be accomplished with various sensors and relevant data such as vehicle speed from the on board diagnostic (OBD2) port. The system shall accurately track the vehicle for 30 minutes (Threshold) to 60 minutes (Objective) in areas where the GPS signal or lock is lost. Vehicle movements may be of extremely short duration (e.g., five minutes) and as such, the system shall commence providing location data within one minute (Objective) to four minutes (Threshold) of vehicle engine start, and continue to provide updates in near real-time. The refresh rate shall be user programmable; however, the system shall be able to achieve one sample per second. The system shall include an alarm input port for a momentary switch that enables vehicle occupants to send and cancel emergency alerts. The tracker shall include output ports that power LED indicators for tracker status (on, standby), network status (reporting, connected but not reporting, not connected), and alarm status (on, off).

The tracking system shall be cellular enabled (2G, 3G, and 4G/LTE) to send location and alert data to a remote command center server (through specific IP address or domain name). In the event a cellular connection is lost, the system shall begin reporting current position information as soon as the signal becomes available. The backend command center server software shall ingest tracker data from multiple vehicles (typical hardware and network supports hundreds of feeds). The tracker messages shall include available location data and diagnostic information including connected network type (2G, 3G, and 4G/LTE), cellular signal strength, number of locked GPS satellites, tracker status, and alarm status. Command center operators shall be able to view location data for selected vehicles using third-party mapping software (e.g., Google Earth). When the tracker alarm is triggered, the event shall be automatically displayed via the mapping software and an audible alert shall sound. Command center operators shall be able to clear an

alert for a selected vehicle. Command center operators shall be able to forward location and alarm data to a third-party server (an interface control document will be provided after contract award). The system shall allow clients (PC or laptop) to pull and display tracker feeds for selected vehicles from the backend server. All communications shall be 256-bit encrypted.

The tracker shall draw power from the vehicle. The tracker shall automatically power on when the vehicle engine is turned on. When the vehicle engine is turned off, the tracker shall remain in standby mode and draw minimal power from the vehicle battery for a user defined time period (in hours), allowing agents to trigger an alarm. In this case, an alert message along with current location information shall be reported to the command center within one minute (Objective) to four minutes (Threshold), and repeated only until the system verifies successful receipt. The tracker shall be user configurable including a unique ID, encryption key, server IP or domain name, GPS update rate, and standby limit. Users shall be able to view diagnostic information while configuring a tracker. The tracker shall meet MIL-STD-810 requirements for shake and acceleration, vibration, temperature, and humidity and be tested to that standard by a third party. If using the ODB2 port, the system shall be designed to the SAE and ISO standards relevant to the proposed implementation (http://en.wikipedia.org/wiki/On-board_diagnostics#Standards_documents). The system shall be packaged in a manner conducive to secure vehicle installation, and shall not obstruct the vehicle occupants in any manner. The base effort will include delivery of a system with one backend server and 10 trackers, each with a momentary switch and LED indicators that may or may not be co-located with the tracker device itself during vehicle installation. All software developed for this effort shall be delivered with unlimited government rights.

R3918 VIP PROTECTIVE SERVICES PORTAL MOBILE APPLICATION

Protective Service Details (PSDs) are responsible for protecting the heads of their respective organizations and other executive level leaders. PSD agents use the Law Enforcement Online (LEO) VIP Protective Services Portal to develop operations plans and site surveys prior to mission execution. The current LEO VIP Protective Services Portal allows an agent to create, modify, or update operational plans, create and/or complete online surveys, complete pre/post mission plans with critical information regarding airports, hotels, event sites, motorcade routes, and medical facilities using a desktop computer based system. A mobile application of the LEO VIP Protective Services Portal would provide PSD agents with increased accessibility of planning and updating operational plans while on current mission.

Develop a secure mobile application for handheld devices that provides controlled access to the LEO VIP Protective Services Portal and allows users to develop/update/modify pre-advance, advance, and post-operation information wirelessly. The application shall provide direct access to the LEO VIP Protective Services Portal database, for authorized users. The application shall contain the same features as the current portal and provide PSD's appropriate access permissions to operation specific information pertaining to sites, motorcades, routes and after-action reports from their surveyed location. The mobile application of the LEO VIP Protective Services Portal shall also have a training aid that mirrors the capabilities of the secure application in appearance, function, and information. The mobile training aid shall not affect the live portal. The mobile application shall be capable of running on the following mobile operating systems – iOS, Android, and Windows 8.

R3920 AUGMENTED HUMAN PERFORMANCE

Modern warfighter capabilities are limited by the amount of kit/equipment they can physically carry. The added mass and bulk of each piece of equipment degrades the strength, speed and endurance of the wearer. This requirement is to develop a system that will augment the strength and endurance of the warfighter without degrading speed or mobility. The system shall enable the performance of direct action mission tasks (shooting, movement within confined target areas, situational awareness, communications, etc.) for a dismounted soldier that equals or exceeds current capabilities. The system shall have an optimized space claim to allow the system to be worn in most tactical vehicles, aircraft or other confined spaces. The system shall have an integrated power source that supports continuous operation for two to four hours without recharging or similar maintenance procedures. The system shall operate easily and be integrated in a manner such that donning the system will augment normal operator motion without requiring direct intervention.

R3921 MULTIFUNCTIONAL HEAD PROTECTION SYSTEM

Military personnel tasked with breaching enemy structures require a high level of protection for the initial breach into a facility. Current helmets provide soldiers limited ballistic protection and coverage area. In an effort to provide the soldier with increased protection during these vulnerable scenarios we are seeking the development of a multifunctional head protection system that incorporates advanced materials for ballistic protection, power, communication, and data visualization features into a fully integrated head protection system.

Develop a head protection system that integrates state-of-the-art material technologies and helmet designs to provide NIJ Level IV ballistic protection as set forth in NIJ Standard 0108.01, "Ballistic Resistant Protective Materials", to the entire head region (threshold) and neck region (objective). The system shall incorporate the following with ballistic protection: power integration and connections, active hearing protection and communication capabilities, as well as data conduits and visualization. Situational awareness capabilities shall be integrated to include transparent armor for visual recognition and incorporation of heads up display.

R3923 SMALL UNMANNED AIRCRAFT SYSTEM (sUAS) ENDURANCE

Military operators and federal law enforcement agencies are increasingly turning to small unmanned aircraft systems (sUASs) as force multipliers; however, mission times are severely restricted due to onboard power supply limitations. Operators must frequently land the sUAS to replace or recharge batteries, creating a gap in situational awareness and potentially compromising their ground position. Research and development has been conducted for alternative long endurance solutions such as fuel cells, extended life batteries, solar panels, and gas engines. Factors such as cost, limited energy storage capacity, limited weather environments, and audio signatures render these alternatives unsuitable for certain mission sets.

Develop a mechanism to wirelessly charge onboard power supplies for in-flight sUASs at a range of one (threshold) to three (objective) kilometers line-of-sight. The capability shall be integrated with the fixed-wing Puma and vertical take-off and landing (VTOL) Instant Eye and Shrike in a manner that does not hinder aircraft performance. Fixed-wing assets can be expected to fly a tight orbit during charging, while VTOL assets can be expected to hover in place to

facilitate power transmission to the airframe-mounted receiver. The capability shall enable persistent eyes on target for missions lasting 24 hours (threshold) or more.

The ground-based transmitter shall be powered by silent generator, and both components shall be packaged for transport via sport utility vehicle. The portable ground system shall acquire and track the sUAS throughout the power transmission. The system shall include safeguards to ensure there are no health hazards or interference with surrounding frequencies. Solutions, including optical beams, shall cease transmission within one (objective) to ten milliseconds (threshold) in the event a foreign object approaches the beam. The system shall also include a manual kill switch.

5.7 Physical Security (PS)

R3954 PROFESSIONAL STANDARDS FOR EXPLOSIVES DESIGN AND TESTING ENGINEERS AND ARCHITECTS

Develop a set of guidelines and certifications that can be used by public, private, academic, and government entities to support the qualification of engineers and architects capable of characterizing and mitigating explosive effects. The guidelines and certifications shall be developed in conjunction with appropriate government, industry, academia, and international partners where appropriate. The guidelines and certifications shall be formed in such a way that it establishes a foundation for future development towards a professional certification, license, and/or equivalent in the subject matter. The guidelines and certifications shall address all phases of an explosive test and a structure's lifecycle as it relates to blast mitigation discipline: design, analysis, construction, operation, maintenance, and decommission. The guidelines and certifications shall be delivered in both Microsoft Word and Portable Document Format (PDF) file formats. The offeror shall have demonstrated experience in blast analyses, mitigation, and/or other similar services.

R3957 LINEAR ARRAY FOR TUNNEL DETECTION

Develop a deployable, in-ground tunnel detection array system for evaluation that provides persistent surveillance and notifies users upon detection for timely law enforcement response. The system shall be installed using horizontal drilling techniques similar to that used in industry to put conduit or piping across rivers or other areas where normal excavation techniques are not suitable. Depth of installation shall be below building basements, pilings and other infrastructure including underground municipal infrastructures (UMI) (e.g., sewers, culverts, pipelines, etc.). The system shall detect all tunneling activity (i.e., digging, walking, crawling, operation of machinery, etc.), generate alarms in near real-time, and provide an x-y-z location of the target of interest. Once the initial detection takes place, the system shall have the capability to track and review the source(s) of the detection and provide a classification (e.g., digging, talking, walking, etc.) of the alarm.

The system should meet the following thresholds and objectives:

- Span of installation for array shall be no less than ¼ mile segment (threshold), up to one mile segment (objective).

- Detection range shall consist of a 3D surveillance area achieving the greatest range of surveillance in all directions from the point of installation.
- Detection of target of interest should be discriminated from normally occurring environmental noise and clutter in urban areas.
- Target of interest shall be localized and reported in the x-y-z axes.
- Accuracy of the data shall be exact to ± 3 meters (threshold), one meter (objective).
- Automatically track and classify multiple targets of interest over time.
- Data collected with the system shall be exportable to common Geographical Interface Software (GIS) tools.
- Array system should be designed to be removed and reinstalled from the conduit to facilitate repairs and upgrades.
- Array system should be easily installed and removed in various soil conditions.
- System shall be sufficiently redundant that an individual sensor failure would not result in mission critical failure of the entire array.

R3970 LOW-COST FLAT PANELS FOR ANOMALY DETECTION

Develop a low-cost, flat panel, personnel imager for anomaly detection of concealed objects with a commercial cost of no more than \$75,000 by using commercial off-the-shelf components and/or other cost saving methods. The system shall be non-contact and shall allow operators to detect and identify explosives material, five pounds (threshold) down to three pounds (objective), and weapons the size of a medium sidearm or larger, present on a person or in a backpack. Users must be provided an image that can be easily interpreted and have enough dynamic range and resolution that future development of automatic threat detection is possible. The system shall operate at 30 frames per second, shall have a throughput of 10 people per minute (threshold) to 30 people a minute (objective), and shall be easily deployed by two personnel. The system shall scan the area between the subject's knees and the base of the neck, inclusive of the size range between the 5th percentile female and the 95th percentile male, and shall scan one person at a time in a single-file fashion.

The system's panels are meant to be discrete and offer preliminary screening of individuals before they approach a check point. Therefore, their size must be unobtrusive and be capable of detecting threats on people as they move at a walking pace. It is desirable that multiple systems could be linked together and monitored at an adjacent control area.

5.8 Surveillance, Collection, and Operations Support (SCOS)

R3972 VIDEO SURVEILLANCE

Develop new or improved technologies pertaining to video surveillance. This includes, but is not limited to the following:

Artificial Intelligence (AI) in Computational Photography: Improve unattended video surveillance via the transfer of existing AI algorithms. Embed AI in surveillance video to increase the quality of video evidence and increase privacy for non-targeted subjects.

Bandwidth Reduction Analysis/Solutions: Enhance technology to reduce bandwidth required to transmit data using cellular modems. Technologies that can reduce these volumes and apply

innovative ideas related to “edge recording,” would be explored.

Bended Light Camera Technology: Leverage computational photography to post process original image data to bend around obstructions to see what was behind them.

Camera Deployment Redesign: Develop cameras for remote, unattended surveillance that do not require mounting on a pole at all. Cameras should employ smaller concealments that allow deployment closer to the target.

Camera Enhancements—Image Quality: Develop scalloped or stitched together as well as low-light surveillance image enhancements.

Energy Harvesting Capabilities: Develop methods for harvesting energy in surveillance systems. Enhance government-owned technologies that exist to leverage curved solar collectors. Other energy harvesting technologies can also be explored to identify more technology transfers.

Long Term Storage of Digital Evidence: Improve or develop long term storage capability for large data, such as but not limited to, optical storage.

Self-Sustaining Radar System: Improve sensor reliability to trigger video surveillance on a self-sustaining radar system. Video motion detection and infrared motion detectors are not desirable.

Surveillance Technology Miniaturization: Miniaturize both camera and encoder systems without losing image quality, including in low light. Cameras need to be miniaturized to increase the number of deployment options.

These technologies shall host a wide array of government agencies. However with regard to Law Enforcement Agencies, methods may have to be submitted in a court of law.

Interests in individual components of the above requirement will also be considered.

R3975 UNCONTROLLED/UNCOOPERATIVE BIOMETRICS

Develop new or improved technologies that biometrically enroll and/or verify the identity of uncooperative individuals, at high-speed and with high-confidence in operational conditions. This includes, but is not limited to the modalities of iris, face, and fingerprint.

R3976 FORCE PROTECTION FOR DATA AGGREGATION

Develop a multifunctional capability that satisfies the maximum number of attributes in the following focus areas: Data Acquisition; Data mining and Analysis; Visualization and Reporting; and Alerts and Monitoring.

Data Acquisition consists of data research activities based on keyword searches. Data Mining and Analysis consists of organizing and analyzing the acquired data. Visualization and Reporting allows the user to tailor the visualization of the analysis results; and prepare reports as required. Alerts and Monitoring provide the user with updates on keywords of interest for updating/maintaining reports, and to provide automated, near real-time situational awareness in a

resource constrained environment.

R3977 HUMAN LANGUAGE TECHNOLOGIES AND MEDIA EXPLOITATION

Develop new or improved technologies focused on Human Language Technologies and Media Exploitation. Capabilities should respond to the emerging needs for advanced Human Language Technologies solutions in the operational environment including data exploitation/analysis of information in languages other than English at the strategic and tactical levels. New approaches to content tracking, understanding and exploitation of multisource (speech, video, images, and text), multi-genre (formal and informal content), and multilingual data (one or more foreign and internet speak content) in order to increase actionable intelligence at all levels of operational mission will also be considered.

R3980 CYBER

Develop new or improved technologies pertaining to Cyber. This includes, but is not limited to, computer network operations, social media, networks, and security.

The Government seeks concepts pertaining to two focus areas:

Cyber platforms and training for integrated solutions that fuse/exploit a variety of data sources, tools, and models (including socio-cultural dynamic models) into advanced counterinsurgency and domestic combating terrorism systems usable by interagency and coalition operational communities at the strategic, operational, and tactical levels. This can include near real-time integrated analytical and knowledge management systems that utilize a variety of sensors, devices, and architectures that address a variety of threats and scenarios.

Cyber solutions to support sustained operations by deployed elements and industrial control systems through enhanced layered capabilities by understanding the cyber situation, anticipating adversarial actions, assessing potential impacts, and by implementing new broad spectrum methodologies.

R000 SCOS FY16 CANINE UNSPECIFIED REQUIREMENT

Develop new or improved technologies pertaining to canine advanced technologies that may be of interest to the CTTSO but were not specifically requested in this BAA and are not commercially available. This includes, but is not limited to, methodologies that enable working canine teams to operate more effectively and efficiently by enhancing canines' abilities for explosives detection, tracking, patrolling, and attacking in an operational environment.

Unspecified requirements are for proposing unique innovations that have not yet been identified by the program. Submissions against an unspecified requirement should be relevant to that program's mission. Funds are not budgeted for unspecified requirements. If the evaluation team determines that an unspecified requirement submission is promising enough to merit pursuing, funds may be identified at that point. Because proposed capabilities from the unspecified requirements will be competing against proposed capabilities for identified and prioritized interagency requirements, the program may be unable to make any awards against the unspecified requirements.

5.9 Tactical Operations Support (TOS)

R3900 EXTERNAL IN-LINE CLIP-ON DISPLAY (EICON-D)

Tactical Operators require an external in-line clip-on display allowing in-scope displayed target situational awareness with calculated target interdiction data on demand. Display of this data to the shooter shall decrease engagement times while increasing hit potential. The device shall affix to current Program of Record (POR) scopes, specifically the Leupold MK4 ER/T 34 millimeter 6.5-20x50 millimeter Army M2010 scope, Schmidt & Bender 5-25x56 millimeter PMII USSOCOM PSR scope, Leupold USSOCOM ECOS-O MK6 3-18x44 millimeter Scope, and provide in scope firing information displayed in accordance with the SOCOM micro-display symbol data layouts – available on request (threshold). The display should project a disturbed reticle solution (displayed layout should be adjustable in scale, cant, size to match scope reticle) (objective). Display information includes target range, ballistic solution, cant, azimuth, and wind input from external devices. Data can be toggled on or off as needed or available (threshold). Connections shall be in accordance with the Night Vision & Electronic Sensors Directorate (NVESD) Interface Control Document for micro displays Rev B – available on request (threshold). When the clip-on display is affixed to the scope the transmittance loss in the scope shall not be more than 10% (threshold) 5% (objective) of the base scopes transmittance performance. Clarity and resolution degradation shall not be noticeable to the 95% percentile of operators that use the device (threshold). Shooters shall be able to observe trace to target and impacts at target where target backgrounds allow (threshold). This display shall not degrade any of the scope features or capabilities (threshold). The device shall lock in place to maintain display orientation during use (threshold). Once attached and locked into position the overall length of the device and scope shall not increase more than one inch (threshold), one-half inch (objective). The clip-on display shall not interfere in the use of inline clip-on night vision systems (threshold). The clip-on display shall provide the capability to attach current kill flash and laser filters (threshold). The performance of the clip-on display shall not be impacted by the shock and recoil of the weapon firing (threshold). The clip-on display shall accept commercial or military standard batteries (threshold); the clip-on display shall be powered by the system providing display information (objective).

A Firm Fixed Price proposal is preferred.

R3901 MINIATURE MULTISPECTRAL DAY AND NIGHT INLINE CLIP-ON DEVICE (MiniWave-D)

To ensure small tactical units of dominance can overmatch adversaries, individual operators require a small form factor multispectral day and night inline clip-on device. There currently exists no individual operator based multispectral day and night, small form factor, clip-on device for individual weapon systems. Current combat operations integrate several wavelengths for fire control measures including target marking, ranging, and identification of friendly and enemy forces. In addition to operators requiring the ability to observe multiple wavelengths of lasers, operators also require the ability to observe multiple visual augmentation wavelengths (reflective NIR, SWIR, and emissive LWIR thermal bands) to find, fix, and interdict enemy personnel and infrastructure at a range of 600 meters (threshold), 1200 meters (objective). Current technologies that work across multiple wavelengths are both too large and cost prohibitive to be utilized on individual weapon systems. This device shall be small enough to carry in a uniform cargo pocket

(threshold), be used both handheld and as an inline clip-on sight in front of all current existing Program of Record (POR) individual rifles (threshold), and optical sights 1-10x (threshold) 1-20x (objective). The device shall be filtered to see 800-1100 nanometer lasers (threshold), 800-1600 nanometer (objective). The device shall fuse NIR, SWIR, and uncooled LWIR channels and have commercial or military standard battery runtime of 4 hours (threshold), 12 hours (objective). The device shall be able to withstand the shock and recoil of the weapon system firing of M4 carbine (threshold), M107 Barrett .50 cal (objective).

A Firm Fixed Price proposal is preferred.

R3902 WIDE FIELD OF VIEW - BINOCULAR NIGHT VISION DEVICE (WIDE BANDIT)

Special Operation Forces (SOF) need to maintain the advantage in night vision capabilities. To improve the night vision capabilities of the SOF Operator, this effort will consist of designing, developing, testing, and delivering a Wide Field Of View (WFOV) Binocular Night Vision Device (BNVD) without any loss of resolution of existing systems capabilities, while remaining affordable to SOF organizations. The goal of this requirement is to take an existing capability and enhance it to increase the Field of View (FOV) of a dual-tube or visor type Night Vision Goggle to provide the SOF Operator with a 70 degree horizontal view (threshold), while maintaining the existing size, weight and resolution of the current USSOCOM fielded dual-tube NVG (threshold). The threat has the increasing opportunity to commercially procure inexpensive and effective night vision devices. Tactical operators must use the latest technology available to ensure success over these adversaries when conducting operations in limited visibility environments.

Specifications:

- The system shall be built with a minimum of 70 degree horizontal by 55 degree vertical FOV with a 40 degree central overlap with a tolerance of ± 2 degrees (threshold).
- To ensure increased depth perception and situational awareness, the configuration shall be a binocular or visor type device; if utilizing a binocular approach, a minimum of two 18 millimeter image intensifier tubes that shall comply with the BNVD Image Intensifier Tube Assembly Performance Specification (threshold).
- The BNVD shall have an on axis limiting resolution at the true infinity setting of not less than 1.3 cycles per milliradian (threshold), and 1.5 cycles per milliradian (objective)
- The magnification shall be unity of 1.0X ($\pm 5\%$) (threshold).
- The BNVD shall be a binocular or visor type device with independent NIR sensor channels for the Operator's left and right eye to optimize depth perception of the system (threshold).
- The system shall weigh less than 550 grams (threshold), 450 grams (objective) including internal batteries, to reduce Operator head and neck fatigue.
- The overall cubic centimeter size shall be less than 1,150 (threshold) and 1,000 (objective) excluding eyecups, battery pack and cables.
- It shall operate using an external battery pack that attaches to the rear of the Modular Integrated Communications Helmet (MICH) helmet with lightweight, low profile cabling to reduce weight and possible rigging issues, and shall be interoperable and non-

- interfering with the AN/PAS-29 Clip-On Thermal Intensifier (COTI) (threshold).
- It shall be powered by commercial off the shelf (COTS) (threshold), and run continuously for 8 hours (threshold), 12 hours (objective) on 1X battery; and 16 hours (threshold), 24 hours (objective) on 2X batteries. A low battery warning shall be included to alert the operator (threshold).
 - The WFOV BNVD shall mount to existing Special Operations Forces (SOF) Helmet Mounts utilizing a dovetail interface (threshold) as directed by the Government.
 - The WFOV BNVD shall also be interoperable with COTS head harnesses that utilize the dovetail interface, when helmet use is not required.
 - The system shall be configurable to be used in multiple environments including but not limited to Close Quarter Battle (CQB), infiltration via dismounted and mounted platforms, both on and off road, and maritime vessels (threshold). The price per system should be within 10-15% of the current BNVD utilized by USSOCOM units.

A Firm Fixed Price proposal is preferred.

R3903 ENHANCED HANDHELD BREACHING TOOL (HOT-E)

Current handheld breaching capabilities allow Tactical Operators the ability to gain entry to a target through padlocked doors and gates, chained doors, windows, security grills, or security doors with heavy duty locks and hinges. This needs to be done within seconds and discreetly without compromising the element of surprise. This is currently achieved through the use of mechanical bolt-croppers which are heavy, cannot be wielded in tight spaces, or when the operator is restricted in movement such as on a ladder trying to gain access through a ship's porthole. Explosive cutting charges are not discreet, take time to deploy, are hazardous, and require considerable skill, training to deploy. Each of the current technologies present a clear and present danger to operators by increasing entry team exposure times, increasing overall probability of compromise by sound, and significantly hinders operator's mobility due to size and weight. These constraints leave tactical teams with low to no options for executing a rapid, surreptitious, and positive breach when conducting high-risk, high-threat tactical operations such as Close Quarters Combat, the serving of high-risk warrants, Hostage Rescue operations, and Boarding Search and Seizure operations.

The solution would be a simple one-hand operated, easily transported, easily deployed/employed, recovered, reloadable and reusable, and quiet device that shall not hinder operator movement, while also providing the operator a safe and discreet breaching capability for use both above and below water and provides a user option capability for remote use.

The solution to this critical mission shortfall shall support single-handed operation (threshold). The device housing shall be sufficiently rugged to support operations without rupturing (threshold). The device length shall be less than or equal to 5.5 inches (threshold) and 4.5 inches (objective). The device diameter shall be less than or equal to 1.5 inches (threshold equals objective). The device shall weigh 6 ounces. (threshold), 5 ounces. (objective). The device shall be compatible with commonly available pouch carriers used for pyrotechnic diversionary devices. The total overall weight of the device and its possible subsequent components shall not exceed 5 pounds (threshold), 1 pound (objective) when assembled. The device shall not consist of more than two modular components. If a modular approach is used, device components shall

be designed and fabricated in such a way that device components cannot be improperly aligned or connected under no light level conditions. The device and its possible modular components shall require no more than five (5) seconds (threshold), two (2) (objective) seconds for assembly and deployment. The device shall pass immersion testing unpackaged for two hours at 3 feet (threshold), and unpackaged for 1 hour at 66 feet (objective). The device shall be fully functional when submerged to 66 feet (threshold). The device shall be reloadable and / or re-usable in order to minimize cost. The durability of the device casing, components and activation mechanism shall be sufficient to permit the device to be re-used at least 50 times. The ability to re-use the device shall provide the additional benefit of reducing the number of devices that tactical teams would be required to carry during a particular mission. The device and all components shall meet military and civilian safety requirements for transport on aircraft. The proposed solution should operate in all climatic environments (objective). The proposed solution should not become unstable, be adversely affected or experience downgrade of effectiveness by climatic environment (objective). All connection points, ports or compartments shall come with an easily removable cover, plug or like item to prevent ingress of moisture or dust while the device is in storage or transit. The device power source shall be included in the overall weight of the device. The device shall have a removable power source or positive safety device in order to prevent activation during transport and storage. The device power source shall be removable, rechargeable (threshold), removable, replaceable (objective). If batteries are to be used, the batteries shall be common commercially available batteries such as AA, AAA, 9v, or CR123. If batteries are to be used, the chosen battery(ies) shall allow for no less than 100 activations or 10 cycles of 10 seconds of heavy load use of the device (threshold). The activation mechanism should be durable, reliable and cause the device to function in one (1) second or less from moment of activation (objective). The activation mechanism shall be designed to prevent inadvertent, accidental activation (threshold equals objective). The activation mechanism shall be easily identified through operator tactile interface in no light level environments. The activation mechanism shall be easily identified while wearing leather tactical gloves or 11 millimeter dive gloves. The activation mechanism shall be integrated into the device and shall not require a secondary or external adjunct. The device shall properly function regardless of spatial orientation. The device shall be designed and fabricated to allow for positive seating of device to target cutting area for optimal cutting and operator safety (e.g., v-shape of shears, scored or notched nozzle for torch, etc.). The device shall allow for remote operation. Components of remote operation capability are not included in overall weight and size of base device and base device components, however total weight for all remote components shall not exceed five (5) pounds (threshold), one (1) pound (objective) and shall fit into the same type, size carrying pouch as specified for the base device. Remote operation shall have full operator control for arming and activation. Remote operation shall allow for synchronization, arming and activation of up to five (5) devices. Remote operation shall allow for user defined time delay or user manual arming and activation. The system shall be able to cut through a wide range of hardened steel targets of a variety of different shapes and configurations up to 10 millimeter thick (threshold) complex targets up to 50 millimeter thick (objective). The device shall be able to bisect a 50 millimeter (Thermal Barrier Coating (TBC)) length of 10 millimeter (TBC) thick steel in <5 seconds (threshold), <2 seconds (objective). The device shall not emit a noise greater than 60 dB at one meter (threshold equals objective) during use. Device shall be designed to be non-injurious to operator when device is employed as designed (threshold equals objective). The device shall not require the use of any specialized protective gear other than what is normally

worn by individual operator during tactical operations. The device shall not be sensitive to altitude and pressure changes related to transport in cargo aircraft. The proposed solution shall include a detailed user manual, technical manual and short periods of instruction, and training for end users. The device and its possible components shall have a controlled environment shelf-life of three (3) years (threshold), five (5) years (objective) from date of manufacture. The device shall not create a hazardous material handling or disposal consideration after use. The proposed solution shall provide a two (2) year warranty covering repairs against all attributable defects in materials or workmanship, to include times of operator device testing and Government verification. The proposed solution should grant full Government Rights. The device shall be enclosed, delivered in a protective transport storage case with Ingress Protection rating of 67.

A Firm Fixed Price proposal is preferred.

R3904 ACOUSTIC MICRONIZED BEACON (AMB) KIT

Maritime EOD tactical operators require a small kit which allows the operator to mark underwater ordnance items and other underwater contacts of interest. Current deep water acoustic beacons are limited in their duration to 30 days and are not user selectable for frequency and other features. EOD requires a kit to be developed containing both deep water selectable acoustic marking beacons and a shallower rated disposable acoustic beacon. The beacons would be used in typical underwater demolition operations to mark an explosive charge. The acoustic beacon would normally be destroyed when the underwater charge detonates; however, in the event of a catastrophic misfire of the primary detonation trunk line, the beacon would be used to re-locate the explosive charge. EOD currently uses a float and marker to re-locate. If the explosive trunk line detonates but the main charge fails, the float line can be cut leaving the explosives on the ocean floor in poor visibility.

The AMB Kit shall consist of two (2) deep-water, selectable output acoustic beacons and 10 disposable, selectable short duration acoustic beacons (threshold equals objective).

Both devices shall automatically activate upon submersion (threshold), when user selected submersion or interrogation by external device (objective).

DEEPWATER SELECTABLE OUTPUT ACOUSTIC BEACON

The device shall be reusable. The power source shall be rechargeable (threshold), replaceable (objective). The device shall weigh no more than 1.0 pounds (threshold), 0.75 pounds (objective). The device pressure rating (Feet of Seawater [FSW]) at a maximum operational depth at 29 degrees (F) shall be 21,000 FSW (threshold equals objective). The device length shall be 4.0 inches (threshold equals objective). The device width shall be 1.25 inches (threshold equals objective). The device height shall be 1.25 inches (threshold equals objective). The external housing case material for the electronics assembly shall be waterproof to maximum depth. The external housing case material for the electronics shall be stainless steel (threshold), titanium (objective). The operational acoustic frequency (kilohertz) shall be 37.0 kilohertz (threshold), 30.0 – 40.0 kilohertz selectable (objective). The method of securing the battery compartment closure shall be special star wrench 1.25 inch (threshold), wrench flats 1.25 inch standard (objective). The method of sealing the battery compartment shall be a redundant seal

suitable for depth, pressure rating (threshold equals objective). Acoustic output shall be factory set (threshold), have a selectable duration between chirps of 0.05 to 4.0 seconds (objective). Initially the acoustic signal shall automatically operate (time) 360/0 (hours / minutes) (threshold equals objective). Duration at continuous operation (hours / minutes) and also defined as a selectable period of intermittent operation after initial 360 hours, e.g. 1 chirp per X seconds until battery is dead with programmed "Off" and "On" periods of 1005/0 (hours / minutes) (threshold equals objective). Duration at intermittent operation is defined as any setting that allows the unit to turn "On" and "Off" for a predetermined time period. The settable duration between chirps, settable duration of "Off" and "On" periods shall be for up to one year duration, counting the 30 day initial (threshold equals objective). The device shall have the ability to be lashed to another item through a connection point consisting of two (2) 0.25 inch by 0.375 inch slots in case material allowing for small cord or plastic tie-tie attachment of acoustic beacon (threshold equals objective). The device shall be compatible with current NAVAIR air delivery mine adapter brackets and aircraft brackets and shall use a special designed bracket utilizing the same mounting space (threshold), the existing bracket for mounting (objective). The acquisition distance or distance the unit can be acquired from the water's surface with the unit at 300 FSW using AN/PQS-2A shall be 4000 yards (threshold), 5000 yards (objective).

DISPOSABLE SELECTABLE OUTPUT ACOUSTIC BEACON

The device shall weigh no more than 0.15 pounds (threshold), 0.10 pounds (objective). The device Pressure rating at a Maximum operational depth at 29 degrees (F) shall be pressure rated to 190 FSW (threshold), 300 FSW (objective). The device length shall be 3.0 inches (threshold), 2.0 inches (objective). The device width shall be 1.0 inches (threshold), 0.75 inches (objective). The device height shall be 1.0 inch (threshold), 0.75 inches (objective). The external housing case material for the electronics assembly shall be waterproof to maximum depth. The external housing case material for the electronics shall be stainless aluminum (threshold), plastic (objective). The operational acoustic frequency shall be 37.0 kilohertz (threshold), 30.0 to 40.0 kilohertz selectable (objective). The method of securing the battery compartment closure shall be knurled and no tools required with coin slot as a back-up (threshold), lever actuated and no tools required (objective). The method of sealing the battery compartment shall be an O-ring (threshold), dual O-ring (objective). Acoustic output shall be factory set (threshold), have a selectable duration between chirps of 0.05 to 4.0 seconds (objective). Initially the acoustic signal shall automatically operate (time) 2/0 (hours / minutes) (threshold), 40/0 (hours / minutes) (objective). Duration at continuous operation (hours / minutes), defined as a selectable period of intermittent operation after initial 360 hours, e.g. 1 chirp per X seconds until battery is dead with programmed "Off" and "On" periods of 1005/0 (hours / minutes) (threshold equals objective). Duration at intermittent operation (battery) (hours / minutes) is defined as any setting that allows the unit to turn "On" and "Off" for a predetermined time period. The settable duration between chirps, settable duration of "Off" and "On" periods shall be factory set at immediate "On" with one 32-40 hours of "On" (threshold), settable 1-5 days of initial "Off" with a following "On" period of 32-40 hours (objective). The device shall have the ability to be lashed to another item through a connection point consisting of two (2) 0.25 inch by 0.375 inch slots in case material allowing for small cord or plastic tie-tie attachment of acoustic beacon (threshold equals objective). Tools required for operational maintainability shall be screwdriver (threshold), none (objective). Required maintenance of the device at the operational level shall be fresh water rinse

and lubricate O-ring (threshold equals objective). The type and style of primary battery power source shall be 1 (each) CR-123 Lithium battery (threshold), 2 to 4 (each) coin batteries (objective). The acquisition distance or distance the unit can be acquired from the water's surface with the unit at 300 FSW using AN/PQS-2A shall be 400 yards (threshold), 500 yards (objective). The desired maximum price per unit for the disposable device is \$75.00 (threshold), \$50.00 (objective). The proposed solution devices shall not be sensitive to altitude and pressure changes related to transport in cargo aircraft. The proposed solution shall include a detailed user manual, technical manual and short periods of instruction, and training for end users. The device and its possible components shall have a controlled environment shelf-life of three (3) years (threshold), five (5) years (objective) from date of manufacture. The proposed devices shall not create a hazardous material handling or disposal consideration after use. The proposed DEEP WATER SELECTABLE OUTPUT ACOUSTIC BEACON solution shall provide a two-year warranty covering repairs against all attributable defects in materials or workmanship, to include times of operator device testing and Government verification. The proposed solutions should grant full Government Rights. The devices shall be enclosed, delivered in a protective transport storage case with Ingress Protection rating of 67.

A Firm Fixed Price proposal is preferred.

R3905 MULTI-ABILITY RECONFIGURABLE SMALL UNMANNED AIRCRAFT SYSTEM (MARSUAS)

Special Operations Forces (SOF) tactical teams are currently constrained to singular design small unmanned aircraft system (sUAS) that are not able to adapt to multiple mission roles and rapid changes to situations on the ground. SOF currently relies on single form factor specific Group 1 and 2 sUAS to perform current mission tasks. Units are challenged with maintaining currency, training standardization, interoperability between platforms, sustainment of the systems, and an increase in operational load when deploying these different sUAS.

SOF seeks to develop a rapidly reconfigurable, modular multi-ability hand launched sUAS capable of being tailored for mission specific tasks. This will give SOF a single sUAS platform that can be configured to support missions requiring a Quad Rotor sUAS, Tilt Rotor / VTOL sUAS, Collapsible Wing sUAS, and Fixed Wing Long Endurance sUAS. Development of this system shall result in greater training and operational proficiency, lower sustainment costs with more common components, and shall lighten operational load. Preservation of excess size, weight, and power (SWaP) while maintaining operationally relevant endurance is paramount in each configuration of the sUAS. Portability of MARSUAS should be rucksack packable and Military Free Fall (MFF) capable, swimmable, and fully weatherized. Man portable transportation of additional components and spares to maintain mission flexibility is acceptable. Vehicle transport of the entire system to include spares package shall only be required for shipment to and from points of debarkation. The MARSUAS Fixed Wing and Collapsible wing configuration should be capable of being launched by hand, canister, or a sUAS universal launcher. A deep stall landing equivalent to a 1:1 glide ratio is desired for landing in all configurations.

Specifications:

- Total system weight under 20 pounds; Aircraft Weight seven (7) pounds (threshold), five (5) pounds (objective)
- Endurance: Quad Rotor Configuration 60 minutes (threshold), 90 minutes (objective); Tilt Rotor Configuration 90 minutes (threshold), 120 minutes (objective); Collapsible Wing Configuration 120 minutes (threshold), 180 minutes (objective); Fixed Wing long endurance 240 minutes (threshold), 320 minutes (objective)
- EO/IR HD capable gimbaled payload with laser illuminator or pointer
- Additional payload capacity: Quad Rotor additional one (1) pound; Tilt Rotor, Collapsible Wing, and Long Endurance Fixed Wing additional two (2) pound (threshold)
- Very low to no acoustic signature at useful sensor slant ranges
- Highly flexible autonomous waypoint navigation
- Direct remote control (RC) flight operation capability when required
- Digital Terrain Elevation Data (DTED) fully integrated into flight planning and moving map
- Light weight Ruggedized Ground Control Station (one man operable); Compatible with Falcon View flight planning software, ATAK and WinTAC; universal controller shall operate all kit variants (threshold)
- Rapid reconfiguration: No more than two (2) minutes to change between configurations.

A Firm Fixed Price proposal is preferred.

R3906 ENHANCED SMARTPHONE AND TABLET OPERATOR INTERFACE WITH UAS (E-TOI)

Special Operations Forces (SOF) small tactical teams working in austere environments require instantaneous critical information that can be fed from both organic and strategic ISR platforms in order to enhance the decision making process on the target. SOF currently receives data from these ISR feeds through a push process that is limited to voice communications to the UAS Sensor operator in order to make specific requests for information on the target and / or area of interest.

SOF seeks to develop a data interface and software solution that shall allow downlink of critical video and digital data from multiple sensors to multiple users who are forward on the target area. SOF requires a software solution that provides two way smartphone, tablet integration that can receive both analog and digital video, and shall integrate into currently fielded software such as ATAK and WinTAC. The software solution shall provide multiple users with an interface to make specific requests and rapidly obtain instant and reliable information through networked devices in order to make critical decisions on the battlefield or during an investigation.

Development of this effort shall provide SOF users with a networked device and UAS integration software solution that allows the user to make point and click requests via Cursor on Target (CoT) messaging to the networked UAS Operator Ground Control Station (GCS). The software solution shall include development of basic requests such as, look here; loiter and look here; standoff and stare here; and other select actions that can be actioned or rejected by the UAS operator supporting the mission. The software solution and interface shall include Blue Force

Tracking data from multiple network users in order to provide situational awareness to the UAS operators and fires coordination personnel and shall allow 911 type messaging or “Look at Me NOW!” request for in-extremis situations.

Specifications:

Device Operating System Integration: Android and Windows 7 and 8 capable devices (threshold); iOS (objective) on both tablet and smart phone.

Cursor on Target Integration: Shall be a fully compliant software application that allows network interface with the UAS GCS and other networked devices (threshold).

Encryption: NSA Suite B encryption compliance (threshold).

Geo Registration of map information and video display: Shall allow user to click on the point to pull coordinate data and push to UAS GCS as Cursor on Target message packet (threshold).

Compression Technology Integration: Develop compression and decompression algorithms to eliminate latency when using full motion HD video capable sensors (threshold).

A Firm Fixed Price proposal is preferred.

R3907 RETRO-DIRECTIVE TACTICAL ANTENNAS (RADIANT)

U.S. and UK SOF currently rely on Omni Directional Antenna systems to facilitate tactical communications in highly mobile operations. Current Omni Directional Antenna technologies (a) produce higher than needed RF signatures, which can lead to compromise of friendly forces, and (b) can waste energy resources since the RF signal is broadcast to other than intended recipients. Current Directional Antenna systems are relatively large, heavy, difficult, and slow to steer and hence not suited to agile operations. However, they remain valuable in static or fixed base operations.

This Proof of Concept effort seeks to develop and test a retro directive antenna technology, using a phased antenna array concept with balanced size, weight, and power (SWaP), cost and agility. The antenna shall sense the RF signatures of “own force” transmitters and intelligently, dynamically, and rapidly steer the RF transmission only in the required direction.

Specifications:

- Four (4) systems for Proof of Concept developmental testing (threshold).
- Shall weigh no more than fifteen (15) pounds (threshold) or five (5) pounds (objective).
- Shall be vehicle mounted and shall use vehicle power of either twelve (12) (threshold) or twenty four (24) (objective) volts, and shall use less than one (1) watt of power (threshold).
- Shall have variable transmitter power of one (1) to five (5) watt (threshold).

- Shall initially be targeted to be compatible with current generation MANET communication devices with an initial frequency target of 2.3-5.0 gigahertz (threshold); 0.15-5.0 gigahertz (objective)
- Shall have no mechanical moving parts (threshold).
- Antenna shall possess built in intelligence to recognize “own force” signals and their direction of arrival and form suitable beam patterns to respond when in transmit mode (threshold).
- Shall have both wired and wireless connections between radio system and the antenna (threshold).
- Shall operate at a line of sight (LOS) range of five (5) kilometer (threshold), > ten (10) kilometer (objective).

A Firm Fixed Price proposal is preferred.

R3908 GEOLOCATION OF RENDERED IMAGES FOR FURTIVE NAVIGATION (GRI-FN)

Develop an Android application to navigate without using traditional methods such as Global Positioning System (GPS), radio frequency (RF) signals, or satellites. GPS transmissions are weak and easily jammed or spoofed, so it is possible for enemy forces to deny conventional GPS satellite signals. If an operator is in a GPS and RF denied area, they have limited options for navigating. Tactical operators require the ability to determine Precise Position Location Information (PPLI) of themselves and targets of interest using a non-RF application.

This solution shall provide operators the ability to determine PPLI by using an Android application that can cross reference an image taken by the Android device to an existing high resolution 3 dimensional, geo-rectified image database stored on the device. Prior to execution of any mission, tactical operators will download and store requisite satellite and LIDAR imagery in a user-friendly high-resolution 3D imagery database. The database shall be stored on removable external high-density SD cards that can be interchangeable for operational areas. During operations, the Android would capture one or more still images (flat or panoramic). The stored images shall be geo-rectified by the application accessing the stored imagery database. Through computation, the device shall provide Category II or better coordinates. These coordinates would then be populated on a mapping tool, such as Android Tactical Assault Kit (ATAK) or Android Precision Assault Strike Suite (APASS), where other users can identify coordinates for other targets of interest.

Vendors may consider use of other passive accessories or sensors to assist with navigation such as inertial chipsets to maintain geolocation coordinates of the moving operator after the application has rendered the grid coordinates for a fixed position. Solution will incorporate the use of inertial navigation system (INS) or other devices to maintain position accuracy for non-vehicular movement for > 60 minutes (threshold), > 4 hours (objective). Developer can consider other innovative sources of images.

Solution shall also interface with internal compass (threshold).

Solution shall use GPS, if GPS is available. Solution shall clearly indicate if the PPLI from the

3D database agrees or differs with the GPS information.

Application and data will not affect the performance of other applications.

Solution should also provide “scene” change detection to identify features that have changes since collection (objective).

Solution should provide geolocation when minimal or no terrain features exist (i.e., dry lake bed or open desert) (objective). Solution should provide geolocation in all environments to include urban, mountainous, desert and triple canopy (objective). Solution will work during day (threshold) and night/low visibility conditions (objective).

Specifications:

- Location Accuracy: Category II coordinates resolution: 15 meter (threshold), Category I coordinate resolution: 6 meter (objective) (Refer to JP 3-09.3 for definitions of CAT I – CAT VI).
- Android (threshold), Apple iOS and Windows (objective).
- Shall provide location in less than 10 minutes (threshold), 3 minutes (objective). Tactical operators will know their approximate location and will be able to narrow the search to five (5) square kilometer. [This time will be measured from the point of taking a picture and until the application returns the PPLI].
- Imagery Database Source Format: Shall work with imagery from NGA or other government formatted imagery; imagery will be government furnished information (GFI) and will also include the American Society for Photogrammetry & Remote Sensing (ASPRS) LAS file format.
- HD 3D Database Size: 10 square kilometers (threshold), 50 square kilometers (objective).
- Power Draw: Less than 10% of battery life for 10 images rendered (objective).
- Data/Audio Port Plug and Play Interoperability micro-USB (threshold).
- Output Format: GPS (National Marine Electronics Association – NMEA) / Cursor on Target (CoT / 8 digit military grid reference system (MGRS) / DD.MMM format.
- The secure solution shall be compliant with Federal Information Processing Standards (FIPS) 140-1 (threshold).
- Use a non-proprietary, open source standard solution, so additional components can be integrated and paired as needed (threshold).
- System shall be able to use imagery from internal camera (threshold) or from an external source such as an image from a tactical UAV or a telescope uploaded to the device (objective) or other ISR devices.
- Solution will have no RF signature; all accessories will be hard wired (threshold).
- Accessory kits shall be as small and light as possible but no more than one (1) pound (threshold).

In this effort, the vendor shall provide an application that will function on a government selected Smart Device (e.g. the Samsung Note III or Samsung Note IV).

- Vendor shall provide 10 complete systems to include Android smart devices and software.
- In addition, the vendor shall provide 100 perpetual licenses to load the software on other Government provided Android devices (threshold) or iOS and Windows (objective) devices, vendor will provide unlimited Government licenses (objective).

A Firm Fixed Price proposal is preferred.

R3909 LOW-COST ENHANCED MOBILE MESH RADIO (LEMR)

Tactical communicators operating overseas in austere environments with Partner Nation Forces (PNF) require a Low-Cost Mobile Mesh Network Radio capable of operating with both Mobile Ad Hoc Network (MANET) data links (internet protocol layer schema) and UHF, VHF voice communications. The capability required is a single radio that communicates on both wide and narrow band. The objective is to improve interoperability and force multiply with PNF during combined Counter Terrorism (CT) operations. This capability shall enable U.S. forces to communicate securely, and also allow U.S. forces to securely communicate with PNF via an export variant.

Currently, there are several radios available with either wideband or narrowband capability; however, there is no radio effectively doing both; existing capabilities are not cost effective; radios have low data rates and/or not compatible for use with PNF UHF and VHF voice communications.

The intent is to develop a high-bandwidth mobile mesh radio allowing access to full motion video (FMV), position location information and other forms of tactical data, while simultaneously having an organic ability to communicate with PNF carrying a variety of narrowband radios operating in UHF and VHF frequencies. Therefore, the Tactical Operations Support Subgroup is seeking the development of a Low-Cost Mobile Mesh Network Radio with the following capabilities:

- Shall consist of two (2) kits – a kit consists of:
 - Twelve (12) U.S. radios
 - Twelve (12) PNF export variant radios
 - Ancillary equipment
- Shall have a narrowband transceiver capable of supporting P25/UHF/VHF voice communications (threshold).
- Shall have a wideband transceiver capable of reliably maintaining a Mobile Ad Hoc Network (MANET), IP layer schema with data rates of five (5) megabits per second (threshold), ten (10) megabits per second (objective) at a line of sight (LOS) link distance of no less than five (5) miles between MANET nodes (threshold); and with a throughput of forty one (41) megabits per second User Datagram Protocol (UDP) (objective), thirty one (31) megabits per second Transmission Control Protocol (TCP) (objective).
- Shall be able to integrate with legacy MANET radios such as WaveRelay® (threshold), WaveRelay® and TrellisWare® (objective).
- Shall be certifiable NIST FIPS 140-2 Level 2 (threshold), Level 3 (objective).
- Shall have ability to store unique commercial crypto key or PKI schema (threshold).

- Shall include zeroize functionality (threshold); shall include remote zeroize functionality (threshold).
- Shall be capable of operating with a COTS and military rechargeable battery for no less than ten (10) hours (threshold), fourteen (14) (objective).
- Shall have Ingress Protection rating of 65 (threshold), 67 (objective).
- Shall operate in temperatures between -40 to 60 C (threshold equals objective).
- Shall have an internal Global Positioning System (GPS) receiver for Position Location Information (threshold equals objective).
 - Satellite Acquisition – Cold Start: 38s; Reacquisition: 2s.
- Shall have a form factor comparable to either existing hand-held military or civilian land mobile radio (LMR) (threshold); or smaller (objective).
- Shall be capable of being operated in a handheld and/or wearable configuration (threshold equals objective).
- Shall have content consisting of fifty one percent (51%) or more of domestically manufactured parts, labor and/or value-added content or any combination thereof (threshold equals objective).
- Should be able to operate narrowband and wideband transceivers concurrently (objective).
- Shall be able to be configured and utilized with and without an external programming device or channel volume controller (threshold equals objective)
- Should include remote hardware device to enable programming, channel volume control when radio is stored in a position that makes it inaccessible to the user (objective).
- Should have channel and volume control from both web-browser and on the physical radio device (objective).
- Shall provide individual antenna connections for wideband and narrowband, enabling switching between bands without reconfiguring antennas (threshold) or concurrent operation (objective).
- Shall be supplied with frequency efficient antennas for both narrowband and wideband operating frequencies (threshold equals objective).
- Shall be supplied with remote antenna relocation cables, short 18 inches and long of no less than 3 feet in length for each antenna and a method of attaching antennas to standard MOLLE based plate, load carrying kit (threshold equals objective).
- Should be compatible with legacy dismounted and mounted signal amplifiers such as Automated Business Power ABP-10PA31 and ABP-10PA40 (objective).
- Shall have single and multi-station battery rechargers (threshold equals objective).
- Shall be supplied with a storage pouch that provides access to all radio buttons and display, and shall not interfere with cabling or attachment ports (threshold equals objective).
- Shall be compatible with current tactical communications headsets such as MIL-STD audio connector and PELTOR (threshold), PELTOR and SYLINX (objective).
- Should include Wi-Fi (802.11 Access Point), wireless personal area network (WPAN), Ultra Wideband, near field communication (NFC), or Bluetooth capability for future wireless developments (objective).
- Shall have power light-emitting diode (LED) indicator or similar (threshold)

- Should have RJ-45 receptacle (objective).
- Should have omni-directional antennas (threshold), and phased array antennas for point to point (objective).
- Shall maintain connectivity under mobility (threshold).
- Should be MIL-STD-810F rugged (objective).
- Should meet MIL-STD-461 (objective).
- Should use multiple-input and multiple-output (MIMO) antenna technology (objective).

Vendors are also encouraged to submit proposals that provide a radio kit approach, where there is the possibility of having different tiers of radios within a single kit (i.e., PNF exportable radio variant, “dumb pucks” that expand MANET network range and provide GPS info, base station radio variant for high through-put, analog and digital converters/encoders, all IP based for interoperability, etc.).

A Firm Fixed Price proposal is preferred.

R000 TOS FY16 UNSPECIFIED REQUIREMENT

Develop new, innovative technologies that enhance the capabilities of DoD and interagency special operations tactical teams engaged in finding, fixing, and finishing terrorists. This includes the development of capabilities for state and local law enforcement agencies to combat domestic terrorism.

Technologies may include:

- Systems that assist teams in conducting surveillance, target acquisition, and reconnaissance missions.
- Specialized access systems that assist operators in gaining rapid access to objectives in order to conduct an assault or reconnaissance mission, improve evaluation of tactical options, and support efficiency of operations, while providing force protection.
- Offensive systems that enhance the effectiveness of small offensive tactical teams engaged in specialized operations.
- Communications systems that enhance communication capabilities for operational forces. Emphasize reducing operational load, integrity of communications, and low visibility communications.
- Survivability systems that provide protection from or identification of ballistic, fragmentation, explosive, and thermal threats during the conduct of tactical missions.
- Unconventional warfare and counterinsurgency support that provide innovative solutions for small specialized tactical operations teams conducting a broad spectrum of military and paramilitary operations including counterinsurgency and foreign internal defense missions through, with, or by host nation indigenous forces building partner capacity to support U.S. objectives.

Unspecified requirements are for proposing unique innovations that have not yet been identified by the Tactical Operations Support Subgroup. Please do not submit offerings for other CTTSO Subgroup mission focus areas. The CTTSO does not budget for unspecified requirements. If the

evaluation team determines that an unspecified requirement submission is promising enough to merit pursuing, funds will be identified at that point. Because proposed technologies from the unspecified requirements will be competing against proposed technologies for identified and prioritized interagency requirements, the CTTSO may not be able to make any awards against the unspecified requirements.

5.10 Training Technology Development (TTD)

R3964 AC-130 VIRTUAL / AUGMENTED REALITY TRAINING CAPABILITY

Design, develop, implement and evaluate an AC-130 mission qualification training capability consisting of an interactive 3D high definition virtual reality or augmented reality environment integrated with an automated and interactive intelligent virtual instructional tutor. This advanced training technology is required to build muscle memory and cognitive skills using task performance standards prior to engaging in AC-130 operations. Performance task examples include button manipulation dictated by starting engine and before takeoff checklists.

The immersive virtual or augmented reality training environment shall be accessible through untethered, wearable, and lightweight visual display linked to a wearable high computing capacity and storage host computer. The wearable visual display shall have a minimum of 40 degree binocular field of view with a preferred field of view of 120 degrees.

Automated instruction within the virtual or augmented environment shall accurately provide aircraft system and procedural knowledge instruction accessible through multiple interactive applications (apps). Wearable displays and high computing processors shall allow users to view, manipulate, and operate 3D high definition virtual images of aircraft mission system and components through “bare-handed” (preferred) or “instrumented glove” interactive functions (i.e., touch, move, operate, and access selectable exploded views of components). System switches and instruments shall be operationally accurate with selection and feedback indications true to aircraft operational parameters.

The automated and interactive intelligent tutoring (i.e., verbal instruction, evaluation, and remediation) program design should mimic the Visual Threat Recognition and Avoidance Trainer (VTRAT) instruction and learning methodology. The automated and interactive training sessions shall adjust in complexity and progression based on graduated skill development and shall include task performance evaluation and remediation under a programmable intelligent tutor’s control.

The capability shall be standalone software as well as accessible through a web-based government owned and/or accessible network to enable distributed learning. Hardware, software, apps, data, virtual models, and automated instruction must be compliant with U.S. Department of Defense Risk Management Framework. The delivered capability must be government owned with data rights and open architecture that permits and enables rapid changes in automated instruction and aircraft/component design and modeling in the virtual or augmented reality environment. The performer shall provide training manuals and initial on-site training to assist

courseware developers and programmers in system operation with technical assistance for at least one year following system development.

R3965 TASK FORCE OFFICER MOBILE TRAINING AND SUPPORTING MATERIALS

Design and develop a Task Force Officer training program and performance support materials that are designed and developed to be accessible from mobile devices. Task Force Officers are state and/or local law enforcement officers and other government agencies trained to support Federal law enforcement agencies with investigations and prosecutions. Training topics shall include Use of Force, Flying Armed, Domestic Operations, Technical Operations, Integrity, Commercial Fraud, Intellectual Property Rights, specific laws, and content areas under the jurisdiction of Federal agencies.

The offeror shall conduct an analysis to determine training and performance support needs and review existing training to determine possible re-use of content. Design and develop training and job aids or performance support materials accessible from mobile devices, to include content that is currently in a 40-hour instructor-led course format. This is not intended to be a straight conversion from instructor-led training to a mobile format. Rather, the final product should consist of an intuitively designed, engaging training product that includes a variety of instructional materials, strategies, and media that is optimized for learning on a smart phone or tablet.

Conduct usability testing and evaluation of solution prior to completion. Transition support shall be provided to ensure that the solution is fully functional on the intended Government systems when the contract ends. It is anticipated that there will be only one hosted version on a U.S. Government server.

The solution shall be accessible via a mobile device (smartphone or tablet) that may or may not be connected to a government network and may be used without an Internet connection at times.

Expertise shall include prior experience developing mobile learning and a SME with law enforcement experience.

R3966 SURVEILLANCE DETECTION TRAINING SUPPORT PACKAGE

Analyze, design, develop, implement, and evaluate a tiered-level surveillance detection training support package for law enforcement, public safety personnel, and critical infrastructure owners and operators. The program will provide training to identify pre-operational surveillance techniques and detection strategies for those that are tasked with the critical role of detecting adversarial surveillance. Current surveillance detection training content exists across multiple agencies, but a standardized, consistent, and updated program does not exist. The offeror shall be responsible for developing a new suite of tools for program(s) of instruction that consists of up to 40 hours of blended learning content including instructor-led training, computer-based training modules (up to three modules, each 30 to 60 minutes in duration, Levels 1-3 Interactive Multimedia Instruction (IMI) interactivity), and virtual instructor led training.

Local law enforcement and/or government agencies shall be able to use the training package to train themselves and subject matter expertise in counter insurgency and/ or counter intelligence. Content will include areas such as:

- Surveillance Tactics, Techniques, and Procedures (TTPs)
- Surveillance Detection TTPs
- Understanding Use of Cover
- Adversarial Targeting Practices
- Understanding Mannerisms
- Surveillance Awareness
- Suspicious Activity Reporting
- Use of Social Media

The offeror shall conduct a training needs analysis, review existing training content to determine how to re-use or redesign for new course materials, and develop a training support package that is self-sustaining and allows for agency customization. (For example, approximately 15 separate lessons will be developed, with various learning paths created based on specific combinations of these lessons.)

The solution shall be accessible via a personal or government-owned computer system that may or may not be connected to a government network or Internet connection. The training support package will consist of, at a minimum:

- Programs of Instruction
- Instructor Guides
- Student Guides
- Written Exam/Answer Key and Instructor Guides
- Interactive learning activities
- PowerPoint/PDF presentations
- Videos
- Computer based training modules
- Job Aids
- Practical Exercises, Experiential Learning Guide, Performance Examination Checklist – one per practical exercise, with role player requirements identified
- Train-the-trainer course content

The offeror shall provide support for the following:

- Up to three separate Pilot offerings, at a location determined by the Government
- A one-day train-the-trainer event to occur in conjunction with one Pilot offering

Training support package assessment shall consist of Kirkpatrick Levels 1 and 2 evaluation questions, with a strategy presented for Levels 3 and 4.

Transition support shall be provided and include, at a minimum: printing, transition to up to three government identified Learning Management Systems, and transition to the Government Printing Office. Content shall be created using Microsoft Office. Computer-based training modules shall be Shareable Content Object Reference Model (SCORM) and Section 508 compliant. Training modules will be developed at a classification level up to SECRET.

R000 TTD FY16 UNSPECIFIED REQUIREMENT

Develop training technologies and human performance improvement solutions to increase mission readiness and enhance the operational capabilities of all elements, to include both military and civilian communities involved in combating terrorism. The technologies shall provide valuable and innovative approaches to enhancing knowledge, skills, and abilities to deter, defeat, prevent, protect, mitigate, and respond to terrorist threats. This includes the development of new or improved training technologies, performance support capabilities, computer-based training courses, programs of instruction on new concepts, training delivery architectures, training aids, devices and simulations. The proposed training and/ or performance improvement technologies shall support the life cycle of research and development to include: analysis, research, design, development, implementation, evaluation, verification and validation testing, and technology transition.

All submissions shall identify the anticipated end user and/or supporting organization, along with points of contact or coordination that has been done to vet the requirement. This end user POC information should be placed in the bottom right quadrant of the quad chart submission.

Areas of interest include, but are not limited to:

- Training technologies used in support of allies, coalition, and/or host nation partners.
- Training and human performance technologies focused on the United States Africa Command area of responsibility, the United States Pacific Command area of responsibility, and Southwest Border.
- Mobile learning and performance support applications (apps) for operational users (military in theater (any AORs) and/or federal law enforcement and protective services domestically and internationally).
- Advanced performance support capabilities to include augmented reality.
- Holographic technology applicable to the training environment.
- Advancements in judgmental shooting simulations.
- Human performance optimization technologies and methods to enhance cognitive and physiological functioning for special operations, law enforcement, and first responders.
- Personnel readiness and resilience
- Analysis, research, and/or evaluation of training technology.
- Video training capabilities (including a combination of scripted interviews, scenarios, and the creation of narrated visuals/graphics).
- Translation services for written and audio/video training materials.

Unspecified requirements are for proposing unique innovations that have not yet been identified by CTTSO. If CTTSO evaluators determine an unspecified requirement submission is sufficiently promising to merit pursuing, funds may be identified at that point. Because proposed

technologies from the unspecified requirements will be competing against proposed technologies for identified and prioritized interagency requirements, CTTSO may not make any awards against the unspecified requirements. Proposed technologies, models, architectures, software, hardware, tools, and other applications not directed toward a training need are not desired and will be rejected without consideration or comment.

5.11 Business Operaitons (BO)

R3963 DOMESTIC PREPAREDNESS SUPPORT INITIATIVE (DPSI)

Implement the processes necessary to execute a technology transition program focused on Department of Defense (DoD) developed technologies that could benefit the first responder community. This program will contain the following key elements to include technology identification, selection, as well as research and development of the selected technologies. Support to the identified technologies includes services such as technology advancement (Technology Readiness Level 5/6 to 7/8) through enhanced research and development, market and business development, as well as other support to selected vendors to facilitate the transition of proven technologies of interest to the first responder community. Another component of the requirement is the ability to perform test, evaluation, and integration of selected technologies with the first responders' existing systems. The services are tailored to the specific needs of the selected technologies and may include market research to confirm a market segment, entry point, competitive landscape, potential partners, investors, and other key requirements to effect a successful transition. The vendor shall provide monthly reports and quarterly reviews outlining progress and results of the research and development, validation testing, assessments of first responder market potential, and recommendations of commercially viable technologies for further support. Specifically, the vendor will:

1. Work with the DoD/DPSI in researching and developing focus areas of DoD dual-use technologies that would be of use to the first responder community- law enforcement, fire, emergency medical, and emergency services;
2. Refine focus areas and solicit commercial vendors that have developed technologies in the focus areas that were initially supported by the DoD;
3. Assist DoD/DPSI in researching and evaluating proposals to identify those with most potential to benefit first responders;
4. Conduct a forum for presentations by the top proposers at which time proposals will be further evaluated by a panel of first responders/business entrepreneurs to provide DoD/DPSI with final recommendations as to which technologies have the most promise; and,
5. Upon final decision by DoD/DPSI, the vendor will work with selected vendors to provide the research and development services described above.