



BROAD AGENCY ANNOUNCEMENT (BAA)

Sea Strike Science and Technology (S&T)

Transparent Urban Structures II

INTRODUCTION

This publication constitutes a Broad Agency Announcement (BAA) as contemplated in Federal Acquisition Regulation (FAR) 6.102(d) (2). A formal Request for Proposal (RFP), solicitation, and/or additional information regarding this announcement will not be issued.

The Office of Naval Research (ONR) will not issue paper copies of this announcement. ONR reserves the right to select for award all, some or none of the proposals in response to this announcement. ONR provides no funding for direct reimbursement of proposal development costs. Technical and cost proposals (or any other material) submitted in response to this BAA will not be returned. It is the policy of ONR to treat all proposals as sensitive competitive information and to disclose their contents only for the purposes of evaluation.

I. GENERAL INFORMATION

1. Agency Name -

Office of Naval Research

2. Research Opportunity Title -

Technology for Sea Strike Science and Technology (S&T) – Transparent Urban Structures

3. Program Name -

Sea Strike Science and Technology (S&T) - Transparent Urban Structures

4. Research Opportunity Number -

BAA 07-035

5. Response Date -

White Papers: 17 July 2007

Oral Presentations: 20-23 August 2007

Full Proposals: 02 October 2007

6. Research Opportunity Description

Synopsis: The Transparent Urban Structures (TUS) program will develop measurable advances for improving the collection, understanding, and dissemination of intelligence for the urban conflict. ONR seeks to develop technology which assists the warfighter in understanding the urban terrain of interest by detecting and classifying threats, both inside buildings and underground, and by maximizing situational awareness inside structures. The key focus of this program is to develop advanced technologies that make urban man-made structures transparent, thereby eliminating the safe harbor that buildings provide to hostile forces and their malicious activities. This capability will be provided through basic phenomenological research, hardware, and algorithm development of sense-through-wall technology that can directly support tactical expeditionary urban operations in the Global War on Terrorism (GWOT). Sense-through-wall systems resulting from this research will enable the Marine Corps, Special Operations, and the Naval Expeditionary Combat Command (NECC) to execute their urban warfighting philosophies. Resultant technology developed through this program will be integrated into emerging net-centric Navy and Marine Corps Command & Control and Intelligence, Surveillance, and Reconnaissance (C2 and ISR) acquisition programs through a Service Oriented Architecture (SOA).

This BAA opportunity is the second yearly advertisement for the Transparent Urban Structures program. Last year an initial group of performers were chosen to start working towards the goals of the program. Respondents to this BAA should concentrate on the capabilities described in 6.4.

In addition, intelligence gained through use of TUS developed technology will enable the warfighter to introduce facility network information into the analysis of hostile human networks. It should be noted, that this program builds upon and is complementary to the other Department of Defense sense-through-walls programs: DARPA¹ VisiBuilding, and Army CERDEC-I2WD² Sense-Through-the-Wall (STTW).

6.1 Operational Requirements

Man-made structures favor asymmetric threats because the warfighter has a limited sensing capability into their interiors. Buildings provide excellent concealment from observation, ambush, and escape, as well as provide secure bases for enemy C2, weapons caches, and IED/WMD assembly. These man-made features have become “the high ground” in fourth-generation warfare³. In addition, the urban conflict occurs in a region where distinguishing enemy and civilian personnel is extremely difficult.

¹ Defense Advanced Research Projects Agency

² Communications-Electronics Research Development and Engineering Center - Intelligence and Information Warfare Directorate

³ Includes all forms of conflict where one of the major participants is not a state but rather a violent ideological network which uses asymmetric tactics to achieve their perceived moral victory.

Small units engaged in this urban conflict need organic sensing capabilities to support operations in and around buildings. Crucially needed systems must survey an urban region in order to identify which man-made structures harbor hostile forces. Suspect structures are identified by using all forms of prior knowledge of building use from blueprint records to information amassed from all available intelligence sources. Once a candidate structure has been determined, whether above or below ground, this system must assist in determining the intent, whether friend or foe or neutral, of the personnel detected within its walls. Therefore, research and development of technology that participates in determining the intent of building use and classifying activity of personnel located within is critical to military urban operations and prevention of injury to innocent civilians.

6.2 Program Goals

The goal of the TUS program is to develop sense-through-wall technologies that provide urban Intelligence Preparation of the Battlespace (IPB) and total situational awareness during and after urban conflict, enabling the delivery of the appropriate actionable intelligence⁴ to all levels of command involved in the urban conflict from the warfighter to commanding officers.

Systems developed under this program must perform the following functions using all available information available about a structure of interest:

- Ability to identify interior building features such as walls and stairwells in three dimensions, in order to generate and update urban maps in real time;
- Detect underground and otherwise concealed facilities;
- Identify objects and their locations/orientations behind walls and differentiate animate from inanimate objects;
- If human, determine size, gender, location and orientation;
- Distinguish enemy from friendly from neutral of personnel detected;
- Detect, identify, and classify human activity within structure;
- Detect and locate hand-held firearms, small weapons, weapons caches and bulk explosives.

Overall sense-through-wall systems should be unattended, hand-held, small UGV/UAV-mounted, or HMMWV-mounted that operate at a standoff range of tens of meters. Regardless of the proposed system's targeted platform, the system needs to demonstrate potential for transition to expeditionary forces.

⁴ Actionable Intelligence is information that provides a strategic advantage to a respective layer of command.

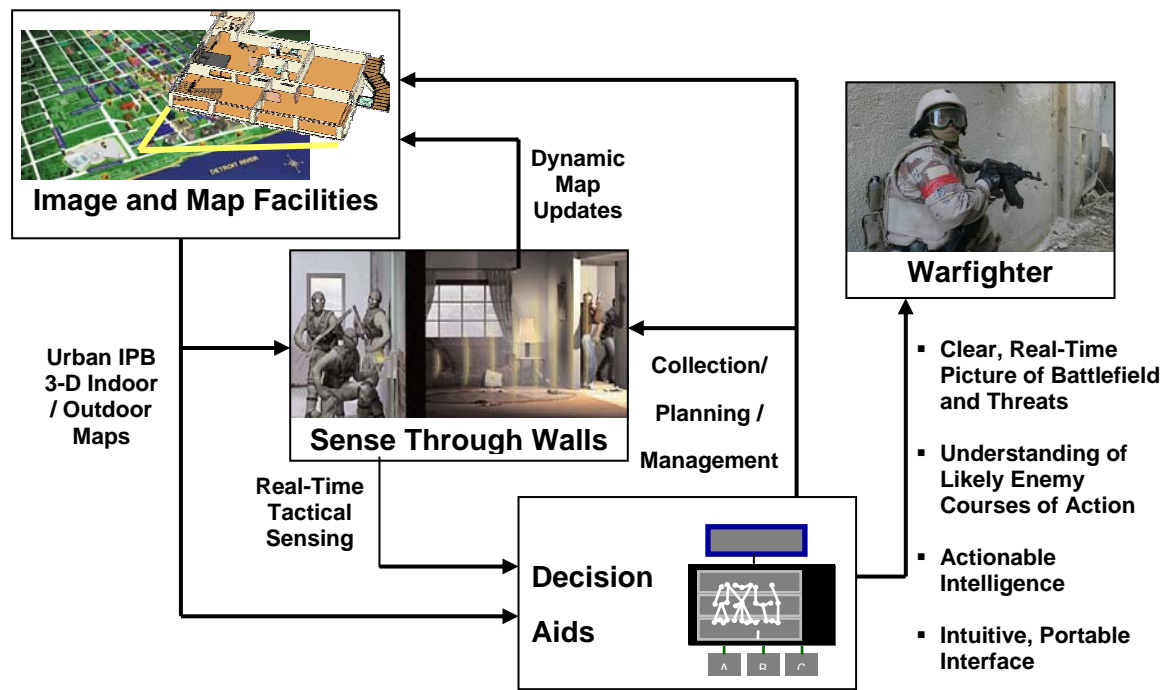
6.3 Program Thrusts

A primary focus of the Transparent Urban Structures program is to develop and demonstrate hardware and software technologies that will function with current and evolving Programs of Record (PoR) of expeditionary forces (Marine Corps, Special Operations, and NECC) that field capabilities utilized by units at the tactical level.

The program is structured with three principal thrusts:

- Develop sense-through-wall technologies which enable
 - behavior/activity classification by determining intent of personnel detected within structures and
 - large-area standoff detection of weapons and/or explosives caches within structures.
- Create three-dimensional image and mapping capabilities of man-made structures accessible by the warfighter that are updated in real time.
- Provide a suite of decision aids that
 - refine tactical awareness by fusing sense-through-wall content with all intelligence of suspect structures and
 - optimize sensor planning and facility/behavior/activity classification by augmenting and exploiting information from all intelligence sources.

The diagram below depicts the relationship among the three thrusts. Integrating these three TUS system components will insure that fusion, visualization, resource management, and information dissemination engines run seamlessly from the individual expeditionary force warfighter to the Commander of the Joint Task Force (CJTF).



6.4 Detailed Capability Areas

The following capabilities are listed to give potential offerors insight into the scope of the program gap areas and technical effort needed to address them for this solicitation. This program addresses the urgent development of these capabilities by supporting efforts to mature key technologies required for an operationally useful system. Products developed in this program may roll into Expeditionary Forces' Programs of Record in spirals for early transition. Additional information on the thrust descriptions can be found in the ONR BAA 06-024 Transparent Urban Structures located at the ONR webpage:

<http://www.onr.navy.mil/02/baa/expired.asp>

6.4.1 Small Weapons Caches and Explosives

The determination of intent of personnel detected within structures is facilitated by the presence of weapons and explosives either carried on an individual or stockpiled in caches within the structure or in close proximity to the detected personnel. Systems should provide standoff detection and location of hand-held firearms, small weapons, weapons caches and bulk explosives within structures. This effort is interested in both sensors and algorithms and may require exploiting characteristic features such as chemical, spectral or structural signatures of armaments in addition to raw high-resolution imagery. Remote identification of explosive material is desirable. Both through-wall detection and the use of enduring witness materials are of interest. Proposed systems must ultimately be capable of achieving tactically relevant form factors (size, weight, and volume) and standoff capabilities (tens of meters).

Deliverable: Sensors and algorithms that detect locate and identify handheld weapons, small weapons, weapons caches and bulk explosives.

6.4.2 Multisensor Networking for Resolution Enhancement

Image resolution and signature enhancement for behind-the-wall object detection, localization and identification can be obtained by a network of multiple through-wall sensors functioning cooperatively providing multiple angle perspectives of the same scene. Such a system is envisioned for a wireless network of man-portable small form factor radar through-wall sensors.

Image resolution at RF frequencies is improved by coherent integration of raw sensor data. At GHz RF frequencies, coherent integration of detections from a distributed radar sensor system requires very precise knowledge of relative sensor time difference and sensor position. This requirement is especially challenging for a wireless based network since accurate timing must be known by all sensors and very small sensor movements must be compensated.

Deliverable: Sensors and algorithms for wirelessly networking multiple man-portable RF radar sensors.

6.4.3 Intelligent Collection

Structures in the urban environment allow an enemy to conceal his supplies, weapons, ammunition, and even his activities. An enemy is able to locate himself in amongst the population, making it extremely difficult to distinguish between innocents and the enemy, or to strike the enemy kinetically without causing collateral damage. Planning is hampered by

difficulties with information and intelligence gathering. Every searched structure that fails to result in useful intelligence, translates to time lost and unnecessarily disturbed innocent civilians.

Capabilities are desired that will increase the efficiency and effectiveness of area search missions. Enhanced capabilities in change detection, pattern analysis, planning, targeting and identification (e.g. training facilities, weapon factories, weapons caches and C2 sites) are desired. To extract valuable information for inferring the enemy's intent, exploitation of unintended and intended signatures, such as chemical, RF, acoustics, utility and energy use patterns, etc., may be considered. Passive collection modalities may include, but not be limited to, an array or network of unattended RF, infrared, chemical and acoustic sensors. Sense-through-wall content from these ground sensors will be cohered with content obtained from other sensors and intelligence sources and propagated in real time to the appropriate levels of command. Intel context, change detection, models of normalcy, models of suspicious behavior and ontological distances between entities may all be used to address this topic area. These sensors and algorithms need to perform positive identification of entities or behaviors of interest, automatic generation of indications and warnings, and make content available for dissemination.

Deliverable: Sensors and algorithms to increase the efficiency and effectiveness of area search missions.

6.4.4 Urban Information Data Base

Warfighters need to have at their disposal an intuitive data visualization and repository tool that integrates all forms and sources of urban information for a specified region of interest. The desired distributed data structure would enable map-grid indexed organization of all relevant data sources. Work is needed to identify relevant data sources in addition to the organization of data. Urban data linked under this tool includes but is not limited to building blueprints, building materials, fenestration details, overhead or profile optical photographs, GEOINT/GIS data, utility maps, imagery under various modalities, HUMINT, building activity patterns, geo-cultural data, facility open source references and prior through-wall scans.

Since the urban area of interest of a platoon is much different than the area of interest for a battalion, solutions are desired that allow the warfighter to easily specify his area of interest, translate that area into grid squares and automatically form connections between those grids and all relevant data repositories. Data derived from the sensors/algorithms developed under TUS, such as mission critical information on building floor plans, architectural features, occupancy and utility patterns and housed equipment/material must be similarly organized to the same grid index. Exploiting the aggregation of these data products from different sources creates new useful data products for expeditionary forces. The development of a central collection instrument which contains all prior information and intelligence concerning an urban structure of interest will enable expeditionary forces to have both a planning and operation tool for urban missions. Data visualization must have multiple resolution levels, from the broad area or city view, to the city block level, to a particular building.

Deliverable: Development of an intuitive web based tool that integrates all building information intelligence, and sense-through-wall data of structures and urban neighborhoods of interest into a map grid data structure.

6.4.5 Display Technology

User interfaces to sense-through-wall content must be intuitive, non-intrusive, and suitable for use during close combat. Conventional imaging algorithms especially those algorithms optimized for use under RF illumination do not provide intuitive views into buildings. Often referred to as “blogology”, detections in raw RF imagery has limited use at the tactical level, since analysis and interpretation is required before a scene is understood by the system user. What is needed are algorithms which interpret objects detected behind walls and their orientations from cues in the raw radar sense data and rendering a virtual object (e.g. chair, human, construction feature) onto a simulated image of the building under surveillance. These cues in the raw sense data, for example, could be interpretations of actual imagery features, characteristic Doppler signatures of leg or arm motions, or characteristic radar cross sections of human backs and torsos. This effort will develop these virtual environments and related algorithms that interpret the raw sensor data automatically and intuitively display the information appropriate for tactical operations. Virtual representations of building interiors should be embedded within available real imagery of the urban area, allowing a warfighter to have one seamless visualization environment. In addition, intelligence and command and control information must be embedded within the visualization to enable the display the mission critical information derived from intelligence or command and control systems.

Deliverable: Hardware and software for interpreting raw sensor data into intuitive tactical information.

7. Point(s) of Contact -

** Important Notices Regarding Questions**

- All Questions shall be submitted in writing by electronic mail.
- Questions and responses will be posted on the ONR web site at https://www.onr.navy.mil/02/baa/07_035/ No e-mail response will be provided.
- Questions presented by telephone call, fax message, or other means will not be responded to.
- There will be no meetings between potential offerors and ONR personnel.
- Questions regarding **white papers** must be submitted by 2:00 p.m. Eastern Time on Tuesday, 10 July 2007. Questions after this date and time may not be answered and the due date for submission of the white papers will not be extended.
- Questions regarding **oral presentations** must be submitted by 2:00 p.m. Eastern Time one week prior to the scheduled presentation. Questions after this date and time may not be answered and the date and/or time of the scheduled presentation will not be changed.
- Questions regarding **full proposals** must be submitted by 2:00 p.m. Eastern Time on Tuesday, 25 September 2007. Questions after this date and time may not be answered and the due date for submission of the proposals will not be extended.

Questions of a technical nature shall be directed to the cognizant Science and Technical Point of Contact, as specified below.

Mr. Martin Kruger
Program Officer
Command and Control and Combat System, ONR 30
Office of Naval Research
One Liberty Center
875 North Randolph Street – Suite 1425
Arlington, VA 22203-1995
E-mail Address: krugerm@onr.navy.mil

Questions of a business nature shall be directed to the cognizant Contract Specialist, as specified below.

Ms. Julie DeStefano
Contract Specialist, ONR 253
Office of Naval Research
One Liberty Center
875 North Randolph Street – Suite 1425
Arlington, VA 22203-1995
E-mail Address: destefj@onr.navy.mil

8. Instrument Type(s) -

It is anticipated that all awards resulting from this announcement will be contracts, particularly cost plus fixed fee (CPFF). Contract awards will fall under the purview of the Federal Acquisition Regulation (FAR) and the Defense Federal Acquisition Regulation Supplement (DFARS).

9. Catalog of Federal Domestic Assistance (CFDA) Numbers -

N/A

10. Catalog of Federal Domestic Assistance (CFDA) Titles -

N/A

11. Other Information-

Industry Information: ONR will post a Industry Briefing for potential offerors at www.onr.navy.mil/02/BAA/. This will include information on the scope of past awards. Interested offerors may register for the virtual industry day at www.onr.navy.mil/02/BAA/ . Offerors who register will be able to view the contact information for other registered interested

parties for the facilitation of teaming. The Transparent Urban Structures (TUS) website at www.onr.navy.mil/02/BAA/ is dedicated to this BAA and will be the primary means of publicizing all information for this BAA.

II. AWARD INFORMATION

Award Information is as follows:

- Total Amount of Funding Available: **\$5M** is available in FY08 (Budget Category 6.2 and 6.3). ONR plans to issue an annual BAA for this program. The total funding for the program is anticipated to be \$33M during FY07-FY11.
- Anticipated Number of Awards: 4-8
- Average Award Range: \$0.5M to \$1.5M for one to three year periods
- Proposed work should be structured for a one to three year period. Multiple-year proposals shall include a base performance period of twelve months with one or two 12-month options.
- Approximately \$5M of the \$33M budget will be set aside for participation by government labs.

Proposals that build on current or previous DoD work are encouraged, for example, DARPA VisiBuilding and Army CERDEC-I2WD STTW. Offerors enhancing work performed under other ONR or DoD projects must clearly identify the point of departure, what existing work will be brought forward, and what new work will be performed under this BAA.

III. ELIGIBILITY INFORMATION

Proposals from U.S.-owned or U.S.-based firms and U.S. colleges and universities will be considered for award under this solicitation. Privately managed Department of Energy (DOE) laboratories and other Federally Funded Research and Development Centers (FFRDCs) may bid in areas where they are uniquely qualified and if permitted under their sponsoring agreements.

Historically Black Colleges and Universities (HBCU) and Minority Institutions (MI) are encouraged to submit proposals and join others in submitting proposals. However, no portion of this BAA will be set aside for HBCU and MI participation due to the impracticality of reserving discrete or severable areas of FORCEnet Science and Technology for exclusive competition among these entities.

Independent organizations and teams are encouraged to submit proposals in any or all areas. However, offerors must be willing to cooperate and exchange software, data and other information in an integrated program with other contractors, as well as with system integrators selected by ONR.

DOD Laboratories are not eligible to bid on BAA 07-035. However, teaming arrangements are allowed.

IV. APPLICATION AND SUBMISSION INFORMATION

1. Application and Submission Process

(A) **White Papers:** White Papers are encouraged prior to submitting a full proposal. The due date for white papers is no later than 2:00 p.m. (Eastern Daylight Time) on Tuesday, 17 July 2007.

White papers will be evaluated to determine whether to encourage the offeror to make an oral presentation to a panel of Government evaluators. The process for oral presentations is described below. Selection of white papers considered of “particular value” will be announced on or about **Tuesday, 07 August 2007** by email. However, any such encouragement does not assure a subsequent award. Any offeror may submit a full proposal even if its white paper was not identified as being of “particular value.”

(B) **Oral Presentations:** Oral presentations are tentatively planned for **20-23 August 2007**. The Office of Naval Research will schedule an oral presentation for those offerors notified by e-mail that their white paper technologies appear to be of “particular value” to the Navy. Any offeror whose white paper was not determined to be of “particular value” to the Navy can contact the Program Officer (see paragraph 7) to arrange to make an oral presentation along with the other scheduled offerors.

A detailed format for the presentation will be provided in the e-mail invitation. Each presentation will be no longer than thirty (30) minutes in duration. An additional ten (10) minutes will be allowed for questions (if any) from the panel of Government reviewers. Those offerors whose technology is still considered as having “particular value” to the Navy will be encouraged to submit detailed technical and cost proposals. However, such encouragement after oral presentations does not assure a subsequent award. The Office of Naval Research will not reimburse travel costs and time for potential bidders to brief their proposals.

Oral presentations may be classified if the technology is sensitive and not releasable as unclassified or FOUO. Prior coordination with ONR’s Program Office is required to present a classified presentation.

(C) **Full Proposals:** An offeror may submit a full proposal without submitting a white paper or making an oral presentation.

The due date for receipt of full proposals is 2:00 p.m. (Eastern Daylight Time) on **Tuesday, 02 October 2007**. It is anticipated that final selections will be made in late **October 2007**. As soon as the final proposal evaluation process is completed, each offeror will be notified via e-mail of its selection or non-selection for an award. Proposals exceeding the page limit may not be evaluated.

2. Content and Format of White Papers/Full Proposals

The white papers, oral presentations, and full proposals submitted under this solicitation must be unclassified. However, a classified annex is permitted. Proposals will be protected from unauthorized disclosure in accordance with FAR 15.207, applicable law, and DoD/DON regulations. Offerors are expected to mark each page of their submission that contains proprietary information.

Classified proposal annexes must be submitted directly to the Technical Point of Contact (TPOC). Contracts resulting from the submission of a classified proposal will be ‘unclassified.’ An ‘unclassified’ Statement of Work (SOW) must accompany any classified proposal.

An offeror must submit a separate proposal for each of the capabilities described in Section 6.4 of this BAA if it wishes to propose in more than one capability area. Some areas deal with export controlled technology, and some will require performers to have access to and to share some classified information.

White Paper Format

- Paper Size – 8.5 x 11 inch paper
- Margins – 1” inch
- Spacing – single or double-spaced
- Font – Times New Roman, 12 point
- White papers are limited to ten (10) pages in length, as described below in the “White Paper Content” section.
- Copies – one (1) original, five (5) hard copies, and one electronic copy on CD-ROM (in Microsoft® Word or Excel 97 compatible or .PDF format).
- Original and copies only need to be stapled in upper left hand corner and are not be bound or placed in folders or binders.

Full Proposal Format – Volume 1 - Technical and Volume 2 - Cost Proposal

- Paper Size – 8.5 x 11 inch paper
- Margins – 1 inch
- Spacing – single or double-spaced
- Font – Times New Roman, 12 point
- Number of Pages – Volume 1 is limited to no more than 39 pages. Volume 2 has no page limitations. The cover page, table of contents, abstract, executive summary, and resumes are excluded from the page limitations. Full Proposals exceeding the page limit may not be evaluated.
- Copies – one (1) original, 5 copies, and one electronic copy on a CD-ROM in either Microsoft Word or Adobe “.pdf” format.

White Paper Content

The White Paper should reference BAA 07-035 and identify the applicable program thrust area(s) by title.

- **Cover Page:** The Cover Page shall be labeled “PROPOSAL WHITE PAPER” and shall include the BAA number, proposed title; technology interest areas addressed, Offeror’s administrative and technical points of contact, with telephone numbers, facsimile numbers, and e-mail addresses, and shall be signed by an authorized officer. This shall be one (1) page.
- **Abstract:** A very brief description of the technology including goals and objectives and technology areas to be addressed. This section shall be no more than one (1) page.
- **Technical Concept:** A description of the technology innovation, the Program thrusts addressed (described in Section I paragraph 6.4), and technical risk areas. This section may be six (6) pages or fewer. Include a detailed listing of the technical tasks/subtasks organized by year. Relate the product that results from the task/subtask and briefly state metrics that will be met as a result of the task/subtask. In addition, it should include a Statement of Operation Utility that clearly states what the proposed effort does for the warfighter. Not to exceed two (2) pages within the six (6) pages of the Technical Concept Section. A statement should also be made under each task where government facilities are proposed to be utilized.
- **Deliverables:** A detailed description of the results and products to be delivered. This section shall be no more than one (1) page in length.
- **Costs:** A one (1) page summary of costs segregated by both task and year. The research will begin on/about January 1, 2008.

Full Proposal Content

The Cost Proposal shall be separate and shall not be included with the Technical Proposal. The Cost proposal CD-ROM shall be clearly labeled and separate from the Technical Proposal CD-ROM.

Volume 1: Technical Proposal

Volume 1 of the Full Proposal shall include the following sections, each starting on a new page. Sections not included in the page limitations are noted below. The page limit for those sections of the technical proposal that are constrained is thirty nine (39) pages.

- **Cover Page:** This should include the words “Technical Proposal” and the following:
 - 1) BAA number;
 - 2) Title of Proposal;
 - 3) Identity of Prime Offeror and complete list of subcontractors, if applicable;

- 4) Technical contact (name, address, phone/fax, electronic mail address)
- 5) Administrative/business contact (name, address, phone/fax, electronic mail address) and;
- 6) Duration of effort (differentiate basic effort and from any proposed options)
- 7) Cover page must be signed and dated

- **Table of Contents**: This should address the contents of the proposal, generally by section.

- **Technical Approach** - The offeror shall provide a detailed plan that coherently describes the technical approach proposed for contract performance which demonstrates a technical understanding of the proposed Statement of Work (SOW). The technical approach should address each of the numbered task areas delineated in the SOW providing specific or unique techniques to be employed and anything else the offeror considers relevant in performing the SOW. The technical approach should indicate how the work will be performed, including the capabilities and resources which will be applied, what problem areas exist, the proposed solutions and a full explanation of the proposed disciplines, procedures and techniques to be followed. Emphasis should be placed upon the extent that the offeror's technical approach ensures timely delivery and successful completion of the tasks outlined by the SOW submission.

- **Statement of Work**: A Statement of Work (SOW) clearly detailing the scope and objectives of the effort and the technical approach. It is anticipated that the proposed SOW will be incorporated as an attachment to the resultant award instrument. To this end, such proposals must include a severable, self-standing SOW without any proprietary restrictions, which can be included as an attachment to any resultant contract. This SOW shall include a detailed listing of the technical tasks/subtasks organized by year and a section which lists all proposed deliverables. When options are contemplated, the SOW must clearly identify separate optional tasks.

- **Project Schedule and Milestones**: A summary of the schedule of events and milestones.

- **Assertion of Data Rights and/or Rights in Computer Software**: For a contract award an Offeror may provide with its proposal assertions to restrict use, release or disclosure of data and/or computer software that will be provided in the course of contract performance. The rules governing these assertions are prescribed in Defense Federal Acquisition Regulation Supplement (DFARS) clauses 252.227-7013, -7014 and -7017. These clauses may be accessed at the following web address:

<http://farsite.hill.af.mil/VDFDARA.HTM>

The Government may challenge assertions that are provided in improper format or that do not properly acknowledge earlier federal funding of related research by the Offeror.

- **Deliverables**: A detailed description of the results and products to be delivered inclusive of the timeframe in which they are to be delivered.

- **Management Approach**: A discussion of the overall approach to the management of this effort, including brief discussions of the total organization, use of personnel; project/function/subcontractor relationships; government research interfaces; and planning, scheduling and control practice. Identify which personnel and subcontractors (if any) will be

involved. Include a description of the facilities that are required for the proposed effort with a description of any Government Furnished Equipment/Hardware/Software/Information required.

- **Personnel** - The offeror shall provide resumes of proposed key personnel to be utilized by the contractor/subcontractor in the performance of this contract. The offeror shall ensure that the proposed personnel are fully capable of performing in an efficient, reliable and professional manner. Upon review of the resumes, if the Government questions the qualifications or competence of any person performing under this contract, the burden of proof to sustain that person's qualifications shall be upon the offeror.

- **Past Performance** - Past performance will consist of a description of the offeror's Government contracts (both prime and major subcontracts (those involving 25% or more of the effort)) received during the past three (3) years), which are similar to the effort being proposed. The offeror may describe any quality awards or certificates that indicate the offeror possesses a high quality process for providing desired research and development outcomes.

Volume 2: Cost Proposal

The Cost Proposal shall be separate and not included with the Technical Proposal. There is no page limitation on the cost proposal. The options must be separately priced.

The Cost Proposal shall consist of a cover page and two parts, Part 1 will provide a detailed cost breakdown of all costs by cost category by calendar or Gov't fiscal year and Part 2 will provide a cost breakdown by task/sub-task corresponding to the task numbers in the proposed Statement of Work. Options must be separately priced.

Although not required and provided for informational purposes only, detailed instructions, entitled "Instructions for Preparing Cost Proposals for Contracts and Agreements", including a sample template for preparing costs proposals for contracts may be found at ONR's website listed under the 'Acquisition Department – Contracts & Grants, Submitting a Proposal' link at: http://www.onr.navy.mil/02/how_to.asp

Cover Page: The use of the SF 1411 is optional. The words "Cost Proposal" should appear on the cover page in addition to the following information:

- BAA number
- Title of Proposal
- Identity of prime Offeror and complete list of subcontractors, if applicable
- Technical contact (name, address, phone/fax, electronic mail address)
- Administrative/business contact (name, address, phone/fax, electronic mail address) and
- Duration of effort (separately identify basic effort and any proposed options)

Part 1: Detailed breakdown of all costs by cost category by calendar or Government's fiscal year:

- Direct Labor – Individual labor category or person, with associated labor hours and unburdened direct labor rates
- Indirect Costs – Fringe Benefits, Overhead, G&A, COM, etc. (Must show base amount and rate)
- Travel – Number of trips, destination, duration, etc.
- Subcontract – A cost proposal as detailed as the Offeror's cost proposal will be required to be submitted by the subcontractor. The subcontractor's cost proposal can be provided in a sealed envelope with the Offeror's cost proposal or will be obtained from the subcontractor at a later date prior to award
- Consultant – Provide consultant agreement or other document which verifies the proposed loaded daily/hourly rate
- Materials should be specifically itemized with costs or estimated costs. An explanation of any estimating factors, including their derivation and application, shall be provided. Include a brief description of the Offeror's procurement method to be used (Competition, engineering estimate, market survey, etc.)
- Other Directs Costs, particularly any proposed items of equipment or facilities. Equipment and facilities generally must be furnished by the contractor/recipient. (Justifications must be provided when Government funding for such items is sought). Include a brief description of the Offeror's procurement method to be used (Competition, engineering estimate, market survey, etc.)
- Proposed fee/profit.

Part 2 : Cost breakdown by task/sub-task using the same task numbers in the Statement of Work.

3. Significant Dates and Times

Significant dates and times associated with this BAA are show in the table below.

| Event | Date | Local Eastern Time |
|--|--------------------|--------------------|
| Pre-Proposal Conference/Industry Day | Virtual | NA |
| White Papers Due | 17 July 2007 | 2:00 PM EDT |
| Notification of Initial Navy Evaluations of White Papers | 07 August2007* | N.A. |
| Oral Presentation of Proposal | 20-23 August 2007* | TBD |
| Notification of Navy Evaluations of Oral Presentations | September 2007* | N.A. |
| Full Proposals Due | 02 October 2007* | 2:00 PM EDT |
| Notification of Selection for Award | October 2007* | N.A. |
| Contract Awards | February 2007* | N.A. |

***These dates are estimates as of the date of this announcement.**

4. Submission of Late Proposals

In accordance with FAR Subpart 15.208 any proposal, modification, or revision, that is received at the designated Government office after the exact time specified for receipt of proposals is “late” and will not be considered unless it is received before award is made, the contracting officer determines that accepting the late proposal would not unduly delay the acquisition and:

- (a) If it was transmitted through an electronic commerce method authorized by the announcement, it was received at the initial point of entry to the Government infrastructure not later than 5:00 p.m. one working day prior to the date specified for receipt of proposals; or
- (b) There is acceptable evidence to establish that it was received at the Government installation designated for receipt of proposals and was under the Government’s control prior to the time set for receipt of proposals; or
- (c) It was the only proposal received.

However, a late modification of an otherwise timely and successful proposal that makes its terms more favorable to the Government will be considered at any time it is received and may be accepted.

Acceptable evidence to establish the time or receipt at the Government installation includes the time/date stamp of that installation on the proposal wrapper, other documentary evidence of receipt maintained by the installation, or oral testimony or statements of Government personnel.

If an emergency or unanticipated event interrupts normal Government processes so that proposals cannot be received at the Government office designated for receipt of proposals by the exact time specified in the announcement, and urgent Government requirements preclude amendment of the announcement closing date, the time specified for receipt of proposals will be deemed to be extended to the same time of day specified in the announcement on the first work day on which normal Government processes resume.

The contracting officer must promptly notify any Offeror if its proposal, modifications, or revision was received late and must inform the offeror whether its proposal will be considered.

5. Address for the Submission of White Papers, Oral Presentation Material, and Full Proposals

Offerors shall make submissions to the Office of Naval Research at the address specified below:

Office of Naval Research
875 North Randolph Street – Suite 1425
Room 1160
Arlington, VA 22203-1995
Attn: Mr. Martin Kruger, ONR Code 30

Important Notes Regarding Submission of White Papers and Proposals

If using United States Postal Service (USPS), please allow an additional five (5) business days for the package to be delivered to this address due to USPS mail being sent to a central location for special processing before it is delivered to this address. Commercial carriers such as FedEx and UPS may also encounter delays in delivery, so early submission is recommended to avoid late receipt of proposal.

WHITE PAPERS OR PROPOSALS SENT BY FAX OR EMAIL WILL NOT BE CONSIDERED

**** NOTE: White papers should be submitted to the address above AND uploaded onto https://www.onr.navy.mil/02/baa/07_035/. Please ensure that the name of the uploaded file is the SAME as the white paper title.****

V. EVALUATION INFORMATION

1. Evaluation Criteria

The following evaluation criteria apply to the white paper, oral presentations and full proposal submissions. Proposals will be selected through a technical, scientific, and business decision process with technical and scientific considerations being more important than cost. Criteria A-E are listed in descending order of priority. Even though cost is of less importance than any of the technical factors, it will not be ignored. The degree of its importance will increase with the degree of equality of the proposals in relation to the other factors on which selection is to be based, or when the cost is so significantly high as to diminish the value of the technical superiority to the Government. The sub-criteria, i.e., the numbered items within each of the lettered factor paragraphs, are of equal importance.

A. Overall scientific and technical merits of the proposal

1. The degree of innovation and ability to deliver technology that will improve expeditionary force warfighting capabilities described in Section I, paragraph 6.4.
2. The soundness of technical concept.
3. The offeror's awareness of the state of the art and understanding of the scope of the problem and the technical effort needed to address it.
4. Risk management in demonstrating objectives including structuring of the overall demonstration approach to control risk.

B. Expeditionary warfighter and naval relevance, anticipated contributions of the proposed technology to Distributed Operations, FORCENet and network centric warfare operations. Also of importance is the extent to which the Government will have at least Government purpose technical data rights and similar rights to computer software in order to transition the technology.

C. Offeror's capabilities, related experience, and past performance, including the qualifications, capabilities and experience of the proposed principal personnel.

1. The quality of technical personnel proposed is consistent with the work proposed.
2. The offeror's experience in relevant efforts with similar resources is demonstrated.
3. The ability to manage the proposed effort is well established.

D. Management Plan. The Management Plan is not required in the white paper. The Management Plan is required for oral presentations and the Full Proposal and will be evaluated in accordance with the following criteria:

1. Plan is in milestone format with succinct factual description of how achievement of milestones will be managed.

2. Relationship between cost and milestone achievement is defined.
3. Estimate of technical, schedule and cost risk is stated with risk management plan provided.

E. The realism of the proposed cost.

Socio-Economic Merits - For proposed awards made as contracts to large businesses, the socio-economic merits of each proposal will be evaluated based on the extent of the offeror's commitment in providing meaningful subcontracting opportunities (to the maximum extent practicable) for small businesses, HUBZone small businesses, small disadvantaged businesses, woman-owned small businesses, veteran-owned small businesses, service disabled veteran small businesses, historically black colleges and universities, and minority institutions.

Evaluation of Options-The Government will evaluate options for award purposes by adding the total cost for all options to the total cost for the basic requirement. The evaluation of options will not obligate the Government to exercise the option(s).

2. Evaluation Panel

Technical and cost proposals submitted under this BAA will be protected from unauthorized disclosure in accordance with FAR 3.104-5 and 15.207. Government technical experts drawn from the Naval operational community, Office of Naval Research, the United States Marine Corps, the Naval systems commands, Navy warfare centers, the Naval Research Laboratory (NRL), and other Naval and Defense activities/agencies will evaluate the white papers, oral presentations, and full proposals.

The Government may use selected support personnel as subject-matter expert technical consultants to assist in providing both technical expertise and administrative support regarding white papers, presentations, and full proposals ensuing from this announcement. However, proposal selection and award decisions are solely the responsibility of Government personnel. Each support contractor's employee having access to technical and cost proposals submitted in response to this BAA will be required to sign a non-disclosure agreement prior to receipt of any proposal submissions to protect proprietary and source-selection information.

VI. AWARD ADMINISTRATION INFORMATION

1. Administrative Requirements

- The North American Industry Classification System (NAICS) code – The North American Industry Classification System (NAICS) code for this announcement is 541710 with a small business size standard of 500.
- CCR - Successful offerors not already registered in the Central Contractor Registry (CCR) will be required to register in CCR prior to award of any grant, contract, cooperative agreement, or other transaction agreement. Information on CCR registration is available at <http://www.onr.navy.mil/02/ccr.htm>.

- Certifications – In accordance with FAR 4.1201, prospective contractors shall complete and submit electronic annual representations and certifications at <http://orca.bpn.gov>. The Online Representations and Certifications Application (ORCA) will be supplemented by DFARS which are contract specific representations and certifications. Proposals should be accompanied by a completed certification package which may be accessed on the ONR Home Page at Contracts & Grants entitled, "[Representations and Certifications for Contracts](http://www.onr.navy.mil/02/rep_cert.asp)" at http://www.onr.navy.mil/02/rep_cert.asp.
- Subcontracting Plans - Successful contract proposals that exceed \$500,000.00, submitted by all but small business concerns, will be required to submit a Small Business Subcontracting Plan in accordance with FAR 52.219-9, prior to award. This requirement also applies to non-profits, including educational institutions.
- This acquisition potentially involves technical data that is subject to U.S. export control laws and regulations. The following clause will be incorporated into any resultant contract where access to export-sensitive technical data is anticipated.

NAVAIR 5252.227-9507 NOTICE REGARDING THE DISSEMINATION OF EXPORT-CONTROLLED TECHNICAL DATA (JAN 1992)

(a) Export of information contained herein, which includes release to foreign nationals within the United States, without first obtaining approval or license from the Department of State for items controlled by the International Traffic in Arms Regulations (ITARs), or the Department of Commerce for items controlled by the Export Administration Regulations (EAR), may constitute a violation of law.

(b) For violation of export laws, the contractor, its employees, officials or agents are subject to:

(1) Imprisonment and/or imposition of criminal fines; and

(2) Suspension or debarment from future Government contracting actions.

(c) The Government shall not be liable for any use or misuse of the information, technical data or specifications in this contract. It shall not be liable for any patent infringement or contributory patent infringement. The Government neither warrants the adequacy nor the completeness of the information, technical data or specifications in this contract.

(d) The contractor shall include the provisions of paragraphs (a) through (c) above in any subcontracts awarded under this contract.

- Offerors should state that their proposals will be valid for 180 days from submission.

2. Deliverables

The following is a sample of deliverables that could be required under a research effort. The following deliverables, primarily in contractor format, are anticipated as necessary. However, specific deliverables should be proposed by each offeror and finalized with the contracting agent.

- Software
- Algorithms with documentation
- Smart agents with documentation
- Source code
- Prototypes
- Tool design
- Analysis documents
- Design documents
- Working models
- Executable code
- Modeling and simulation tools
- Metadata
- Fusion tools
- Sensors
- Reports and technical items resulting from meetings.
- Execution plan
- Technical progress reports at regular time intervals (monthly or quarterly, but not both) as specified in the award document, including detailed technical data, algorithms and software as appropriate
- Financial progress reports at regular intervals as specified in the award document
- Presentation material(s)
- Other documentation or reports, such as publications
- Final technical report

VII. OTHER INFORMATION

1. Government Property/Government Furnished Equipment (GFE) and Facilities

Each offeror must provide a very specific description of any equipment/hardware that it needs to acquire to perform the work. This description should indicate whether or not each particular piece of equipment/hardware will be included as part of a deliverable item under the resulting award. Also, this description should identify the component, nomenclature, and configuration of the equipment/hardware proposed to be purchased for this effort. It is the Government's desire to have the contractors purchase the equipment/hardware for deliverable items under their contract. The purchase on a direct reimbursement basis of special test equipment or other equipment that is not included in a deliverable item will be evaluated for allowability on a case-by-case basis. Maximum use of Government integration, test, and experiment facilities is encouraged in each of the Offeror's proposals.

Government research facilities and operational military units are available and should be considered as potential government furnished equipment/facilities. These facilities and resources are of high value and some are in constant demand by multiple programs. It is unlikely that all facilities would be used for the FORCEnet Science and Technology (S&T)-Large Tactical Sensor Networks program. The use of these facilities and resources will be negotiated as the program unfolds. Offerors should explain as parts of their proposals which of these facilities are critical for the project's success.

2. Security Classification

In order to facilitate intra-program collaboration and technology transfer, awardees will work at the unclassified level to the maximum extent possible. However, access to and storage of some classified information will be required for products described in 6.4.3 and 6.4.5.

If awardees use unclassified data in their deliveries and experimentation regarding a potential classified project, they should use methods and conventions consistent with those used in classified environments. Such conventions will permit the various subsystems and the final system to be more adaptable in accommodating classified data in the transition system.

3. Use of Animals and Human Subjects in Research

If animals are to be utilized in the research effort proposed, the Offeror must complete a DOD Animal Use Protocol with supporting documentation (copies of AAALAC accreditation and/or NIH OLAW Animal Welfare Assurance approval letter, IACUC approval, research literature database searches, and the two most recent USDA inspection reports) prior to award. Similarly, for any proposal for research involving human subjects the Offeror must submit prior to award: documentation of approval from an Institutional Review Board (IRB); IRB-approved informed consent form; IRB-approved research protocol; an executive summary of planned research (one-half to one page in length); proof of completed human research training (e.g., training certificate, institutional verification of training, etc.); an application for a DoD Navy Addendum to the Offeror's DHHS-issued Federalwide Assurance (FWA) or the Offeror's DoD Navy Addendum number. The forms for assurance applications can be found at http://www.onr.navy.mil/sci_tech/34/343/. If the research is determined by the IRB to be greater than minimal risk, the Offeror also must provide the name and contact information for the independent medical monitor. [Note: for research involving human subjects that is greater than minimal risk, administrative procedures to protect human subjects from medical expenses (not otherwise provided or reimbursed) that are the direct result of participation in a research project must be addressed. Documentation describing those procedures may be requested. For additional information on this topic please email 343_contact@onr.navy.mil.] For assistance with submission of animal and human subject research related documentation, contact the ONR Animal/Human Use Administrator at (703) 696-4046.

4. Project Meetings & Reviews

Individual reviews between the ONR sponsor and the performer will be held as needed. Status reviews may also be held to provide a forum for reviews of the latest results from experiments and any other incremental progress. These meetings will be held at various sites throughout the country. For costing purposes, Offerors should assume that 40% of these meetings will be at or

near ONR, Arlington VA and 60% at other contractor or government facilities. Interim meetings are likely, but these will be accomplished via video telephone conferences, telephone conferences, or via web-based collaboration tools.

5. Department of Defense High Performance Computing Program

The DoD High Performance Computing Program (HPCMP) furnishes the DoD S&T and DT & E communities with use-access to very powerful high performance computing systems. Awardees of ONR contracts, grants, and assistance instruments may be eligible to use HPCMP assets in support of their funded activities if ONR Program Officer approval is obtained and if security/screening requirements are favorably completed. Additional information and an application may be found at <http://www.hpcmo.hpc.mil/>.

6. Protection of Proprietary and Sensitive Information

The parties acknowledge that, during performance of the contract resulting from this BAA, the Contractor may require access to certain proprietary and confidential information (whether in its original or derived form) submitted to or produced by the Government. Such information includes, but is not limited to, business practices, proposals, designs, mission or operation concepts, sketches, management policies, cost and operating expense, technical data and trade secrets, proposed Navy budgetary information, and acquisition planning or acquisition actions, obtained either directly or indirectly as a result of the effort performed on behalf of ONR. The Contractor shall take appropriate steps not only to safeguard such information, but also to prevent disclosure of such information to any party other than the Government. The Contractor agrees to indoctrinate company personnel who will have access to or custody of the information concerning the nature of the confidential terms under which the Government received such information and shall stress that the information shall not be disclosed to any other party or to Contractor personnel who do not need to know the contents thereof for the performance of the contract. Contractor personnel shall also be informed that they shall not engage in any other action, venture, or employment wherein this information will be used for any purpose by any other party.