



Broad Agency Announcement

INTRODUCTION:

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

The Office of Naval Research (ONR) will not issue paper copies of this announcement. The ONR reserves the right to fund all, some or none of the proposals received under this BAA. 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 –

Navigation and Timekeeping Technology

3. Program Name –

Navigation and Timekeeping Technology

4. Research Opportunity Number

BAA 10-006

5. Response Date –

White papers: 12/28/2009

Full Proposals: 4/15/2010

6. Research Opportunity Description -

The Office of Naval Research (ONR) is interested in receiving proposals for Navigation and Timekeeping Technology.

In concert with the guidance promulgated by the Office of the Assistant Secretary of Defense National Information Infrastructure (ASD - NII), concerning Navigation Warfare (NAVWAR), which deals with the mitigation of denial of Positioning, Navigation and Timing (PNT), this effort is concerned with the first two of the three elements: Electronic Protection (EP) and Electronic Support (ES). Please note that this effort does not address Electronic Attack (EA).

Precision navigation and timekeeping are essential for many modern naval and maritime systems, and it is essential that navigation and timekeeping services be made available to platforms and weapons at the highest level of accuracy and with the highest possible confidence at reasonable cost. Lack of precise navigation and timekeeping technologies may jeopardize the success of military operations. For example, the Global Positioning System (GPS) provides highly accurate position/time information at low cost and, due to this, GPS has become the technology of choice for many users. Unfortunately, the GPS signal is a low-power signal that is susceptible to interference. Therefore there is a need for (1) affordable approaches to make GPS more reliable/robust, and (2) methods of quantifying threats to GPS performance that may be termed "situational awareness" and (3) affordable and reliable precision navigation/timing alternatives to GPS.

In the past nine years, ONR has been conducting a series of Science and Technology Projects in the following three technology areas; GPS Anti-Jam Technology, Precision Time and Time Transfer Technology, and Non-GPS Navigation Technology.

In FY2011, the ONR Navigation and Timekeeping Technology Program seeks new and innovative navigation technologies that will provide more accurate, reliable, maintainable and affordable systems for Naval air, surface, subsurface, and ground platforms and forces. The following paragraphs list areas of concentration in this program.

I. GPS Anti-Jam Technology - The following are topics of interest:

a. New concept of GPS Modernized User Equipment (MUE) Controlled Radiation Pattern Antennas (CRPA)

b. New concept of GPS MUE antenna electronics. Multi-element antenna control,

beam-forming/null-steering and associated signal processing techniques such as Space-Time Adaptive Processing/ Space-Frequency Adaptive Processing (STAP/SFAP). Multi-beam-steering antenna electronics may be an aspect of this work.

c. Adaptive polarization nuller

d. Cooperative threat geo-location algorithms for multiple-platforms, and networked platforms. May include combining remotely located GPS antennas for cooperative processing.

e. GPS anti-tamper approaches

f. The ability to incorporate blue force tracking. This area may include creating the ability to communicate specifically with individuals in the blue force.

g. The ability to incorporate communications functions along with GPS navigation functions. This area may include the integration of communications directly into navigation approaches/devices

h. New GPS MUE with Electronic Warfare (EW) situational awareness and electronic support measures (ESM). This effort may include GPS device/algorithms to fuse data from multiple sensors/multiple receivers

i. The ability to handle situations where the US may need to deny/degrade GPS use to a locale or to specific populations and otherwise friendly forces (signal fratricide)

j. Military GPS receivers which incorporate methods of exploiting sensed physical environmental parameters of opportunity

k. Advanced GPS-Inertial Measurement Unit (IMU) integration algorithms

l. Special purpose monitoring of M-Code GPS signals with an M-Code receiver (this device would monitor all GPS channels and all GPS frequencies: L1, L 2, L5. Value of this approach may involve greater jam and spoofer immunity, may provide an evaluative tool in field operations, etc.

m. Advanced Receiver Autonomous Integrity Monitoring (RAIM)-like device for more stringent error bounds for GPS parameters (e.g., time, position, velocity, angle, etc.) than those of existing devices

n. Multi-Global Navigation Satellite System (GNSS) (GPS, Galileo, etc.) military receivers; International collaboration with respect to MUE.

o. Personal navigation in enclosed areas such as aircraft carriers, large adversarial vessels (as would be used by boarding parties) and large buildings using various sensors including GPS).

p. Military GPS receivers which incorporate methods of exploiting signals of opportunity (may locate Low Probability of Intercept/Detection (LPI/LPD) signals not available to conventional receivers)

q. Coherent Signals in Space (SIS) Processing. Signal-in-space consists of clock corrections and orbit data broadcast by satellite. Performance is driven by the stability of a satellite's atomic clock, the fidelity of the clock, orbit estimation and prediction, and the update-frequency of the navigation message uploads.

r. Next generation GPS MUE for anti-jam/anti-spoof, which handles larger numbers of desired and interference signals; and an updated resource management of multiple trackers and correlators. This effort may include algorithms to detect spoofing during acquisition, tracking, and navigation

s. The ability to have GPS receivers handle spot beam signals; the use of automatic gain control and the development of a concept-of-operations (e.g., the notification of initiation and the notice of discontinuation of spot beam use. This effort may include methods of interfacing the GPS MUE with enhanced spot-beam power levels

t. Applications of Automatic Dependent Surveillance-B (ADS-B) to Naval platforms

II. Precision Time and Time Transfer Technology - The following are topics of interest:

a. Applications of ONR-developed tactical grade atomic clocks to various sensor systems (radars, sonars, communications systems, cryptos, navigation devices, etc.) to perform multi-static remote sensing and to provide an extended period of operations possible with low clock power consumption; the atomic clocks will be a Government Furnished Equipment (GFE) item.

b. The development of next generation robust, small-size (3 cubic centimeter or less), low power (100 m-Watt or less), atomic clocks of adequate accuracy (Allan Deviation of 10^{-11} to 10^{-12} in first 10 second integration) for use in GPS timekeeping back-up, GPS signal re-acquire, and for incorporation into inertial navigation systems.

c. The development of a time-scaling/steering approach for the U.S. Naval Observatory (USNO) master clocks

d. The development of a time-scaling approach for multiple tactical atomic clocks aboard ships and other platforms

e. A combination of a small atomic clock with short term (24 hours) stability of 10^{-12} aided by Rubidium (Rb) atomic clock with long-term stability (100 days) to achieve overall stability of 10^{-12} .

III. Non-GPS Navigation Technology - The following are topics of interest:

- a. High-sensitivity quantum physics-based magnetometer for underwater navigation
- b. Application of the superconducting laboratory magnetometer to navigation
- c. Small, portable quantum physics-based gravimeter/accelerometer for underwater navigation application
- d. Bathymetric underwater navigation device by Sound Navigation and Ranging (sonar) and Light Detection and Ranging (lidar)
- e. Precise navigation in littoral sub-surface and surface navigation using various sensors such as sonar, radar and lidar.
- f. Navigation capabilities based upon dead-reckoning using tactical grade atomic clocks and small, low cost inertial navigation systems that are GPS independent.

Work funded under a BAA may include basic research, applied research and some advanced technology development (ATD). With regard to any restrictions on the conduct or outcome of work funded under this BAA, ONR will follow the guidance on and definition of "contracted fundamental research" as provided in the Under Secretary of Defense (Acquisition, Technology and Logistics) Memorandum of 26 June 2008. As defined therein, the definition of "contracted fundamental research", in a DoD contractual context, includes grants and contracts that are (a) funded by Research, Development, Test, and Evaluation Budget Activity 1 (Basic Research), whether performed by universities or industry or (b) funded by Budget Activity 2 (Applied Research) and performed on campus at a university or by industry. ATD is funded through Budget Activity 3. In conformance with the USD(AT&L) guidance and National Security Decision Directive 189, ONR will place no restriction on the conduct or reporting of unclassified fundamental research, except as otherwise required by statute, regulation or Executive Order. Normally, fundamental research is awarded under grants with universities and under contracts with industry. ATD is normally awarded under contracts and may require restrictions during the conduct of the research and DoD pre-publication review of research results due to subject matter sensitivity. As regards to the present BAA, the Research and Development efforts to be funded consist of applied research. The funds available to support awards are Budget Activity 6.2 and 6.3.

7. Point(s) of Contact –

Questions of a technical nature should be submitted to:

Primary Point of Contact

Dr. John C. Kim
Program Manager
Address: One Liberty Center
875 North Randolph Street, Suite 1119
Arlington, VA 22203-1995
Code: 312
Email: john.c.kim1@navy.mil

Secondary Point of Contact:

Sheila Richardson
Address: One Liberty Center
875 North Randolph Street, Suite 1105D
Arlington, VA 22203-1995
Code: 31
Email: sheila.richardson@navy.mil

Questions of a business nature should be submitted to:

Primary Point of Contact:

Lynn Christian
Address: One Liberty Center
875 North Randolph Street, Suite W1273
Arlington, VA 22203-1995
Code: 0251
Email: Lynn.Christian@navy.mil

Secondary Point of Contact:

Name: Vera M. Carroll
One Liberty Center
875 North Randolph Street, Suite 1279
Arlington, VA 22203-1995
Code: 0251
Email: vera.carroll@navy.mil

Questions of a security nature should be submitted to:

Diana Pacheco
Information Security Specialist
Office of Naval Research
Security Department, Code 43
One Liberty Center
875 N. Randolph Street
Arlington, VA 22203-1995
Email Address: diana.pacheco@navy.mil

Note: All UNCLASSIFIED communications shall be submitted via e-mail. All questions of an UNCLASSIFIED nature to the Technical Point of Contact (POC) shall be sent via e-mail with a copy to the designated Business POC.

CLASSIFIED questions shall be handled through the ONR Security POC. Specifically, any entity wanting to ask a CLASSIFIED question shall send an email to the ONR Security POC with a copy to both the Technical POC and the Business POC stating that the entity would like to ask a CLASSIFIED question. **DO NOT EMAIL ANY CLASSIFIED QUESTIONS.** The Security POC will contact the entity and arrange for the CLASSIFIED question to be asked through a secure method of communication.

Answers to questions submitted in response to this BAA will be addressed in the form of an Amendment and will be posted to one or more of the following webpages:

-Federal Business Opportunities (FEDBIZOPPS) Webpage – <https://www.fbo.gov/>
-ONR Broad Agency Announcement (BAA) Webpage - <http://www.onr.navy.mil/02/baa>

Questions submitted within two (2) weeks prior to a deadline may not be answered and the due date for submission of the white paper and/or full proposal will not be extended.

8. Instrument Type(s) - Contracts

Awards will be issued as cost type contracts, however, ONR reserves the right to award a different instrument type if deemed to be in the best interest of the Government.

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

12.300

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

Department of Defense (DoD) Basic and Applied Scientific Research

11. Other Information –

FAR Part 35 restricts the use of BAAs such as this, to the acquisition of basic and applied research and that portion of advanced technology development not related to the development of a specific system or hardware procurement. Contracts made under this BAA are for scientific study and experimentation directed towards advancing the state of the art and increasing knowledge or understanding.

THIS ANNOUNCEMENT IS NOT FOR THE ACQUISITION OF TECHNICAL, ENGINEERING AND OTHER TYPES OF SUPPORT SERVICES.

II. AWARD INFORMATION

The amount and period of performance of each selected proposal may vary depending on the research area and the technical approach to be pursued by the selected offeror.

Estimated Total Amount of Funding Available (\$K):

FY2011	FY2012	FY2013	FY2014	FY2015	Total
\$3000	\$3000	\$3000	\$3000	\$3000	\$15000

The Office of Naval Research (ONR) plans to award multiple technology development contracts (particularly cost plus fixed fee (CPFF) type contracts) that represent the best value to the Government in accordance with the evaluation criteria. The Office of Naval Research is seeking participants for this program that are capable of supporting the goals described in this announcement. Offerors have the opportunity to be creative in the selection of the technical and management processes and approaches to address the thrust areas.

The period of performance of the awards typically ranges from one to three years. There will be no options. ONR anticipates a budget of \$3,000,000 per year for this program. ONR plans to fund up to \$500,000 per year per award using Exploratory Development Funds (Budget Category 6.2) and Advanced Technology Funds (Budget Category 6.3). However, lower and higher cost proposals will be considered. The average funding level of past awards was approximately \$400,000 per year. The period of performance for projects may be from one to three years, with an estimated start date on or before 1 October 2010, subject to date of final award and availability of new fiscal year funds.

ONR has funded related technology development under numerous programs. Proposals that build on current or previous DoD work are encouraged. If offerors are enhancing work performed under other ONR or DoD projects, they must clearly identify the point of departure and what existing work will be brought forward and what new work will be performed under this BAA.

III. ELIGIBILITY INFORMATION

All responsible sources from academia and industry may submit proposals under this BAA. Historically Black Colleges and Universities (HBCUs) and Minority Institutions (MIs) 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.

Federally Funded Research & Development Centers (FFRDCs), including Department of Energy National Laboratories, are not eligible to receive awards under this BAA. However, teaming arrangements between FFRDCs and eligible principal bidders are allowed so long as they are permitted under the sponsoring agreement between the Government and the specific FFRDC.

Navy laboratories and warfare centers as well as other Department of Defense and civilian agency laboratories are also not eligible to receive awards under this BAA and should not directly submit either white papers or full proposals in response to this BAA. If any such organization is interested in one or more of the programs described herein, the organization should contact an appropriate ONR POC to discuss its area of interest. The various scientific divisions of ONR are identified at <http://www.onr.navy.mil/>. As with FFRDCs, these types of federal organizations may team with other responsible sources from academia and industry that are submitting proposals under this BAA.

Teams are also encouraged and may submit proposals in any and 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.

Some topics cover export controlled technologies. Research in these areas is limited to "U.S. persons" as defined in the International Traffic in Arms Regulations (ITAR) - 22 CFR § 1201.1 et seq. (See Section VII, Other Information)

IV. APPLICATION AND SUBMISSION INFORMATION

1. Application and Submission Process -

White Paper, Oral Presentation, Full Proposal

White Paper Submission:

Due Date: The due date for white papers is no later than 2 PM. Eastern Standard Time (EST) on 28 December 2009. Each white paper should state that it is submitted in response to this BAA. White papers shall be submitted via the United States Postal Service (USPS) with delivery confirmation or via a commercial carrier (e.g., FedEx or United Parcel Service (UPS)). The white paper must be submitted in a Microsoft Word or .PDF format provided on a CD-ROM. White papers submitted as hard copy and sent by

FAX, e-mail, or hand delivery will NOT be accepted. White papers shall be submitted to the Technical Points of Contact listed in Section I paragraph number 7 of this BAA.

Evaluation/Notification: Navy evaluations of the white papers will be issued via E-mail notification on or about 25 January 2010. Detailed technical and cost proposals will be subsequently encouraged from those offerors whose proposed technologies have been identified through the above-referenced E-mail as being of "particular value" to the Navy. However, any such encouragement does not assure a subsequent award.

Oral Presentations

Those White Papers that have been identified as being of "particular value" will be the subject of a follow-on Oral Presentation on or about 08 February 2010. This aspect of the selection process will be accomplished in a telephone conference call that will be preceded with a prepared viewgraph presentation provided to the ONR Program Officer, Dr. John C. Kim. A detailed format for the viewgraph presentation will be provided in the e-mail invitation. Offerors whose white papers are selected for Oral Presentation will be notified by e-mail not less than one (1) week prior to the commencement of the oral presentation event. After oral presentations, those successful offerors, whose technology is still considered as having "the 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. Any offeror may make an Oral Presentation even if its white paper was not identified as being of "particular value" to the Navy. Any offeror in this category must contact the ONR Program Officer to arrange an Oral Presentation as soon as possible after receipt of White Paper feedback.

Full Proposal Submissions:

Any offeror may submit a full proposal even if its white paper was not identified as being of "particular value". However, the Navy's initial evaluation of the white papers should give proposers some indication of whether a later full proposal would likely result in an award.

Full proposals will not be considered under this BAA unless a white paper was received before the white paper due date specified above.

The due date for receipt of Full Proposals is 2 PM. EST on 15 April 2010. The only acceptable methods for submission of full proposals is via the United States Postal Service (USPS) with delivery confirmation or via a commercial carrier (e.g., FedEx or United Parcel Service (UPS)). An electronic copy of the full proposal in Microsoft Word or .PDF format must be provided on a CD-ROM that is sent with the hard copies of the full proposal as outlined earlier in the BAA. Full proposals sent by FAX , e-mail or hand carried will NOT be accepted. Full proposals shall be submitted to the Technical Points of Contact listed in Section I paragraph number 7 of this BAA.

It is anticipated that final selections will be made within 20 days after proposal submission. As soon as the final proposal evaluation process is completed, each offeror will be notified via email from the Program Officer of its selection or nonselection for an award. Proposals exceeding the proposed page limit may not be evaluated.

2. Content and Format of White Papers/Full Proposals –

White Papers and Full Proposals submitted under the BAA are expected to be unclassified; however, classified proposals are permitted. If a classified proposal is submitted, the resultant contract will be unclassified.

Unclassified Proposal Instructions

Unclassified White Papers and Full Proposals shall be submitted in accordance with Section IV Application and Submission Information.

Classified Proposal Instructions:

Classified proposals shall be submitted directly to the attention of ONR's Document Control Unit at the following address and marked in the following manner:

OUTSIDE ENVELOPE (no classification marking):

“Office of Naval Research
Attn: Document Control Unit
ONR Code 43
875 North Randolph Street
Arlington, VA 22203-1995”

The inner wrapper of the classified White Paper and/or Full Proposal should be addressed to the attention of the TPOC, ONR Code 312 and marked in the following manner:

INNER ENVELOPE (stamped with the overall classification of the material)

“Program: Navigation and Timekeeping Technology
Office of Naval Research
ATTN: ONR Program Officer Name
ONR Code: ONR Program Officer Code 312
875 North Randolph Street
Arlington, VA 22203-1995”

An ‘unclassified’ Statement of Work (SOW) must accompany any classified proposal.

Proposal submissions will be protected from unauthorized disclosure in accordance with FAR Subpart 15.207, applicable law, and DoD/DoN regulations. Offerors are expected to appropriately mark each page of their submission that contains proprietary information.

IMPORTANT NOTE: Titles given to the White Papers/Full Proposals should be descriptive of the work they cover and not be merely a copy of the title of this solicitation.

Alternatives to the format and content identified below may be appropriate depending on the scope and nature of the proposed effort. Coordinate any alternative proposal formats and contents relating to white papers and technical proposals (Volume 1 of the full proposal) with the cognizant ONR Program Officer. Alternative formats and content may be directed by the ONR Program Officer or may result from Offerors' suggestions approved by the ONR Program Officer.

a. WHITE PAPERS

White Paper Format

- Paper Size - 8.5 x 11 inch paper
- Margins - 1 inch
- Spacing - single spaced
- Font - Times New Roman, 12 point
- Max. Number of Pages permitted: 10 pages (excluding cover page, resumes, bibliographies, and table of contents)
- Format - One (1) electronic copy in Adobe PDF format on CD-ROM.

NOTE: White papers sent by FACSIMILE will NOT be considered

White Paper Content

• **Cover Page**: The Cover Page shall be labeled "WHITE PAPER" and shall include the BAA number, proposed title, technical points of contact, telephone number, facsimile number, and e-mail address.

• **Technical Concept**: A description of the technology innovation and technical risk areas.

1. Principal Investigator qualifications
2. Organizational Qualifications
3. Navy/Marine Corps capability deficiency being satisfied
4. Deliverables
5. Recent technical breakthroughs that will reduce risk
6. One page summary of the cost by year

• **Operational Naval Concept**: A description of the project objectives, the concept of operation for the new capabilities to be delivered, and the expected operational performance improvements.

FULL PROPOSALS

INSTRUCTIONS FOR CONTRACTS

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

- Paper Size - 8.5 x 11 inch paper
- Margins - 1 inch
- Spacing - single-spaced
- Font - Times New Roman, 12 point
- Number of Pages - The Technical Volume (Vol. 1) shall not exceed more than 32 pages. The cover page, table of contents, personnel resumes, and bibliographies shall not be included in the page limit. Full Proposals exceeding the page limit may not be evaluated. There are no page limitations to the Cost Proposal, Volume 2.
- Copies and Format - one (1) original plus 2 hard copies and one (1) electronic copy in MS Word and Adobe PDF (2 files total) on CD-ROM.

Full Proposal Content

Volume 1: Technical Proposal

- **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. Proposed period of performance
- **Proposal Checklist**: To assist Offerors in the development and submission of their proposals in response to this BAA, a Proposal Checklist for Contracts, has been uploaded as an attachment. Offerors should print and complete the checklist to ensure that all required actions have been taken and information included prior to proposal submission. Inclusion of the completed checklist as the first page of your Volume I, Technical Proposal, will assist in proposal evaluation and may shorten the time it takes to make an award.
- **Table of Contents**: An alphabetical/numerical listing of the sections within the proposal, including corresponding page numbers.
- **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, the proposals must include a severable, self-standing SOW, without any proprietary

restrictions, which can be attached to the contract or agreement award. Include a detailed listing of the technical tasks/subtasks organized by year. Limit the number of pages for this section to 3.

Submission of the SOW without restrictive markings is your company's affirmation that the SOW is non-proprietary and releasable in response to Freedom of Information Act (FOIA) requests.

- **Technical Approach and Justification:** The major portion of the proposal should consist of a clear description of the technical approach being proposed. This discussion should provide the technical foundation / justification for pursuing this particular approach / direction and why one could expect it to enable the objectives of the proposal to be met. Limit the number of pages for this section to 15.

- **Operational Naval Concept:** A description of the project objectives, the concept of operation for the new capabilities to be delivered, and the expected operational performance improvements.

- **Project Schedule and Milestones:** A summary of the schedule of events and milestones. Limit the number of pages for this section to 2.

- **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/VFDFARA.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. Limit the number of pages for this section to 3.

If it is determined that data rights are not applicable, indicate no assertions are being made in the proposal submission.

- **Deliverables/Reports:** A detailed list of reports and any proposed hardware, software or prototypes, inclusive of the timeframe in which they will be delivered. Limit the number of pages for this section to 3.

- **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/subrecipient relationships; government research interfaces; and planning, scheduling and control practice. Identify which personnel and subcontractors/subrecipients (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, by version and/or configuration.

• **Current and Pending Project and Proposal Submissions:** Offerors are required to provide information on all current and pending support for ongoing projects and proposals, including subsequent funding in the case of continuing contracts, grants, and other assistance agreements. Offerors shall provide the following information of any related proposal submissions from whatever sources (e.g., ONR, Federal, State, local or foreign government agencies, public or private foundations, industrial or other commercial organizations).

The information must be provided for all proposals already submitted or submitted concurrently to other possible sponsors, including ONR. Concurrent submission of a proposal to other organizations will not prejudice its review by ONR:

- 1) Title of Proposal and Summary;
- 2) Source and amount of funding (annual direct costs; provide contract and/or grant numbers for current contracts/grants);
- 3) Percentage effort devoted to each project;
- 4) Identity of prime Offeror and complete list of subcontractors, if applicable;
- 5) Technical contact (name, address, phone/fax, electronic mail address)
- 6) Administrative/business contact (name, address, phone/fax, electronic mail address);
- 7) Duration of effort (differentiate basic effort);
- 8) The proposed project and all other projects or activities requiring a portion of time of the Principal Investigator and other senior personnel must be included, even if they receive no salary support from the project(s);
- 9) The total award amount for the entire award period covered (including indirect costs) must be shown as well as the number of person-months or labor hours per year to be devoted to the project, regardless of source of support; and
- 10) State how projects are related to the proposed effort and indicate degree of overlap.

Limit the number of pages for this section to 3.

• **Qualifications:** A discussion of the qualifications of the proposed Principal Investigator and any other key personnel. Include resumes for the Principal Investigator and other key personnel and full curricula vitae for Principal Investigators and consultants. The resumes and curricula vitae shall be attached to the proposal and will not count toward the page limitations.

Limit the number of pages for this section to 3.

VOLUME 2: Cost Proposal

INSTRUCTIONS FOR CONTRACTS

The following information is provided to assist contractors in preparing and submitting an adequate and compliant cost proposal. The purpose of the submission of other than cost or pricing data is to enable Government personnel to perform cost or price analysis and ultimately negotiate a fair and reasonable cost. Offerors are reminded that the responsibility for providing adequate supporting data and attachments lies solely with the offeror. Further, the offeror must also bear the burden of proof in establishing reasonableness of proposed costs; therefore, it is in the contractor's best interest to submit a fully supportable and well-prepared cost proposal. The basis and rationale for all proposed costs should be provided as part of the proposal so that Government personnel can place reliance on the information as current, complete and accurate. Further, FAR 15.403-4 sets forth those circumstances in which offerors are required to submit certified cost or pricing data.

Although not required and provided for informational purposes only, using the cost proposal format spreadsheet (spreadsheet.xls) that is an attachment to this document and the accompanying instructions (spreadsheetinstructions.doc) as the basis of the cost proposal may **significantly decrease** the time required to review and award proposals submitted in response to this announcement.

For pricing purposes, assume that performance will start no earlier than six (6) months after submission of the cost proposal.

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 Government 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.

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 10-006
- Title of Proposal
- Identity of prime Offeror and complete list of subcontractors, if applicable
- Technical contact (name, address, phone/fax, electronic mail address); and
- Administrative/business contact (name, address, phone/fax, electronic mail address)
- Duration of Effort

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

- **Direct Labor** - Individual labor categories or persons, with associated labor hours and unburdened direct labor rates. Provide escalation rates for out years;
 - **Indirect Costs** - Fringe Benefits, Overhead, G&A, COM, etc. and their applicable allocation bases. If composite rates are used, provide the calculations used in deriving the composite rates.
 - **Travel** - The proposed travel cost should include the following for each trip: the purpose of the trip, origin and destination if known, approximate duration, the number of travelers, and the estimated cost per trip must be justified based on the organizations historical average cost per trip or other reasonable basis for estimation. Such estimates and the resultant costs claimed must conform to the applicable Federal cost principles.
 - **Subcontracts/Interorganizational Transfers** – A cost proposal as detailed as the Offeror’s cost proposal will be required to be submitted by all proposed sub-contractors and for all inter-organizational transfers. For subcontracts or inter-organizational transfers over \$100,000, the subcontract proposal, along with supporting documentation, must be provided in a sealed envelope with the prime’s proposal directly to both the Program Officer and the Business Point of Contact at the same time the prime proposal is submitted. The envelope should identify the proposal title, the prime Offeror and that the attached proposal is a subcontract, and should include a description of the effort to be performed by the subcontractor. A proposal and supporting documentation must be received and reviewed before the Government can complete its cost analysis of the proposal and enter negotiations. The prime contractor should perform and provide a cost/price analysis of each subcontractor’s cost proposal.* Offerors are required to obtain competition to the maximum extent practicable when selecting subcontractors or interorganizational transfers; if the offeror has obtained competitive quotes, copies should be provided. If the Offeror has selected other than the low bid for inclusion in their proposal or intends to award the subcontract/interorganizational transfer on a sole-source basis, the offeror should provide rationale for their decision. Certified cost or pricing data may be required for subcontractor proposals over \$650,000.
- ***Note:** DoD Federal Acquisition Regulation provision 252.215-7003 (48 CFR §252.215-7003) is incorporated into this solicitation by reference. The offeror is to exclude excessive pass-through charges from subcontractors. The offeror must identify in its proposal the percentage of effort it intends to perform and the percentage to be performed by each of its proposed subcontractors. If more than 70 percent of the total effort will be performed through subcontractors, the offeror must include the additional information required by the above-cited clause.
- **Consultant** - Provide a breakdown of the consultant's hours, the hourly rate proposed, any other proposed consultant costs, a copy of the signed Consulting Agreement or other documentation supporting the proposed consultant cost, and a copy of the consultant's proposed statement of work if it is not already separately identified in the prime contractor's proposal.
 - **Materials & Supplies** - Provide an itemized list of all proposed materials and supplies for each year including quantities, unit prices, proposed vendors (if known), and the basis for the estimate (e.g., quotes, prior purchases, catalog price lists). If the total cost for materials and supplies exceeds \$100,000 per year, then select a sample of the items proposed and provide catalog price lists/quotes/prior purchase orders to support the price

for the items in the sample. All items with a unit price over \$10,000, regardless of the total cost for materials and supplies, must be supported with a copy of catalog price lists/quotes/prior purchase orders.

- **Contractor Acquired Equipment or Facilities** - Equipment and/or facilities are normally furnished by the Contractor. If acquisition of equipment and/or facilities is proposed, a justification for the purchase of the items must be provided including: 1) a very specific description of any equipment/hardware that it needs to acquire to perform the work, 2) whether or not each particular piece of equipment/hardware will be included as part of a deliverable item under the resulting award, and 3) the basis for the estimate (e.g., quotes, prior purchases, catalog price lists). The description should identify the component, nomenclature, and configuration of the equipment/hardware that it proposes to purchase for this effort. The purchase on a direct reimbursement basis of 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.
- **Other Directs Costs** - Provide an itemized list of all other proposed other direct costs and the basis for the estimate (e.g., quotes, prior purchases, catalog price lists).
- **Fee/profit** - Profit or fee is not allowed on direct costs for facilities or in cost-sharing contracts.

Note: Indicate if you have an approved Purchasing/Estimating System and/or describe the process used to determine the basis of reasonableness (e.g., competition, market research, best value analysis) for subcontractors, consultants, materials, supplies, equipment/facilities, and other direct costs.

Part 2 - Cost breakdown by task/sub-task corresponding to the same task breakdown in the proposed Statement of Work.

3. Significant Dates and Times –

SCHEDULE OF EVENTS

Event	Date	Time
White Paper Due Date	28 December 2009	2:00PM Eastern Standard Time
Notification of White Paper Evaluation *	25 January 2010	
Oral Presentations	08 February 2010	
Notification of Oral Presentation Evaluation*	01 March 2010	
Full Proposal Due Date	15 April 2010	2:00 PM Eastern Standard Time
Notification of Selection: Full Proposals *	06 May 2010	
Awards *	01 October 2010	

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

NOTE: Due to changes in security procedures since September 11, 2001, the time required for hard-copy written materials to be received at the Office of Naval Research has increased. Materials submitted through the U.S. Postal Service, for example, may take seven days or more to be received, even when sent by Express Mail. Thus any hard-copy proposal should be submitted long enough before the deadline established in the solicitation so that it will not be received late and thus be ineligible for award consideration.

4. Submission of Late Proposals –

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:

- 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
- 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
- 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 Full Proposals.

Hard copies of Full Proposals for Contracts should be sent to the Office of Naval Research at the following address:

Primary Contact
Office of Naval Research
Attn: Ms. Sheila Richardson
ONR Department Code: 31
875 North Randolph Street Suite 1105D
Arlington, VA 22203-1995

Secondary Contact
Office of Naval Research
Attn: Dr. William Stachnik
ONR Department Code: 312
875 North Randolph Street Suite 1111C
Arlington, VA 22203-1995

V. EVALUATION INFORMATION

1. Evaluation Criteria -

Award decisions will be based on a competitive selection of proposals resulting from a scientific and cost review. Evaluations will be conducted using the following evaluation criteria:

1. Overall scientific and technical merits of the proposal;
2. The qualifications, capabilities and experience of the proposed Principal Investigator (PI), team leader and key personnel who are critical in achieving the proposal objectives;
3. The offeror's capabilities, related experience, facilities, techniques or unique combinations of these which are integral factors for achieving the proposal objectives;
4. Potential Naval relevance and contributions of the effort to the agency's specific mission and
5. The realism of the proposed costs and availability of funds.

Overall, the technical factors 1 - 4 above are significantly more important than the cost factor, with the technical factors all being of equal value.

The degree of importance of cost 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 proposal's technical superiority to the Government.

For proposed awards to be made as contracts to other than small 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 for small businesses, small disadvantaged businesses, woman-owned small businesses, HUBZone small businesses, veteran-owned small businesses, service disabled veteran-owned small businesses, historically black colleges and universities, and minority institutions.

2. Evaluation Panel –

Technical and cost proposals submitted under this BAA will be protected from unauthorized disclosure in accordance with FAR 3.104-4 and 15.207. The cognizant Program Officer and other Government scientific experts will perform the evaluation of technical proposals. Cost proposals will be evaluated by Government business professionals. Restrictive notices notwithstanding, one or more support contractors may be utilized as subject-matter-expert technical consultants. Similarly, support contractors may be utilized to evaluate cost proposals. 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 statement prior to receipt of any proposal submissions.

VI. AWARD ADMINISTRATION INFORMATION

1. Administrative Requirements –

- The North American Industry Classification System (NAICS) code - The NAICS code for this announcement is "541712" with a small business size standard of "500 employees".
- Central Contractor Registry (CCR) - Successful Offerors not already registered in the 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>.
- Subcontracting Plans - Successful contract proposals that exceed \$550,000, submitted by all but small business concerns, will be required to submit prior to award a Small Business Subcontracting Plan in accordance with FAR 52.219-9.
- Certifications – Proposals for contracts should be accompanied by a completed certification package.

Contracts

For contracts, in accordance with FAR 4.1201, prospective contractors shall complete and submit electronic annual representations and certifications at <http://orca.bpn.gov>. In addition to completing the Online Representations and Certifications Application (ORCA), proposals must be accompanied with a completed DFARS and contract specific representations and certifications. These "DFARS and Contract Specific Representations

and Certifications", i.e., Section K, may be accessed under the Contracts and Grants Section of the ONR Home Page at http://www.onr.navy.mil/02/rep_cert.asp.

VII. OTHER INFORMATION

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

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 any one specific program. The use of these facilities and resources will be negotiated as the program unfolds. Offerors should explain as part 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, the Government will attempt to enable technology developers to work at the unclassified level to the maximum extent possible. If access to classified material will be required at any point during performance, the Offeror must clearly identify such need prominently in its proposal.

3. Organizational Conflicts of Interest

All Offerors and proposed subcontractors must affirm whether they are providing scientific, engineering, and technical assistance (SETA) or similar support to any ONR technical office(s) through an active contract or subcontract. All affirmations must state which office(s) the offeror supports and identify the prime contract numbers. Affirmations shall be furnished at the time of proposal submission. All facts relevant to the existence or potential existence of organizational conflicts of interest (FAR 9.5) must be disclosed. The disclosure shall include a description of the action the offeror has taken or proposes to take to avoid, neutralize, or mitigate such conflict. In accordance with FAR 9.503 and without prior approval, a contractor cannot simultaneously be a SETA and a research and development performer. Proposals that fail to fully disclose potential conflicts of interests or do not have acceptable plans to mitigate identified conflicts will be rejected without technical evaluation and withdrawn from further consideration for award. If a prospective offeror believes that any conflict of interest exists or may exist (whether organizational or otherwise), the offeror should promptly raise the issue with ONR by sending his/her contact information and a summary of the potential conflict by e-mail to the Business Point of Contact in Section I, item 7 above, before time and effort are expended in preparing a proposal and mitigation plan. If, in the sole opinion of the Government after full consideration of the circumstances, any conflict situation cannot be effectively avoided or mitigated, the proposal may be rejected without technical evaluation and withdrawn from further consideration for award under this BAA.

4. Project Meetings and Reviews

Individual program reviews between the ONR sponsor and the performer may be held as necessary. Program status reviews may also be held to provide a forum for reviews of the latest results from experiments and any other incremental progress towards the major demonstrations. 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.