



## INTRODUCTION:

This publication constitutes a Broad Agency Announcement (BAA) as contemplated in Federal Acquisition Regulation (FAR) 6.102(d)(2) and 35.016, the Department of Defense Grants and Agreements regulations (DoDGARS) 22.315(a) and DoD's Other Transaction Guide for Prototypes Projects, USD(AT&L), OT Guide, Jan 2001. A formal Request for Proposals (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. The ONR reserves the right to select for award all some or none of the proposals in response to 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.

**Hyperlinks have been embedded within this document and appear as underlined, blue-colored words in the midst of paragraphs. The reader may "jump" to the linked section within this document by "clicking" (CTRL + CLICK, or CLICK).**

## Table of Contents

I. <a href="#">GENERAL INFORMATION</a> .....	3
A. Agency Name – .....	3
B. Research Opportunity Title – .....	3
C. Program Name – .....	3
D. Research Opportunity Number – .....	3
E. Response Date – .....	3
F. Research Opportunity Description – .....	3
G. Point(s) of Contact (POC) – .....	11
H. Instrument Type(s) – .....	12
I. Catalog of Federal Domestic Assistance (CFDA) Numbers - .....	13
J. Catalog of Federal Domestic Assistance (CFDA) Titles - .....	13
K. Other Information – .....	13
II. <a href="#">AWARD INFORMATION</a> .....	14
A. Amount and Period of Performance- .....	14
B. Peer Reviews- .....	14
C. Production and Testing of Prototypes- .....	14
III. <a href="#">ELIGIBILITY INFORMATION</a> .....	14
IV. <a href="#">APPLICATION AND SUBMISSION INFORMATION</a> .....	15
A. Application and Submission Process - .....	16
B. Content and Format of White Papers/Full Proposals - .....	16
a. White Papers .....	17
b. Full Proposals .....	18
C. Significant Dates and Times – .....	23
D. Submission of Late Proposals – .....	23
E. Submission of Grant Proposals through Grants.gov. N/A .....	24
F. Submission of Full Proposals for Contracts .....	24
V. <a href="#">EVALUATION INFORMATION</a> .....	24
A. Evaluation Criteria – .....	25
B. Commitment to Small Business .....	25
C. Options- .....	27
D. Evaluation Panel - .....	28
VI. <a href="#">AWARD ADMINISTRATION INFORMATION</a> .....	28
VII. <a href="#">OTHER INFORMATION</a> .....	29
A. Applies to Grant, Cooperative Agreement and Other Transaction Agreement applications only: .....	30
B. Applies to Contracts only: .....	30
C. Applies to Contracts, Grants, Cooperative Agreements and Other Transaction Agreements: .....	33

## **I. GENERAL INFORMATION**

### **A. Agency Name -**

Office of Naval Research,  
One Liberty Center  
875 N. Randolph Street  
Arlington, VA 22203-1995  
Ship Systems and Engineering Division, Code 331

### **B. Research Opportunity Title -**

Automated Offboard Refueling and Data Transfer for Unmanned Surface Vehicles

### **C. Program Name -**

Autonomous Unmanned Surface Vehicles for Navy Missions

### **D. Research Opportunity Number - N00014-16-S-BA09**

### **E. Response Date -**

White Papers: 15 JUL 2016

Full Proposals: 20 SEP 2016

### **F. Research Opportunity Description**

#### *Background:*

The Navy is developing Unmanned Surface Vehicles (USVs) that are launched and recovered from a host ship. A refueling and data transfer system that is remote from the host ship and proximate to the USV operating area will allow a substantially greater fraction of a Navy USVs' endurance to be spent on performing the mission rather than on non-mission activities associated with refueling, including transiting to and from the host ship and being deployed and recovered on the host ship. The USV to be refueled is a "Fleet-class USV" as defined in the Navy USV Master Plan.<sup>1</sup> It is approximately 38.5 ft in length, 10.5 ft beam and full load displacement 21,400 lbs. It can carry between 400 and 650 gallons of diesel fuel marine (DFM) and uses fuel at a rate between 25 and 40 gallons/hr. The refueling port of the USV is located on the starboard side of the craft, above the waterline, about midships. There will be up to 2 terabytes of data to be offloaded from the USV, per refueling iteration. There is currently no data port on the USV.

The fuel source platform (FSP) is envisioned to be another USV, a barge, a small vessel, a bladder or other platform or system. The FSP's function is to bring fuel from an existing land or shore-based source (such as a fuel depot, port or a ship) to the operating area (the operating area is the area in which the USVs perform operations). The USVs will approach the FSP, align to a connection mechanism, connect to the FSP, make fuel and data connections, receive fuel and

transfer data, disconnect from the FSP and resume its mission: this sequence shall be automated and require only the supervision of a remote human operator. For an individual USV, refueling and data transfer should occur simultaneously to save time.

ONR previously demonstrated an at-sea refueling system for a USV, which provided an initial demonstration of a technical approach, significant lessons learned about operational requirements, technology limitations, and expected costs to field this new class of system in the challenging maritime environment<sup>2,3,4,5</sup>. The ONR demonstration used a towed sponson/refueling probe prototype system for refueling connection and demonstrated feasibility on the 39 ft ONR Unmanned Sea Surface Vehicle (USSV) in sea state (SS)-0 through SS-2. Specifically, a USV with a bow-mounted refueling probe made a connection to the refueling device (in this case, a drogue towed from a fuel source vessel) in SS-0, but had difficulty in performing this operation in SS-2. The SS-2 issue was due to wave-induced relative motions between the USV and the towed drogue that inhibited the USV's ability to connect to the drogue. When driven by a human operator, the capture success rate was 45% in SS-2 and 71% in SS-0. This USV was a similar size, but is not the same design as the USV that is the subject of this solicitation. Other approaches for refueling USVs have been pursued<sup>6,7,8</sup>. All of these concepts should be considered by Offerors to be examples of possible approaches; however, the Government is not predisposed to any particular design. ONR evaluates the current TRL level of its system as 4 (component or breadboard validation in laboratory environment). Although at-sea testing was conducted as described above, the sea states were modest compared to Navy requirements and the refueling system was not integrated with the USV nor was integration with the ashore/afloat fuel infrastructure considered. Additional development is needed for the approach, alignment and connection of the USV to the FSP in SS-3 (threshold) SS-4 (objective) and to automate the system; this is within scope of the BAA. A particular challenge in the ONR at-sea test was hydrodynamics: the wave-induced relative motions between sponson and USV. In the future, this might be mitigated by sponson design, location of the probe on the USV relative to the USV's center of gravity (CG), and modeling and simulation (via computational fluid dynamics) of FSP/USV wave-induced motions to clarify system design.

#### *Scope:*

Under this BAA, the Offeror will design, build, test, and demonstrate a prototype Offboard Refueling and Data Transfer System (ORADTS). The ORADTS design must improve on previous designs by providing a more robust system that enhances system usability in higher sea states, reliability, and maintainability for implementation in Navy operations. This could be via a new and different design or via multiple technology and architecture improvements to the previous design. The program goal is to achieve a Technology Readiness Level (TRL) of 6 for the system in order to support the Navy's potential consideration of the ORADTS technology in a Program of Record (PoR) milestone decision.

#### *Overview.*

The product for this contract is a prototype ORADTS (hardware and software). The metric for the at-sea test is the ability of the ORADTS to refuel 650 gallons of fuel and transfer 2 terabytes of data with zero errors from a USV within 45 minutes (threshold)/30 minutes (objective) in

NATO SS-3 (threshold)/ SS-4 (objective)<sup>9</sup>. The 45/30 minute timeframe includes the last 50 meters of USV transit to the FSP, the automated approach, alignment and connection of the USV to the FSP, the automated transfer of fuel and data, disconnection of the USV, and 50 meters transit of the USV away from the FSP. The time required for refueling and transfer of data is of critical importance since the less time spent performing these functions, the more time the USV can spend performing the mission. The FSP should be capable of refueling and data transfer for 1 USV (threshold) and 8 USVs (objective).

The Government is interested in a modular ORADTS, which will include, at a minimum the following components: (1) automated alignment sub-system that aligns the USV to the FSP prior to physical connection and which manages wave-induced motion between USV and the FSP to permit connection in the required sea states, (2) connection sub-system for automated physical connection between USV and FSP, (3) fuel transfer sub-system including automated transfer of fuel between USV and the FSP, (4) data transfer sub-system for automated transfer of data between the USV and FSP, and (5) the FSP. It is possible that the function of some of the components listed above be combined into a single component. Items (1) through (4) will consist of elements on the USV and the FSP. It is critically important to minimize size, weight and power consumption impacts of the ORADTS on the USV. The ORADTS shall be capable of operation in manual mode (remote human operation) or automated mode (remote human supervision). It shall be capable of data transfer during refueling.

The Offeror shall consider the benefits and drawbacks of an ORADTS that can refuel multiple USVs simultaneously, to maximize the time the USVs spend performing the mission and minimize the time spent refueling. Time savings resulting from simultaneous refueling of multiple USVs might be beneficial, or it is possible that time savings might be offset by increased size, weight, complexity and cost of an ORADTS and FSP that can refuel multiple USVs simultaneously. If the ORADTS is capable of refueling multiple USVs simultaneously, easy addition and removal of additional USV connection stations on the FSP, as required for a particular operation, will be beneficial.

It is expected that a primary technical challenge in this program will be in accomplishing automated refueling and data transfer in higher sea state conditions, due to wave and wind-induced relative motions between the USV and the FSP that the USV is connecting to. Systems that enable refueling and data transfer to take place through SS-3 (threshold) and SS-4 (objective) are a critical goal of this solicitation. For this reason, modeling and simulation (computational fluid dynamics) of wave-induced motions and the hydrodynamic aspects of USV and FSP is expected to be a key part of the technical approach proposed by the Offeror.

The Government anticipates that data transfer from the USV to the FSP will be accomplished using existing technology that is appropriately modified for this particular application. The development of new technology for data transfer is outside the scope of this BAA. The subsequent transfer of data from the FSP to the host ship or other platform is in-scope for the demonstration and testing under this contract and must be accomplished using existing technology. The data transfer capability should be modular: the data transfer capability must be able to be optionally added to or removed from the ORADTS system. Data transfer must be accomplished with zero errors.

Ideally, the FSP will be based on an inexpensive, readily available maritime vessel or platform that already exists in the Navy inventory or commercially. A self-propelled FSP is desirable (both for the transit to the operating area at the beginning of a mission and for repositioning within the operating area during a mission), but this self-propulsion must be traded off against the additional cost and complexity required to attain it. The FSP will have to transit or be transported distances of up to 1500 nm. If the FSP is not self-propelled, the issue of avoiding drift in currents must be addressed. If the FSP is not self-propelled and has to be towed to the operating area, it is acceptable for the platform providing the tow to be manned. The FSP should provide fuel to the operating area at a rate at least equal to the rate the USVs are consuming it. Up to eight USVs may be simultaneously performing a mission in proximity to each other require refueling and data transfer. Therefore, a scalable FSP capability is preferred. The costs and benefits of a single, larger FSP should be traded off against multiple, smaller FSPs. A Government study found that FSPs carrying at least 15,000 gallons of fuel are optimal since smaller amounts of fuel necessitate an unreasonably large number of FSPs; however, the Offeror should perform its own analysis. The FSP should be capable of transmitting its position and status to the USV. Development of a new platform for the FSP is outside the scope of this BAA and is not consistent with the overall goals of the program. For the purposes of this program, a surrogate FSP can be used to demonstrate the ORADTS in the Phase II and III demonstrations, but Offerors shall make clear in their proposals what actual FSP platform is envisioned.

The Government seeks balanced in the proposed approaches between use of existing sub-systems and components where appropriate, and technical maturation of components or designs where mature solutions do not exist. The Government will use a three-phased acquisition structure, with an overall 40-month timeline from contract award to project completion (completion of Phase 3). This BAA calls for fully integrated system level proposals for ORADTS. Proposals that only address partial solutions or component level technologies will not be considered for award.

*Program Objectives:*

The following objectives are provided to assist Offerors in developing their ORADTS design approach:

- Cost-effective trade-offs between hydrodynamic performance, mechanical robustness, and system size, weight and cost;
- Hydrodynamic modeling and simulation, for example computational fluid dynamics (CFD) of relative motions in required sea states, as a necessary and integral part of system design for hydrodynamic optimization;
- System design and performance that enable a substantially greater fraction of the USV's endurance to be spent performing the mission, rather than in activities associated with refueling such as time spent connecting to the FSP, transferring fuel and data; minimize time to refuel and transfer data;
- Fuel source platform (FSP) must be an existing platform that is readily available and inexpensive, no new platform required;
- FSP is capable of carrying DFM, JP-5 or JP-8, but only one of these fuels at a time;

- The ORADTS components that are installed on the USV must have minimal size, weight and power consumption impact to the USV;
- Mechanically robust systems, for example, able to withstand wave-induced collisions between USV and FSP in required sea states, at the USV refueling speed determined by the Offeror;
- System configurations that can sustain long-term exposure to a maritime environment and the Navy's operating environment (e.g., corrosion, shock, vibration, moisture, electromagnetic, environmental effects);
- Operates for at least one month of daily at-sea testing with minimal manpower and maintenance requirements;
- Information assurance/anti-tamper (IA/AT) shall be considered in the system design; however, the Government may elect to delay implementation of IA/AT aspects until after this contract is completed;
- Capability to be installed and tested on an Offeror-provided USV in Phase II and a Navy USV in Phase III;
- Meets all relevant safety requirements for installation and operation;
- Meets all relevant environmental requirements, for example, system design minimizes or eliminates chance of a fuel spill into the water. The Offeror is expected to be well-versed in the applicable environmental regulations and laws;
- Integrates with Government Furnished USV in Phase III.

Throughout the program, the Offeror is expected to employ a tailored (to a science and technology program) yet rigorous systems engineering process (both hardware and software) in order to successfully execute Initial Design Review (IDR), Final Design Review (FDR), risk reduction testing, component and sub-assembly verification testing, and system demonstration. The level of detail in the design documentation should be appropriate to a science and technology program in which a prototype system is being developed, rather than an acquisition program that is developing the final production version. The contractor's systems engineering process should ensure the capture of technical knowledge acquired in the execution of the project as well as a configuration management approach for managing the design. The extent of the knowledge captured will enable the assessment of adequacy of the analytical methods and design practices, and their correlation with test results. The contractor's process should include a series of tracking tools that enable efficient assessment of program progress to include:

- Technical Performance Measures (TPMs). The contractor should provide a manageable set of TPMs that relate to and are consistent with all levels of the system configuration, tracks the maturity of key risk areas, and forecasts the achievement of systems requirements.
- Risk Management Approach. As part of a Risk Management and Mitigation Plan (RMMP) the contractor is expected to identify key technical risk areas consistent with achieving project objectives against the Integrated Master Schedule (IMS).

*Program Phases:*

The Government plans a logical progression from design and risk reduction through fabrication and assembly, with initial sub-system and component-level testing, and culminating in meeting the program objective in a test or set of tests at-sea. This three-phased plan includes: Phase I (Base Period), Phase II (Option I) and Phase III (Option II):

*Phase I (Base Period): System Design and Risk Reduction*

*Activities and Deliverables.* Estimated period of performance is approximately 15 months.

The objectives of Phase I include development and refinement of the design package and risk reduction efforts from the System Requirements Review (SRR) through the Initial Design Review (IDR) and completes after the Final Design Review (FDR). The level of detail in the design documentation should be appropriate to a science and technology program in which a prototype system is being developed, rather than an acquisition program that is developing the final production version. Long-lead items are expected to be identified in proposals and finalized by the IDR. There is additional time allocated in Phase I for post FDR design actions and final documentation.

Phase I activities shall address:

- Conduct hydrodynamics modeling and simulation (computational fluid dynamics) to determine wave-induced motions for USV and FSP and design and performance trade studies to develop a refueling system design;
- Conduct integration design of the ORADTS with Navy USV design (requires Government-furnished information (GFI));
- Documentation of design and interfaces throughout the program;
- Conducting a Systems Requirements Review (SRR);
- Conducting an Initial Design Review (IDR);
- Conducting a Final Design Review (FDR);
- Establishing and executing a Risk Management and Mitigation Plan (RMMP) to identify plans to address highest risk technology areas and validate performance capabilities;
- Conducting Phase II planning based on the TDP;

The Government requires the following deliverables, in contractor format, during the performance of Phase I:

- Set of drawings to be used for the fabrication of ORADTS
- Interface Control Documents (ICD) and Interface Functional Documents (IFD);
- Results of modeling and simulation (M&S) and other technical activities conducted during Phase I;
- SRR Briefing Charts and Documentation\*;
- RMMP, updated quarterly to reflect results of design evolution and any risk reduction activities;
- Quarterly update of the IMS, Review materials, and any adjustments to anticipated technical activities in Phase II and Phase III with associated cost-level adjustments to cost and schedule;
- All test reports from sub-system, system, and risk reduction activities;
- Phase II and III demonstration plans (including cost and schedule), updated quarterly;
- IDR Briefing Charts and Documentation, including Long Lead Item/Critical Hardware Parts List and Procurement Schedule\*;



- FDR Briefing Charts and Documentation\*;
- Monthly Progress Reports (Technical and Financial), written and meeting or telcon.

\*The tailored SRR, IDR, and FDR deliverables are described in Appendix A.

*Phase II (Option 1): System Fabrication and Contractor at-sea Testing*

*Activities and Deliverables:* The period of performance is anticipated to be approximately 15 months.

The conclusion of Phase II and the start of Phase III may overlap for several months depending on the results from the Phase II TRR and the scale of modifications required after the TRR to support the test activities during Phase III.

The objectives of Phase II include sub-assembly, assembly, and system level testing as well as residual risk reduction activities. Phase II contractor activities shall address:

- Procurement, fabrication, assembly, and integration with other sub-systems including the USV and fuel source platform to complete the fully functional system;
- Continue to execute the RMMP and collaborate with the Government to develop a System Demonstration Plan that covers all system level demonstration activities;
- Support a Government Test Readiness Review (TRR) to validate that the system is ready for Phase III testing and demonstration;
- Implement minor system alterations as identified in the TRR;
- Deliver the system pierside, ready for testing and demonstration;
- Perform at-sea testing and demonstration of system using contractor-provided surrogate USV. Confirm ORADTS system meets the performance criteria described in “Overview” section.

The Government envisions testing will be performed by the Offeror in the latter stages of Phase II, to validate the performance of the system, including approach of the USV to the FSP, alignment with the connection mechanism, connection of USV to FSP, refueling of a USV and data transfer from a USV. Readiness reviews will be conducted by the Government to ensure the system is ready for testing, meeting all check out, range safety and environmental requirements.

In order to ensure adequate testing preparation, initial versions of operating and maintenance manuals shall be developed prior to the test. The Government envisions that the test will last four weeks. Proposals may offer alternative test schedules, however they shall include rationale based on significant comparative technical, cost, or schedule improvements. It is envisioned that the contractor will be primarily responsible for operating the system during Phase II testing, using the contractor’s USV. However, the Government may elect to operate the system during a portion of Phase 2 testing as a training opportunity in preparation for Phase III. A successful TRR for Phase 3 testing is required prior to proceeding with final delivery of the system. The Government will take

possession of the system at the conclusion of Phase II, with pier-side delivery to the test range.

The Government requires the following deliverables, in contractor format, during the performance of Phase II:

- System delivery in sea based configuration, including all hardware and software, operating instructions and limitations;
- 
- System cost information including bill of materials, material and labor costs to build a system;
- Final operating and maintenance manuals;
- Diagnostic, test, and support equipment needed to support system testing;
- Integrated Master Schedule (IMS), updated monthly;
- Test reports for all tests;
- Phase III demonstration plans (including cost and schedule), updated quarterly;
- RMMP, updated quarterly to reflect results of design evolution and any risk reduction activities;
- System Demonstration Plan, updated quarterly;
- TRR presentation and documentation;
- Interim Quarterly Review Briefing Charts;
- Monthly Progress Reports (Technical and Financial), written and meeting or telcon;
- Final “As Built” set of drawings used for the fabrication of ORADTS, and ICDs and IFDs;
- Logistics footprint, including spares and maintenance requirements;
- Test reports documenting the technical performance of the during the at-sea tests;
- Final Report.

### *Phase III (Option 2): Integration with Navy USV and Government Testing*

*Activities and Deliverables:* The period of performance is anticipated to be approximately 10 months.

The conclusion of Phase II and the start of Phase III may overlap for several months depending on the results from the Phase II TRR and the scale of modifications required after the TRR to support the test activities during Phase III.

In Phase III, the contractor shall support the installation and integration of the system with the Navy USV or a Government-specified surrogate USV. If a Navy USV is used, the Government will provide the contractor with necessary information and drawings. The contractor will also be expected to provide support for check-out testing of the integrated system. Following installation, the contractor will provide on-board support and technical service representatives during Phase III testing. These personnel will provide technical, operations and maintenance support for the system throughout the deployment. It is currently anticipated that Phase III testing will be of two-week duration.

The contractor may also be required to participate in test data collection, analysis, post-test performance assessments, and documentation development.

The Government requires the following deliverables in contractor format, during the performance of Phase III:

- Monthly Progress Reports (Technical and Financial), written and meeting or telcon;
- Revisions and edits to Final “As Built” Technical Data Package (TDP), including ICDs and IFDs resulting from Phase III installation and integration activities.

#### References:

1. “The Navy USV Master Plan”, <http://www.navy.mil/navydata/technology/usvmppr.pdf>, last accessed 4 FEB2016.
2. R.J. Galway and D.B. Harris, “Unmanned Sea Surface Vehicle (USSV) Motion Data and Refueling Equipment Design”, ASNE Launch & Recovery Symposium 2010, [www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA532549](http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA532549), last accessed 18 JAN 2016.
3. D B. Harris and R.J. Galway, “Sea surface vessel recovery and fueling system”, US Patent 8,568,076, 2013.
4. R.J. Galway, “Contemporaneous latching and fueling arrangement for fueling a water vessel”, US Patent 8,225,735, 2012.
5. R.J. Galway, “Probe receiver device for recovering surface water vessels”, US Patent 8,020,505, 2011.
6. S.M. Petersen, “Ship or Air Deployable Automated Refueling Station for Multiple Unmanned Surface Vessels”, US Patent 8,991,447 B1, 2015.
7. G. Henshaw, “NRL Tests Robotic Fueling of Unmanned Surface Vessels”, <http://www.nrl.navy.mil/media/news-releases/2012/nrl-test-robotic-fueling-of-unmanned-surface-vessels>, last accessed 18 JAN 2016.
8. “Offboard Refueling Support System for Unmanned Surface Vehicles” Navy SBIR Topic N08-177, [http://www.navysbir.com/n08\\_2/N082-177.htm](http://www.navysbir.com/n08_2/N082-177.htm), last accessed 18 JAN 2016.
9. NATO STANAG 4194 “Standardized Wave and Wind Environments and Shipboard Reporting of Sea Conditions” (1983)

#### G. Point(s) of Contact

Comments or questions submitted should be concise and to the point, eliminating any unnecessary verbiage. In addition, the relevant part and paragraph of the Broad Agency Announcement (BAA) should be referenced.

Questions of a **business** nature, and suggestions for improvement, should be submitted to the following Code 252 Staff:

Elizabeth Bray  
Contract Specialist  
ONR Code 252  
C4ISR AND SEA WARFARE CONTRACT BRANCH  
One Liberty Center  
875 N. Randolph Street  
Arlington, VA 22203-1995  
[Elizabeth.Bray@navy.mil](mailto:Elizabeth.Bray@navy.mil)

Tracy Scott  
Contracting Officer  
ONR Code 252  
C4ISR AND SEA WARFARE CONTRACT BRANCH  
One Liberty Center  
875 N. Randolph Street  
Arlington, VA 22203-1995  
[Tracy.Scott1@navy.mil](mailto:Tracy.Scott1@navy.mil)

Questions of a **technical** nature should be submitted to:

Point of Contact Name: Robert Brizzolara  
Point of Contact Occupation Title: Program Office; Division: Ship Systems and Engineering  
Division  
Division Code: 331  
Address: 875 N. Randolph St. Arlington, VA 22203  
Email Address: [robert.brizzolara@navy.mil](mailto:robert.brizzolara@navy.mil)

Questions of a **Security** nature should be submitted to:

Torri Powell  
Industrial Security Specialist  
Office of Naval Research  
Security Department, Code 43  
One Liberty Center  
875 North Randolph St.  
Arlington, VA 22203-1995  
Email Address: [torri.powell@navy.mil](mailto:torri.powell@navy.mil)

**Note:** All communications shall be UNCLASSIFIED and shall be submitted via e-mail to the Technical Point of Contact (POC) with a copy to the designated Business POC(s).

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

Amendments to this BAA will be posted to one or more of the following web pages:

- Federal Business Opportunities (FedBizOpps) Webpage – <https://www.fbo.gov/>
- ONR Broad Agency Announcement (BAA) Webpage - <http://www.onr.navy.mil/en/Contracts-Grants/Funding-Opportunities/Broad-Agency-Announcements.aspx>

#### **H. Instrument Type(s) -**

The award will take the form of a contract.

Any contract award resulting from this BAA will incorporate the most current FAR, DFARS, NMCARS and ONR clauses.

Examples of model contracts can be found on the ONR website at the following link: <http://www.onr.navy.mil/Contracts-Grants/submit-proposal/contracts-proposal/contract-model-awards.aspx>. ONR Contract specific representations and certifications can be accessed on the following page of the ONR website: <http://www.onr.navy.mil/en/Contracts-Grants/submit-proposal/contracts-proposal.aspx>.

#### **I. Catalog of Federal Domestic Assistance (CFDA) Numbers -**

12.300

#### **J. Catalog of Federal Domestic Assistance (CFDA) Titles -**

Department of Defense (DOD) Basic and Applied Scientific Research

#### **K. Other Information -**

Work funded under a BAA may include basic research, applied research and some advanced technology development research. 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 24 May 2010.

As defined therein the definition of “contracted fundamental research,” in a DoD contractual context, includes research performed under 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. The research shall not be considered fundamental in those rare and exceptional circumstances where the applied research effort presents a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense, and where agreement on restrictions have been recorded in the contract or grant.

Pursuant to DoD policy, research performed under grants and contracts that are a) funded by

Budget Activity 2 (Applied Research) and NOT performed on-campus at a university or b) funded by Budget Activity 3 (Advanced Technology Development) does not meet the definition of “contracted fundamental research.” 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 “contracted fundamental research,” except as otherwise required by statute, regulation or Executive Order. For certain research projects, it may be possible that although the research being performed by the prime contractor is restricted research, a subcontractor may be conducting “contracted fundamental research.” In those cases, it is the ***prime contractor’s responsibility*** in the proposal to identify and describe the subcontracted unclassified research and include a statement confirming that the work has been scoped, negotiated, and determined to be fundamental research according to the prime contractor and research contractor.

Normally, fundamental research is awarded under grants with universities and under contracts with industry. Non-fundamental research is normally awarded under contracts and may require restrictions during the conduct of the research and DoD pre-publication review of such research results due to subject matter sensitivity.

FAR Part 35 restricts the use of Broad Agency Announcements (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 and grants and other assistance agreements made under BAAs 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 Government anticipates either a single award, or multiple awards based on this announcement.

**A. Funded Amount and Period of Performance-\$6M, 40 months**

**B. Peer Reviews- N/A**

**C. Production and Testing of Prototypes-**

In the case of funded proposals for the production and testing of prototypes, ONR may modify the contract to add a contract line item or contract option for the provision of advanced component development or for the delivery of additional prototype units. However, such a contract addition shall be subject to the limitations contained in Section 819 of the National Defense Authorization Act (NDAA) for Fiscal Year 2010, as modified in Section 811 of the NDAA for Fiscal Year 2015.

### **III. ELIGIBILITY INFORMATION**

- A.** 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, due to the impracticality of reserving discrete or severable items of this research for exclusive competition among such entities.
- B.** Federally Funded Research & Development Centers (FFRDCs), including Department of Energy National Laboratories, are eligible to receive awards under this BAA. However, teaming arrangements between FFRDCs and eligible principal Offerors are allowed so long as such arrangements are permitted under the sponsoring agreement between the Government and the specific FFRDC.
- C.** 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 the ONR Technical [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.
- D.** University Affiliated Research Centers (UARCs) are eligible to submit proposals under this BAA unless precluded from doing so by their Department of Defense UARC contract.
- E.** 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.
- F.** Offerors should be aware of recent changes in export control laws. Offerors are responsible for ensuring compliance with all International Traffic in Arms Regulation (ITAR)(22 CFR §120 *et. seq.*) requirements, as applicable. In some cases, developmental items funded by the Department of Defense are now included on the United States Munition List (USML) and are therefore subject to ITAR jurisdiction. Offerors should address in their proposals whether ITAR restrictions apply or do not apply, such as in the case when research products would have both civil and military application, to the work they are proposing to perform for ONR. The USML is available online at <http://www.ecfr.gov/cgi-bin/text-idx?node=pt22.1.121>. Additional information regarding the President's Export Control Reform Initiative can be found at <http://export.gov/ecr/index.asp>.
- G.** Cost sharing is not expected and will not be used as a factor during the merit review of any proposal hereunder. However, the Government may consider voluntary cost sharing if proposed.

## **IV. APPLICATION AND SUBMISSION INFORMATION**

### **Section IV: Table of Contents**

- A. [Application and Submission Process](#)
- B. [Content and Format of White Papers/Full Proposals](#)
  - a. [White Papers](#)
  - b. [Full Proposals](#)
    - i. [For non-Grants](#)
    - ii. [For Grants –N/A](#)
- C. [Significant Dates and Times](#)
- D. [Submission of Late Proposals](#)
- E. [Submission of Grant Proposals through Grants.gov – N/A](#)
- F. [Submission of White Papers and Full Proposals for Contracts, Cooperative Agreements, and Other Transaction Agreements](#)

\* Click on the above hyperlinks to navigate directly to your desired section

### **A. Application and Submission Process -**

White Papers and Full proposals are required for submission.

White Papers: The due date for white papers is no later than 3:00 PM (EST) on 15 JUL 2016. If an Offeror does not submit a white paper before the specified due date and time, it is not eligible to participate in the remaining Full Proposal submission process and is not eligible for funding.

White Paper Evaluation/Notification: Navy evaluations of the white papers will be issued via email notification on or about 15 AUG 2016. Offerors whose white papers are judged to be of insufficient value to the Navy and Offerors who did not submit a white paper may not submit a final proposal under this BAA.

Full Proposals: The due date for receipt of Full Proposals is 3:00 PM (EDT) on 20 SEP 2016. It is anticipated that final selections will be made about 5 weeks after full proposal submission. As soon as the final full proposal evaluation process is completed, PI's will be notified via email of their project's selection or non-selection for FY17 funding. Full proposals received after the published due date and time will not be considered for funding.

### **B. Content and Format of White Papers/Full Proposals -**

White Papers and Full Proposals submitted under this BAA shall be unclassified.

A non-proprietary version of the Statement of Work must also be submitted. Do not put proprietary data or markings in or on the Statement of Work. For proposals containing data that the offeror does not want disclosed to the public for any purpose, or used by the Government except for evaluation purposes, the contractor shall mark the title page with the following legend:

“This proposal includes data that shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed--in whole or in part--for any purpose other than to evaluate



the proposal. If, however, a contract is awarded to this offeror as a result of--or in connection with-- the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the Government's right to use information contained in this data if is obtained from another source without restriction. The data subject to this restriction are contained in (insert numbers or other identification of sheets).”

Also, mark each sheet of data that the offeror wishes to restrict with the following legend:

“Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this proposal.”

All 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.

STATEMENT OF WORK (SOW): A non-proprietary version of the SOW must also be submitted.

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.

**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
- Page limit: 8 pages (excluding cover page, resumes, bibliographies, and table of contents)

**White Paper Submission**

White papers are to be submitted as a pdf file via electronic mail (email) only to robert.brizzolara@navy.mil. The subject line of the email shall read “N00014-16-S-BA09” White Paper Submission”. The white paper must be a Microsoft Word 2007 compatible, or PDF format attachment to the email. There is an email size limit of 5MB per email.

**NOTE: Do not send:**

- 1) Hardcopies of White Papers (including Facsimiles) as only electronic submissions will be accepted and reviewed;**
- 2) ZIP files; and**
- 3) Password protected files.**

**White Paper Content**

- **Cover Page:** The Cover Page shall be labeled “WHITE PAPER” and shall include the BAA Number N00014-16-R-BA09, proposed title, technical points of contact, telephone number, facsimile number, and e-mail address.
- **Technical Concept:** There is considerable freedom to formulate the main body of the white paper as the Offeror sees fit. Here is some general guidance on what may be included in the technical concept: a description of the proposed ORADTS, technical approach, what's new and what leverages previous work, relevance to Navy, the concept of operation for the new capabilities to be delivered, a plan for demonstrating and evaluating the Offeror's product including evaluation metrics, transition potential, proprietary aspects of the project and any assertions of data rights applicable to the results of this effort. The white paper must address ORADTS system attributes and performance, including:
  - Physical configuration
  - Estimates of size, weight and power consumption impacts to USV
  - Approach to achieving operations in SS-3 and SS-4 including hydrodynamic modeling and simulation
  - Estimates of key time durations (approach/alignment/connection time, refueling time, data transfer time, disconnection time) and indicate limiting design element(s)
  - Estimate of data transfer performance
  - Approach to automation of the ORADTS system.
  - Approach to human supervision that is required for operation of the ORADTS system
  - FSP: if a surrogate FSP is used, information regarding the level of fidelity of the surrogate to the actual FSP
  - Modularity of the proposed ORADTS
  - Ability of ORADTS to service multiple USVs simultaneously, if applicable, or to be scaled up to multiple USVs
- **Rough Order of Magnitude (ROM) Cost:** Cost information is needed, although not at the level of detail as required with the full proposal. White paper submissions shall include a cost summary showing requested funding per year. The cost summary (not to exceed one (1) page) shall be segregated by both task and year.

**b. FULL PROPOSALS**

**i. INSTRUCTIONS FOR CONTRACTS**

Proposal Package:

*The following five documents with attachments comprise a complete proposal package:*

- (1) Proposal Checklist (pdf)
- (2) Technical Proposal Template (Word), Technical proposals shall not exceed 150 pages. Proposals submitted in response to this BAA shall address the following attributes, to the greatest degree possible, consistent with the maturity of the proposed design. Proposals must address conceptual design overviews, descriptions, and system

block diagrams in sufficient detail to illustrate design considerations, enable ease of understanding, and provide context for any salient features or configurations. At a minimum the technical proposal should address the following:

*Overall scientific and technical merits of the proposal:* Address system attributes and performance, including:

- Physical configuration, estimated shapes, dimensions, weights, centers of gravity, and location relationships between structure, containers, pumps, radios, housings, and modules
- Size, weight and power consumption impacts to USV
- Approach to achieving operations in SS-3 and SS-4 including hydrodynamic modeling and simulation
- Key time durations (approach/alignment/connection time, refueling time, data transfer time, disconnection time) and indicate limiting design element(s)
- Data transfer performance
- Details of the approach to automation of the ORADTS system.
- Details of the human supervision that is required for operation of the ORADTS system, for example the nature of the information the human needs to be provided about the status of the system and the type of interaction the human will have with the ORADTS system
- FSP: if a surrogate FSP is used, information regarding the level of fidelity of the surrogate to the actual FSP
- Details regarding modularity of the proposed ORADTS
- Ability of ORADTS to service multiple USVs simultaneously, if applicable, or to be scaled up to multiple USVs

*Program Execution Plan* - Offerors must demonstrate a credible plan for achieving the objectives of Phase I, Phase II, and Phase III as outlined in the paragraphs entitled Scope, Overview, Program Objectives, and Program Phases, stated above. Offerors must describe the systems engineering approach that will be used to focus engineering efforts among multiple sub-systems and developers, including their proposed process, analytic methodologies, technical analysis or simulation efforts, validation approach, and any Model-Based Systems Engineering. The Offeror shall provide a Statement of Work (SOW) and Integrated Master Schedule (IMS). The SOW, IMS, and cost proposal shall be consistent and fully integrated employing a common work breakdown structure and numbering scheme.

*Potential Naval relevance, contribution to ONR's mission and transitionability:* The Government seeks information that describes the relevance of the proposed approach for future Navy operational employment. Examples of such information include:

- **Design Maturity and Risk Reduction Approach:** The Office of Naval Research has defined an aggressive, three phase program for achieving successful testing and demonstration. It is therefore critical that the system and sub-systems have adequate maturity and an acceptable level of technical and integration risk inherent in their design. Proposals should address an Initial RMMP containing the following information:

- i. Risk areas and risk mitigation plans for all three phases, with mitigation plan detailed through the use of risk matrix charts and detailed, time-oriented, schedule and risk waterfalls with a goal to be below the "high" thresholds by IDR.
  - ii. Methodology for decomposing risks through the system architecture and design to the Configuration Item (CI) level.
- Use of the proposed design on alternate fuel supply platforms (FSP)
- The scalability of the proposed system and sub-system elements to support the operation of up to eight USVs
- Elements of the design which provide cost effective future upgrade options by following Modular Open Systems Architecture (MOSA) principles and practices
- Design features at the system and sub-system level which address environmental protection (for example, fuel spill prevention), reliability, maintenance and information assurance/anti-tamper. Provide rationale and supporting information
- Manufacturing readiness and production rate capability of existing industry base to fabricate special technologies and components associated with the proposed design. Identify technologies or components that are uniquely available from one vendor or country
- The Government desires, at a minimum, Government Purpose Rights to the technical data and software (including software code) developed in this program, to enable the Government to:
  - i. Flexibly brief stakeholders regarding technical progress and accomplishments,
  - ii. Allow validation of technical claims and accomplishments by independent technical (potentially non-Government) experts,
  - iii. Facilitate discussion of technical challenges and applications with the broader technical community,
  - iv. Enable integration of alternative system components,

For any data to be furnished with restrictions, the Offeror should describe how their proposed assertions will not restrict the Government's ability to successfully review and transition program information. For any software to be furnished with data rights restrictions, the Offeror is expected to describe the means by which access to any source code will be provided to Government SMEs. Any assertions of rights in Intellectual Property (IP) shall include substantiation of claims and licensing terms.

Offeror's Capability. The offeror's capabilities, related experience, facilities, techniques or unique combinations of these which are integral factors for achieving the proposal objectives. ONR highly encourages partnering among industry and academia and Industry and Government with a view toward speeding the incorporation of new science and technology into fielded systems. Offerors must describe their management plan and tools for managing the technical work, subcontractors, and material vendors. Discuss any industry-academic partnering and Industry and Government partnering and provide a narrative explaining how the partnership is advantageous in the performance of the contract, if awarded.

Principal Investigator (PI), team leader and key personnel. Provide resumes or narratives addressing the qualifications, capabilities and experience of the proposed Principal Investigator (PI), team leader and key personnel who are critical in achieving the program objectives.

Offerors must provide substantiation that the proposed program team and key personnel have the requisite experience in development and demonstration programs of similar size and complexity to ensure successful program execution.

Period of Performance: Propose period of performance (identify both the base period and options).

Realism of the proposed costs and availability of funds. The purpose of the Phase II and III cost estimates is to ensure that the Government has adequate understanding of the full scope of activities that must be accomplished in order to achieve Phase 2 and 3 goals and timeline, and their estimated cost. This information will assist the Government in assessing the affordability of the Offeror's total program.

Proposals must clearly describe the Offeror's costs to implement its approach, such as the use of government-furnished equipment (GFE), government facilities, or subject matter expert (SME) support (whether contractor or Government) as this will count towards the total program cost to the Government. Offerors should not include the actual cost of the GFE itself in their proposal.

- (3) Cost Proposal Spreadsheet (Excel)
- (4) Adequacy Checklist for Pre Award Audit (SF 1408) (as applicable)
- (5) Stand-alone non-proprietary Statement of Work (SOW) in Word Format

**NOTE: The electronic file name for all documents submitted under this BAA must not exceed 68 characters in length, including the file name extension.**

Items 1 – 5 above are located at: <http://www.onr.navy.mil/Contracts-Grants/submit-proposal/contracts-proposal/>. All have instructions imbedded into them that will assist in completing the documents. Also, both the Proposal Checklist and the Cost Proposal Spreadsheet require completion of cost-related information. Please note that attachments can be incorporated into the Proposal Checklist.

Offerors responding to this BAA must submit a separate list of all technical data or computer software that will be furnished to the Government with other than unlimited rights. The Government will assume unlimited rights if offerors fail to identify any intellectual property restrictions in their proposals. Include in this section all proprietary claims to results, prototypes, and/or deliverables. If no restrictions are intended, then the offeror should state "NONE."

The format requirements for attachments are as follows:

- Paper Size- 8.5 x 11 inch paper
- Margins – 1 inch
- Spacing- single or double spaced
- Font- Times New Roman, 12 point

For proposed subcontracts or interorganizational transfers over \$150,000, Offerors must provide

a separate fully completed Cost Proposal Spreadsheet in support of the proposed costs. This spreadsheet, along with supporting documentation, must be provided either in a sealed envelope with the prime’s proposal or via e-mail directly to both the Program Officer and the Business Point of Contact at the same time the prime proposal is submitted. The e-mail 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.

Offerors shall submit SIX (6) hard copies of their proposal package and an electronic copy on a compact disk (CD). The electronic copy should be submitted in a secure, pdf-compatible format, except for the electronic file of the Cost Proposal Spreadsheet which must be submitted in a Microsoft Excel 2007 compatible format and the Statement of Work Template which must be submitted in Microsoft Word format. All attachments should be submitted in a secure, pdf-compatible format.

The secure pdf-compatible format is intended to prevent unauthorized editing of the proposal prior to any award. A password should not be required for opening the proposal document, but the Government must have the ability to print and copy text, images, and other content. Should an Offeror amend its proposal, the amended proposal should be submitted following the same hard and electronic copy guidance applicable to the original proposal.

Any proposed options that are identified in the Technical Proposal Template or Proposal Checklist documents, but are not fully priced out in the Cost Proposal Spreadsheet, will not be included in any resulting contract. Options **must** be separately priced and separate spreadsheets should be provided for the base period and each option. In addition to providing summary by period of performance (base and any options), the contractor is also responsible for providing a breakdown of cost for each task identified in the Statement of Work. The sum of all costs by task worksheets **MUST** equal the total cost summary.

The electronic submission of the Excel spreadsheet should be in a “useable condition” to aid the Government with its evaluation. The term “useable condition” indicates that the spreadsheet should visibly include and separately identify within each appropriate cell any and all inputs, formulas, calculations, etc. The Offeror should not provide “value only spreadsheets” similar to a hard copy.

Fixed Fees on ONR Contracts: The Government Objective is set in accordance with the DFARS 215.404-71. See the below table for range and normal values:

<b>Contract Risk Factor</b>	<b>Contract Type</b>	<b>Assigned Value (Normal range)</b>	<b>Normal Value</b>
Technical (1)		3% - 7% (2)	5%
Management/Cost Control (1)		3% - 7% (2)	5%
Contract Type Risk	Firm Fixed Price	2% - 6% (3)	3% - 5% (4)
Contract Type Risk	Cost Plus Fixed Fee	0% - 1% (2)	0.5%

- (1) Assign a weight (percentage) to each element according to its input to the total performance risk. The total of the two weights equal 100%
- (2) Assign a weighting score relative to the Risk Factor.
- (3) Depends on the specific Contract Type (With/without financing, performance-based payments, and/or progress payments).

(4) Depends on the specific Contract Type.

Technology Incentive (TI) is rarely utilized at ONR, because the contracts issued by ONR typically are not eligible for TI (See DFARS 215.404-71-2(c) (2)). Any consideration of TI requires strong and convincing justification in the proposal, which are then subject to negotiation and determination of a fair and reasonable fee, within the context of the specific award.

Typically the range of fee is 5% to 7.5% on an ONR awarded contract.

For submission instructions, see Part IV, Section F. [Submission of White Papers and Full Proposals for Contracts](#).

### C. Significant Dates and Times -

This announcement will remain open until the Full Proposals Due Date noted below. Proposals may be submitted any time during this period.

Anticipated Schedule of Events *		
Event	Date (MM/DD/YEAR)	Time (Local Eastern Time)
White Papers Due Date	15 JUL 2016	3:00 PM
Notification of Initial Navy Evaluations of White Papers*	15 AUG 2016	
Full Proposals Due Date	20 SEP 2016	3:00 PM
Notification of Selection for Award *	25 OCT 2016	
Contract Awards*	17 APR 2017	
Kickoff Meeting*	28 APR 2017	

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

### D. Submission of Late Proposals (Applicable to White Papers and Full 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

- (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.

**E. Submission of Grant Proposals through Grants.gov: Not Applicable**

**F. Submission of Full Proposals for Contracts:**

Six hardcopies and one electronic copy (on a compact disk (CD)) of the proposal; package shall be sent to the Office of Naval Research at the following address:

Office of Naval Research  
Attn: Robert Brizzolara  
ONR Department Code: 331  
875 North Randolph Street  
Arlington, VA 22203-1995

Proposal packages shall be unclassified.

**V EVALUATION INFORMATION**

**A. Evaluation Criteria –**

Awards under this BAA will be made to Offerors on the basis of the evaluation criteria listed below, and program balance to provide overall value to the Government. The Government reserves the right to request any additional, necessary documentation once it makes the award instrument determination. The Government reserves the right to remove Offerors from award consideration should the parties fail to reach agreement on award terms, conditions, and cost/price within a reasonable time, or the Offeror fails to timely provide requested additional information.

In accordance with FAR 35.016(e), the primary basis for selecting proposals for acceptance shall



be technical, importance to agency programs, and fund availability. Cost realism and reasonableness shall also be considered to the extent appropriate. Therefore, the following criteria will be used for evaluation:

- 1) Overall scientific and technical merits of the proposal.
  - The Government considers the ability to meet sea state thresholds to be a significant component of scientific merit. The Government will give preference to ORADTS concepts that provide clear and convincing evidence of ability to operate in SS-3 (threshold), SS-4 (objective).
- 2) Potential Naval relevance, contribution to ONR's mission and transitionability. This criterion includes but is not limited to:
  - Design maturity and risk reduction
  - Higher fidelity surrogate FSPs will receive favorable consideration in the proposal review process
  - IP rights
- 3) The offeror's capabilities, related experience, facilities, techniques or unique combinations of these which are integral factors for achieving the proposal objectives. Partnering – ONR highly encourages partnering among industry and academia and Industry and Government with a view toward speeding the incorporation of new science and technology into fielded systems.
- 4) The qualifications, capabilities and experience of the proposed Principal Investigator (PI), team leader and key personnel who are critical in achieving the proposal objects.

The evaluation criteria are of equal importance.

The ultimate recommendation for award of proposals is made by ONR's scientific/technical community. Recommended proposals will be forwarded to the ONR Contracts and Grant Awards Management office. Any notification received from ONR that indicates that the Offeror's full proposal has been recommended does not ultimately guarantee an award will be made. This notice indicates that the proposal has been selected in accordance with the evaluation criteria above and has been sent to the contracting department to conduct cost analysis, determine the offeror's responsibility, and to take other relevant steps necessary prior to commencing negotiations with the offeror.

## **B. Commitment to Small Business**

The Office of Naval Research is strongly committed to providing meaningful subcontracting opportunities for small businesses, small disadvantaged businesses (SDBs), woman-owned small businesses (WOSBs), historically underutilized business zone (HUBZone) small businesses, veteran-owned small business (VOSBs), service disabled veteran-owned small businesses (SDVOSBs), historically black colleges and universities, and minority institutions, and other concerns subject to socioeconomic considerations through its awards.

Businesses unfamiliar with doing business with the Government and that require assistance may contact the state-specific Department of Defense (DoD) Procurement Technical Assistance Center (PTAC). DoD PTACs serve as a resource for businesses pursuing and performing under contracts with DoD, other federal agencies, state and local governments and with government prime contractors. Assistance provided by the PTACs is usually free of charge. PTAC support includes registration in systems such as SAM, identification of contract opportunities, understanding requirements and preparing and submitting proposals. The PTACs have a presence in each state, Puerto Rico and Guam. To locate a local PTAC visit: <http://www.dla.mil/HQ/SmallBusiness/PTAP> or <http://www.aptac-us.org/new/>.

1) Subcontracting Plan - For proposed contract awards exceeding \$700,000, large businesses and non-profits (including educational institutions) shall provide a Subcontracting Plan (hereafter known as 'the Plan') that contains all elements required by FAR Subpart 19.704, FAR 52.219-9 and as supplemented by DFARS 252.219-7003.

NOTE: Small businesses are exempt from this requirement.

The Plan must be submitted as an attachment to the "Proposal Checklist" and will not be included in the page count. If a company has a Master Subcontracting Plan, as described in FAR 19.701 or a Comprehensive Subcontracting Plan, as described in DFARS 219.702, a copy of the Plan shall also be submitted as an attachment to the "Proposal Checklist".

Plans will be reviewed for adequacy, ensuring that the required information, goals, and assurances are included. FAR 19.702 requires the apparent successful offeror to submit an acceptable Plan. If the apparent successful offeror fails to negotiate a Plan acceptable to the contracting officer within the time limit prescribed by the contracting officer, the offeror will be ineligible for award.

Offerors shall propose a plan that ensures small businesses (inclusive of SDBs, WOSBs, HUBZone, VOSBs and SDVOSBs) will have the maximum practicable opportunity to participate in contract performance consistent with efficient performance.

As a baseline, Offerors shall, to the best extent possible, propose realistic goals to ensure small business participation in accordance with the current or most recent fiscal year subcontracting goals found on the DoD Office of Small Business Program website at:

<http://www.acq.osd.mil/osbp/>. If proposed goals are below the statutory requirements, then the offeror shall include in the Plan a viable written explanation as to why small businesses are unable to be utilized and what attempts were taken to ensure that small business were given the opportunity to participate in the effort to the maximum extent practicable.

2) Small Business Participation Statement –

If subcontracting opportunities exist, all prime Offerors shall submit a Small Business Participation Statement regardless of size in accordance with DFARS 215.304 when receiving a contract for more than the simplified acquisition threshold (i.e., \$150,000). All offerors shall provide a statement of the extent of the offeror's commitment in providing meaningful

subcontracting opportunities for small businesses and other concerns subject to socioeconomic considerations through its awards and must agree that small businesses, VOSBs, SDVOSBs, HUBZones, SDBs, and WOSBs concerns will have the maximum practicable opportunity to participate in contract performance consistent with efficient performance.

This assertion will be reviewed to ensure that it supports this policy by providing meaningful subcontracting opportunities. The statement should be submitted as an attachment to the “Proposal Checklist” and will not be included in the page count.

### 3) Subcontracting Resources -

Subcontracting to a prime contractor can be a good way to participate in the contracting process. The following is a list of potential resources that may assist in locating potential subcontracting partners/opportunities:

- \*Companies Participating in DoD Subcontracting Program Report
- \*DAU Small Business Community of Practice (SB COP)
- \*DefenseLink  $\geq$  \$7.0 M Award Notices
- \*DoD OSBP Prime Contractors and Subcontractors with Subcontracting Plans
- \*Dynamic Small Business Search
- \*Electronic Subcontracting Reporting System (eSRS)
- \*Federal Business Opportunities (FEDBIZOPPS)
- \*Navy SBIR/STTR Search – Website or Brochure
- \*DoD Procurement Technical Assistance Centers (PTAC)
- \*Small Business Administration (SBA) Subcontracting Opportunities Directory
- \*SBA Subnet

For a description and associated websites visit the ONR Office of Small Business webpage at: <http://www.onr.navy.mil/Contracts-Grants/small-business.aspx>.

In accordance with FAR Subpart 5.206, the following entities may transmit a notice to a Government Point of Entry (GPE) to seek competition for subcontracts, to increase participation by qualified small businesses, VOSBs, SDVOSBs, HUBZones, SDBs, and WOSBs, and to meet established subcontracting plan goal as follows:

- (a) A contractor awarded a contract exceeding \$150,000 that is likely to result in the award of any subcontracts;
- (b) A subcontractor or supplier, at any tier, under a contract exceeding \$150,000, that has a subcontracting opportunity exceeding \$15,000.

The notices must describe—

- (a) The business opportunity;
- (b) Any prequalification requirements; and
- (c) Where to obtain technical data needed to respond to the requirement.

An example of a GPE is the SBA SUB-Net which is a place in which prime contractors may post solicitations or sources sought notices for small business. The SUB-Net database provides a listing of subcontracting solicitations and opportunities posted by large prime contractors and other non-federal agencies.

### **C. 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. Evaluation of options will not obligate the Government to exercise the options during contract or grant performance.

In the event awards are made to more than one offeror, the Government will evaluate the results of the base period (Phase I) to determine which, if any, options will be exercised. The Government will make this assessment based on the Government's evaluation of Phase I deliverables (through Final Design Review) to determine which approach/contract best meets the following criteria:

- (1) the proposed system can credibly be built to meet the design and performance requirements with acceptable risk, and
- (2) the Phase II plan presents a credible approach to complete Phase II;
- (3) The option's estimated cost as reflected in the contract.

"The non-cost criteria (paragraphs (1) and (2) above) are more important. If available funding is insufficient to permit exercise of the most advantageous option, the Government may exercise the next most advantageous option for which sufficient funding exists. The Government will exercise only one option.

### **D. 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. Restrictive notices notwithstanding, one or more support contractors may be utilized as subject-matter-expert technical consultants. 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.

E. General Information Regarding the Review and Selection Process for Grants – RESERVED

## **VI. AWARD ADMINISTRATION INFORMATION**

### **1. Administrative Requirements –**

A. North American Industry Classification System (NAICS) code – The NAICS code for this announcement is 541712 with a small business size standard of “500 employees”.

*(Applies to contracts only.)*

B. System for Award Management (SAM): All Offerors submitting proposals or applications must:

- 1) be registered in the SAM prior to submission;

- 2) maintain an active SAM registration with current information at all times during which it has an active Federal award or an application under consideration by any agency; and
- 3) provide its DUNS number in each application or proposal it submits to the agency.

The System for Award Management (SAM) is a FREE WEBSITE that consolidates the capabilities you used to find in CCR/FedReg, ORCA, and EPLS. Future phases of SAM will add the capabilities of other systems used in Federal procurement and awards processes.

SAM may be accessed at <https://www.sam.gov/portal/public/SAM/>

NOTE TO FORMER CCR REGISTRANTS: If you had an active record in CCR, you have an active record in SAM. You do not need to do anything in SAM at this time, unless a change in your business circumstances requires a change in SAM in order for you to be paid or to receive an award. SAM will send notifications to the registered user via email 60, 30, and 15 days prior to expiration of the record. You can search for registered entities in SAM by typing the DUNS number or business name into the search box.

#### C. Access to your Grant, Cooperative Agreement, Other Transaction and Contract Award

Office of Naval Research (ONR) award/modification documents are only available via the Department of Defense (DoD) Electronic Document Access System (EDA) within the WideArea WorkFlow e-Business Suite (<https://wawf.eb.mil/>).

Unless otherwise specified by the Offeror, notifications for the posting of award and modification documents to EDA will be directed to both the Technical Point of Contact and the Business Point of Contact identified in the Offeror's proposal.

EDA is a Web-based system that provides secure online access, storage and retrieval of awards and modifications to DoD employees and vendors.

If you do not currently have access to EDA, you may complete a self-registration request as a "Vendor" via <https://wawf.eb.mil/> following the steps below:

1. Click "Accept"
2. Click "Register" (top right)
3. Click "Agree"
4. In the "What type of user are you?" drop down, select "Vendor"
5. Select the systems you would like to access (iRAPT at a minimum)
6. Complete the User Profile and follow the site instructions

Allow five business days for your registration to be processed. EDA will notify you by email when your account is approved.

To access awards after your registration has been approved, log into <https://wawf.eb.mil/>, select "EDA", select either EDA location, Select "Contracts", select your search preference, enter the Contract Number (or, if applicable, enter the Grant Number in the Contract Number field), and select "View".

Registration questions may be directed to the EDA help desk toll free at 866-618-5988, commercial at 801-605-7095, or via email at [disa.ogden.esd.mbx.cscassig@mail.mil](mailto:disa.ogden.esd.mbx.cscassig@mail.mil)

## **VII. OTHER INFORMATION**

### **Section VII: Table of Contents**

#### **Section VII: Table of Contents**

A. [Applies to Grant, Cooperative Agreement and Other Transaction Agreement proposals only – N/A](#)

B. [Applies to Contracts only](#)

- i. Government Property/Government Furnished Equipment (GFE) and Facilities
- ii. Use of Arms, Ammunition and Explosives
- iii. System for Award Management (SAM)
- iv. Employment Eligibility Verification (E-verify)
- v. Conflicts of Interest
- vi. FAR / DFARS Clauses
- vii. Combating Trafficking in Person
- viii. Certification Regarding Trafficking in Persons Compliance Plan
- ix. Updates of Information regarding Responsibility Matters

C. [Applies to Contracts, Grants, Cooperative Agreements and Other Transaction Agreements](#)

- i. Security Classification
- ii. Use of Animals and Human Subjects in Research
- iii. Recombinant DNA
- iv. Institutional Dual Use Research of Concern
- v. Department of Defense High Performance Computing Program
- vi. Project Meetings and Reviews
- vii. Reporting Executive Compensation and First-Tier Subcontract Awards

\* Click on the above hyperlinks to navigate directly to your desired section

**A. Applies to Grant, Cooperative Agreement and Other Transaction Agreement applications only: N/A**

**B. Applies to Contracts only:**

- i. 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 indicate in the Proposal Checklist, Section II, Blocks 8 and 9, which of these facilities are critical for the project's success.

ii. Use of Arms, Ammunition and Explosives:

Safety

The Offeror is required to be in compliance with DoD manual 4145.26-M, *DoD Contractor's Safety Manual for Ammunition and Explosives* if ammunitions and/or explosives are to be utilized under the proposed research effort. (See DFARS 223.370-5 and DFARS 252.223-7002)

If ammunitions and/or explosives (A&E) are to be utilized under the proposed research effort, the Government requires a preaward safety survey in accordance with DFARS PGI 223.370-4(C)(iv) entitled *Preaward survey*. The Offeror is solely responsible for contacting the cognizant Defense Contract Management Agency (DCMA) office and obtaining a required preaward safety survey before proposal submission. The Offeror should include required preaward safety surveys with proposal submissions.

If the Offeror proposes that the Government provide Government-furnished A&E containing any nitrocellulose-based propellants and/or nitrate ester-based materials (such as nitroglycerin) or other similar A&E with a tendency to become chemically unstable over time, then NMCARS 5252.223-9000 will also apply to a resulting contract award. (See NMCARS 5223.370-5)

Security

If arms, ammunition or explosives (AA&E) are to be utilized under the proposed research effort, the Government requires a preaward security survey. The Offeror is solely responsible for contacting the cognizant DCMA office and obtaining a required preaward security survey before proposal submission. The Offeror should include a required preaward security survey with proposal submission. (See DoD manual 5100.76-M, *Physical Security of Sensitive Conventional Arms, Ammunition and Explosives*, paragraph C1.3.1.4)

If AA&E are to be utilized under the proposed research effort, the Government may require the Contractor to have perimeter fencing around the place of performance in accordance with DoD 5100.76-M, Appendix 2.

If AA&E are to be utilized under the proposed research effort, the Offeror is required to provide a written copy of the Offeror's AA&E accountability procedures in accordance with DoD 5100.76-M. If the Offeror is required to provide written AA&E accountability procedures, the Offeror should provide the respective procedures with its proposal submission. See DoD 5100.76-M Appendix 2.12.

iii. System for Award Management (SAM):

FAR 52.204-7 System for Award Management and FAR 52.204-13 System for Award Management Maintenance are incorporated into this BAA, and FAR 52.204-13 will be incorporated in all awards.

iv. Employment Eligibility Verification (E-verify):

As per FAR 22.1802, recipients of FAR-based procurement contracts must enroll as Federal Contractors in E-verify and use E-verify to verify employment eligibility of all employees assigned to the award. All resultant contracts from this solicitation will include FAR 52.222-54, "Employment Eligibility Verification."

v. Conflicts of Interest:

(1) Organizational Conflicts of Interest. All Offerors and proposed subcontractors must affirm whether they are, or are not, providing scientific, engineering, and technical assistance (SETA) or similar support to any ONR technical office(s) through an active contract or subcontract. (For the purposes of this BAA, SETA is defined as work that provides analysis and engineering services in a consulting capacity as opposed to performing research and development.) 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. Offerors and proposed subcontractors must disclose all facts relevant to the existence or potential existence of organizational conflicts of interest (FAR 9.5). The disclosure shall include a description of the action the offeror has taken or proposes to take to avoid, neutralize, or mitigate such conflict. Unless a waiver is granted under FAR 9.503, a contractor cannot simultaneously be a SETA and a research and development contractor. Proposals that fail to fully disclose potential conflicts of interests will be rejected without technical evaluation and withdrawn from further consideration for award. Additional ONR OCI guidance can be found at <http://www.onr.navy.mil/About-ONR/compliance-protections/Organizational-Conflicts-Interest.aspx>.

(2) Personal Conflicts of Interest. All Offerors and proposed subcontractors must report whether any covered employees are performing acquisition functions closely associated with inherently governmental functions for ONR, as defined in FAR 3.11. Offerors must include which ONR office(s) those covered employees support and identify the prime contract numbers. This information must be furnished at the time of proposal submission. Offerors and proposed subcontractors must disclose all facts relevant to the existence or potential existence of any personal conflicts of interest involving covered employees and describe any actions taken to avoid, neutralize, or mitigate any such conflicts. Proposals that fail to fully disclose potential personal conflicts of interests will be rejected and withdrawn from further consideration for award.

(3) 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 Contracting Officer after full consideration of the circumstances, any conflict situation cannot be effectively avoided, the proposal may be rejected without technical evaluation and withdrawn from further consideration for award under this BAA.

vi. FAR / DFARS Provisions:



For purposes of illustration and not of limitation, the following provisions may be applicable to ONR contracts:

#	Provision
52.204-7	System for Award Management
52.215-16	Facilities Capital Cost of Money
52.215-22	Limitations on Pass Through Charges - Identification of Subcontract Effort
52.216-1	Type of Contract
52.216-27	Single or Multiple Awards
52.217-4	Evaluation of Options Exercised at time of Contract Award
52.217-5	Evaluation of Options
52.222-24	Preaward On-Site Equal Opportunity Compliance Evaluation (Applies if exceeds \$10M)
25.226-2	Historically Black College or University and Minority Institution Representation
52.230-7	Proposal Disclosure - Cost Accounting Practice Changes
52.232-15	Progress Payments not included
52.233-2	Service of Protest
52.252-1	Solicitation Provisions Incorporated by Reference
52.252-3	Alterations in Solicitation
52.252-5	Authorized Deviations in Provisions
252.203-7005	Representation Relating to Compensation of Former DoD Officials
252.204-7004	Alternate A, System for Award Management
252.204-7008	Compliance With Safeguarding Covered Defense Information
252.215-7003	Requirements for Submission of Data Other than Certified Cost or Pricing Data - Canadian Commercial Corporation
252.219-7000	Advancing Small Business Growth

vii. Combating Trafficking in Persons:

Appropriate language from FAR Clause 52.222-50 will be incorporated in all awards.

viii. Certification Regarding Trafficking in Persons Compliance Plan:

Prior to award of a contract, for the portion of the contract that is for supplies, other than commercially available off-the-shelf items, to be acquired outside the United States, or services to be performed outside the United States, and which has an estimated value that exceeds \$500,000, the contractor shall submit the certificate as specified in paragraph (c) of 52.222-56, Certification Regarding Trafficking in Persons Compliance Plan

ix. Updates of Information regarding Responsibility Matters:

FAR clause 52.209-9, Updates of Publicly Available Information Regarding

Responsibility Matter, will be included in all contracts valued at \$500,000 where the contractor has current active Federal contracts and grants with total value greater than \$10,000,000.

### **C. Applies to Contracts, Grants, Cooperative Agreements and Other Transaction Agreements:**

i. 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 in Section II, Block 11 of the Proposal Checklist.

If it is determined that access to classified information will be required during the performance of an award, a Department of Defense (DD) Form 254 will be attached to the contract, and FAR 52.204-2 - Security Requirements will be incorporated into the contract.

ii. Use of Animals and Human Subjects in Research:

If animals are to be utilized in the research effort proposed, the Offeror must submit prior to award a Full Appendix or Abbreviated Appendix with supporting documentation (copies of IACUC Approval, IACUC Approved Protocol, and most recent USDA Inspection Report) prior to award. For assistance with submission of animal research related documentation, contact the ONR Animal Use Administrator at (703) 696-4046. Guidance: <http://www.onr.navy.mil/en/About-ONR/compliance-protections/Research-Protections/Animal-Recombinant-DNA.aspx>

Use of Human Subjects in Research:

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 research protocol; IRB- approved informed consent form; proof of completed human research training (e.g., training certificate or institutional verification of training); an application for a DoD- Navy Addendum to the Offeror's DHHS-issued Federal wide Assurance (FWA) or the Offeror's DoD-Navy Addendum. In the event that an exemption criterion under 32 CFR 219 101(b) is claimed, provide documentation of the determination by the Institutional Review Board (IRB) Chair, IRB vice Chair, designated IRB administrator or official of the human research protection program including the category of exemption and short rationale statement. Determinations that the activity is not research involving human subjects must also be provided. This documentation must be submitted to the ONR Human Research Protection Official (HRPO), by way of the ONR Program Officer. Information about assurance applications and forms can be obtained by contacting [ONR\\_343\\_contact@navy.mil](mailto:ONR_343_contact@navy.mil). 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. For assistance with submission of human subject

research related documentation, contact the ONR Human Research Protection Official at (703) 696-4046.

For contracts and orders, the award and execution of the contract, order, or modification to an existing contract or order will include a statement indicating successful completion of HRPO's review serves as notification from the Contracting Officer to the Contractor that the HRPO has approved the assurance as appropriate for the research under the Statement of Work and also that the HRPO has reviewed the protocol and accepted the IRB approval or exemption determination for compliance with the DoD Component policies. See, DFARS 252.235-7004. Guidance: <http://www.onr.navy.mil/About-ONR/compliance-protections/Research-Protections/Human-Subject-Research.aspx>

iii. Recombinant DNA:

Proposals which call for experiments using recombinant DNA must include documentation of compliance with Department of Health and Human Services (DHHS) recombinant DNA regulations, approval of the Institutional Biosafety Committee (IBC), and copies of the DHHS Approval of the IBC letter.

iv. Institutional Dual Use Research of Concern:

As of September 24, 2015, all institutions and USG funding agencies subject to the [United States Government Policy for Institutional Oversight of Life Sciences Dual Use Research of Concern](#) must comply with all the requirements listed therein. If your research proposal directly involves certain biological agents or toxins, contact the cognizant Technical Point of Contact... U.S. Government Science, Safety, Security (S3) guidance may be found at <http://www.phe.gov/s3/dualuse>.

v. Department of Defense High Performance Computing Program:

The DoD High Performance Computing Program (HPCMP) furnishes the DoD S&T and RDT&E communities with use-access to very powerful high performance computing systems. Awardees of ONR contracts, grants, and other 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/>.

vi. Project Meetings and Reviews:

See Appendix A below regarding design reviews and the test readiness review. In addition, individual program reviews between the ONR sponsor and the contractor 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. (This statement does not apply to international offerors submitting proposals to ONRG. International offerors should contact the cognizant ONRG Administrative Director (AD) for guidance prior to submitting a proposal.) Interim meetings are likely, but these will be accomplished via video telephone conferences, telephone conferences, or via web-based collaboration tools.

vii. Reporting Executive Compensation and First-Tier Subcontract Awards:

The FAR clause 52.204-10, "Reporting Executive Compensation and First-Tier Subcontract Awards," will be used in all procurement contracts valued at \$25,000 or more.

## Appendix A

Design Review Guidance – Information is provided to assist Offeror in cost estimation  
(Tailored from the Defense Acquisition Guidebook)

### System Requirements Review (SRR)

The contractor shall present the system requirements, system interface control document(s) and system conceptual design for approval and baseline. Draft review materials shall be posted seven calendar days prior to the review. Copies of all materials presented at each review shall be posted within fourteen calendar days of the review completion. The following success criteria will be used for guidance as applicable.

#### System Requirements Review Success Criteria

- Can the system requirements, as disclosed, satisfy the system capabilities as required by the SOW?
- Are the system requirements sufficiently detailed and understood to enable system functional definition, functional decomposition, test and evaluation?
- Can the requirements be met given the technology maturation expected/achieved?
- Have external interfaces to the system been documented in interface control documents?
- Are adequate processes and metrics in place for the program to succeed?
- Are the risks known and manageable for development in accordance with the Risk Management Plan?
- Is the program schedule executable (technical and cost risks)?
- Is the program properly staffed?
- Is the program executable within the existing budget?
- Is the software functionality in the system specification consistent with the software sizing estimates and the resource-loaded schedule?
- Have programming languages and architectures, security requirements and operational and support concepts been identified?
- Have environmental issues, safety hazards and information assurance been reviewed and mitigating courses of action been allocated within the overall system design?

### Initial Design Review (IDR)

The contractor shall present to a Government review panel the current initial design of the system and its sub-systems for approval and baseline. The level of detail in the following should be tailored to be appropriate to a science and technology program in which a prototype system is being developed, rather than an acquisition program that is developing the final production version. Draft review materials shall be posted seven calendar days prior to the review. Copies of all materials presented at each review shall be posted within fourteen calendar days of the review completion. The following success criteria will be used for guidance as applicable.

#### IDR Hardware Success Criteria

- Is the initial design (hardware and software), including interface descriptions, complete and does it satisfy all requirements in the system functional baseline?
- Are adequate processes and metrics in place for the program to succeed?
- Are the risks known and manageable for integrated testing and developmental and operational evaluation?
- Is the program schedule executable (technical/cost risks)?
- Is the program properly staffed?
- Has the programs cost estimate been updated?

- Is the program executable within the existing budget and with the approved system allocated baseline?
- Is the initial system level design producible within the production budget?
- Have producibility assessments of key technologies been completed?
- Have long-lead and key supply chain elements been identified?
- Can the risks associated with environmental issues and safety hazards be mitigated to an acceptable risk level within the existing budget?

#### IDR Software Success Criteria

- Has the computer system and software architecture design been established, and have all Computer Software Configuration Items (CSCIs), Computer Software Components (CSCs), and Computer Software Units (CSUs) been defined?
- Are Software Requirements Specifications and Interface Requirement Specifications, including verification plans, complete and baselined for all CSCs and do they satisfy the system/sub-system functional requirements?
- Do the Interface Control Documents trace all software interface requirements to the CSCIs and CSUs?
- Has the computer system and software design/development approach been confirmed through analyses, demonstrations, and prototyping in a relevant environment?
- Has the initial software design been defined and documented?
- Have software increments been defined and have capabilities been allocated to specific increments?
- Have software trade studies addressing Commercial-off-the-shelf, reuse, and other software-related issues been completed?
- Has the software development process been defined in a baselined Software Development Plan and is it reflected in the Integrated Master Schedule (IMS)?
- Do the software development schedules reflect contractor software processes and IMS software events for current and future development phases?
- Have the software development environment and test/integration facilities been established with sufficient fidelity and capacity?
- Have unique software risks been identified/assessed and have mitigation plans been developed/implemented?
- Have software metrics been defined and reporting process implemented, and are they being actively tracked and assessed?
- Have Cyber security requirements (e.g., IATT, IATO, or ATO) been addressed?
- Does the Master Test Plan address all CSCI plans, test facilities, and test plans, including testing required to support incremental approaches (e.g. regression tests)?
- Have the software development estimates (i.e. size, effort (cost), and schedule) been updated?
- Have all required software-related documents been baselined/delivered?

#### Final Design Review

The contractor shall present to a Government review panel the detailed design of the system, sub-systems and components for approval and baseline. The level of detail in the following should be tailored to be appropriate to a science and technology program in which a prototype system is being developed, rather than an acquisition program that is developing the final production version. Draft review materials shall be posted seven calendar days prior to the review. Copies of all materials presented at each review shall be posted within fourteen calendar days of the review completion. The success criteria, listed below, will be used for guidance as applicable. The FDR data package shall include the following review items and must be formally approved by the Navy for the program to proceed to fabrication.

#### Hardware Configuration Item Review Items:

- Design specifications complete to substantiate the requirements of the configuration items and interfaces.
- Supporting documents (trade studies, analysis, modeling and simulation, and test results) sufficient to substantiate detailed design.
- Detailed configuration item design packages to the component level that include engineering drawings, block diagrams, process data, and logic diagrams (as applicable).
- Interface control drawings.
- Design approach and required access points to perform planned maintenance and transportation.
- Compliance with appropriate environmental and safety requirements
- Review any fabrication/production issues and action plans for closure
- Review all test documentation for currency and adequacy.
- Review design to ensure configuration items are adequately protected from applicable environments when integrated into the system.
- Master Test Plan.
- Configuration Management Plan.
- Plans and status of parts procurement for long lead items.
- Design analysis and test data available to substantiate design.
- Review status of manufacturing engineering efforts, tooling, test equipment, new materials proofing, methods, processes and any special tooling and test equipment.

#### Computer Software Configuration Item Review Items:

- Software detailed design, and interface design complete and documented.
- Software Design Document (SDD) that details the full design of the software and the internal interfaces. The SDD describes the structure and detailed design of the units, components and assemblies of the system.
- Software Coding Standard that contains the rules, practices and conventions to be used in coding the software. This includes naming conventions, header format, code format, in-code documentation requirements, and a history of code changes with date and authorization.
- Software Test Procedures that document that the requirements are testable and the plan for software testing at each level of the software architecture.
- Requirements traceability matrix showing all requirements are accounted for in the design and will be tested.
- Supporting documentation (trade studies, analysis, and test results) sufficient to substantiate detailed design.
- Unit and Lower Level Software Units designs satisfy and traceable to CSCI requirements.
- Information flow established between software units; Units sequencing and control methods defined.
- Detailed interfaces include data source, destination, interface name and interrelationships.
- Software Test Descriptions consistent with Software Development Plan.
- Software Development Plan updated per IDR guidance.
- Information assurance requirements addressed in the design

#### FDR Success Criteria:

- Is the system baseline documentation sufficiently complete and correct to enable hardware fabrication and software coding to proceed with proper configuration management?

- Is the Detailed design (hardware and software), including interface descriptions complete and does it satisfy all requirements in the system baseline documentation?
- Is the verification (developmental test and evaluation) assessment to date consistent with the system baseline and does it indicate the potential for test and evaluation success?
- Are adequate processes and metrics in place for the program to succeed?
- Are the risks known and manageable for the demonstration program, and documented in the Risk Mitigation Plan?
- Is the system failure mode, effects, and criticality analysis (FMECA) complete?
- Is the program schedule executable (technical/cost risks)?
- Is the program properly staffed?
- Is the program executable with the existing budget and the approved product baseline?
- Are all Critical Environmental and Safety Items identified? Addressed?
- Have Cyber security requirements (e.g., IATT, IATO, or ATO) been addressed?
- Is the software functionality in the approved product baseline consistent with the updated software metrics and resource-loaded schedule?
- Have key product characteristics having the most impact on system performance, assembly, cost, reliability, or safety been identified?
- Is the overall design at least 85% complete?

Note: The FDR Review Items can be used for the other design reviews (SRR and IDR) but must be modified as appropriate for the scope of those reviews.

### **Test Readiness Review (TRR)**

The contractor shall present the current design of the system and its sub-systems for approval and baseline for testing. Test Readiness is a Government review, with a Government panel consisting of the Program Officer, local command authority for the test range, range safety officer (RSO), test director, any asset (target or platform) claimant, and select subject matter experts or technical authorities. This review includes any designs or required tasks for modification of the hardware or platform in order to enable integration of test systems onto test platforms, or conduct testing required. Approval of TRR results and required actions rests strictly with the Government panel, while resolution of the action will be shared between the Government and contractor. All tests to be reviewed at the TRR will be as outlined in the Test and Evaluation Strategy (T&ES) and Master Test and Evaluation Plan (MTEP). The T&ES is provided as GFI, while the MTEP shall be developed jointly as the program progresses through SRR, IDR and FDR. This includes the Requirements Verification Traceability Matrix (RVTM) to assess the allocation of performance metrics to test events. Objective Quality Evidence (OQE) that was derived from the results of any previous testing will be reviewed to verify that the designs built to date have successfully met performance and suitability requirements. The results of any interface testing, installation plans and preparations will be reviewed to ensure that the test units are ready for platform installation and testing. Platform preparations and modifications will also be reviewed to ensure that the platform ship is ready to support installation and integration timelines. Readiness for testing will be assessed by the panel, based on the review of planning documents, procedures, test team status, support systems, targets, instrumentation, and test range preparations. Any remaining risk items will be reviewed as well, including risk mitigation plans. Draft review materials shall be posted no later than seven calendar days prior to the review. Copies of all materials presented at each review shall be posted within fourteen calendar days of the review completion. The following success criteria will be used for guidance as applicable.

#### **Entrance Criteria**

- Technical data package (TDP) complete and configuration management status
- Test plans mapped to program requirements
- Test Reports from previous testing complete and final submissions made



- Required system compliance efforts complete, including environmental, Information Assurance, electromagnetic compatibility, and operational security
- Successful completion of any required system safety analyses, including required safety approvals in place
- Scenario certification complete (in both T&ES and MTEP)
- Test plan and test procedures approved by Range Safety Officer (RSO)
- Test team in place, and leads designated
- Required facilities secured
- Instrumentation plan in place and instrumentation resources secured
- Communications and data systems identified
- Support equipment identified and coordinated
- Cyber security requirements satisfied (e.g., IATT, IATO, or ATO)
- Go-No/go criteria established (Weather, Fuel, Manning, Training, Supplies, etc.)
- Interface testing completed with the range data system
- Range ready to support testing
- Modeling and simulation predictions complete
- Hazards identified for utilization of any and all CSCI in testing. Analyses showing that all hazards in the hardware and software of the CSCI with respect to its installation, operation, maintenance and de-installation during testing have been identified. This analysis should include mitigations for these hazards and risk assessment of the residual risk of these hazards for program acceptance.
- Risk mitigation plans in place

#### Exit Criteria

- Required safety approvals are in place
- Objective Qualifying Evidence (OQE) which provide suitable confidence that sea testing is ready to commence as scheduled and planned
- Verified traceability of planned tests to program requirements and Key Performance Parameters (KPPs)
- Test procedures are consistent with Test Plans and schedules, including any alternate schedules for unforeseen, unexpected delays or weather delays.
- Test team assessed as ready
- Electromagnetic compliance requirements satisfied
- Instrumentation ready, including atmospheric and laser
- Test platform, including ship electrical and cooling modifications
- Range support activities ready
- Voice and data communications plans in place
- Needed certifications and waivers in place
- Risk mitigation plans accepted
  - Plan for resolving outstanding issues in place