ONR BAA Announcement # ONRBAA15-001
Amendment 0001
October 27, 2014

Long Range Broad Agency Announcement (BAA) for Navy and Marine Corps Science and Technology

The purpose of this Amendment is to add a thrust item to the Office of Naval Research Global (ONRG) description under Section I(F) of this BAA (p.26). This Amendment 0001 entirely replaces all previous postings for ONRBAA15-001

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 submitted under this BAA as sensitive competitive information and to disclose their contents only for the purposes of evaluation.

This BAA is intended for proposals related to basic research, applied research, or advanced technology development and that part of development not related to the development of a specific system or hardware procurement. For NAVY and Marine Corps Science, Technology, Engineering & Mathematics (STEM) programs, refer to ONRBAA15-002, which may be found at the ONR Broad Agency Announcement (BAA) webpage- http://www.onr.navy.mil/Contracts-Grants/Funding-Opportunities/Broad-Agency-Announcements.aspx.

This announcement will remain open for approximately one (1) year from the date of publication, or until replaced by a successor BAA. Proposals may be submitted at any time during this period. This announcement replaces ONR BAA14-001.

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

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I. GENERAL INFORMATION

A. Agency Name –

Office of Naval Research
One Liberty Center
875 N. Randolph Street
Arlington, VA 22203-1995

B. Research Opportunity Title –

Long Range Broad Agency Announcement (BAA) for Navy and Marine Corps Science & Technology

C. Program Name –

Not Applicable (N/A)

D. Research Opportunity Number –

ONRBAA15-001

E. Response Date –

This announcement will remain open until 30 September 2015 or until replaced by a successor BAA, whichever first occurs. Proposals may be submitted at any time during this period.

F. Research Opportunity Description –

The Office of Naval Research (ONR) is interested in receiving proposals for Long-Range Science and Technology (S&T) Projects which offer potential for advancement and improvement of Navy and Marine Corps operations. Readers should note that this is an announcement to declare ONR's broad role in competitive funding of meritorious research across a spectrum of science and engineering disciplines. A brief description of the ONR Program Codes and the science and technology thrusts that ONR is pursuing is provided below. Additional information can be found at the ONR website at http://www.onr.navy.mil/Science-Technology/Departments.aspx.

Potential Offerors are urged to check the program areas that they are interested in throughout the year for updates to thrust areas and research priorities on the ONR website at http://www.onr.navy.mil. Prior to preparing proposals, potential offerors are strongly encouraged to contact the ONR point of contact (POC). To identify the POC, follow the link for the appropriate code or division listed below and then click on the link to the thrust or topic area. Each thrust or topic area will provide a POC or e-mail address.

List of Divisions

- Expeditionary Maneuver Warfare & Combating Terrorism Department (Code 30)
- Command, Control Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) (Code 31)
- Ocean Battlespace Sensing (Code 32)
- The Sea Warfare and Weapons Department (Code 33)
- Warfighter Performance (Code 34)
- Naval Air Warfare and Weapons (Code 35)
- The Marine Corps Warfighting Lab
- Office of Naval Research Global (ONRG)

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

Expeditionary Maneuver Warfare & Combating Terrorism Department (Code 30)

Code 30 develops and transitions technologies to enable the Navy-Marine Corps team to win and survive on the battlefield. The department invests primarily in asymmetric and irregular warfare, distributed operations, Information Dominance, and survivability and self-defense. To achieve the goals of the department, the expertise of a number of technical communities are needed. The department supports applied physics efforts ranging from electromagnetics for C4 to condensed matter physics. The department engages chemistry and materials science to improve structures and efficiencies of our platforms and systems and is interested in emerging opportunities from the computer science community to efficiently control and protect our information and hardware systems. Given the applied nature of some of the departments work, we frequently support ideas and opportunities from the engineering community including electrical, mechanical, and software engineering. The department is interested in engaging with these and other technical communities to identify concepts and technologies that will improve warfighter effectiveness in the thrusts described below.

1) ONR 30 Command, Control, Computers and Communication (C4) Technology Area, seeks to provide tomorrow's small unit naval expeditionary war fighters with the precise information they need, when they need it in highly-contested environments. To fulfill the tenets of Expeditionary Force 21, www.mccdc.marines.mil/.../EF21_USMC_Capstone_Concept.**pdf**, we desire to provide a non-fixed-infrastructure communications, networking, and information architecture that enables expeditionary warfighters to exchange vital information between the sea base, located at least 65 nautical miles offshore, and maneuvering forces up to 200 miles inland. Additionally, we must provide these capabilities in contested electromagnetic and cyberspace domains (for reference, please see ONR 31's Communications and Networking Program and ONR's Information Dominance Focus Area, http://www.onr.navy.mil/About-ONR/science-technology-strategic-plan/Information-Dominance.aspx.)

To fulfill this vision, we are interested in the following science and technology areas, in priority order:

- Authentication of users and establishing secure communications sessions in an opportunistic (ad hoc) manner without the use of controlled cryptographic items
- Novel approaches for multi-layer mobile device security
- Compact antennas that operate over wide bands including those that can operate both in omnidirectional and highly directional modes
- Spectral coexistence and efficiency techniques that can greatly increase the information capacity per unit spectrum
- Cross-layer approaches to content-based information movement without impacting architectural flexibility
- Determining position and synchronizing timing in the absence of GPS
- Ability to autonomously extract meaning from information flows
- Machine understandable representation of commander's intent (high-level instructions) and automatic provision of only needed information, when needed, in user-consumable formats
- Software radio architectures that can quickly change between waveforms and simultaneously transmit and receive more than one waveform
- Low-size, weight and power, adaptable RF electronics, PAs, filters, etc., that are frequency and bandwidth agile

Further information may be found at (http://www.onr.navy.mil/Science-Technology/Departments/Code-30/All-Programs/C4.aspx).

The unique environment in which expeditionary forces operate constrains possible S&T solutions and differs from the commercial environment. The operational environment is characterized by the following attributes:

- Mobile Subscriber & Mobile Infrastructure
- Ad hoc, Self-Organizing Networks
- Small, Low Profile On-The-Move Antennas
- Low-throughput, Mobile, Wireless, Inter-nodal Connections
- Restricted Frequency Assignment
- Security of devices and information is required
- Interference Rejection, Anti-jam and Low Probability of Detection/Interception are required
- Size, Weight and Power considerations limit equipment capacity

2) Fires, which seeks to enable warfighters employed in small, distributed units with tools to locate and decisively destroy larger enemy forces by applying timely, reliable, precise, and accurate fires from a myriad of platforms. Research areas are integrated, lightweight optics and sensors to see through all battlefield conditions and lightweight, organic, advanced weapons for the rapid, accurate, effective application of firepower (http://www.onr.navy.mil/Science-Technology/Departments/Code-30/All-Programs/Fires.aspx). Technology initiatives are:

a) Targeting and engagement;
b) Advanced ammunition and energetics; and
c) Advanced weapons.

3) Force Protection seeks to develop and mature technologies that provide protection from myriad modes of enemy attack through the spectrum of warfare, including concepts such as asymmetric and irregular warfare and distributed operations which concentrate on the small unit and individual warfighters. End products will include protective systems expeditionary in nature, lightweight, and capable of providing a far greater degree of performance than any comparable system currently available. The functional areas of investigation are explosive hazard defeat through detection, breaching and neutralization of all explosive hazards, counter sniper, counter rocket, artillery and mortar, counter-bomber and personal protective equipment. Technology investment areas include detection, neutralization and mitigation (http://www.onr.navy.mil/Science-Technology/Departments/Code-30/All-Programs/Force-Protection.aspx).

4) Human, Social, Culture and Behavior Modeling, which seeks to build capability through development of a knowledge base, building models and training capacity in order to understand, predict and shape human behavior cross-culturally. Specifically, the program seeks to: a) understand the human, social, cultural and behavioral factors that influence human behavior and to improve our ability to model these influences and understand their impact on human behavior at the individual, group and society-levels; b) improve computational modeling and simulation capabilities, visualization software toolsets, and training/mission rehearsal systems that provide forecasting capabilities for socio-cultural responses; and c) develop and demonstrate an integrated set of model description data (metadata), information systems, and procedures that will facilitate assessment of the software engineering quality of sociocultural behavior models, their theoretical foundation and the translation of theory into model constructs http://www.onr.navy.mil/Science-Technology/Departments/Code-30/All-Programs/Human-Behavioral-Sciences.aspx.

5) Human Performance Training and Education (HPT&E), seeks to understand the science of improving human performance in order to prepare warfighters for the complex and chaotic joint operating environment. HPT&E will focus on developing training technologies, knowledge products, architectures, and training systems that accelerate mental, emotional and cognitive decision making skills for Expeditionary Warfighters, who are ready to deploy anywhere in the world on short notice, function as part of an effective team, and assume greater leadership responsibilities. Our priorities for research are to develop more skilled small unit leaders, small unit teams and individuals through efforts to improve decision making, resiliency and readiness. Technology investment areas include (http://www.onr.navy.mil/Science-Technology/Departments/Code-30/All-Programs/Human-Performance-Training.aspx):

a) Decision making and expertise development;
b) Mental resiliency and cognitive adaptability; and
c) Enhanced physical readiness.

6) Intelligence, Surveillance and Reconnaissance seeks to develop and leverage advanced technologies for future intelligence, surveillance and reconnaissance systems. Program goals include:

a) Enhance situational awareness
b) enable real-time tactical decision making for distributed operations

c) provide proactive and predictive capabilities for conventional and irregular expeditionary and amphibious mission planning and conduct
d) understand the human terrain, and
e) enhance the integration of ISR with other warfighting functions.

Technology investment areas include:

a) data science
b) data fusion
c) machine learning/artificial intelligence
d) advanced sensors,

7) Logistics seeks to provide Marines of the future with a precisely tailored level of sustained logistic support from sea-based platforms to rapidly transport forces ashore. Logistic delivery systems of the future will be more responsive and flexible, enabling Marines to out-pace rapidly changing operational scenarios. Likewise, delivered logistic commodities will provide more operational value per unit weight, enhancing combat unit self-sufficiency and maneuverability. Operational units will benefit from technologies that maximize equipment readiness by minimizing both down-time and maintenance requirements. To reduce logistical burdens there is an increased interest in individual self-sufficiency; examples are individual water purification and renewable power integrated with power management capabilities for individual warfighters while lightening the individual's load. (http://www.onr.navy.mil/Science-Technology/Departments/Code-30/All-Programs/Logistics.aspx). Technology investment areas include:

a) Increasingly automated logistics handling and transport;
b) Additive manufacturing technologies and supply chain analysis;
c) Fuel efficiency;
d) Portable electric energy;
e) Expeditionary, small unit, and individual water purification;
f) Maintenance reduction; and
g) Logistics command and control with total asset visibility of supplies.

8) Maneuver explores technologies to increase the warfighting capabilities and effectiveness of the Marine Corps Air Ground Task Force. This thrust seeks new and novel technologies and innovative concepts and approaches to: improve off-road mobility, fuel economy and survivability of ground vehicles; assist in moving troops and equipment from shipboard to inland objectives; enhance our vehicle fleet through improvements to modularity and sustainability; lighten the physical and cognitive load on Marines via affordable autonomous technologies from manned and unmanned ground platforms. (http://www.onr.navy.mil/Science-Technology/Departments/Code-30/All-Programs/Maneuver.aspx). Technology investment areas are:

a) Autonomy
b) Survivability
c) Mobility

Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) (Code 31)

Code 31 invests in areas of science and their applications such as data science, mathematical and computational science, computer and information sciences, quantum information sciences, cyber security, electronics, command and control and combat systems, communications, cyber operations, electronic warfare, sensing and surveillance, and precision timing and navigation.

Specific thrusts and focused research areas are:

1) Mathematics, Computers and Information Sciences, which sponsors basic and applied research, and advanced technology development efforts in mathematics, computer and information sciences that address Navy and Department of Defense needs in computation, information processing, information operation, information assurance and cybersecurity, decision tools, and command and control with specific focus on enabling rapid, accurate decision making.
(http://www.onr.navy.mil/Science-Technology/Departments/Code-31/All-Programs/311- Mathematics-Computers-Research.aspx).

Specific scientific and technical areas include:

a) Applied and computational analysis;
b) Command and control;
c) Computational methods for decisions making;
d) Cyber security and complex software systems;
e) Machine learning, reasoning, and intelligence;
f) Mathematical data science;
g) Mathematical optimization and operations research;
h) Quantum information sciences.

2) Electronics, Sensors and Network Research, which conducts an integrated program of Electronics, Sensors and Network Research, which conducts an integrated program of basic and applied research and advanced technology development into technologies that enable new and innovative uses of the electromagnetic spectrum in areas of surface and aerospace surveillance, communications, electronic combat, and navigation. All of these areas are supported by a broad research program in electronics which is focused on the reduction of the cost, weight and size of transmit and receive systems. Two overarching goals are the development of technologies and techniques to support adaptive persistent surveillance, and the development of digital/radio frequency technologies and techniques to support active aperture phased arrays capable of performing multiple functions simultaneously (http://www.onr.navy.mil/Science-Technology/Departments/Code-31/All-Programs/312-Electronics-Sensors.aspx).

Specific scientific and technical areas include:

a) Active aperture array;
b) Atomic, molecular and quantum physics;
c) Communications and networking;
d) Electromagnetic materials;
e) Electronic warfare;
f) EO/IR sensors and sensor processing;
g) Nanoscale computing devices and systems;
h) Precision, Navigation and timekeeping;
i) RF surveillance and signal processing;
j) Mixed signal (radio frequency and digital) processing devices, circuits and architecture;
k) Radio frequency superconducting technologies;
l) Radio frequency semiconductors, radio frequency solid state amplifiers; and wide bandgap materials.

Ocean Battlespace Sensing (Code 32)

Code 32 explores science and technology in the areas of oceanographic and meteorological observations, modeling and prediction in the battlespace environment; submarine detection and classifications (anti-submarine warfare); and mine warfare applications for detecting and neutralizing mines in both the ocean and littoral environment. Specific thrusts and focused research areas are:

1) Ocean Sensing and Systems Application, which conducts an extensive program of scientific inquiry and technology development in maritime sensing, ocean engineering and marine systems, and undersea signal processing (http://www.onr.navy.mil/Science-Technology/Departments/Code-32/All-Programs/Ocean-Systems-321.aspx). Specific technical areas are:

    a) Maritime sensing;
    b) Ocean engineering & marine systems; and
    c) Undersea signal processing.

2) Ocean, Atmosphere and Space Research, which concentrates on improving Navy and Marine Corps understanding of environmental evolution, assimilation of data, and the limits of predictability by planning, fostering and encouraging scientific inquiry and technological development in fields ranging from littoral geosciences to high latitude dynamics (http://www.onr.navy.mil/Science-Technology/Departments/Code-32/All-Programs/Atmosphere-Research-322.aspx). Specific technical areas are:

    a) Coastal geosciences and environmental optics;
    b) Marine mammals and sound in the ocean;
    c) Marine meteorology and atmospheric effects;

d) Ocean acoustics;
e) Physical oceanography;
f) Space environment;
g) Special research awards in ocean acoustics; and
h) Arctic and integrated prediction.

The Sea Warfare and Weapons Department (Code 33)

Code 33 develops and delivers technology to enable superior warfighting capabilities for surface and sub-surface naval platforms and undersea weaponry. Code 33 also develops and delivers technology to reduce total life cycle cost of naval platforms, to minimize the energy footprint of Naval forces, and to develop new scientists and engineers for Navy-unique technological areas. Specific thrusts and focused research areas are:

1) Ship Systems and Engineering Research: Focused on providing technologically superior warfighting capabilities at reduced total ownership costs for surface and subsurface platforms through investments in basic and applied research and advanced technology development of programs in: a) hydrodynamics, b) survivability c) electrical and thermal systems and d) platform structures. The division is also responsible for the National Naval Responsibility in Naval Engineering (NNR-NE). The NNR-NE supports fundamental and early applied research in the areas of propulsion, platform structures, hydrodynamics, automation control and system engineering, design tools, naval power systems and ensuring strong a healthy academic infrastructure. Specific research themes are:

   a. Hydrodynamics: Theory, computation, and experiments in the lab and at-sea are utilized to develop understanding and prediction capabilities for all hydrodynamic phenomena around a surface ship, their effects on ship performance, and concepts for modification. Understand the physics of flow around propulsors and their interactions to improve propulsor design capability that would result in improved mobility, efficiency, and affordability. Predict and control of various types of cavitation on propulsors and appendages. Develop predictive capability of cavitation inception, thrust breakdown and erosion phenomenon and scaling laws. Science and technology efforts in the area of Subsurface Hydrodynamics include identifying, understanding, predicting, and controlling flow physics, as well as turbulence and stratified wakes. This is further applied to Subsurface Maneuvering Technologies, and understanding the Dynamics of Interacting Platforms.

   b. Survivability: Investigate and understand electromagnetic (EM) sources (including major ferro and non-ferromagnetic sources, eddy currents, and Corrosion Related Magnetic Fields (CRM)) that are associated with naval platforms. Develop understanding of EM field propagation relationships and analysis aids, and technologies to predict the electromagnetic properties of a naval platform. Advance physics based understanding of platform acoustics. Discover and develop algorithms and methods that will enable the development of improved design, analysis, and prediction tools for enhanced acoustic performance. Understand, design and develop

optical and acoustic metamaterials to control light and sound propagation over a large frequency range. New architectures to overcome challenges associated with loss, bandwidth, and scalability are being explored. Design and develop models, algorithms, and integrated development environments for simulation and control of complex, interdependent, distributed shipboard machinery systems to enable integrated, autonomous operation and reconfiguration of shipboard machinery systems. Support research understanding the behavior of highly-rate sensitive polymers under extreme conditions to improve survivability to blast and ballistic penetration for application to ships, vehicles and head protection against Traumatic Brain Injury.

c. Electrical and Thermal Systems: Provide a scientific foundation for a reconfigurable electric warship including physical properties, control laws, stability criteria, modeling and simulation, advanced design and development methods. Develop new machinery integration concepts. Develop simulation based Verification, Validation and Accreditation (VV&A) methods and technologies. Contribute to system reconfiguration. Design a ship electrical system architecture based on a main bus that distributes "rough" DC power throughout the ship at nominally 10 KV. Conduct fundamental research necessary for enabling scientific progress and breakthroughs in shipboard and expeditionary power & energy technology. Development of macro- and atomic-scale multi-physics models is being pursued to enhance understanding of materials processing & performance, energy conversion mechanisms, cyber-physical energy concepts, and power management. Advanced magnetics, material surface science, and solid-state conversion concepts are of interest, and alternative energy approaches for powering Navy equipment of the future are being investigated. Advance thermal science and technology through fundamental studies of multi-phase heat transfer, fluid dynamics, and nanostructured materials in order to efficiently acquire, transport and reject heat and enable higher power density electronic systems associated with Advanced Naval Power Systems. System-level studies focus on the scalability and reliability of component technologies. Another thrust is the development of tools to model heat transfer at multiple length scales allowing for simulation of heat flow through the ship in order to evaluate the impact of power conversion electronics, sensors, and weapons on the overall thermal balance of the vessel.

d. Platform Structures: Structural reliability focuses on time-varying, structural reliability analysis and prediction for a ship structural system; advanced global hull strength, local panel strength, fatigue and fracture strength prediction models; seaway loads application and translation into a load effect for high-speed/high-performance ships and vessels; structural health monitoring of large, complex geometries with low spatial density of sensors in support of damage identification and prediction through signal processing or (inverse) modeling. Computational mechanics focuses on improving the accuracy and efficiency of the modeling of linear and nonlinear mechanical behavior of complex structures. Hybrid structures focuses on understanding structural performance of naval platforms under quasi-static seaway conditions as well as extreme loads, dynamic shock and wave impact loads, and the

exploitation of composites and lightweight materials in ship design, such as hybrid ship hull concepts, composite topside structures, and energy absorbing structures; addressing development of multi-scale computations and FE methods for dynamic crack propagation, damage of composites structures, hybrid composite-to-steel joints, and testing of small elements and large structural models in understanding failure mechanisms of large structures and joints.

(http://www.onr.navy.mil/Science-Technology/Departments/Code-33/All-Programs/331-ship-systems-engineering.aspx).

2) Naval Materials Science and Technology: Focused on a full spectrum of activities from long-range, fundamental scientific and engineering research in the design and realization of new materials and systems to fulfilling the unique requirements of marine and military applications. Experimental work is closely coupled with the development of models and predictive capabilities for materials properties and behavior. Specific research areas include:

   a. Functional Materials (Electrochemical power sources, Capacitors for pulsed power applications, Electronic and optical ceramics, and Functional polymeric organic materials)
   b. Structural Materials (Bulk nanostructured materials, Composite materials development and processing; Fracture and fatigue damage of Naval structural materials focuses on two areas: fatigue of structural materials and deformation/fracture in nanostructured materials; High temperature turbine materials, Ultra-high temperature materials, Solid Mechanics, Structural cellular materials, Structural Metals, and Non-Destructive Evaluation, Structural Health Monitoring, Prognostics)
   c. Environmental Quality (Environmentally benign marine antifouling coatings and Environmental quality waste treatment/reduction)
   d. Pervasive Materials S&T (Computer Aided Materials Design and Integrated Computational Materials Engineering)
   e. Water Desalination

   (http://www.onr.navy.mil/Science-Technology/Departments/Code-33/All-Programs/332-naval-materials.aspx).

3) Sea Platforms and Weapons: Focused on coordinating the transition of technologically superior systems and equipment that will enhance warfighting capabilities.

   a. Sea Weapons Program: Accomplished through the University Laboratory Initiative, which was established in part to increase the number of engineers and scientists in Navy laboratories and University Affiliated Research Centers that conduct research and development of undersea weapon technology. Core technology areas for applied research and technology development include: guidance and control; sensors; signal processing; planning and control algorithms; signal management for undersea distributed network systems (UDNS); weapon energy conversion; batteries,

air- independent fuel cells and hybrids; motors; otto fuel replacements; vehicle technology; liquid fuels for "gas and go" concepts; corrosion and anti-fouling coatings; hydrodynamics; control surfaces; propulsors; drag and noise reduction; projectiles; warheads; explosives; detonators; and fuses.

b. Sea Platforms Program: Focused on the development of knowledge base for naval architecture, ocean engineering and marine engineering, Corrosion control and prevention S&T, and Autonomy for unmanned vehicles.

(http://www.onr.navy.mil/Science-Technology/Departments/Code-33/All-Programs/333-sea-platforms-weapons.aspx).

4) The Naval Alternative Energy and Fuels Program: Focused on understanding the physical effects of incorporating Alternative Fuels into Naval Systems. Research Challenges and Opportunities include**:**

a. Modeling/Simulation Tools: development and validation of tools that predict the engine performance/degradation using wide variety of alternative fuels.
b. Increasing the knowledge of physical properties and chemical reactions of alternative fuels in a maritime environment.

Warfighter Performance (Code 34)

Code 34 enhances warfighter effectiveness and efficiency through bioengineered and biorobotic systems, medical technologies, improved manpower, personnel, training and system design. There are two divisions: Human & Bioengineered Systems and Warfighter Protection & Applications.

1) Human and Bioengineered Systems covers cognitive science, computational neuroscience, bioscience and bio-mimetic technology, social/organizational science, training, human factors, and decision making. The goals are: sustained and improved warfighter performance and enhanced decision making in all environments through training; creating options for future (perhaps unanticipated) naval decisions, based upon fundamental understanding gained from cognitive and neuroscience; supporting integrated interdisciplinary research program; and cultivating transition of findings to government and industry via advanced technology development, small business and acquisition projects (http://www.onr.navy.mil/Science-Technology/Departments/Code-34/All-Programs/human-bioengineered-systems-341.aspx). Specific thrusts and focused research are:

a) Affordable human behavior modeling;
b) Agile and reconfigurable organizational structures for command and control;
c) Applied instructional research;
d) Biometrics in the maritime domain;
e) Biorobotics;
f) Cognitive science of learning;
g) Computational neuroscience;
h) Human activity recognition;

i) Human robot interaction;
j) Multi-echelon command decision making;
k) Perception, metacognition and cognitive control;
l) Representing and reasoning about uncertainty;
m) Skill acquisition;
n) Social network analysis for combating terrorist networks;
o) Theoretical foundations for socio-cognitive architectures; and
p) Virtual technologies and environments.

2) Warfighter Protection and Applications covers bioscience and bio-mimetic technology; biomaterials; biomedical technologies; expeditionary and undersea medicine; physiology and biophysics; immunology; applied manpower, personnel, training, and education; marine mammal health; and noise induced hearing loss. The division conducts research and technology demonstration programs directed at maintaining the survival, health and performance of Navy and Marine Corps personnel during training, routine and special operations, and in time of war. The goals are to: increase the survival of casualties through intermediate, life-saving treatment and stabilization; prevent personnel injury caused by the stresses of demanding Naval occupations and environments; enhance cognitive and physiological performance of Navy and Marine Corps personnel in military environments; prepare Sailors and Marines to fight and win in an information rich, distributed battlespace; get the right warfighters into the right job, at the right time with the right tools; and provide a 21st century learning environment designed to deliver the right training (http://www.onr.navy.mil/Science-Technology/Departments/Code-34/All-Programs/warfighter-protection-applications-342.aspx). Specific thrusts and topics of interest are:

a) Basic biomedical science;
b)Bio-energy harvesting;
c) Biomaterials and bionanotechnology;
d) Biomedical technologies;
e) Biophysics;
f) Bioscience and bio-mimetic technology;
g) Casualty care and management;
h) Casualty prevention;
i) gut microbiology and response to stressors
j) Human systems integration (HSI);
k) Manpower and personnel;
l)Marine biofouling control;
m) Marine mammal health;
n) Noise induced hearing loss;
o) Stress physiology;
p) Synthetic biology; and
q) Undersea medicine

Naval Air Warfare and Weapons (Code 35)

The Naval Air Warfare and Weapons (Code 35) Department supports the Navy and Marine Corps needs, fostering basic, applied and advanced research in support of the Sea-Based Aviation National Naval Responsibility as well as directed energy, energetic materials, autonomy, electromagnetic launch, and high speed conventional air and surface weapons. For more information visit the ONR Code 35 webpage at: http://www.onr.navy.mil/Home/Science-Technology/Departments/Code-35.aspx

1) The Aerospace Sciences Research Division focuses on strike technology. Basic and applied research projects include high-energy lasers, hypersonics, rotorcraft technology, advanced propulsion naval air and surface weaponry, and naval aircraft that could provide transformational capabilities for the Navy After Next.

a) Sea-Based Aviation National Naval Responsibility – Air Vehicle Technology

The Navy and Marine Corps rely on fixed-wing, rotary-wing, and V/STOL aircraft to perform and support a wide variety of missions such as close air support, air defense, logistics, expeditionary operations, anti-submarine and anti-mine warfare, and search and rescue. The unique requirement to operate from ships at night and in bad weather and high sea states leads to a number of S&T challenges. Shipboard landings require precise relative navigation and ability to maneuver in highly turbulent ship airwakes to land on pitching and rolling decks in high sea states. Shipboard operations also require unique designs to accommodate limited space and safe operations and support in densely packed areas. The Marine Corps depends on fast, agile air vehicles to execute its Ship-to-Objective Maneuver and distributed operations. This program is reviewing white papers and proposals in the following areas:

a. Computationally efficient analytical tools for ship/aircraft dynamic interface simulation
b. Advanced control systems for carefree shipboard landings in challenging operating conditions
c. Automated shipboard landings and deck operations
d. Efficient, high-speed V/STOL concepts for sea-based operations
e. Flow control for improved air vehicle aerodynamics
f. Innovative experimental methods for ship airwake measurement

b) Sea-Based Aviation National Naval Responsibility - Airframe Structures and Materials

Naval Aviation airframes are a core capability for the Navy power projection mission, including our ability to successfully meet development, operational performance, readiness, and affordability requirements. This program is reviewing white papers and proposals in the following areas:

a. Structural failure mode characterization
b. High-loading/light-weight structural materials
c. Advanced structural concepts
d. Materials degradation/corrosion

e. Structural protection and maintenance

c) Sea-Based Aviation National Naval Responsibility – Propulsion

Propulsion systems touch on every aspect of air vehicle operations and are the primary source of vehicle performance capability. On the other hand, turbine propulsion systems typically are the primary fleet readiness driver and are the largest cost driver in operational systems since they require extensive development and maintenance/support. With the large effect on performance, readiness and cost comes the greatest opportunity for improvements due to advanced technology. This program is reviewing white papers and proposals in the following areas:

a. Propulsion cycles, subsystems, and integration
b. Turbomachinery and drive systems with enhanced maintainability
c. Jet noise reduction for tactical aircraft (TACAIR)
d. Hot-Section materials and coatings
e. Small UAV propulsion

d) Intelligent autonomy for safe, reliable, and scalable control of heterogeneous unmanned air systems based on high-level mission tasking

This includes collaborative and shared use of unmanned systems by a variety of types of operators and users of unmanned system services in complex and cluttered environments. Note that the focus is on autonomy methods and not on new platform, sensor, or communications hardware. This program is reviewing white papers and proposals in the following areas:

a. Distributed control of large numbers of heterogeneous unmanned systems in complex airspaces
b. Safe, perception-based control in complex, unstructured, and cluttered environments
c. Verification and Validation of advanced autonomy including biologically inspired methods, nondeterministic algorithms, decentralized control, organic perception within control/decision-making loops, and complex human interactions for both safety & mission competence
d. Autonomous systems teaming with manned systems and units
e. Safe autonomous operations in the maritime environment

e) Science of Autonomy

This involves different autonomous system domains that have traditionally been somewhat separated (air, sea, undersea, ground), control theory, computational intelligence, human factors and related fields such as biology/animal behavior/ cognition, economics/management theory, cognitive science/psychology and neuroscience. This program is reviewing white papers and proposals in the following areas:

a. Scalable, self-organizing, survivable, organizational structure/hierarchy of heterogeneous UxVs appropriate to naval mission domains
b. Autonomous learning, reasoning, and decision-making in unstructured, dynamic, and uncertain environments
c. Human interaction/collaboration including understanding intent and actions of human team members, adversaries, and bystanders
d. Organic perception/understanding to support decision-making, reasoning, and actions in a complex, dynamic world

f) Energetic Materials

Energetic materials (EM) weapon systems can be a "game changer" by increasing warfighters' lethality and area of dominance. Catastrophic damage improves battlefield damage assessment and reduces sorties. Equally powerful, but smaller weapons optimize internal carry and facilitate higher weapon load outs. Future new ordnance must be adaptable in size to fit a family of delivery systems, contain sufficient energy to defeat the target, and be affordable. This program is reviewing white papers and proposals in the following areas:

a. New approaches to novel materials that maximize molecular design, synthesis efficiencies, predicted stabilities and achieve performance goals
b. Develop a new class of ingredients that can surpass the oxygen content of Ammonium Perchlorate (AP)
c. Development of macroscopic mechanical and chemical models; an understanding of molecule dynamics; strength/reactivity correlations
d. Consistent processing and performance results; process research and development (commonly referred to as "scale-up"); areas of concern are safety and remote operations, critical thermal management, batch to batch reproducibility, standardized process for the chemistry, and conditions and product quality and purity
e. Combat Safe Insensitive Munitions: The Navy has concerns over conventional munitions and propellant systems, since all munitions are stored on maritime platforms. It is critical that conventional munitions display maximum insensitivity when stowed, hand- led, carried or otherwise exposed to friendly forces and environments, but have sufficient energy/lethality to perform mission expectations reliably.
    i. Establish the connectivity between molecular structure, crystal morphology prediction and synthesis chemistry to provide IM compliant energetic ingredients shock and thermal sensitivity
    ii. Focus modeling and simulation to predict stable crystal structures/crystal morphology
    iii. Establish methodologies to model, measure and predict molecular and crystal energetic material response to external shock and thermal modeling

iv. Validate design criteria for molecular stability as a function of insensitivity

g) Counter Directed Energy Weapons

The Counter-Directed Energy Weapons (CDEW) Program of ONR was initiated in response to the rapid development of high energy laser (HEL) and high power radio frequency (HPRF) threats. Directed energy weapons (DEWs) for the purposes here are considered to be from sources that utilize means other than kinetic energy to deliver energy to damage or disable a target. The advancement in the technologies of DEWs, in particular high energy laser and high power radio frequency, and their proliferation in many nations, has raised the urgency of developing techniques and technology for defense of United States Navy assets. Investigating research topics related to countering the threats that come from directed energy weapons systems, such as high-energy lasers or high-power microwaves. The CDEW program address four focus areas of research and development of counter DEW technologies: Increased Survival from HEL Attack - HEL Protection; Counter HELs - Detection of Threat Lasers - Geo-location of Laser Source; Increased Survival from HPRF Attack- HPRF Protection; Counter HPRFs - Novel Methods to Detect and Characterize an HPRF Attack. The CDEW program seeks white papers and proposals in innovative research that include the following technology areas:

a. Advanced materials including nano- and/or nonlinear materials for enhanced HEL protection of sensors, optics, airframe, etc.
b. Metamaterial structures for the control and mitigation of HEL and HPRF irradiation.
c. Techniques for HEL mitigation such as use of plasmas and obscurants
d. HEL protection by degrading atmospheric transmission (e.g. thermal blooming, scattering, absorption aids, and turbulence)
e. Modeling and sensing of laser off-axis detection and source geo-location
f. Novel instrumentation for detection of HEL and HPRF irradiation
g. Active/Passive circuit protection and limiters for HPRF
h. Modeling of HPRF and HEL effects to materials, electronics and sensors as applied to CDEW objectives

2. The Applications Division undertakes Naval unique or essential projects involved with applied research and advanced technology aligned with current and future naval capability gaps and innovative naval prototypes.

a) <u>Autonomous Aerial Cargo/Utility System Program</u>
The Autonomous Aerial Cargo/Utility System (AACUS) is an Innovative Naval Prototype. The AACUS program explores advanced autonomous capabilities for reliable resupply/retrograde and, in the long term, casualty evacuation by an unmanned air vehicle under adverse conditions. Key features of AACUS include a vehicle autonomously avoiding obstacles while finding and landing at an unprepared

landing site in dynamic conditions, with goal-directed supervisory control by a field operator with no special training. Areas of special interest in this program include the following areas:

a. Field user devices for supervision of single or multiple autonomous rotary wing aircraft
b. Sensors and algorithms for obstacle detection and landing zone evaluation – particularly for degraded visual environments
c. Mission planning algorithms and user interfaces for assault support mission

b) Electromagnetic Railgun

The Electromagnetic Railgun is an Innovative Naval Prototype. Development through 2017 is focused on thermal management and achieving operation at a high repetition rate of fire. The launch energy of this system stresses many components. Areas of special interest in this program include the following areas:

a. Advanced thermal management techniques for long slender metal rail structures
b. Extended service life for materials and components in harsh environment
c. High-strength, dielectric, structural materials
d. High-speed, high-current metal-on-metal sliding electrical contact
e. System interfaces between high-power loads and platform power distribution
f. Compact pulsed power systems and power electronics High-conductivity, high-strength, low-density conductors
g. Repetitive rate switches and control technologies

c) Hypervelocity Projectile

The HVP is a next-generation, common, low drag, guided projectile capable of completing multiple missions for gun systems such as the Navy 5-Inch, 155-mm, and future railguns. Types of missions performed will depend on gun system and platform. The program goal is to address mission requirements in the areas of Naval Surface Fire Support, Cruise Missile Defense, Anti-Surface Warfare and other future Naval mission areas. Mission performance will vary from gun system, launcher or ship. HVP's low drag aerodynamic design enables high-velocity, maneuverability and decreased time-to-target. These attributes coupled with accurate guidance electronics provide low-cost mission effectiveness against current threats and the ability to adapt to air and surface threats of the future. Areas of special interest in this program include the following areas:

a. Compact, high acceleration tolerant control actuation systems.
b. High-acceleration tolerant electronic components
c. Light-weight, high-strength structural composites
d. Miniature, high-density electronic components

e. Safe high-energy propellants compatible with shipboard operations
f. Aerothermal protection systems for flight vehicles

d) Laser Weapons System Technologies

These technologies support full threat kill-chain engagement from target detection to engagement and damage assessment. These technologies must be suitable for operations in the maritime environment and integration with air, surface and submarine platforms. Priorities include the ability to engage asymmetric, small boat, and air platforms as well as to counter Intelligence, Surveillance, and Reconnaissance (ISR) systems. Areas of special interest in this program include the following areas:

a. High-efficiency laser generation technology
b. Beam forming and control technologies
c. Ruggedized, high-energy, power density-tolerant, optical path components
d. Light-weight, rechargeable, high-energy generation and storage devices
e. Modeling & Simulation of laser weapons system and subsystems to quantify system performance and atmospheric propagation in a maritime environment
f. System Performance, Test & Evaluation

e) Sea-Based Automated Launch and Recovery System

The Navy and Marine Corps will increasingly need to operate highly capable unmanned air vehicles (UAVs) from ships at sea. The MQ-8B Fire Scout is the first naval UAV of this type, operating from small deck ships, using the UCARS radar-based recovery system to provide precision ship-relative navigation (PS-RN) for its fully automated landings. The Unmanned Combat Air System Demonstration (UCAS-D) program has demonstrated the capability for an advanced UAV (represented by the X-47 demonstration aircraft) to operate from aircraft carriers, using a GPS-based PS-RN system for its automated launch and recovery capability. Analyses of and experience with both of these PS-RN approaches indicate that backup or alternative system options are desirable in order to ensure that highly reliable UAV operations can be conducted under demanding at-sea conditions. Areas of special interest in this program include the following areas: Non-GPS Precision Ship-Relative Navigation systems performance related to:

a. Degraded weather
b. High deck motion
c. EMI/multipath/jamming
d. Alternate missions (e.g., landings ashore, landings on non-surveyed ships, etc.)
e. Ship reference displays, and aircraft cockpit displays for manned aircraft
f. Automated aircraft carrier air traffic control

f) Variable Cycle Advanced Technology

The VCAT Program is a partnership effort between ONR and the Department of the Navy's Task Force Energy (TFE) initiative to realize the potential benefits of recent advancements in variable/adaptive cycle turbine engine technology. Advancements in propulsion system technology are essential to meet desired Warfighter needs for future carrier-based Tactical Aircraft (TACAIR)/Intelligence, Surveillance and Reconnaissance (ISR) systems. This program was conceived to provide the anticipated enhanced mission capability, energy security, and jet noise reduction requirements expected of future TACAIR/ISR systems. Research challenges and opportunities include aerodynamic and mechanical sizing of variable/adaptive engine technologies for naval aviation applications. Areas of special interest in this program include the following areas:

a. Catapult/trap Loads
b. Low speed thrust response, for approach, wave-off and bolter
c. Environmental and corrosion resistance in a marine environment
d. Takeoff water/steam ingestion
e. Carrier-based Electromagnetic Environmental Effects (E^3)
f. Carrier susceptibility to jet exhaust impingement
g. Dimension and weight constraints to meet aircraft/ship integration requirements
h. Onboard maintainability and supportability

g) Future Naval Capabilities

Air Warfare and Weapons Future Naval Capabilities (FNC) seek to provide enhancements to capabilities identified as needs in the FNC technology gaps.

a. Naval Needs
   i. Tactical Air to Air and Air to Ground Missile Enhancements
   ii. Survivable, Standoff, All Weather ASuW Capabilities
   iii. High Threat Time-Critical Strike
   iv. Countermeasures to Advanced Seekers and Hostile Fire
   v. Air Vehicle Performance Enhancements
   vi. Air Platform Survivability, Total Ownership Cost, and Operational Availability

b. Technology Areas
   i. Energetics – Warhead/Propulsion
   ii. Warhead Improvements
   iii. G&C Navigation/Autonomy
   iv. Airframe Technology
   v. Power and Energy Enhancement
   vi. Propulsion Improvements
   vii. Targeting

viii. Directed Energy
ix. Counter Directed Energy
x. Advanced Manufacturing Technologies
xi. Reduced Maintenance Concepts

c. Additional Focus Areas of Interest
i. Life-Cycle Cost
ii. Kill-Chain Enhancements
iii. Flight Performance Enhancements

The Marine Corps Warfighting Lab

The Marine Corps Warfighting Lab (MCWL) utilizes concept-based experimentation as a primary means to explore both material and non-material solutions enabling warfighting concepts. The concept-based experimentation process provides the unique opportunity to assess the utility of experimental technologies employed in operational scenarios and environments. MCWL leverages ONR's science and technology efforts to inform and support the concept-based experimentation process.

ONR Code 30 thrusts and technology investment areas support MCWL science and technology interests. Offerer's responding to ONR Code 30 thrusts and research areas are encouraged to submit white papers to both organizations for wider consideration.

Focus areas for MCWL experimentation include:

1) Expeditionary Logistics. Technologies to sustain distributed operations in austere and remote environments.
    a. Efficient generation of energy and purified water at points of consumption.
    b. Reduced consumption of energy.
    c. Demand and resupply visibility and efficiency.
    d. Autonomous/unmanned support and resupply capabilities.

2) Interoperable C2 Systems. Technologies that enhance information sharing within the MAGTF and among Joint and Coalition forces.

    a. Efficient data sharing in a multi-level classification/security environment.
    b. Common Operational Picture accessible and tailorable to command needs.

3) C2 Afloat. Technologies to improve ship-to-shore communications and enhance the ability to command and control distributed operations from sea-based platforms.

a. Modular systems that enable rapid installation of communications and networking capabilities aboard ships.

4) Communications and Networking. Technologies to improve information exchange over the horizon and on the move.

   a. Self-forming/self-healing secure, high bandwidth voice and data mesh networks.
   b. Network management tools to improve efficiency and maximize reliability.

5) Lightening the Load. Technologies that reduce the size and weight of the total load of the MAGTF as well as the individual Marine.

   a. Reduced weight/size of equipment embarked on amphibious shipping.
   b. Reduced weight/size of equipment carried/worn by individual Marines.
   c. Autonomous/unmanned systems used for small unit logistic enablers or armed surveillance roles.

6) Counter IED/Mine. Technologies that enhance IED/mine detection, neutralization or pre-detonation.

   a. IED detection, neutralization or pre-detonation from standoff distances.
   b. Detection and neutralization of suicide bombers and vehicular bombs.

7) Persistent ISR. Technologies that enhance sensor acquisition, fusion and data distribution, Technologies to maximize payload flexibility and endurance of unmanned systems.

   a. Unmanned airborne systems that can be launched from ship or land to provide over the horizon, long endurance surveillance capabilities.
   b. Technologies to improve the accuracy of real-time surveillance systems.
   c. Technologies that improve the distribution and networking of surveillance data.
   d. Sensors to improve surveillance in an urban environment.

8) Amphibious Operations Enablers. Technologies that enhance the ability to operate from ship to shore.

   a. Technologies to assess maneuverability of the shallows, beach and shore with respect to obstacles, mines, enemy presence, landing and driving conditions.
   b. Sea wall breaching technologies.
   c. High speed air and surface connectors that enable ship to shore movement.
   d. Modular systems that facilitate use of non-traditional sea platform support of amphibious operations.

9) Precision Fires. Technologies that reduce target location error and extend the reach of ship-to-shore fires.

    a. Increase the range and timeliness of air, ground and naval fires.
    b. Improve the ability to provide all weather fire support among distributed forces.
    c. Technologies to counter adversary unmanned systems (air, ground and sea surface).
    d. Technologies to maintain precision in a GPS denied environment.

10) Cyberspace Operations. Technologies to defend networks, evade/react to attacks and counter or exploit enemy networks.

    a. Protection of networks and detection of intrusion/disruption.
    b. Secure hand-held devices.
    c. Capabilities to exploit network activities, attacks and threats.

11) Simulation, Training & Human Performance. Adaptable and deployable training systems and technologies that enhance the speed and effectiveness of training.

    a. Integration of live, virtual and simulated training through networked venues.
    b. Simulation systems that immerse individuals in operationally realistic training scenarios.

12) Medical Technologies. Technologies to improve the medical care for Marines through prevention, protection and casualty response.

    a. Networked, hand held real-time health assessment devices.
    b. Technologies to increase casualty survivability through improved forward care and speed of casualty transport.

13) Counter Shooter/Counter Surveillance. Situational awareness and options to counter enemy surveillance and direct fire targeting.

    a. Pre-shot identification of shooters and enemy observation/surveillance.
    b. Detection of optics used for observation and recording.

14) Other Supporting Missions

    a. Scalable, flexible-range non-lethal weapons.
    b. Automated, hand held language translation systems.
    c. Systems to improve boarding of vessels for search and seizures.

Office of Naval Research Global (ONRG)

ONR Global catalyzes the Department of the Navy Science &Technology (S&T) connectivity between the international S&T community, the Fleet/Force, and the Naval Research Enterprise (NRE). Therefore, ONRG serves as an external network facilitator for ONR headquarters and the NRE by ensuring connections are maintained between the international S&T community, the NRE and the Navy-Marine Corps team regarding the execution and development of long range, strategic basic research efforts. ONR Global fields a team of internationally located scientists and engineers (Associate Directors) accessing and engaging international researchers. http://www.onr.navy.mil/Science-Technollgy/ONR-Global/associate-directors/~/media/Files/ONRG/Associate-Director-Contacts-FY15.ashx .

These Associate Directors are subject matter experts and/or regional specialists whose primary mission is to provide access to international experts in fields of interest to the Naval S&T community and to provide them opportunities to connect to their multiple technology counterparts in ONR HQ in Arlington, VA and/or other organizations in the NRE. In addition, ONRG's Associate Directors assess international S&T innovation while conducting liaison visits to international scientists, renowned universities and international organizations.

ONR Global sponsors programs -- exchange visits, conferences and workshops -- that address the needs of the Navy and Marine Corps and enhance the S&T priorities of ONR and the Naval Research Enterprise.

- The Collaborative Science Program supports foreign or international workshops, conferences, and seminars of naval interest by providing financial support.
- The Naval International Cooperative Opportunities in Science and Technology Program (NICOP) provides direct research support to international scientists to help address naval S&T challenges. NICOPs support the insertion of innovative, international S&T into core ONR and Naval Research Enterprise Programs.
- **The Visiting Scientist Program (VSP) supports travel of international scientists to the United States and to international conferences so that they can interact with researchers in the NRE.**

Funding Opportunities: http://www.onr.navy.mil/en/Science-Technology/ONR-Global/funding-opportunities.aspx

G. Point(s) of Contact (POC) –

Questions of a Technical nature:

Questions of a technical nature should be submitted to the ONR POC whose program best matches the offeror's field of interest. Explore ONR's website at http://www.onr.navy.mil/Science-Technology/Contacts.aspx, where you can navigate the various

directorates and departments within the ONR umbrella. Embedded within the specific exploratory threads should be the relevant POC information for the cognizant ONR Program Office that you seek.

a. Questions of a Technical nature related to Marine Corps Warfare Lab (MCWL) topics:

Contact the MCWL Future Technology Officer at john.e.moore4@usmc.mil.

b. Questions of a Technical nature related to the Office of Naval Research Global (ONRG) topics:

Contact the ONRG Grants Team at ONRG.GrantProposals@mail.mil

c. Questions of a Business nature, and suggestions for improvement, should be submitted to:

One Liberty Center
875 N. Randolph Street
Arlington, VA 22203-1995
Email Address: tyler.rehwoldt@navy.mil

d. Questions of a security nature should be submitted to:

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

Note:

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

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

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

-Federal Business Opportunities (FEDBIZOPPS) Webpage – https://www.fbo.gov/
-Grants.gov Webpage – http://www.grants.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) –

Awards may take the form of contracts, grants, cooperative agreements, and other transaction agreements, as appropriate.

For information on the substantial involvement ONR expects to have in cooperative agreements, prospective offerors should contact the Technical Point of Contact identified in Part I, Section G, of this BAA.

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

Any assistance instrument awarded under this announcement will be governed by the award terms and conditions that conform to DoD's implementation of OMB circulars applicable to financial assistance. Terms and conditions of new awards and funding increments to existing awards made after December 26, 2014, may include revisions to reflect DoD implementation of new OMB guidance in 2 CFR Part 200, "Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards."

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.

Examples of model grants can be found on the ONR website at the following link: http://www.onr.navy.mil/en/Contracts-Grants/submit-proposal/grants-proposal/model-grant.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 Research) 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 performer.

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. Potential Offerors should consult with the appropriate ONR Technical POCs to determine whether the proposed effort would constitute basic research, applied research or advanced research.

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

A. Funding Amount and Period of Performance-

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

B. Peer Reviews-

In the case of proposals funded as basic research, ONR may utilize peer reviewers from academia, industry, and Government agencies to assist in the periodic appraisal of performance under the awards, as outlined in ONR Instruction 3966.1. Such periodic program reviews monitor the cost, schedule and technical performance of funded basic research efforts. The reviews are used in part to determine which basic research projects will receive continued ONR funding. Peer reviewers who are not U.S. Government employees must sign nondisclosure agreements before receiving full or partial copies of proposals and reports submitted by the basic research performers. Offerors may include travel costs for the Principal Investigator (PI) to attend the peer review.

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 for Fiscal Year 2010.

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 the entities.

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

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 an appropriate 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. Some topics cover export controlled technologies. Research in these areas is limited to "U.S. persons" as defined in the International Traffic in Arms Regulations (ITAR) -22 CFR § 120.1 et seq.

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

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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 -

Full proposals are required for submission. "White Papers" are frequently desired by ONR Program Officers. Offerors should consult the cognizant ONR Program Officer regarding the desirability of "White Paper" submissions or Oral Presentations. The various scientific divisions of ONR are identified at http://www.onr.navy.mil/en/Science-Technology/Contacts.aspx.

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

White Papers and Full Proposals submitted under this BAA are expected to be unclassified; however, classified proposals are permitted. If a classified proposal is submitted and selected for award, the resultant contract will be unclassified. An 'unclassified' Statement of Work (SOW) must accompany any classified proposal.

For both classified and unclassified proposals, 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."

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

1. Unclassified Proposal Instructions:
   Unclassified proposals shall be submitted in accordance with this Section.

2. Special Instructions for Classified White Papers and Proposal:

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

OUTSIDE ENVELOPE
(no classification marking):

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

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

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

"Program Name:
Office of Naval Research
ATTN: ONR Program Officer Name
ONR Code: ONR Program Officer Code
875 North Randolph Street
Arlington, VA 22203-1995"

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.

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: 4–5 pages. Consult with cognizant technical POC if unable to comply.

White Paper Submission

Electronic (email) submissions should be sent to the attention of the TPOC at: Email Address of the TPOC, e.g. Jane.Doe@navy.mil. The subject line of the email shall read "ONRBAA15-001 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.

Electronic submissions of white papers (for Grants) for ONR Global (ONRG) may be submitted directly to ONRG at ONRG.GrantProposals@mail.mil. The most current information on ONRG funding opportunities is listed on the ONRG website: (http://www.onr.navy.mil/Science-Technology/ONR-Global.funding-opportunities.aspx).

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 ONRBAA15-001, proposed title, technical points of contact, telephone number, facsimile number, and e-mail address.

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

For Basic Research

- **Future Naval Relevance (where applicable):** A description of potential Naval relevance and contributions of the effort to the agency's specific mission.

- **Rough Order of Magnitude (ROM).**

For Applied Research and Advanced Technology Development

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

- **Operational Utility Assessment Plan (where applicable):** A plan for

demonstrating and evaluating the operational effectiveness of the Offeror's proposed products or processes in field experiments and/or tests in a simulated environment.

- **Rough Order of Magnitude (ROM)**.

b. Full Proposals

NOTE: If page limits are not specified, then consult with your cognizant technical POC.

i. INSTRUCTIONS FOR CONTRACTS, COOPERATIVE AGREEMENTS AND OTHER TRANSACTION AGREEMENTS (Does not include Grants)

Proposal Package:

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

(1) Proposal Checklist (pdf)
(2) Technical Proposal Template (Word)
(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 – 4 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 Technical Proposal Template and the Cost Proposal Spreadsheet require completion of cost-related information. Please note that attachments can be incorporated into the Technical Proposal Template for submission.

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."

For proposals below the simplified acquisition threshold (less than or equal to $150K), the Technical Proposal Template and Technical Content documents, and the Cost Proposal Spreadsheet are required. In addition, if a purchase order will be awarded, the effort will be fixed price. Purchase orders can also contain options, as long as the total amount of the base and all options does not exceed $150K.

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 should submit an appropriate number of hard copies as discussed with the cognizant Program Officer, of their proposal package. The electronic copy should be submitted in a secure, pdf-compatible format, except for the electronic file for the Cost Proposal Spreadsheet which should be submitted in a Microsoft Excel 2007 compatible 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. Offerors may also submit their Technical Proposal template and content in an electronic file that allows for revision (preferably in Microsoft Word) to facilitate the communication of potential revisions. 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 Technical Content documents, but are not fully priced out in the Cost Proposal Spreadsheet, will not be included in any resulting contract, cooperative agreement, or other transaction. If proposing options, they **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:

Contract Risk Factor	Contract Type	Assigned Value (Normal range)	Normal Value
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% to7.5% on an ONR awarded contract.

For submission instructions, see sub-section F. Submission of White Papers and Full Proposals for Contracts, Cooperative Agreements, and Other Transaction Agreements.

ii. INSTRUCTIONS FOR GRANTS (Does not include contracts, cooperative agreements and other transaction agreements)

The following information must be completed as follows in the SF 424 located on http://www.grants.gov to ensure that the application is directed to the correct individual for review:

- Block 4a, Federal Identifier - Enter the previous ONR award number, or N00014 if the application is not a renewal or expansion of an existing award;
- Block 4b, Agency Routing Number - Enter the three (3) digit Program Office Code and the Program Officer's name, last name first, in brackets (e.g., 331 [Smith, John]).
    - Where the Program Office Code only has two digits, add a "0" directly after the Code (e.g., Code 30 would be entered as 300)
    - Use Code 600 for ONRG).

Applicants who fail to provide a Program Officer code identifier may receive a notice that their proposal is rejected.

To attach the technical proposal in Grants.gov, download the application package
Click on "Research and Related Other Project Information"
Click on "Move form to Submission List"
Click on "Open Form"

You will see a new PDF document titled "Research & Related Other Project Information"
Block 7 is the Project Summary/Abstract -> click on "Add attachment" and attach the project summary/abstract. (You will not be able to type in the box, therefore, save the file you want to attach as Project Summary or Abstract).

Block 8 is the Project Narrative -> click on Add attachment and attach the technical proposal. (Save the file as Volume I- Technical Proposal since you will not be able to type in the box).

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

• Paper Size – 8.5 x 11 inch paper
• Margins – 1 inch
• Spacing – single spaced
• Font – Times New Roman, 12 point
• Discuss the limit on the number of pages for Volume I with the cognizant Program Officer. There are no page limitations to the Cost Proposal, Volume 2.
• The full proposal should be submitted electronically at http://www.grants.gov/ as delineated in paragraph 5 below.

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

Volume 1: Technical Proposal

• **Cover Page:** This should include the words "Technical Proposal" and the following:

1) BAA Number ONRBAA15-001;
2) Title of Proposal;
3) Identity of prime Offeror and complete list of subawards, if applicable;
4) Technical contact (name, address, phone/fax, electronic mail address)
5) Administrative/business contact (name, address, phone/fax, electronic mail address) and;
6) Proposed period of performance (identify both the base period and any options, if included).

• **Table of Contents:** An alphabetical/numerical listing of the sections within the proposal, including corresponding page numbers.

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

Include for Basic Research, if it applies.

• **Future Naval Relevance (where applicable):** A description of potential Naval relevance and contributions of the effort to the agency's specific mission.

For Applied Research and Advanced Technology Development, if it applies.

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

• **Operational Utility Assessment Plan (where applicable):** A plan for demonstrating and evaluating the operational effectiveness of the Offeror's proposed products or processes in field experiments and/or tests in a simulated environment.

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

• **Reports:**

The following are sample reports that are typically required under a research effort:

- Technical and Financial Progress Reports
- Final Report

Grants do not include the delivery of software, prototypes, and other hardware deliverables.

• **Management Approach:** Identify which personnel and subcontractors/subrecipients (if any) will be involved. Include a description of the facilities that are required for the proposed effort, along with a description of any Government Furnished Equipment/Hardware/ Software/Information required, by version and/or configuration.

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

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

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

• **Qualifications:** A discussion of the qualifications of the proposed Principal Investigator and any other key personnel. Include resumes or curricula vitae for the Principal Investigator, other key personnel and consultants. The resumes/curricula vitae shall be attached to the proposal.

Volume 2: Cost Proposal

The offeror must use the Grants.gov forms (including the Standard Form (SF) Research and Related (R&R) Budget Form) from the application package template associated with the BAA on the Grants.gov web site located at http://www.grants.gov/. If options are proposed, the cost proposal must provide the pricing information for the option periods; failure to include the proposed costs for the option periods will result in the options not being included in the award. Assume that performance will start no earlier than three (3) months after the date the cost proposal is submitted. A separate Adobe .pdf document should be included in the application that provides appropriate justification and/or supporting documentation for each element of cost proposed.

Part 1: The itemized budget must include the following

- Direct Labor – Individual labor categories or persons, with associated labor hours and unburdened direct labor rates. Provide escalation rates for out years.

- Administrative and Clerical Labor – Salaries of administrative and clerical staff are normally indirect costs (and included in an indirect cost rate). Direct charging of these costs may be appropriate when a major project requires an extensive amount of administrative or clerical support significantly greater than normal and routine levels of support. Budgets proposing direct charging of administrative or clerical salaries must be supported with a budget justification which adequately describes the major project and the administrative and/or clerical work to be performed.

- Fringe Benefits and Indirect Costs (F&A, Overhead, G&A, etc.) – The proposal must show the rates and calculation of the costs for each rate category. If the rates have been approved/negotiated by a Government agency, provide a copy of the memorandum/agreement. If the rates have not been approved/negotiated, provide sufficient detail to enable a determination of allowability, allocability and reasonableness of the allocation bases, and how the rates are calculated. Additional information may be requested, if needed. If composite rates are used, provide the calculations used in deriving the composite rates.

- Travel – The proposed travel cost must include the following for each trip: the purpose of the trip, origin and destination if known, approximate duration, the number of travelers, and the estimated cost per trip must be justified based on the organizations historical average cost per trip or other reasonable basis for estimation. Such estimates and the resultant costs claimed must conform to the applicable Federal cost principals. Offerors may include travel costs for the Principal Investigator to attend the peer reviews described in Section II of this BAA.

- Subawards/Subcontracts – Provide a description of the work to be performed by the subrecipient/subcontractor. For each subaward, a detailed cost proposal is required to be submitted by the subrecipient(s). A proposal and supporting documentation must be received and reviewed before the Government can complete its cost analysis of the proposal and enter negotiations. ONR's preferred method of receiving subcontract information is for this information to be included with the Prime's proposal. However, a subcontractor's cost proposal can be provided in a sealed envelope with the recipient's cost proposal or via e-mail directly to the Program Officer 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. Fee/profit guidance for subawards/subcontracts may be found here.

- Consultants – Provide a breakdown of the consultant's hours, the hourly rate proposed, any other proposed consultant costs, a copy of the signed Consulting Agreement or other documentation supporting the proposed consultant rate/cost, and a copy of the consultant's proposed statement of work if it is not already separately identified in the prime contractor's proposal.

- Materials & Supplies – Provide an itemized list of all proposed materials and supplies including quantities, unit prices, and the basis for the estimate (e.g., quotes, prior purchases, catalog price lists).

- Recipient Acquired Equipment or Facilities – Equipment and/or facilities are normally furnished by the Recipient. If acquisition of equipment and/or facilities is proposed, a justification for the purchase of the items must be provided. Provide an itemized list of all equipment and/or facilities costs and the basis for the estimate (e.g., quotes, prior purchases, catalog price lists). Allowable items normally are limited to research equipment not already available for the project. General purpose equipment (i.e., equipment not used exclusively for research, scientific or other technical activities, such as personal computers, laptops, office equipment) should not be requested unless they will be used primarily or exclusively for the project. For computer/laptop purchases and other general purpose equipment, if proposed, include a statement indicating how each item of equipment will be integrated into the program or used as an integral part of the research effort.

- Other Direct Costs – Provide an itemized list of all other proposed other direct costs such as Graduate Assistant tuition, laboratory fees, report and publication costs, and the basis for the estimate (e.g., quotes, prior purchases, catalog price lists).

  NOTE: *If the grant proposal is for a conference, workshop or symposium:*
  1. *ONR will not sponsor ONR, Navy, or DoD driven event. Provide a list of other sponsors and the requested amounts to be funded by all sponsors.*
  2. *The funds provided by ONR may be used to pay for food or beverages as a direct cost only in exceptional circumstances. The funds will not be used for food or beverages unless*
     a. *the grant proposal contains a request for such funding that is fully supported factually in accordance with the cost principles of the relevant OMB Circular, and*
     b. *the grants officer determines that the funding is a reasonable, allocable, allowable expense under the relevant cost principles.*

- Fee/Profit – Fee/profit is unallowable under assistance agreements at either the prime or subaward level but may be permitted on subcontracts issued by the prime awardee.

Part 2: Cost breakdown by Government fiscal year and task/sub-task corresponding to the same task breakdown in the proposed Statement of Work. When options are contemplated, options must be separately identified and priced by task/subtask.

For submission instructions, see sub-section E. Submission of Grant Proposals through Grants.gov.

C. Significant Dates and Times –

This announcement will remain open until 30 September 2015 or until replaced by a successor BAA, whichever occurs first. Proposals may be submitted any time during this period.

D. Submission of Late Proposals –

The Government reserves the right to not review proposals submitted after 30 September 2015, or after a successor to this Long Range BAA is issued, whichever occurs first.

E. Submission of Grant Proposals through Grants.gov
(NOT APPLICABLE TO PROPOSALS FOR CONTRACTS, COOPERATIVE AGREEMENTS, AND OTHER TRANSACTION AGREEMENTS)

Detailed instructions entitled "Grants.Gov Electronic Application and Submission Information" on how to submit a Grant proposal through Grants.gov are under the Acquisition Department — Submitting a Proposal section of the website at http://www.onr.navy.mil/Contracts- Grants/submit-proposal/grants-proposal/grants-gov.aspx.

White Papers must not be submitted through the Grants.gov Apply process. White paper submissions should be e-mailed directly to the appropriate ONR Program Officer/Program Manager. White paper format requirements are found in Section IV, item 2a above.

For electronic submission of grant full proposals, there are several one-time actions that must be completed in order to submit an application through Grants.gov. These include obtaining a Dun and Bradstreet Data Universal Numbering System (DUNS) number, registering with System for Award Management (SAM), registering with the credential provider, and registering with Grants.gov. See http://www.grants.gov.

Use the Grants.gov Organization Registration Checklist at http://www.grants.gov/applicants/register_your_orgaanization.jsp which will provide guidance through the process. Designating an E-Business Point of Contact (E-Biz POC) and obtaining a special password called 'MPIN' are important steps in the SAM registration process. Applicants who are not registered with SAM.gov and Grants.gov should allow at least 21 days to complete these requirements. The process should be started as soon as possible. Any questions relating to the registration process, system requirements, how an application form works, or the submittal process must be directed to Grants.gov at 1-800-518-4726 (1-606-545-5035 for foreign applicants) or support@grants.gov.

Special Notices Relative to Grant Applications to be submitted through Grants.Gov:

All attachments to grant applications submitted through Grants.Gov must be in Adobe Portable Document Format. Proposals with attachments submitted in word processing, spreadsheet, or any format other than Adobe Portable Document Format will not be considered for award.

Proposal Receipt Notices:
After a full proposal is submitted through Grants.gov, the Authorized Organization Representative (AOR) will receive a series of three e-mails. It is extremely important that the AOR watch for and save each of the e-mails. You will know that your proposal has reached ONR when the AOR receives e-mail Number 3. You will need the Submission Receipt Number (e-mail Number 1) to track a submission.

The three e-mails are:

Number 1 – The applicant will receive a confirmation page upon completing the submission to Grants.gov. This confirmation page is a record of the time and date stamp that is used to determine whether the proposal was submitted.

Number 2 – The applicant will receive an e-mail indicating that the proposal has been validated by Grants.gov within two days of submission (This means that all of the required fields have been completed). After an institution submits an application, Grants.gov generates a submission receipt via email and also sets the application status to "Received." This receipt verifies the Application has been successfully delivered to the Grants.gov system. Next, Grants.gov verifies the submission is valid by ensuring it does not contain viruses, the opportunity is still open, and the applicant login and applicant DUNS number match. If the submission is valid, Grants.gov generates a submission validation receipt via email and sets the application status to "Validated." If the application is not validated, the application status is set to "Rejected." The system sends a rejection email notification to the institution, and the institution must resubmit the application package. Applicants can track the status of their application by logging in to Grants.gov.

Number 3 – The third notice is an acknowledgment of receipt in e-mail form from ONR within ten days from the proposal due date, if applicable. The e-mail is sent to the authorized representative for the institution. The e-mail for proposals notes that the proposal has been received and provides the assigned tracking number.

F. Submission of White Papers and Full Proposals for Contracts, Cooperative Agreements, and Other Transaction Agreements.

Full Proposals for Contracts, Cooperative Agreements, and Other Transaction Agreements shall be sent to the Office of Naval Research at the following address:

Office of Naval Research
Attn.*:_____
ONR Department Code**:_____
875 North Randolph Street
Arlington, VA 22203-1995

Cognizant ONR Program Officer/Point of Contact (POC)
****Cognizant ONR POC's Code***

Electronic submissions of White Papers (for Contracts, Cooperative Agreements and

Other Transaction Agreements), if requested, can be submitted via email directly to the Program Officer. There is an email size limit of 5MB per email.

White Papers and Full Proposals addressing MCWL topics of interest should be sent to the following address:

Marine Corps Warfighting Lab
Attn: Future Technology Officer
3255 Meyers Ave.
Quantico, VA 22134

V. EVALUATION INFORMATION

A. Evaluation Criteria –

Awards under this BAA will be made to proposers 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 proposers from award consideration should the parties fail to reach agreement on award terms, conditions, and cost/price within a reasonable time, or the proposer fails to timely provide requested additional information. Evaluations will be conducted using the following evaluation criteria.

1) Overall scientific and technical merits of the proposal.
2) Potential Naval relevance and contributions of the effort to the agency's specific mission.
3) The offeror's capabilities, related experience, facilities, techniques or unique combinations of these which are integral factors for achieving the proposal objectives.
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, and
5) The realism of the proposed costs and availability of funds.

Criteria 1 through 4 are significantly more important than Criterion 5, and Criteria 1 through 4 are of equal value.

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.

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.

Industry-Academia Partnering – ONR highly encourages partnering among industry and academia with a view toward speeding the incorporation of new science and technology into fielded systems. Proposals that utilize industry-academic partnering which enhances the development of novel S&T advances will be given favorable consideration.

Industry-Government Partnering – ONR highly encourages partnering among industry and Government with a view toward speeding the incorporation of new science and technology into fielded systems. Proposals that utilize industry-Government partnering which enhances the development of novel S&T advances will be given favorable consideration.

B. Commitment to Small Business- (For Contract Awards Only)

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 require assistance may contact the state-specific Department of Defense (DoD) Procurement Technical Assistance Center (PTAC). DoD PTACs serve as a resource for businesses pursing 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 and Guam. To locate a local PTAC visit: http://www.dla.mil/SmallBusiness/Pages/ProcurementTechnicalAssistanceCenters.aspx or http://www.aptac-us.org/new/ .

1.) Subcontracting Plan - For proposed awards to be made as contracts that exceed $650,000, 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 "Technical Proposal Template" 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 "Technical Proposal Template".

Plans will be reviewed for adequacy, ensuring that the required information, goals, and assurances are included. FAR 19.702 require the apparently successful offeror to submit an acceptable Plan. If the apparently 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, etc…) will have the maximum practicable opportunity to participate in contract performance consistent with its 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 to the maximum practicable opportunity to participate in contract performance consistent with its 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 a part of the proposal package 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 ≥ $6.5M 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.

For example, in accordance with FAR Subpart 5.206, entities may transmit a notice to a Government Point of Entry (GPE) to seek competition for subcontracts and to increase participation by qualified HUBZone small business, small, small disadvantaged business, women-owned small business, veteran-owned small business and service-disabled veteran- owned small business concerns is encouraged, 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 performance.

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.

VI. AWARD ADMINISTRATION INFORMATION

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".

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

Effective 01 October 2011, hard copies of award/modification documents are no longer mailed to Offerors. All Office of Naval Research (ONR) award/modification documents will be available via the Department of Defense (DoD) Electronic Document Access System (EDA).

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, complete a self-registration request as a "Vendor" via http://eda.ogden.disa.mil following the steps below:

Click "New User Registration" (from the left Menu)
Click "Begin VENDOR User Registration Process"
Click "EDA Registration Form" under Username/Password (enter the appropriate data)
Complete & Submit Registration form

Allow five (5) business days for your registration to be processed. EDA will notify you by email when your account is approved.

Registration questions may be directed to the EDA help desk toll free at 1-866-618-5988, Commercial at 801-605-7095, or via email at cscassig@csd.disa.mil (Subject: EDA Assistance).

VII. OTHER INFORMATION

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

i. Federal Funding Accountability and Transparency Act of 2006:

The Federal Funding Accountability and Transparency Act of 2006 (Public Law 109-282), as amended by Section 6202 of Public Law 110-252, requires that all agencies establish requirements for recipients reporting information on subawards and executive total compensation as codified in 2 CFR 33.110. Any company, non-profit

agency or university that applies for financial assistance (either grants, cooperative agreements or other transaction agreements) as either a prime or sub-recipient under this BAA must provide information in its proposal that describes the necessary processes and systems in place to comply with the reporting requirements identified in 2 CFR 33.220. An entity is **exempt** from this requirement **UNLESS** in the preceding fiscal year it received: a) 80 percent or more of its annual gross revenue in Federal contracts (and subcontracts), loans, grants (and subgrants), and cooperative agreements; b) $25 million or more in annual gross revenue from Federal contracts (and subcontracts), loans, grants (and subgrants), and cooperative agreements; and c) the public does not have access to information about the compensation of the senior executives through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 or section 6104 of the Internal Revenue Code of 1986.

ii. Military Recruiting on Campus (DoDGARS Part 22.520):

This applies to domestic U. S. colleges and universities. Appropriate language from 32 CFR 22.520, Campus access for military recruiting and Reserve Officer Training Corps (ROTC), will be incorporated in all university grant awards.

iii. Certification regarding Restrictions on Lobbying:

Grant and Cooperative Agreement awards greater than $100,000, as well as OTAs not under Section 845, require a certification of compliance with a national policy mandate concerning lobbying. Grant applicants shall provide this certification by electronic submission of SF424 (R&R) as a part of the electronic proposal submitted via Grants.gov (complete Block 17). The following certification applies likewise to each Cooperative Agreement and normal OTA applicant seeking federal assistance funds exceeding $100,000:

(1) No Federal appropriated funds have been paid or will be paid by or on behalf of the applicant, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the Federal contract, grant, loan, or cooperative agreement, the applicant shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The applicant shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, title 31, U.S.C. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

iv. Representation Regarding an Unpaid Delinquent Tax Liability or a Felony Conviction Under any Federal Law - DOD Appropriations:

All grant applicants are required to complete the "Representation on Tax Delinquency and Felony Conviction" found at http://www.onr.navy.mil/Contracts-Grants/submit-proposal/grants-proposal.aspx by checking the "I agree" box in block 17 and attaching the representation to block 18. of the SF424 (R&R) as part of the electronic proposal submitted via Grants.gov. The representation reads as follows:

(1) The applicant represents that it is ___ is not___ a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in timely manner pursuant to an agreement with the authority responsible for collecting the tax liability

(2) The applicant represents that it is___is not_ a corporation that was convicted of a felony criminal violation under any Federal law within the preceding 24 months. NOTE: If an applicant responds in the affirmative to either of the above representations, the applicant is ineligible to receive an award unless the agency suspension and debarment official (SDO) has considered suspension or debarment and determined that further action is not required to protect the Government's interests. The applicant therefore should provide information about its tax liability or conviction to the agency's SDO as soon as it can do so, to facilitate completion of the required consideration before award decisions are made.

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 Technical Proposal Template, 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 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 and 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 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:

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. FAR / DFARS Provisions:

For purposes of illustration and not of limitation, provisions that, as applicable, may be incorporated into an ONR contract resulting from this BAA include the following:

#	**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
252.215-7003	Requirements for Submission of Data Other than Certified Cost or Pricing Data - Canadian Commercial Corporation

vi. Combating Trafficking in Persons:

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

vii. 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 Technical Proposal Template.

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.

ONR does not provide access to classified material under grants.

ii. Use of Animals and Human Subjects in Research:

If animals are to be utilized in the research effort proposed, the Offeror must complete a DoD Animal Use Protocol with supporting documentation (copies of AAALAC accreditation and/or NIH assurance, IACUC approval, research literature database searches, and the two most recent USDA inspection reports) prior to award. For assistance with submission of animal research related documentation, contact the ONR Animal Use Administrator at (703) 696-4046.

Similarly, for any proposal for research involving human subjects, the Offeror must submit or indicate an intention to 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. 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 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.

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. 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/.

v. Organizational Conflicts of Interest:

All Offerors and proposed subcontractors must affirm whether they are providing scientific, engineering, and technical assistance (SETA) or similar support to any ONR technical office(s) through an active contract or subcontract. All affirmations must state which office(s) the offeror supports and identify the prime contract numbers. Affirmations shall be furnished at the time of proposal submission. All facts relevant to the existence or potential existence of organizational conflicts of interest (FAR 9.5) must be disclosed. The disclosure shall include a description of the action the offeror has taken or proposes to take to avoid, neutralize, or mitigate such conflict. Unless a

waiver is granted under FAR 9.503, a contractor cannot simultaneously be a SETA and a research and development performer. 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. 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. Project Meetings and Reviews:

Individual program reviews between the ONR sponsor and the performer may be held as necessary. Program status reviews may also be held to provide a forum for reviews of the latest results from experiments and any other incremental progress towards the major demonstrations. These meetings will be held at various sites throughout the country. For costing purposes, offerors should assume that 40% of these meetings will be at or near ONR, Arlington VA and 60% at other contractor or government facilities. (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. **A similar award term will be used in all grants and cooperative agreements.**