

Amendment Number 0005
ONR BAA Announcement #N00014-18-S-B002

Armored Reconnaissance Vehicle (ARV) Advanced Technology Development
Future Naval Capability (FNC)

The purpose of this amendment is to reinforce and emphasizes some of the key aspects of the BAA and makes some changes to the original BAA as follows:

Prolog:

The primary focus of this program is on Research Area 2 (RA2) which is the design and fabrication of the “Base Variant” and “At the Edge” demonstrators. The “Base Variant” should explore advanced technologies and solutions that push the state of the art as far as possible but with a lower risk approach than the “At the Edge” platform. The “At the Edge” technology demonstrator should be considered the higher risk, higher reward approach that explores cutting edge and emerging technologies. The build and test phases of both demonstrators have been aligned so that a direct performance/capability comparison between the platforms can be conducted by the government.

Under Research Area 1 (RA1), Technology Focus Areas (TFAs) 1-10 identify the capabilities that should be considered in these demonstrators and offerors should pay particular attention to the technology capabilities described on page 11 of Appendix 1 - they are exemplars but not all inclusive. While the emphasis of this BAA is on RA2, RA1 is important to provide new component and subsystem technologies and RA2 participants should consider these technologies during the RA2 concept study period.

Specific Changes to the original BAA:

Dates:

The due date for white papers is now **February 15, 2018, 3:00 PM EST.**

The due date for full proposals is now **April 2, 2018, 3:00 PM EST.**

The question period is extended to **31 January 2018.** All questions and responses will be posted on FEDBIZOPS and at <https://www.onr.navy.mil/ARV-industry-day>. Submit future questions to jeff.bradel@navy.mil.

Schedule/Phasing/Timelines:

The Technology Readiness Level (TRL) for Research Area 1 (RA1) technologies has changed from TRL 2-5 to “TRL 4-5”. White papers for technologies at the TRL 2-3 level will be considered outside the ARV program and can be submitted separately under ONR’s Open Broad Agency Announcement (BAA) at any time throughout the year.

The page limit for Research Area 2 (RA2) increased from 5 to 7 pages (cover plus 6). The white paper page limit for RA1 remains at 5 pages (cover plus 4).

The Research Area 2 (RA2) Concept Study Base Period is now extended from 4 months to 6 months in duration. Please refer to revised schedule at the end of this amendment.

RA2 Option 1A and 1B will start immediately after conclusion of the RA2 Base Period which means they will start 2 months later than originally planned.

The TRL for the “At the Edge” technology demonstrator at completion has changed from TRL5 to TRL 6. Funds available for the “At the Edge” demonstrator have increased from \$15M to \$18M.

For both the “Base Variant” and “At the Edge” demonstrator, there will be a potential to mature to a higher level TRL.

The fabrication completion date of the “Base Variant” technology demonstrator will coincide with the “At the Edge” demonstrator with both now ending at the end of FY20. The six month testing phase for the “Base Variant” will also align with the “At the Edge” demonstrator six month testing phase as shown in the original BAA. In summary, both demonstrator schedules/dates will now be the same and in parallel.

Research Area 2 (RA2):

As noted, the focus of this BAA is on RA2, the development of an ARV “System” Demonstrator. We emphasize system because this platform is expected to seamlessly operate organically and networked with other platforms within the LAR. The “At the Edge” demonstrator TRL level at completion will be TRL 6. White papers should focus on the technical concept and work that will be done to achieve a 5th Generation capability in ground combat systems, thus emphasis will focus on the “At the Edge demonstrator”. The “Base Variant” system in RA2 is technologically advanced and there are no pre-conceptions in design. We expect offerors to push the technical limits of the Base Variant as well.

Figure 1 in Appendix 1 of the BAA represents a 1st level discussion of a LAR conceptual mission. It does not imply a specific type of vehicle or design desired for the ARV System Demonstrator.

While all of the Research Area 1 (RA1) Technology Focus Area’s (TFAs) are important, the following are key aspects that must be included in each demonstrator:

- Fully networked suite to operate and be tested and evaluated as a “system” to extend coverage of the LAR (TFA-9).
- “Drive-by-wire capability” (TFA3/6). These vehicles should have the capability to be easily converted to autonomous systems.
- Integration of “organic” unmanned (preferably autonomous) asset(s) extending range of system (TFA3) for ISR and strike capability.

- Modularity with open architecture to allow flexibility for the insertion of emerging technologies and also current and future multi-function payloads.

Both demonstrators should show how they reduce workload on operators while increasing mission effectiveness and speed. It is anticipated that these systems will support current and future advances in artificial intelligence (TFA10). Human factors associated with operating and manning these systems will be of key importance. As we emphasize the networked and extended range we expect offerors to not only address the physical survivability of the system but the survivability in a contested electromagnetic and cyber environment.

Research Area 1 (RA1):

While emphasis is on the development of the demonstrators, we will be pursuing component/subsystem advances that support both demonstrators. For RA1, the focus will be in component and sub-system concepts that are consistent with and critical with movement to 5th generation ground systems for the USMC. Technologies for consideration should be at TRL levels 4-5 which is a change from the BAA. During the RA1 Base Period, ONR will facilitate a means to share RA1 technologies with RA2 Base Period vendors to encourage teaming for the RA2 concept system design.

Below is the revised schedule reflecting the changes articulated above. All other review and evaluation criteria described in the BAA remain the same.



Revised BAA S&T Program Schedule

| Phase | FY18 | | | | FY19 | | | | FY20 | | | | FY21 | | | |
|---|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|
| | Q1 | Q2 | Q3 | Q4 |
| RA1 Base Phase: Advanced Component Research and Preliminary Design | | | | █ | | | | | | | | | | | | |
| RA1 Option 1 Period: Detailed Design and Initial Prototype Build & Test | | | | | █ | | | | | | | | | | | |
| RA1 Option 2 Period: Refined Prototype Build & Test | | | | | | | | | | | | | | | | |
| RA2 Base Phase: Full System Concept Studies | | | | █ | | | | | | | | | | | | |
| RA2 Option 1A Period: Advanced Concept Mockup Development | | | | | █ | | | | | | | | | | | |
| RA2 Option 1B Period: Full System Technology Demonstrator Platform Development, Fabrication and Test & Demonstration Support | | | | | | | | | | | | | | | | |
| "Base Variant" Tech. Demonstrator Design, Fabrication, and Gov. Test | | | | | | | | | | | | | | | | |
| "At the Edge" Tech. Demonstrator Design, Fabrication, and Gov. Test | | | | | | | | | | | | | | | | |

Transition: ▲ Linkages: → Schedule: █ Additional Time If Needed: ▤ Government Testing: ▲

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