

Amendment 0003
Solicitation Number ONRBAA 11-025
“Large Displacement Unmanned Underwater Vehicle Innovative Naval Prototype Technology”
Date 7 SEP 2011

The purpose of Amendment 0003 is to amend the BAA and respond to questions submitted.

BAA 11-025 is hereby amended as follows:

1. Section I, Paragraph 5 entitled, “Response Date” is revised to read as follows:

5. Response Date:

Full Proposals Due Date: **19 September 2011**, 2:00 PM Eastern Daylight Time

2. Questions and Answers are provided as follows:

Question 1: Is there a published list of attendees available?

Answer 1: A list of attendees will not be provided.

Question 2: Would you allow submissions / involvement from the UK or is this US only?

Answer 2: See answer number 1 under Amendment 0002.

Question 3: In Table A1 (Phase I), should "Fishing net detection and avoidance" be "Fishing activity detection and avoidance?" This seems to be the case judging by the associated description and the fact that Table A3 (Phase II) has an entry with a similar description called "Fishing activity detection and avoidance" and a separate entry called "Net detection."

Answer 3: See the amendment below made to Section I, Table A1 entitled, “Autonomy Phase I Threshold (Minimum Requirement) Criteria”.

Question 4: In the description for the "Route success" entries in Tables A1 and A3, it seems necessary to know the distance between the waypoints. Could this information be provided?

Answer 4: See the amendment below made to Section I, Table A1 entitled, “Autonomy Phase I Threshold (Minimum Requirement) Criteria” and Section I, Table A3 entitled, “Autonomy Phase II Criteria”.

Question 5: In the description for the "Route success" entries in Tables A1 and A3, does "within" x hours only mean that the acquisition of the waypoint cannot be late by more than x hours, or does it additionally mean that the acquisition cannot be early by more than x hours?

Answer 5: See answer 4 above.

Question 6: Concerning the descriptions for "Surface vessel avoidance" in Tables A1 and A3, the speed of a surface vessel may directly impact the ability of the LDUUV to avoid it. Could information regarding the speeds of the surface vessels be provided?

Answer 6: No additional information can be provided.

Question 7: In Table A3, does the description for the "Surfacing" entry mean that it should take 5 minutes for the LDUUV to surface from its current depth, or does it mean that, once the LDUUV surfaces, it should remain on the surface for 5 minutes?

Answer 7: See answer 4 above.

Question 8: In Table A3, for the "Low power station keeping" entry, could information be provided about the tolerance of the positional error?

Answer 8: No additional information can be provided due to classification restrictions.

Question 9: In Table A3, for the "Low power station keeping" entry, could it be clarified in what way station keeping is intended to conserve power because it seems that actively keeping station may require a similar level of power consumption as transiting? Could it be the case that, during station keeping, unneeded sensor processing, for example, would be shutdown?

Answer 9: Table A3 provides an adequate description.

Question 10: Are we able to submit with a different Period of Performance than what is stated in the BAA?

Answer 10: Yes, however, the periods of performance stated in the BAA are not to exceed amounts.

Question 11: May Offerors submit subcontractors' past performance and resumes for key personnel and Principal Investigator in their proposal?

Answer 11: Yes.

Question 12: Is the propulsor a part of the GFE vehicle or is that something that can/should be proposed?

Answer 12: This refers to the motor and controller in Appendix B. See the amendment made to Appendix B below.

Question 13: Is there another way we can obtain the materials published at these sites?
https://secure.onr.navy.mil/events/docs/734_LDUUV%20INP%20Industry%20Day_posted%20version.pdf
<http://www.onr.navy.mil/Contract-Grants/submit-proposal/contracts-proposal/cost-proposal.aspx>

Answer 13: No. Our understanding is that this site is accessible to industry.

Question 14: Section VI (Award Administrative Information) of BAA number ONRBAA11-025 states "Online Representations and Certifications Applications (ORCA) – In accordance with FAR 4.1201, prospective contractors shall complete and submit electronic annual representations and certifications available at <https://orca.bpn.gov>." However, the required Technical and Cost Proposal Template – 2011 –

Revision 7; Section IV (Cost Content) number 2 leads you to believe that a copy of the ORCA certifications is not required with proposal responses. Are the ORCA certifications and representations required to be submitted with an offeror's proposal?

Answer 14: Contractors need to have an active and updated Online Representations and Certifications Applications (ORCA) account. These representations and certifications need to be submitted electronically at <https://orca.bpn.gov>. They do not need to be submitted as an attachment to the proposal. However, the ONR Contract Specific Representations and Certifications, i.e. Section K, needs to be submitted with the proposal. These representations and Certifications can be found at <http://www.onr.navy.mil/Contract-Grants/submit-proposal/contract-proposal.aspx>.

Question 15: Does the Cost Proposal Spreadsheet need to be completed by Task/Subtasks by government fiscal year? If budgets are required by Task is it by Major Tasks only or all Tasks and Subtasks by Government Fiscal Year?

Answer 15: Cost proposal spreadsheets do not need to be completed by task/subtasks by government fiscal year. The cost proposal spreadsheet needs to be completed by government fiscal year for the base period and each separate option.

Question 16: Please clarify the instructions given in paragraph four from the bottom of page 21. It is unclear what is required for the IDIQ versus Task Order 1, and where the technical approach for Phase II (per BAA page 3) should be included?

The RFP indicates that we should be submitting pricing for the IDIQ Contract which should include Phase I Base and Phase I Option. It also says that we are to submit pricing for Task Order 0001 which covers Phase I only. Based on this it would appear that we would be submitting pricing for Task Order 0001 that would be a duplicate of the pricing we submit as the IDIQ.

Answer 16: Two technical proposals shall be submitted in accordance with the referenced paragraph. The IDIQ technical proposal should provide an overview of the overall program, and the technical proposal for Task Order 0001 shall address Task Order 0001 (Phase I Base and Option). Only one cost proposal for Task Order 0001 (Phase I Base and Option) needs to be submitted.

Question 17: Should there be any costing relative to the IDIQ, such as a ceiling, or just costing for Task Order 0001?

Answer 17: Please see Section II AWARD INFORMATION, page 17. The ceiling for the IDIQ contract is projected to be approximately \$15M. Please provide cost information for Task Order 0001 in accordance with the BAA.

Question 18: Do autonomy efficiency requirements on autonomy hardware and software include the power necessary to run associated sensor suite, or just that needed for the autonomy computational engine?

Answer 18: See answer 4 above.

Question 19: Should extended autonomous operation at periscope depth (vice just transit to and from the near surface regime) be a design consideration for either Phase 1 or Phase 2?

Answer 19: Tables A1 and A3 provide adequate descriptions to allow multiple vendors' concepts to be proposed.

Question 20: If a team includes participation by a Federal Agency, should the prime proposal budget include such federal costs?

Answer 20: Page 19 of the BAA refers. If the prime contractor wants to propose a government organization as a subcontractor in their proposal, then they need to set up a work for private parties agreement and include their proposed cost in the proposal.

Question 21: The BAA 11-025 says that the submission process includes the ONR Technical and Cost Proposal Template for the IDIQ contract and the Task Order 0001 proposal. We currently have a classified IDIQ ONR BOA which we would like to use if we receive this award. Would we be able to do that? And if so, must we still submit the ONR Technical and Cost Proposal Template for the IDIQ?

Answer 21: A BOA will not be utilized as the basis for contract terms and conditions under this BAA. All contractors shall submit a proposal as specified in BAA 11-025.

Question 22: Is integration with the Government-Operated Large UUV prototype required for endurance phase 1 (not including the optional tasking), or is it sufficient to demonstrate the capability on contractor supplied hardware?

Answer 22: See the amendment below made to Section I, Paragraph 6.1.2 entitled, “Autonomy Phase I” and Paragraph 6.2.2 entitled, “Endurance Phase I”.

Question 23: If a Contractor intends to submit proposals for each technical area, will any resultant awards be issued as task orders under one IDIQ or is it envisioned there be a separate IDIQ Contract for each technical area?

Answer 23: See the amendment below made to Section I, Paragraph 6 entitled, “Research Opportunity Description”.

Question 24: Due to the short proposal period and the upcoming holiday, delivering the proposal by mail would compress the proposal preparation period. Can proposals be hand-delivered on September 12th? If so, what is the submission procedure for hand-delivered proposals?

Answer 24: See the amendment below made to Section IV Paragraph 1 entitled, “Application and Submission Process”.

Question 25: Section IV, Paragraph 5 says that submission of the proposal shall be delivered to the Technical POC. Can you please confirm that this is correct?

Answer 25: See the amendment below made to Section IV, Paragraph 5 entitled, “Address for Submission of Full Proposals”.

Question 26: We respectfully wish to request a one-week extension of the proposal due date.

Answer 26: See the amendment below made to Section I, Paragraph 5 entitled, “Response Date” and Section IV, Paragraph 3 entitled, “Significant Dates and Times”.

Question 27: If a government agency and/or FFRDC is proposing under this effort, would they have to submit a Reqs & Certs? Is it acceptable for them to provide a letter that states the Reqs & Certs don't apply to them? The Reqs & Certs would be blank and the letter would be attached.

Answer 27: Yes, this is an acceptable approach. However, see instructions related to FFRDCs and DoD and Civilian Agency Laboratories on page 19 of the BAA.

3. The BAA is hereby amended as follows:

a. Section I, Paragraph 6 entitled, “Research Opportunity Description” is revised as follows:

6. Research Opportunity Description:

The Large Displacement Unmanned Underwater Vehicles Innovative Naval Prototype technology BAA will develop the critical technologies needed to enable UUVs to operate and survive in the littorals for 70+ days. The LDUUV is a pier-launched and recovered UUV (without the need for ship-launch or recovery) with the capability to transit in the open ocean and conduct over-the-horizon missions in littoral waters. This system will enable the extension of Navy platform sensing capability over the horizon and extend its influence. The creation of this UUV is intended to act as a significant force multiplier for the US Navy and will help close Warfighter gaps in a cost-effective manner. Two technology areas have been identified as critical to achieving this goal. These areas are Autonomy and Endurance Technologies.

This BAA research opportunity is divided into two separate sections, one for each of these technology areas. Proposers may submit to one or more of the technology area announcements. A separate standalone proposal is required for each technology area, **and a separate IDIQ contract will be awarded for each technology area.** A follow-on BAA may be issued for integration of the core components developed under this BAA

This background is provided for informational purposes only. Greater breadth of mission profiles for current and future Naval Unmanned Undersea Vehicles require longer propulsion systems that extend the current capability of these vehicles from tens of hours to operability of the system for weeks to months¹.

Briefs that describe the Navy need, current state-of-the-art, and program goals from ONR Industry Day for this BAA, held on 10 March 2011, are available on the ONR web site at: https://secure.onr.navy.mil/events/docs/734_LDUUV%20INP%20Industry%20Day_posted%20version.pdf. Appendix A provides additional links of interest.

Information in this BAA regarding desired capabilities, metrics, and any other technical or contracting information supersedes any previously published information (including that briefed at the industry day described above).

b. Section I, Paragraph 6.1.2, first paragraph under subparagraph entitled, “Autonomy Phase I” is revised to read as follows:

The contract Phase I period consists of an 18-month base period plus an additional six month option. During the Base Period, performers will work to develop the algorithms and hardware to meet the thresholds defined below in Tables A1 and A2 and perform the objectives in Autonomy Phase I. The option period will be exercised, **subject to funding**, for those performers meeting the thresholds in the base period for the purpose of integrating the algorithms on a LDUUV Test bed (**Appendix B** refers). If private funds have been used to develop technologies or concepts related to the proposed design, the U.S.

¹ UUV Master Plan; www.navy.mil/navydata/technology/uuvmp.pdf

Government requires, at a minimum, Government Purpose Rights in the technical data and computer software developed under the contract.

c. Section I, Table A1 entitled, “Autonomy Phase I Threshold (Minimum Requirement) Criteria is revised to read as follows:

TABLE A1: Autonomy Phase I Threshold (Minimum Requirement) Criteria:

Threshold Criteria	Metric
Stationary obstacles avoidance	All obstacles extending from the bottom into water column (greater than 6 “ diameter) for a 30 day mission
Surface vessel avoidance	Detect 99.9% of all surface vessels over 30 gross tons within 2 nautical miles (nm). Avoid (500+ ft separation) detected moving vessel 100% of time. Density of vessels will be no greater than 1 contact per square nm
Surfacing object avoidance	Detect objects greater than 3’ cross section above the vehicle within 20’ and avoid object
Fishing activity detection and avoidance	Detect fishing activity within 1 nm with a probability of correct detection of 80% and a probability of false detection of 10%. Maneuver around the fishing activity
Operating time	30 day of operation without sailor physically maintain software or hardware
Depth	Operate from 100’ to 400’ in depth
Bathymetry following	Provide control algorithms to control vehicle controller to maintain constant altitude of 100ft above bottom within + - 5 ft
Route success	Over a 30 day mission, reach 10 prescribed waypoints within 10 hours of the plan and 300 feet of the position
Efficiency	Autonomy hardware, software, and sensors shall not exceed more than 400W average power consumption

d. Section I, Table A3 entitled, “Autonomy Phase II Criteria” is revised to read as follows:

TABLE A3: Autonomy Phase II Criteria:

Criteria	Metric
Bottom stationary obstacles avoidance	All obstacles extending from the bottom into water column (greater than 6 “ diameter) for the 70+ day mission
Surface vessel avoidance	When on or near the surface, detect 99.9% of all surface vessels within 2 nmi. 90% Detection of all moving surface vessels within 3 nmi. Avoid (500+ ft separation) detected moving vessel 100% of time. Density of vessels will be no greater than 5 ships per square mile
Surface object avoidance	Detect objects greater than 3’ cross section above the vehicle within 20’ and avoid object
Fishing activity detection and avoidance	Detect fishing activity within 5 nmi with a probability of correct detection $\geq 95\%$ and a probability of false detection $\leq 5\%$.
Operating time	70+ days of operation without sailor physically maintain software or hardware
Depth	Operate from 20’ to 800’ in depth
Bathymetry following	Provide control algorithms to control vehicle controller to maintain constant altitude of 100ft above bottom within + - 5 ft
Route success	Over a 70 day mission, reach 40 prescribed waypoints within 5 hours of the approved plan and 50m of each waypoint with a waypoint distance from 0 to 100s of miles
Efficiency	Autonomy hardware, software, and sensors shall not exceed more than 100w average power consumption
Surfacing	Conduct surfacing maneuver (5 min max on surface) where multiple surface vessels are within 10 nmi but none are with 1 nmi.
Low power station keeping	Conduct station keeping maneuvers in up to 3 knot

	current that conserves power.
Net detection	Detection of fishing net location within 100 ft with a probability $\geq 80\%$. Maneuver around the fishing net.

e. Section I, Paragraph 6.2.2, first paragraph under subparagraph entitled, “Endurance Phase I” is revised to read as follows:

The contract Phase I period consists of a 24 month base period plus an additional six month option whereby the system is expected to meet or exceed the Thresholds listed below. **The option period will be exercised, subject to funding, for those performers meeting the thresholds in the base period for the purpose of planning of integration in to a LDUUV Test Bed (Appendix B refers).** If private funds have been used to develop technologies or concepts related to the proposed design, the U.S. Government desires, at a minimum, Government Purpose Rights in the technical data and computer software developed under the contract. Final demonstration for Phase I will be at a land based test center, but a full scale government-operated UUV prototype can be used for autonomy testing during the Phase I option.

f. Section IV, Paragraph 1 entitled, “Application and Submission Process: Full Proposals” is revised to read as follows:

1. Application and Submission Process: Full Proposals

Full Proposals – Only proposals for the Phase I Base and Phase I Option and a description of the technical approach for Phase II are being solicited at this time. The due date for receipt of Full Proposals is 2:00 PM (Eastern Daylight Time) on **19 September 2011**. It is anticipated that initial selections will be made by **19 December 2011**. As soon as the final proposal evaluation process is completed, the proposers will be notified via email of their selection or non-selection for an award.

g. Section IV, Paragraph 3 entitled, “Significant Dates and Times” is revised to read as follows:

3. Significant Dates and Times

Anticipated Schedule of Events		
Event	Date (MM/DD/YEAR)	Time (Eastern Daylight Time)
Pre-Proposal Conference/Industry Day	03/10/2011	
Questions Due	08/29/2011	1400
Full Proposals Due Date	09/19/2011	1400
Notification of Selection for Award *	12/19/2011	
Contract Awards*	04/19/2012	
Kickoff Meeting*	05/4/2012	

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

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

h. Section IV, Paragraph 5 entitled, “Address for Submission of Full Proposals” is revised to read as follows:

5. Address for Submission of Full Proposals

All hard copies of full proposals (with CD-ROM) shall be **mailed or hand delivered**. **If the proposal is going to be mailed, then the proposal shall be mailed to the technical point of contact listed in Section I.7. If the proposal is going to be hand delivered, then the proposal shall be hand delivered to Khia Ross, Procurement Tech, address: 875 North Randolph Street Arlington, VA 22203, phone number: 703-588-2252.**

i. Appendix B entitled, “General Description of LDUUV” is revised to read as follows:

APPENDIX B: General Description of LDUUV

General descriptions are as follows:

Nose section: the nose section is 5 feet in length with a maximum outer diameter of 48”. This section is flooded and any technology should either be pressure tolerant or come inside a pressure vessel.

Tail Section: The tail section is 10 feet in length with a maximum outer diameter of 48”. This section is flooded and any technology should either be pressure tolerant or be provided within its own pressure vessel.

The below table lists the components that are in each of the section along with their volume, power draw, and technical capabilities.

Sub system	Performance	Power	Space
Navigation system - This system includes INU, GPS, DVL	Position: 10 m CEP (surface); .5% DT, CEPT underwater Heading: 5.0 mils, rms Velocity: .05 m/sec Pitch roll: .5 mils, rms	75 watts	700 in ³
Vehicle Controller	Controls all actuators and monitors status of the vehicle	200 watts	1400 in ³
Communications Controller	Iridium, acoustic communication, wifi	25 watts	300 in ³
skin	Gel coated fiberglass. No special coating for drag	none	External shape

	reduction or bio fouling reduction		
Motor & controller propulsion	300vdc 50 hp motor	Efficiency 80%	1400 in ³
Ballast system	400lbs of ballast displacement	Pump at 1000ft	1000 in ³