

Amendment 0001
Solicitation Number ONRBAA 13-004
“Expeditionary Maneuver Warfare Applied Research and Advanced Technology Development”
Date 19 December 2012

The purpose of Amendment 0001 is to respond to questions submitted from 11/29/2012 through 12/19/2012. Questions received after 12/19/2012 will be addressed in a subsequent amendment.

1. Industry Questions and Answers are provided as follows:

(Q1) What are the main 4 or 5 items that they are having challenges with moving or handling in the 200 -400 pound range?

(A1) I wouldn't say there are specific items in that range that are causing problems. Most loads in that weight range are palletized and can be manipulated via forklift. The lifting issues are at the receiving end, where Marines may or may not have a forklift. However, anything dismounted Marines are getting can be broken down (i.e boxes of MREs or ammunition) and off-loaded by hand. Large items such as spare MTVR tires or tie-rods would probably only be going to a larger position, one which would then have a Heavy Equipment capability. The biggest issues are with odd-shaped or bulky items. Automotive parts are a good example, as are fuel drums.

(Q2) What field equipment or procedures are they using currently to move 200 - 400 pound items?

(A2) For that size load, the primary piece of equipment used is the Terex Light Capability Rough Terrain Forklift(LCRTF), commonly referred to as the "5k". It's a bit over-kill for that weight range (it can lift 5,000 lbs), but is what you'll see most often in expeditionary environments. Depending on the position, one might see some bigger equipment, namely the USMC Extended Boom Forklift (EBFL) or the TRAM 644E, both of which can lift about 10,000 lbs. The 200-400 lbs weight range is a tricky one, because it's a little too heavy for Marines to move it around unassisted, but small enough that HE (Heavy Equipment) won't typically be scaled for that size. In truly austere positions (and I'd argue that a position with a forklift isn't truly austere), loads are broken down to a size that Marines can lift by hand, or the HE is transported with the load.

(Q3) Pallet, AMMO Boxes, MRE what is the preferred shipping container for logistics?

(A3) For both MREs and ammunition, those loads are palletized. Almost all loads are palletized, because at some point, a forklift is used to on- and off-load. The load height on an MTVR is about 5 feet, so it's almost impossible to load cargo by hand. Other shipping containers include:
-Actual shipping containers (1 TEU shipping container can be held by an extended-cargo MTVR)
-PALCONs (NSN: 8115-01-371-3690 TAMCN: C4431, Dimensions: 40"x48"x41")

(Q4) Threat level in area of logistic handling?

(A4) For the most part, the threat is pretty low. Essentially all on- and off-load operations are conducted within a secured position. Tactical re-supply (such as ammunition or water for a unit outside the wire) is a special situation, but you're really talking small quantities which can be hand-carried. I've personally received tactical re-supply of food, water, ammunition, and explosives, performed via helicopter or ground vehicle, and would be happy to talk through the process. The key takeaway is that those loads were pre-arranged to be easy-to-handle on the receiving end. For the vast majority of logistical handling operations, the threat level is low.

(Q5) Any mechanical devise that we can provide the soldier to assist in moving goods will in itself become a burden unless we assume that the device is delivered to the point of departure with the materials to be moved. Is this envisioned to be the case? Will the solution return with the unit or stay in the remote area for future logistical help to incoming unit?

(A5) There are tradeoffs to both methods. One one hand, you have systems such as the LVSR, which can be equipped with a container boom for on- and off-loading shipping containers, and the MTVR can be equipped with a telescoping boom. The advantage is that that capability is always with you, and there's no need for the receiving unit to fuel, maintain, operate, carry, or protect that piece of equipment. The disadvantage is that your cargo space and weight is dedicated to lugging around heavy equipment everywhere you go. Also, it can only help with convoy-delivered resupply, while many positions receive aerial resupply and use HE to recover those loads.

I believe there is an opportunity for material-handling improvements in that space (too big to be done by hand, too light to require bulky equipment). Whether such equipment arrives and departs with the re-supply vehicle or remains with the supported unit depends on a number of factors. From an operational perspective, I can envision either system working depending on which trade-offs are pursued (or even a hybrid solution which can support either scenario).

(Q6) Would my university need to register [in EDA and SAM.Gov] before submission of the white paper? If so, what would be the deadline?

(A6) Yes, prior to white paper submission

(Q7) Is the \$45,000 funding per Thrust Area topic fixed or is there flexibility for larger awards?

(A7) The dollar amount is approximately \$45,000K, meaning \$45,000,000 overall and approximately \$5,000,000 per Thrust Area.

(Q8) I would like clarification for the award amounts for the Expeditionary Maneuver Warfare Applied Research and Advanced Technology Development RFA. Am I correct that the award amounts listed in the RFA are the total funds available to award in a particular fiscal year, irrespective of the number of projects that receive awards? In other words, for FY 2014, \$6M is available for all possible awards, regardless if it is 1 award or 15.

(A8) Yes, that is correct.

(Q9) What applications is ONR primarily interested in for these alloys? Is it for vehicular or body armor?

(A9) The ONR 30 maneuver thrust area invests in ground vehicle and small boat survivability. The ONR 30 force protection thrust area invests in body armor. Both areas are of interest and each have similar challenges and distinct differences.

(Q10) What is the preferred product form? Sheets? Or complex geometry?

(A10) Sheets or panels are most often applicable to ground vehicle armor. The ability to apply directly to complex geometries is desired for ground vehicles, but not mandatory. For body armor, complex geometries are highly desirable and sheets and panels would not likely be considered.

(Q11) What other properties are important for ONR? For e.g. Corrosion resistance?

(A11) The expeditionary maneuver warfare environment is unique. It necessitates some of the following additional characteristics:

- Very high mass efficiencies
- Low material and production cost
- Superior protection against direct fire threats (both ball and armor piercing rounds) and protection against fragmentation from explosive events -Material solutions must be capable of withstanding cyclic loading without early fatigue failure.
- It is desirable to investigate structural solutions that can be integrated into the platform, as opposed to appliqué materials that are parasitic in weight to the platform.
- In general materials need to endure a Naval environment which includes a need for high corrosion resistance for saltwater environments, salt fog, salt spray, etc.