

LIGHT TACTICAL VEHICLES

BY SCOTT R. GOURLEY

J LTV, HMMWV, ITV, trailers, and associated equipment are now part of the PMO LTV portfolio.

The recent announcement of the Joint Light Tactical Vehicle (JLTV) engineering and manufacturing development (EMD) awards only added to an already crowded plate of activities being managed and balanced by the Program Management Office for Light Tactical Vehicles (LTV).

Reflecting a significant program expansion that occurred in December 2011, the current office portfolio spans Marine Corps involvement in the joint service JLTV as well as myriad Marine Corps High Mobility Multipurpose Wheeled Vehicles (HMMWVs), the Internally Transportable Vehicle (ITV), associated trailers, and other related equipment.

According to PEO Land Systems' Program Manager (PM) for Light Tactical Vehicles Lt. Col. Mike Burks, the December 2011 programmatic expansion involved the transition of programs formerly assigned under PM Motor Transport from Marine Corps Systems Command to PEO Land Systems.

"I inherited from that transition the HMMWV – both legacy and future programs; ITV; military motorcycle; and the associated trailers," Burks said. "I also inherited the component integration piece, with the other 72 programs that require HMMWVs to perform their mission.

"With the consolidation of both future and legacy light tactical and light combat vehicles under a single program management office, we were specifically chartered to assume responsibility for the management and the execution of those light tactical vehicle acquisition programs that fall within that portfolio as well as the legacy fleet sustainment," Burks explained. "And if you look beyond that, I would echo one of Mr. [William] Taylor's themes on the PEO as a whole by pointing to the 'domain logic' in the LTV reorganization – the alignment of 'land systems' under PEO Land Systems and the associated sub-domains where that alignment produces efficiencies and eliminates redundancies in execution. It creates that synergy among related programs. And my office is merely an extension of that from Mr. Taylor's vision."

Putting it into military terminology, Burks pointed to the benefits of "unity of command" and "unity of effort."

"That's the bottom line from my end of this," he said. "I don't compete with some other PMO. Instead, I have those related programs all under my cognizance. And hopefully the whole ends up greater than the sum of its parts. It's not 'JLTV or sustaining the HMMWV through 2030.' It's not one or the other. It's both. And with the resources also now focused under a single decision-maker to allocate them and execute them most effectively."



U.S. Marine Corps photo by Cpl. Jeremy M. Giacomino

// Three HMMWVs from the U.S. Marine Corps' Echo Company, 2nd Battalion, 8th Marine Regiment, travel in Ramadi, Iraq, in 2008. Transfer of responsibility for the HMMWV fleet means a major increase in the size of the PM LTV portfolio.



// The JLTV down-select decision in August 2012 left three vehicles going into the engineering and manufacturing development phase: The Oshkosh LAV (far left), the AM General BRV-O (center), and the Lockheed Martin JLTV (left).

As the designated lead service on the joint service JLTV program, the U.S. Army announced the three JLTV EMD awards on Aug. 22, 2012. The awards were made to AM General LLC, Lockheed Martin Corporation, and Oshkosh Corporation.

"We were very pleased with the robust industry response to the JLTV RFP [request for proposal]," said U.S. Army Program Executive Officer for Combat Support and Combat Service Support Kevin Fahey. "The source selection team worked diligently through the large volume of proposals submitted to ensure that the partners chosen for the EMD phase gave the services the best opportunity possible to take the next step in filling the affordable critical capability gaps within the light tactical vehicle fleet."

"The EMD contract awards reinforce the successful joint effort between the services on JLTV," added Marine Corps Program Executive Officer for Land Systems William Taylor. "The strong Army-Marine Corps partnership recognizes that synergy is imperative in this austere budgetary environment, and is committed to the success of JLTV in filling the affordable critical capability gap that exists in both services' light tactical vehicle fleets."

The JLTV EMD contracts require each company to deliver 22 full-up prototypes starting 12 months after contract award, and subsequently provide contractor support to a comprehensive 14-month government test program, including blast testing, automotive testing, and user evaluation.

Asked about how the eventual fielding of JLTV will affect the planned sustainment of the Marine

Corps' HMMWV fleet, Burks pointed to several "irons in the fire" surrounding the fleet evolution.

"With the strategic decision to commit to JLTV, the Marine Corps made the call to develop the light combat vehicle that is given to the operational commander for placing with all deliberate intent in harm's way," he said. "So it really crosses that boundary of light tactical vehicle and light combat vehicle. And, in fact, the Marine Corps is acquiring a disproportionate number of heavy gun trucks and close-combat weapons carriers as part of its JLTV acquisition. That number comes out to 5,500."

One significant challenge involves the acquisition time frame for the Marine Corps vehicles.

"We need to complete that acquisition by the end of FY 21 because of the ACV [Amphibious Combat Vehicle] 'bow wave' and the Marine Corps' plan, through sequential modernization of capabilities, to begin the fielding of the ACV after that time," Burks stated.

"In the meantime, 5,500 JLTVs does not come close to covering down on the requirement that exists for a light tactical vehicle to accomplish numerous other missions that do not require the vehicle to go into a high-intensity conflict scenario," he said. "And we address that with the HMMWV."

Plans call for the reduction of the Marine Corps HMMWV fleet, currently in excess of 24,000 vehicles, down to approximately 18,500, with 5,500 of those vehicles subsequently displaced by JLTV.

The remaining Marine Corps HMMWV fleet of approximately 12,900 to 13,000 vehicles will require sustainment and other viability actions.

"In investing from '24 [thousand] and change' down to '18 [thousand] and change,' we're eliminating about one-fourth of the light tactical fleet," Burks explained. "But we still have to maintain 13,000 vehicles through 2030, and that entails a significant effort, because the HMMWV as it stands right now does not get deployed off of the forward operating base. Why? Because we have crushed it. We have crushed it under the armor necessary to secure the occupants' survivability, thereby stripping it, however, of driver control and stability – with lots of non-combat casualties because of that; mobility – you don't get it off the 'hard ball' road; reliability – it's awful – We're burning through brakes at quintuple the rate. We're burning out radiators. We're burning out engines in 45 minutes of hard driving. It's the dog of every convoy it's in. It's bad. But that's the state of the vehicle based on what we've done to it."

"It's not simply an IROAN [inspect and repair only as necessary] or a reset," he added. "If we want to make the HMMWV operationally relevant, we've got to look beyond that. And the good news is that both the Marine Corps and the Army have been conceptualizing for some time and ultimately only made the decision to embrace JLTV at the high end of that capability deficiency last fall."

"So where does that leave us? It leaves us – and industry – with the ability to leverage a lot of mature and production-ready designs that are already based on extensive testing and research and development across the industrial base," Burks continued. "The Sustainment Modification

Initiative proposes to leverage these advances and through that restore the existing expanded capacity variant of the HMMWV to pre-armoring levels – in terms of safety, performance, and reliability."

Noting that the 2004 Operational Requirements Document and the associated key performance parameters for the HMMWV Expanded Capacity Vehicle (ECV) articulate many of the capabilities being sought, he acknowledged that "cost is king and affordability constraints are paramount. Those are the limitations of the day and everything we do is bounded by that." He said, "So that means we go after a few things here. We can't go after everything. But some of these are mission essential. We've got to restore that reliability piece. We have to at least retain if not outright improve mobility. It can't get any worse and preferably it gets a lot better. O&M [operations and maintenance] costs are another huge area. With reliability so degraded, we are paying for it. We are paying for it in so many areas of consumables and repairables. And fuel efficiency is out the window. So we are focusing on those things that improve the logistics footprint and the energy efficiency when it operates in an expeditionary environment."

"Something else that goes along with that is payload," he added. "The current HMMWV is operating thousands of pounds beyond its gross vehicle weight rating. It's crushed from the moment it comes off the production line. And then the Marines just heap that much more stuff on them. It's what they need to do to accomplish the mission. But the vehicle doesn't support it."

And we break many different pieces of the vehicle in doing so."

According to Burks, improving HMMWV protection levels is "the last thing among the priorities."

"Force protection is not an outright priority at this point, since JLTV is going to be armored to take those shots," he said. "But other considerations that are associated with protective features are still very relevant. Consider what we would do to protect gas tanks, as an example, or to improve the vulnerabilities of some sub-assemblies to compromise in the event of taking a hit. Think of things that make the vehicle sufficiently survivable for egress following an impact. Those are all part of that focus on the remaining HMMWVs."

While the ECV requirements help to identify target capabilities for a large slice of the HMMWV fleet, the fact is that the approximately 13,000 HMMWVs that will remain with the Marine Corps will include approximately 5,000 A2 models.

"We're still thousands below our former Authorized Acquisition Objective for ECVs," Burks said. "But I've got almost 8,000 and I'm looking for ways around the margins to acquire more. Actually I just received an authorization letter from CD&I [Combat Development & Integration] to do so, and some Foreign Military Sales money that I am applying to that effect. But the quantities are small. It's on the margins. It's what I would call 'procurement by exception.' So my ideal state is actually to have many more ECVs, with the only ones that I really can't replace among the A2s being the ambulances. The rest I'd like to replace. But the population I'm working with and

the ECV business case I'm communicating to industry at this point is that up to around 8,000 would otherwise be intended to receive these sustainment modifications."

Burks noted that efforts are already under way at the Nevada Automotive Test Center (NATC) to explore some of the technical possibilities surrounding HMMWV fleet sustainment.

"NATC has been assisting us with some concept development and evaluation based on what we have established as basically four distinct concepts that are bound by certain capabilities and cost constraints," he said. "Essentially it's cost and performance trades associated with each concept. The user community is fully engaged with us throughout this. Then ultimately as we reach the end of this process, that user community – the requirements folks – will 'pull the trigger' on one of these concepts. And then that's what we will compete, full and open, to industry."

Burks emphasized that the NATC testing "does not inform any type of competition. Instead, it informs the requirement. It informs the user community and really establishes for them: At what level is the juice worth the squeeze in terms of the level of capability that this restores to the HMMWV?"

Turning to the Internally Transportable Vehicle (ITV), Burks explained that it was initially fielded as a system of systems.

"You had two basic variants: the Light Strike Vehicle to support reconnaissance and infantry; and the prime mover, which was developed to tow the Expeditionary Fire Support System

Courtesy of AM General

Courtesy of Oshkosh Defense

Courtesy of Lockheed Martin



// U.S. Marines with Echo Company, 2nd Battalion, 7th Marine Regiment, Battalion Landing Team, 31st Marine Expeditionary Unit (31st MEU), conduct loading exercises with the Internally Transportable Vehicle (ITV) on a CH-53 Super Stallion with Marine Medium Helicopter Squadron 265 (Reinforced), 31st MEU, during training events at Landing Zone Swan in Okinawa, Japan.

– the rifled towed mortar system,” he said. “The ITV production line ended in FY 12 and last quarter we competitively awarded a Contractor Logistics Support [CLS] award, which is part of a transition from CLS to organic support. It could last up to a few years, but in the interim provides technical and parts support until the completion of ongoing provisioning efforts and current fielding that will not end until late FY 13.”

In addition to the recent CLS contract, Burks highlighted the positive resolution of a recent issue surrounding the ITV.

“In late March, we issued something that the Marine Corps only does a few times a decade – specifically a Deadline Statement of Use Message for the entire ITV fleet,” he said. “And that was associated with a throttle binding issue. Nobody was hurt. No equipment was damaged, beyond some cosmetic damage to the grill of one ITV when it contacted the baseplate of the mortar that was being towed in front of it. It was during a new equipment training evolution and they found out that it just wouldn’t stop. So it met that rifled towed mortar at about 5 miles an hour and picked up a little grill damage. But not a scratch on the mortar. Thank goodness nobody was hurt, because what we came to find out upon further inquiry was that this was not a unique circumstance and there were some variances associated with the throttle position sensor that otherwise could result in this happening in other vehicles. And, in fact, when we dug into some of our FSR [field service representatives] reports in our archives, we found out that there were some anomalies that popped up in as many as 15 fielded vehicles that, for lack of a better term, were precursors to this issue developing. We were so fortunate that from the time we had a hint that this could happen we had the opportunity to pull the string. It was worth deadlining the entire fleet over. We dug down immediately with the vendor, pulling the whole team in and developing

some inspection and corrective action procedures. I would offer that the vendor was very cooperative on this as well and we were able, inside of two weeks, to release a follow-on message that authorized implementation and ‘by vehicle’ restoration of operational status.”

As a representative example of the many of the other activities under way in his program office, Burks pointed to recent experiments with a new Marine Corps Transparent Armor Gun Shield (MCTAGS) design with “reducible height.”

“This effort is specifically focused on Marine Expeditionary Units and on those assets that get stored on Maritime Prepositioning Ships,” he explained. “But there’s actually quite a bit of interest outside of the Marine Corps in this – SOCOM, the Army. Wherever you put these vehicles for deployment you greatly reduce the cube space they take up. If you’ve got a MCTAGS or a GPK [Gunner Protection Kit] that collapses on top of a vehicle without hours spent taking that thing off and finding somewhere else to put it that’s huge. Embarkation and deployment take on a whole other sense when you’re able to do that.

“We’re actually engaged in testing right now,” he said. “We have assets from BAE Systems and Rock Island Arsenal that are currently in test and will be through mid-September. We’re looking for reducibility – taking it down to a height of 5 or 6 inches from its current towering presence on the vehicles. We’re also looking for the ability to mount both lethal and non-lethal capabilities on in the process – defining the mounts. And we’re also looking at some novel materials, with ceramics being of significant interest right now. And you can imagine that we are also looking to ‘do no harm’ to the protective aspects, and if the opportunity presents itself – as it appears it may – to improve survivability in some areas.”