

# One Marine, Any Vehicle

Bridging logistics gaps in the First Island Chain

by Maj Rachel E. Cummings & LtCol Douglas T. Pugh

In *Back to the Future II*, Doc Brown famously quipped, “Roads? Where we’re going, we don’t need roads.” However, the 21st-century reality fails to meet the high expectations of Brown’s fictional 2015, and physical infrastructure remains a very real requirement for logistics and transportation: a reality that has particular relevance for operations on islands. The capabilities of road networks and supply chains in the first island chain (FIC) tilt the scales against a military force that relies on heavy, cumbersome, and fuel and maintenance-intensive vehicles for sustainment. A naval expeditionary force-in-readiness requires “resilient capabilities that enable us to operate for extended periods of time with limited outside support.”<sup>1</sup> However, the infrastructure and supply chains in the III MEF area of operations (AO) do not support the current inventory of Marine Corps vehicles, and the logistics combat element must look beyond its organic equipment set and leverage local assets to provide seamless logistics support with or without roads.

## Background

Operations in the FIC, especially expeditionary advanced base operations (EABO), are characterized by the use of mobile, persistent, low-signature, and economical Stand-In Forces that are integrated with naval operations.<sup>2</sup> This poses a challenge to logisticians as constructing iron mountains to sustain EABs is not wise, and relying on organic military equipment and supply chains may not be feasible inside the weapons engagement zone. *Force Design 2030* identifies logistics as “both a critical requirement and a critical vulnerability,” and the April 2022 update is even more explicit, clearly labeling logistics as a pacing function in need of “systemic

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change” to enable successful execution.<sup>3</sup> Logistics must be delivered over long distances to distributed forces while maintaining a low signature and leveraging local resources to minimize the frequency of need for assistance from rear logistics-support areas. Within the III MEF AO, this support will often require transport along local surface lines of communication. Analyzing transportation requirements in the AO led to three principal problems.

*Problem 1: Infrastructure.* A 2012 assessment of the Philippine road network reported that 85 percent of roads were classified as national (or public); of that 85 percent, only 18 percent were paved with asphalt or concrete. Furthermore, only twenty percent of local roads were assessed as being in “good or fair” condition.<sup>4</sup> Road networks throughout the III MEF AO are often narrow, crowded, and poorly suited for the weight, size, and maneuverability of the current fleet



*Actual road in Northern Luzon. Do you want to drive a Medium Tactical Vehicle Replacement here? (Photo by LtCol Douglas Pugh.)*

of Marine Corps vehicles. Moreover, many bridges in the AO do not meet the load classification to support heavy and medium-lift Marine Corps assets.

*Problem 2: Getting there.* Embarkation and deployment of Marine Corps forces and equipment in the III MEF AO are far from guaranteed in an emergency given the lead time and lack of available sea and airlift assets. At present, C-130s are the only organic Marine Corps connectors in the U.S. Indo-Pacific Command AO, and cargo aircraft of any kind require operational, secure runways. Military sea lift is also extremely limited to Marine Corps units based on low inventory, competing service priorities, maintenance cycle times, and accessibility in the AO. The reality is that intra-theater lift will not support the timely deployment of Marine Corps forces, and forces operating inside the FIC should plan to fight only with the equipment available on their island.

*Problem 3: Sustainment.* Even if they arrive ashore, the fuel requirements to operate Marine Corps vehicles and generators are prodigious and will unduly burden forces by taxing supply chains and exposing them to enemy observation. Moreover, resupplying fuel puts forces in danger, as seen in Iraq and Afghanistan where these types of resupply missions accounted for ten percent of U.S. casualties.<sup>5</sup> The average price the Marine Corps paid for a gallon of fuel during Operation IRAQI FREEDOM and Operation ENDURING FREEDOM was \$29.15 and surged as high as \$1,000 per gallon.<sup>6</sup>

Additionally, driving long distances over poorly maintained roads leads to increased maintenance requirements. Repair parts for Marine Corps vehicles, like our fuel, are often unique and cannot be sourced locally unless prepositioned. Also, like fuel, repair parts are costly. For example, the hood assembly of a medium tactical vehicle replacement is \$11,975, a front door is \$1,054, and the wheel assembly is \$4,241.<sup>7</sup> While ground vehicle repair parts are far cheaper than aviation repair parts, the procurement costs remain steep compared to local alternatives where the average cost of a 5-ton, 16-foot bed

cargo variant vehicle in FIC can be purchased for under \$15,000 (often with warranty).<sup>8</sup> Against peer adversaries, the likelihood of having to replace assets due to attrition is high. Our current Marine Corps vehicles fall short of *Force Design 2030*'s vision "because they are difficult to transport and operate

vehicles, or organizational structures."<sup>10</sup> Throughout our history, we have demonstrated our ability to innovate, harness ingenuity, and weaponize flexibility to fight and win our Nation's wars. The *Tentative Manual for EABO* calls for the employment of "numerous, small, versatile transportation assets [that] per-

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in the littorals, they require significant quantities of fuel, and they are challenging to maneuver on fragile host-nation infrastructure."<sup>9</sup> Successful EABO rely upon minimizing the amount of outside sustainment required, and every drop of fuel and each repair item from distant sources increases the signature of stand-in forces.

#### **Current initiatives: One Marine, Any Vehicle**

Fortunately, the Marine Corps is not defined "by equipment, aircraft,

mit naval logistics to disperse, enables maneuver and mobility, and provides resilience across the force."<sup>11</sup> While our current inventory does not fit this bill, locally available transportation assets that are suited for local transportation networks and supported by existing supply chains are abundant in the III MEF AO (e.g., cargo vehicles, material handling equipment, small boats). Additionally, procuring these items infuses money into local economies, improving relationships between the populace and Marines. The "One Marine, Any



**Civilian cargo flatbed.** (Photo by LtCol Douglas Pugh.)

Vehicle” (OMAV) initiative seeks to use those readily-available assets to bridge logistics gaps in austere environments between the limits of our current equipment and the forces needing support. The MAV program trains Marines to assess, procure, and use local vehicles and equipment while sustaining them on indigenous supply chains.

*Initiative 1: Stick shift training.* The MAV initiative began at 3d Transportation Battalion (3d TB) in June 2021 when leadership identified a need to operate civilian cargo vehicles to bridge the gap in the FIC between where organic Marine Corps vehicles could and could not travel to sustain forces. Also, since the majority of locally available cargo vehicles in the III MEF AO have manual transmissions, 3d TB saw a need to train motor-vehicle operators to drive a stick shift, since 3531s are not trained to operate manual transmission vehicles at the schoolhouse. In August 2021, the battalion established a manual transmission course that familiarizes Marines with the basics of driving manual transmission vehicles, involving a three-day curriculum consisting of classroom instruction, practical application, and a test for licensing. To date, over 100 Marines from across III MEF have graduated, and the course is sustained by integrated cooperation with Combat Logistics Regiment 3 and its subordinate battalions. In April 2022, 3d MLG established a contract to allow units to rent local cargo vehicles for training and exercises. The manual transmission course sets the foundation for 3531s to apply their skill set to any motor vehicle—as any operator knows, if you can drive a stick shift you can drive an automatic but not necessarily vice versa.

*Initiative 2: Small watercraft.* In November 2021, 3d TB and Combat Logistics Battalion-4 expanded MAV to include small-boat operations to provide the MLG additional operational flexibility and sustainment capabilities in the III MEF AO, as most of its islands have locally available watercraft that Marines can use to provide transportation support where road networks are poorly maintained or do not exist. This idea came from 3d TB’s Motor



**Small boats as logistics vehicles.** (Photo by LtCol Douglas Pugh.)

Transportation Company unit with vast experience operating throughout the FIC.<sup>12</sup> Developing this skill set also reduces the requirement to rely on sibling services for watercraft in the littorals. Expeditionary Operations Training Group facilitated combat rubber raiding craft coxswain courses for motor vehicle operators from 3d TB and Combat Logistics Battalion-4 in November and December 2021. These

Mar by retrieving air-delivered packages from open water in the East China Sea and delivering it to supported units ashore in Okinawa.

#### Way Ahead

The MAV initiative aims to strengthen the Marine Corps’ ability to leverage the principles of logistics—responsiveness, simplicity, flexibility, economy, attainability, sustainability,

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courses provided the initial capability required for follow-on experimentation with small boat-driven logistic support tactics, techniques, and procedures (TTPs). In February 2022, these coxswains, along with support from CLR-3, 3d Landing Support Battalion, and the Air Force, successfully used small boats to conduct class I resupply to 4th

and survivability—during EABO. It increases persistence by reducing “reliance on fixed bases and easily targetable infrastructure,” and improves survivability by reducing easily recognizable military footprints and fuel consumption requirements.<sup>13</sup> There are several viable avenues to expand the initiative and maximize its benefit across the

force, including local MHE and power generation and power storage.

As the number of combat rubber raiding craft coxswain course graduates increases, we will incorporate small boats into more training exercises to move Class I and IX, develop TTPs, and identify shortfalls. We also seek to establish a maritime leader's course to further develop small-watercraft capability and provide this skill set to commanders. The maritime leader's course, similar to mountain leaders' and jungle leaders' courses, would create Marines capable of advising commanders on how to incorporate watercraft into their logistics plans. Course require-

TTPs. Additionally, one could point out the risks of relying solely on local supply chains and resources to support military forces. We counter that the vision of OMAV is not to replace but rather to augment our current force with a low-signature, low-cost, sustainable solution that bridges the gap where our organic assets are either unsuited or incapable of operating. EABO simply requires certain logistical methods our organic assets do not provide. Furthermore, regarding defensibility, these locally procured assets are cheap enough to be abandoned and replaced when our forces are threatened—they are not meant to become an Alamo.

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ments would include the coxswain course, small engine repair courses, water navigation training, and advanced education on boat maintenance and capabilities. With the manual transmission course serving as an initial building block, the next step is to “take this show on the road,” testing the concept in realtime by integrating locally procured vehicles into field training events and bi-lateral or multi-lateral training exercises. Further experimentation under realistic conditions is required to refine TTPs and identify the sets of conditions that favor either local procurement or organic transport options. Local procurement reduces mobility footprints, but it does not entirely replace organic equipment and sustainment models, as there is a time and place for both. We are actively training field ordering officers and working with 3d MLG's Expeditionary Contracting Platoon for solutions to better support this vision.

It may be argued that a weakness of civilian cargo vehicles and watercraft is they lack the force protection and defensibility of organic military equipment and that they are not suited to existing

The current set of Marine Corps ground vehicles is ill-suited to operate in many parts of the III MEF AO, especially the FIC. At its core, OMAV fosters a mindset of adaptability and develops broadly applicable skill sets that embody the characteristics of EABO. While emerging acquisition models may address this obstacle, OMAV offers the ability to bridge the gap *now*. Further experimentation and the resources to execute that experimentation in a wide variety of realistic environments are essential to identifying and mitigating drawbacks to using locally procured assets. Ultimately, whether it is accomplished by medium and heavy-lift tactical vehicles, small boats, or local cargo trucks, sustainment success is measured not by the mode of transport but by the effective delivery of the right things, to the right place, at the right time.

#### Notes

1. Gen David H. Berger, *Force Design 2030 Annual Update: April 2021*, (Washington, DC: April 2021).

2. Headquarters Marine Corps, *Technical Manual for Expeditionary Advanced Base Operations*, (Washington, DC: 2021).

3. Gen David H. Berger, *Force Design 2030*, (Washington, DC: March 2020).

4. Asian Development Bank, *Philippines: Transport Sector Assessment, Strategy, and Road Map* (Mandaluyong City: Asian Development Bank, 2012).

5. Theodore Shanks and Alexander Gard-Murray, “Fossil Fuels are the Achilles’ Heel of Warfare. Just Ask Russia,” *Defense News*, May 3, 2022, <https://www.defensenews.com/opinion/commentary/2022/05/03/fossil-fuels-are-the-achilles-heel-of-warfare-just-ask-russia>.

6. Maj Andrew Butler, “Optimizing Marine Corps Energy,” *Marine Corps Gazette* 106, No. 2 (2022).

7. Prices current as of March 2022 per Global Combat Support System-Marine Corps.

8. MCIPAC Camp Butler Regional Contracting Office contract bids on behalf of 3d TB in spring 2022. Authors maintain pricing bids.

9. Gen David H. Berger, *Force Design 2030 Annual Update: May 2022*, (Washington, DC: May 2022).

10. Gen David H. Berger, *The 38th Commandant's Intent*, (Washington, DC: 2019).

11. *Technical Manual for Expeditionary Advanced Base Operations*.

12. The idea came from 1st Lt Alexander Crape, 3d TB Motor T Company Executive Officer. It was supported by 3d Expeditionary Operations Training Group Commanding Officer LtCol Christopher Frye.

13. *Technical Manual for Expeditionary Advanced Base Operations*.



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