Fleet Marine Force Engineering

A gap too far?

by Capt Samuel R. Houghtling

The Marine Corps is currently a year into redesigning the force for 2030 and beyond. Our fundamental requirement is to shape the presently atrophied force into one that can compete, fight, and win against peer adversaries, as outlined in the *38th Commandant's Planning Guidance*. Twenty years of low-intensity conflict, categorized by joint multi-domain supremacy, have conditioned the force to a context more remote from its naval expeditionary roots than perhaps ever before. We need a force that can compete and survive in a distributed maritime domain against an ever increasingly potent anti-access/area denial threat. The Marine Corps is rightly reprioritizing its future investment strategies away from heavy, logistically burdensome capabilities designed for large-scale, long-term conflicts ashore. Fundamental strategic requirements aside, the problem remains: we are not currently postured with the capabilities at a tactical level to support the maneuver of the Naval Expeditionary Force (NEF) throughout the competition-to-conflict continuum.

This article seeks to highlight the FMF Engineering concepts and capabilities currently lacking in a "Fight Now" environment. It also seeks to propose constructive solutions to the challenges facing *Force Design 2030*. Although this article focuses on the role of FMF engineers as distinctive enablers to the success of a naval campaign, it is equally important to understand how our shortfalls and capability gaps have ramifications across the entire joint force in terms of operational maneuver. This article seeks to address the critical topic of gap crossing operations as a subset of an assured mobility framework, but not to exclude other essential concepts that need more detailed analysis and dialogue.

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In 2020, the Marine Corps commenced divestment of its standard wet and dry gap crossing assets, to include the Assault Vehicle Launched Bridge, Medium Girder Bridges, Improved Ribbon Bridges, and Bridge Erection Boats, required for rafting operations. The Marine Corps rightly divested of these systems, as they do not meet requirements for attrition-worthy, highly transportable (via aviation or maritime assets), and flexibly employed capabilities needed to thrive in a distributed environment where force-mobility equates to survivability. Under current experimentation initiatives, the Marine Corps decided against acquiring the Joint Assault Bridge (JAB), an Army Program of Record. The Army utilizes Dry Support Bridges, Medium Girder Bridges, Improved Ribbon Bridges, and JABs—which require a heavy logistical footprint for tactical maneuver, operational lift, and robust maintenance requirements for Army Bridge Erection Boats and the M1A1 chassis used to employ the JAB.

Divestment strategies were justified in an article published in 2020 stating, "Such heavy capabilities are found in abundance elsewhere in the joint force inventory," and the author is "confident that we can rely on them to be there to support Marines in any high-end ground combat scenario into which we may find ourselves drawn."[1] While undoubtedly true in a macro-context, a tactical problem arises regarding the combined arms mobility of the currently forward deployed force, III MEF, which permanently resides inside the adversary weapons engagement zone without deliberate gap crossing assets. III MEF additionally fulfills the purpose of being a Stand-in-Force, in which we seek to check an adversary's advances by contesting the seaward littorals through the additional application of landbased kinetic fires. Furthermore, this infers a fundamental assumption that Stand-in-Forces must fight with what they have on hand with resupply estimates ranging from days to several weeks.

Assured mobility encompasses "the framework of processes, actions, and capabilities that enable the joint force to deploy and maneuver where and when desired, *without interruption or delay*, to accomplish the mission."[2] [Emphasis added.] Assured mobility focuses on proactive mobility, countermobility, and supporting survivability actions, which generate options and tempo for the maneuver force. Engineers accomplish these tasks by neutralizing obstacle effects across multiple routes to support the overall concept of operation. Assuring mobility not only affects the maneuver of friendly combat units but is critical to the supporting forces' concept of support for tactical logistics and sustainment.

A unit cannot effectively conduct maneuver without movement. Provid-

9th Engineer Support Battalion conducts rafting operations with 12th Marine Regiment in Okinawa, Japan. *(Photo by LCpl Alyssa Chuluda.)*

ing the physical ability for friendly forces to move freely across the battlespace is uniquely an engineer function. Engineers shape and manage the physical impacts of the environment against friendly and enemy forces—an inability to maneuver telegraphs a significant loss of initiative to our foes. Our adversaries will seek to further limit our mobility by destroying existing infrastructure or causing congestive effects on the mobility corridors in our area of operations. FMF engineers must solve these problems by employing alternative means to bypass congested or limited routes, replace or repair existing vehicle and personnel bridge infrastructure, and remain unpredictable (concealed) in our advance against the enemy.

The III MEF Area of Operations contains a variety of natural and manmade obstacles that impede friendly force mobility ashore. These range from mountainous tropical jungles with steep riverbanks and heavy vegetation to inland waterways and highly trafficked rivers with existing civilian bridges connecting primary and alternate supply routes. Manmade bridges present prime targeting opportunities for adversary forces that will ultimately force the FMF, and potentially NEF, to repair or replace destroyed spans or create alternate gap crossing locations to facilitate the movement and maneuver of personnel and equipment.

Gap crossing operations are a subset of an assured mobility framework across the battlespace. The common denominator to all mobility tasks is the ability to position combat power at-will by the commander to succeed on the battlefield. An inability to position combat power freely at the decisive point during offensive or defensive operations limits the lethality of our combined arms. Currently, there are no standard bridging capabilities in FMF units to meet the light and medium Military Load Classification requirements to accomplish gap crossing operations. Without deliberate gap crossing solutions, our collective ability to shape the operating environment is severely limited.

Based on terrain and geospatial awareness, the overall scheme of maneuver will drive gap crossing requirements. The use of heavy logistics vehicles and assets may not specifically be required during every type of assault or movement to contact by the ground combat element. However, in planning follow-on sustainment to maneuver elements, including the sustainment and mobility of supporting forces, commanders must consider all capability limitations when developing tactical logistics and rear-area support plans.

Engineers construct non-standard or expedient bridges with locally procured materials (timber, concrete, or stones), often requiring material handling equipment or other forms of heavy equipment to erect the types of bridges that would meet the mobility requirements for the force. The time needed to procure these materials in remote and austere environments and erect non-standard bridges that meet FMF mobility requirements is not feasible in a kinetic environment. Non-standard bridging requires specialized equipment and non-hardened materials such as metal or wood to produce components such as abutments, posts, or pilings. Non-standard bridging requires motor transport and logistics support assets to move materials to a site, vehicles and equipment to develop the site, and time associated with construction. Rapid production or fabrication of components is limited. The Marine Corps currently faces a capacity gap in several key areas, mainly vertical and horizontal construction in expeditionary and contingency environments. Current capabilities rely on specialized and limited equipment and resource (labor and materiel) intensive methods. It is seldom effective to employ non-standard bridging in support of front-line maneuver elements within zones of battle.[3] Non-standard bridging is not an acceptable replacement for employing standard bridging during gap crossing operations.

The Indo-Pacific Area of Responsibility requires the FMF to operate throughout a predominantly distributed maritime domain. III MEF, for example, does not contain a combat engineer battalion, and early distribution across the operating environment will immediately stress the capacity of existing engineer formations to support various combat and general engineer functions to the Marine Division, Marine Aircraft Wing, and Marine Logistics Group simultaneously. The future battlespace will require naval engineering units to work in distributed locations, with shorter timelines, and in contested environments that require unique construction requirements across multiple engineering functions without the ability to readily mass engineer forces—a

Marine Combat Engineers and Navy Seabees construct a non-standard bridge at Jungle Warfare Training Center, Okinawa, Japan. *(Photo provided by B Co, 9th ESB.)*

traditional engineer task organization construct.

The naval campaign ashore requires gap crossing assets to maintain mobility, enable movement, and preserve tempo for the naval and joint force commander. The FMF must maintain both standard and non-standard gap crossing capabilities to accomplish mobility tasks to support ground schemes of maneuver. There is a need for a suitable, transportable bridging system capable of supporting both vehicles and personnel. Such bridging must be ground or air-transportable, compatible with aerial delivery techniques, deployable quickly without additional construction support equipment, and capable of supporting combat vehicles over useful spans. MEF and NEF engineers must provide all aspects of mobility, countermobility, survivability, and general engineering support to the FMF and joint units operating in the theater.

Gap crossing capabilities must meet the Military Load Classification requirements for the largest expeditionary vehicle in the MEF inventory for use in rigorously austere environments. They must be capable of launching and emplacing bridge spans from existing vehicle platforms such as the Joint-Light Tactical Vehicle. They must be modular or self-deployable, with modules meeting tactical volumetric thresholds for transport aboard or attached to tactical vehicle assets, surface connectors, or applicable aviation delivered methods. We must pre-stage modular bridges, stored in all-weather containers, during competition in locations convenient to deployment during conflict. Minimal personnel and equipment will be available to construct standard gap crossing assets in the future.

FMF engineers must be trained and resourced to provide combined arms mobility during kinetic offensive and defensive operations and robust competition-oriented general engineering services. Both situations support a framework of assured mobility to the FMF and potentially joint customers in the AO. We must resource, train, and employ NEF engineers to their total capacity across multiple lines of effort to enable the tactical and operational maneuver of the fleet within the First Island Chain.

The stated need for standard gap crossing systems does not infer a desire to merely replace the equipment currently being divested by the Marine Corps. Our old systems satisfied a requirement to provide mobility options for heavy vehicles (i.e., tanks) and equipment across wet and dry gaps during sustained combat operations ashore. However, the divestment of bridging assets from the Marine Corps' inventory does not negate the requirement to provide deliberate gap crossing solutions to the force. The future may differ from today, but the current FMF vehicle inventory cannot cross a drainage ditch, let alone a natural or manmade gap.

Advancements in technology and environmental adaptation over time often shape the character of war; however, the nature of war will forever remain constant. One aspect of warfare remains undeniable; the FMF must retain the ability to generate tempo, maneuver space, and options as part of the naval campaign, afloat or ashore. We cannot accomplish this task without providing assured mobility within the seaward and inland objective areas. Today, many planners minimize the possibility of large-scale ground combat operations against peer competitors in the Marine Corps' future. Assailing their professional acumen is not the intent of this article. However, our last bloody engagement with the People's Republic of China included a gap crossing operations at the Funchilin Pass, which saved the 1st MarDiv, among all other units, from certain annihilation.[4] Are we willing to bet the lives of the Marines and Sailors living inside the weapons engagement zone against a determined foe who has a history of severing our ground lines of communication? The Marine Corps is one of the most historically conscious organizations in service today. We must create solutions to our tactical problems before we let history teach us a bitter lesson.

Notes

1. Gen David H. Berger, "The Case for Change Meeting the Principal Challenges Facing the Corps," *Marine Corps Gazette,* (Quantico, VA: June 2020).

2. Department of Defense, *Joint Publication 3-15: Barriers, Obstacles, and Mine Warfare for Joint Operations*, (Washington, DC: September 2016).

3. Headquarters Marine Corps, *MCWP 3-34, Engineering Operations*, (Washington, DC: May 2016).

4. Roy Appleman, *Escaping the Trap: The US Army X Corps in Northeast Korea, 1950*, (College Station, TX: Texas A&M University Press, 1990).