DRAFT

The STOM Concept of Operations (STOM CONOPS)

U.S. Marine Corps

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DEPARTMENT OF THE NAVY
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Foreword

Operations conducted in 2015 will require the rapid employment of a Marine air-ground task force (MAGTF) by both air and surface means, to include amphibious shipping, future maritime shipping, or a combination of each. These operations—Ship-to-Objective Maneuver (STOM)—will afford vastly increased force protection, operational mobility, tactical flexibility, and the opportunity to achieve speed and surprise not possible in past expeditionary operations.

This document, *Ship-to-Objective Maneuver (STOM) Concept of Operations (CONOPS)*, is the first in a family of CONOPS that serves as a bridge to transition current capabilities and doctrine into a future CONOPS. STOM is the tactical application of Operational Maneuver From the Sea (OMFTS) and is based upon the enhanced expeditionary power projection capabilities associated with the overarching capstone concept of Expeditionary Maneuver Warfare (EMW).

No existing publication or document provides all the required STOM reference information, and this document only depicts one way that the Marine Corps could conduct STOM operations in 2015. Its purpose is to answer the questions of how much, how far, by what means, and in what configuration will we project a force ashore if conducting a STOM operation. The task organization, force flow, and tactics, techniques, and procedures (TTPs) applied in this CONOPS are by no means the only manner in which STOM operations can be conducted, rather, they depict one way to conduct this type of operation. Numerous variations could be applied to this or other scenarios.

This particular CONOPS emphasizes the closure rate and flexibility possible by using maritime propositioning force (future) (MPF[F]) and forward deployed expeditionary strike groups (ESGs). It represents a mid-level threat with a moderate anti-access capability. It is not intended to obviate the need for conducting STOM operations using an amphibious Marine Expeditionary Brigade (MEB) against a more capable adversary possessing a more complex/robust anti-access capability.

This CONOPS is intended to be viewed and used as an initial baseline for future CONOPS based on an amphibious MEB, branch CONOPS (Command and Control, Logistics, Maneuver, Unmanned Aerial Vehicles, etc.), wargames, experimentation, and doctrine development. It can be used for future training development, further study, and ongoing research for emerging equipment, systems, and technology to facilitate expeditionary warfare today and in the future. It is the beginning of an iterative process, and it is intended to be updated and refined until firmly embedded in doctrine and TTPs.

Reviewed and approved this date.

BY DIRECTION OF THE COMMANDANT OF THE MARINE CORPS

EDWARD HANLON, JR
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Executive Summary

Ship-to-objective maneuver (STOM) is the execution of combined-arms maneuver through and across the water, air, and land of the littoral battlespace directly to inland objectives. STOM's aim is not to seize a beach for lodgment, but to project combat units ashore in their fighting formations and to sustain them against a decisive objective in order to ensure mission accomplishment.

This *STOM Concept of Operations (CONOPS)*, the first of a family of CONOPS, applies an operational scenario to the maneuver warfare principles of operational maneuver from the sea (OMFTS). Built upon the capstone concept of expeditionary maneuver warfare (EMW), it focuses on our core competencies, evolving capabilities, and innovative concepts to ensure that the Marine Corps provides the joint force commander with forces optimized for forward presence, engagement, crisis response, and warfighting. This CONOPS is organized into an overview; the scenario; and force disposition and composition, maneuver, air operations, fire support, logistic support, command and control (C2) support structure, intelligence operations, maritime prepositioning forces of the future, and mine countermeasures concept of employment discussions.

The overview provides the purpose, fundamental principles, and planning factors used to develop the CONOPS. Assumptions were made concerning organizational structure, systems, capabilities, and platforms used in the 2015 timeframe. The overview discusses these capabilities and functions as they pertain to all warfighting functions.

The scenario was derived from an Office of the Secretary of Defense (OSD)-sponsored scenario, which is being further developed into a Defense Planning Guidance (DPG) scenario. The scenario addresses general and specific situations, assumptions, area of operations, strategic settings, and enemy situation. In the scenario, the forces are built, they flow into theater, and a concept of operations is developed that projects the forces ashore.

The force disposition and composition is based upon a baseline 2015 Marine Expeditionary Brigade (MEB). The MEB is formed using a nonstandard organizational construct that includes two separate, smaller MAGTFs within a larger MAGTF. It consisted of two expeditionary strike groups (ESGs) (11th and 26th Marine Expeditionary Units-Special Operations Capable (MEU[SOC]) and a flow-in echelon (FIE) of the 7th Marines, 7th Air Combat Element (ACE) and 7th Brigade Service Support Group (BSSG). The MEU(SOC)s in this scenario did not composite, but did cross attach units in order to execute the STOM mission. By using this force mix, all the units of the MEB arrived in theater within 7 days and were ready to execute the STOM operation on D+5. However, the initial STOM operation did not commence until D+8.

The force's ability to maneuver and to rapidly exploit an opportunity is critical to STOM's success. STOM generates and maintains overwhelming tempo through

maneuver from the sea in order to avoid the operational pause associated with a traditional force beachhead. In the CONOPS, Marine forces posses the mobility and agility to conduct deep operations through a combination of surface attack forces and vertical assault forces. Vertical assault forces rely on their airborne assets for their mobility and increased operational tempo and capitalize on battlefield shaping efforts and the dilemma created by the surface forces actions or attack. The scenario supports the surface attack with six amphibious ships and the maritime prepositioning force future (MPF[F]) (6 MPF[F] ships in the squadron, 6 high speed sealift vessels, organic heavy surface lift capability, and 28 aircraft operating spots). Control measures aided both the controllers and the executors of the movement and provided leaders at all levels with a common frame of reference while maintaining tactical flexibility. In the scenario, the surface task force (TF) is a two battalion-sized mechanized force and the vertical TF is a two battalion-sized infantry force reinforced (rein) with light armored vehicles (LAVs). On day one of the STOM operations, 4,861 total personnel and 558 total vehicles are projected ashore. On day two, the reserve battalion is repositioned ashore, bringing the total number of personnel to 6,753 and total vehicle numbers to 886.

STOM operations increase the force's overall reliance on air operations across all warfighting functions. The ACE provides the MAGTF with the speed, mobility, and flexibility needed to execute the scenario. Self-deployment improves the ACE's strategic agility and influence on rapid force closure and support of at-sea arrival and assembly and reduces the demand on heavy airlift assets. The scenario employs tactical UAVs that support reconnaissance and surveillance, intelligence development and production, fire support/target acquisition, and communications relay. In the scenario, the vertical assault lifted two reinforced infantry battalions; the battalions' class I, III, and V; a combat service support detachment; and additional combat service support personnel (e.g., HST) to landing zones. The assault was executed in 4 waves and consisted of 2,153 Marines, 25 LAVs, and 170 vehicles and supporting equipment that landed within 7 hours and 45 minutes (or one period of darkness). Three subsequent waves of Marines and equipment were flown in as rapidly as fueling and deck cycles allowed. The CH-53Es bare most of the heavy-lifting burden and the MV-22s are the primary personnel transporters due to their speed.

The synergy attained by the use of combined arms (air, ground, and sea fire support in support of maneuver is central to the success of STOM operations. Advances in target acquisition and precision munitions improve the effectiveness of supporting fires while simultaneously easing logistic demands. During the ship-to-shore maneuver through the littoral penetration sites (LPSs) and littoral penetration points (LPPs), the surface TF uses aviation and naval surface fire support (NSFS) to provide close supporting fires. Complementary, overlapping, and redundant systems are critical for supporting the attack, particularly in the early hours of the operation until organic indirect fire support systems are established ashore.

Historically, logistic support of amphibious operations required the build up of massive beach support areas with sprawling fuel farms, extensive ammunition dumps, and huge supply stockpiles. Inherent in STOM operations is the ability to sustain and support

operations ashore from the sea base. While this results in eliminating the "iron mountain" of materiel and equipment ashore, it requires that the MAGTF's combat service support element (CSSE) and logistic support processes transform in organization and procedures. In the scenario, the sea base is the conduit through which supplies, equipment, and personnel move ashore for the initial assault and subsequent reinforcement and sustainment operations. The sea base provides the capability to logistically sustain operations as long as required, allowing the MAGTF to reduce, but not eliminate, the logistic footprint ashore. Therefore, it is essential that the MAGTF is embarked to provide flexibility and promote the rapid build up of combat power ashore and the sustainment required by maneuver forces. The CONOPS realigns combat service support (CSS) and logistic support to reflect the change of logistic functions and responsibilities (minus aircraft maintenance) to the MAGTF CSSE. The concept of logistic support for the scenario addresses supply, maintenance, bulk liquids, transportation, lines of communication, general engineering, health service support, services, and sustainment.

The C2 support structure within a STOM operation requires the capability for dispersed forces to coordinate the warfighting functions between their units and other units within the joint force. Central control agencies for each functional area may be co-located or assigned to subordinate commanders for operational control. The STOM C2 architecture allows for dynamic establishment of networks (both voice and data) between multiple organizations. In the scenario, command posts posses the mobility to keep pace with the increased operational tempo of the maneuver forces and, as such, enable commanders and their staffs to function while on the move. The C2 capabilities represented in this scenario include self-organization, ubiquitous communications relays, a common operational picture display, cooperative engagement, and consolidated networks.

STOM operations occur over a much larger area and with a more rapid tempo than traditional amphibious operations, resulting in increased intelligence requirements. Intelligence support of STOM operations includes supporting the commander's planning and decisionmaking process, maintaining a comprehensive intelligence, surveillance, and reconnaissance (ISR) network to support multiple concurrent expeditionary operations, and facilitating operational maneuver and precision engagement. STOM's intelligence operational support requirements are demanding and include, but are not limited to, the following: preparing the sea areas, pre-D-day reconnaissance and preparation, beach reconnaissance, preparation of penetration zones/sites, identification of defenses ashore, electronic countermeasures, meteorological and oceanographic information, manned reconnaissance, support to targeting, and a comprehensive ISR network.

The maritime prepositioning force future (MPF[F]) is a transformational capability that when integrated with the ESG provides a robust, responsive, forward-deployed, power projection capability that can operate independent of close shore bases and thus negate anti-access strategies of countries with divergent strategic interests. In the scenario, the MPF(F)'s capabilities provide a wide range of dynamic seabasing capabilities. They enabled the MPF(F) MEB to conduct arrival and assembly afloat, improve force protection by minimizing footprint ashore, which also increases throughput capacity to

support operations ashore while operating under the sea shield provided by other naval assets. The capabilities of MPF(F) are based on its pillars: force closure, amphibious force integration, indefinite sustainment, reconstitution and redeployment, and force protection.

The current concept of employment for mine countermeasures is to detect mines or obstacles and avoid when feasible. During STOM, if the force cannot avoid or inadvertently encounters a minefield, it must conduct a hasty in-stride breach while continuing to move toward its objective. Naval forces must be able to conduct forcible entry operations against the enemy's integrated anti-access defense. In the scenario, mine countermeasure operations followed a logical sequence to include intelligence preparation of the battlespace, wide area surveillance, clandestine reconnaissance, countermine/counterobstacle battlespace shaping, neutralization/breaching and navigation/lane marking, standoff breaching/neutralization, clearance operations, control measures for an restrictive environment, transiting minebelts integrated with obstacles and barriers, operations, and force protection. For the surface TF, four transit lanes per each battalion were created through the LPS.

This document represents another step toward realizing STOM as an operational reality. The intent of this effort is to bridge the concept of STOM to an operational reality and to provide a list of metrics that, if studied, prepare the Marine Corps to transform into a force capable of conducting STOM as envisioned in the concept.

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Chapter 1
Overview

1001. Purpose

The *STOM Concept of Operations (STOM CONOPS)* describes a way in which the Marine Corps can conduct STOM in the 2015 timeframe. Although this document contains highly detailed examples, it is not prescriptive, nor is it doctrine. It is descriptive in nature and marks a point between today's capabilities and the future operational maneuver from the sea (OMFTS)-capable Marine Corps. This document, in accordance with the terms of reference (see app. A), is intended for use as a point of reference for implementing changes in doctrine, organization, training, materiel, leadership, personnel, and facilities (DOTMLPF). It is not intended to be a planning document for the conduct of STOM operations and, as such, does not cover the entire planning process.

1002. Fundamental Principles

The STOM CONOPS applies the basic principles of the concepts of expeditionary maneuver warfare (EMW), OMFTS, and STOM to an operational scenario. Development of the STOM CONOPS applied these principles to answer the following questions:

- How much?
- How fast?
- How far?
- By what means?
- In what configuration?

Throughout the development of this document, the focus was on answering these questions while also capturing important concepts and capabilities, highlighting any shortfalls, and identifying areas where an improved capability might be needed.

The scenario, described in chapter 2, is of an unclassified, mid-intensity conflict set in the year 2015. It relates to the deter and, if necessary, defeat an adversary in a conflict under the current defense strategy. It frames the problem in terms of a threat; an operating environment; and the available capabilities, equipment, and systems. The scenario is intended to be "a vehicle;" i.e., a means, to address the issues of how much, how far, etc., and not the well-developed details inherent in a mature operation plan (OPLAN). The scenario relates to the Department of the Navy's Global CONOPS construct to support the defense planning guidance (DPG) strategy.

a. Expeditionary Maneuver Warfare

EMW is the Marine Corps' capstone concept. It prepares the Marine Corps to function as a "total force in readiness" in order to meet the challenges and opportunities of a rapidly changing world. EMW focuses the Marine Corps' core competencies, evolving capabilities, and innovative concepts to ensure that the Marine Corps provides the joint force commander with forces that are optimized for forward presence, engagement, crisis response, and warfighting. EMW serves as the basis for influencing the Joint Concept Development and Experimentation Process and the Marine Corps Expeditionary Force Development System. It further refines the broad axis of advance identified in *Marine Corps Strategy 21* for future capability enhancements. In doing so, EMW provides the joint force with the following capabilities:

- Joint/multinational enabling.
- Strategic agility.
- Operational reach.
- Tactical flexibility.
- Support and sustainment.

These capabilities enhance the joint force's ability to reassure and encourage allies, while deterring, mitigating, or resolving crises through speed, stealth, and precision. EMW focuses the Marine Corps' warfighting concepts toward realizing the *Marine Corps Strategy 21* vision of future Marine forces with enhanced expeditionary power projection capabilities. It links Marine Corps concepts and vision for integration with emerging joint concepts. As our capstone concept, EMW guides the process of change to ensure that Marine forces remain ready, relevant, and fully capable of supporting future joint operations.

b. Operational Maneuver From the Sea

OMFTS applies across the range of military operations, from major theater war to small-scale contingencies. It applies maneuver warfare to expeditionary power projection in naval operations as part of a joint or multinational campaign. OMFTS allows the force to exploit the sea as a maneuver space while applying combat power ashore to achieve operational objectives. The OMFTS concept embodies the Marine Corps' EMW concept in the context of expeditionary operations from a sea base and enables the force to—

- Shatter the enemy's cohesion.
- Pose menacing dilemmas.
- Apply disruptive firepower.
- Establish superior tempo.
- Focus efforts to maximize effect.
- Exploit opportunity.
- Strike unexpectedly.

The force uses the sea as maneuver space to generate overwhelming tempo and momentum against enemy critical vulnerabilities. Operational maneuver from the sea provides increased operational flexibility through enhanced capabilities for sea-based logistics, fires, and command and control. Seabasing facilitates maneuver warfare by eliminating the requirement for an operational pause as the landing force (LF) builds combat power ashore and by freeing the Marine Air Ground Task Force (MAGTF) from the constraints of a traditional beachhead.

When operating as part of a naval expeditionary force, Marine forces normally focus on conducting operations using OMFTS. The Marine commander, in concert with his Navy counterpart and higher-level direction, coordinates the employment of amphibious forces (AF), maritime prepositioning forces (MPFs), and Marine forces to shape events and create favorable conditions for future combat actions. The amphibious force normally executes tactical-level maneuver from the sea to achieve decisive action in battle. For the action to be decisive, the battle must lead to the achievement of the operational objectives.

c. Ship-to-Objective Maneuver

STOM is the tactical implementation of OMFTS by the MAGTF to achieve the joint force commander's operational objectives. It is the application of maneuver warfare to amphibious operations at the tactical level of war, and it is the conduct of combined-arms maneuver through and across the water, air, and land of the littoral battlespace directly to inland objectives. STOM treats the sea as maneuver space, using it as both a protective barrier and an unrestricted avenue of approach. STOM is not aimed at seizing a beach for lodgment, but at projecting combat units ashore in their fighting formations and sustaining them to ensure mission accomplishment against a decisive objective. While the aim of traditional ship-to-shore movement is to secure a beachhead, STOM thrusts Marine Corps forces ashore at multiple points in order to concentrate forces at the decisive place and time and in sufficient strength to enable success. This creates multiple dilemmas too numerous for an enemy commander's response, disrupts his cohesiveness, and diminishes his will or capacity to resist. This concept focuses the force on the operational objective, providing increased flexibility to strike the enemy's critical vulnerabilities. Seabasing much of the logistic requirements and fire support reduces the footprint of forces ashore while maintaining the tempo of operations. Command and control capabilities allow commanders to control the maneuver of their units the moment they cross the line of departure at sea, this includes changing the axis of advance or points where they cross the beach during the assault. STOM operations are applicable to the full range of missions, from forcible entry operations to humanitarian assistance operations

1003. Planning Factors

Although the Marine Corps possesses the capability to execute portions of STOM today, the STOM operations in this CONOPS were based on the 2015 timeframe and, as such, a baseline set of planning factors was developed upon which this document is based. These planning factors are discussed in the following subparagraphs.

a. Background

The following background information is assumed:

- The Marine Corps' mission, as prescribed in the *National Security Act of 1947* (amended), does not change from fiscal year (FY) 2003 to FY 2015.
- The current statutory missions performed by the US Army, US Air Force, and US Navy, as set forth in *US Code, Title 10*, do not change in a meaningful manner.
- Authority and responsibility currently held by combatant commanders as a result of the *Goldwater-Nichols Defense Reorganization Act of 1986* do not change from FY 2003 to FY 2015.
- Naval forces organize, deploy, employ, and sustain within the interdependent and complementary concepts of EMW and Sea Power 21 (Sea Strike, Sea Shield, and Sea Basing) and are enabled by FORCEnet. Naval surface fire support (NSFS) continues to be a principal Navy mission.
- Marine forces conduct operations in accordance with the *Naval Concept for Joint Operations*, *Expeditionary Maneuver Warfare*, *Operational Maneuver From the Sea*, *Ship-to-Objective Maneuver*, *Enhanced Network Seabasing*, and other signed naval concepts.
- Principal end items include the expeditionary fighting vehicle (EFV) (formerly the advanced amphibious assault vehicle [AAAV]), MV-22, AH-1Z, UH-1Y, CH-53E service life extension program (SLEP), STOVL JSF, light-weight 155 millimeter howitzer (LW-155), high mobility artillery rocket system (HIMARS), Expeditionary Fire Support System (EFSS), light armored vehicle (LAV) SLEP, M1A1, medium tactical vehicle replacement (MTVR), logistic vehicle system-replacement (LVS-R), complementary low altitude weapon system (CLAWS), unmanned aerial vehicle/unmanned combat aerial vehicle (UAV/UCAV), assault breaching vehicle (ABV), and other significant programs and initiatives. See appendix B, tabs 1 and 2, for future capability specifications.
- Amphibious ships and lighterage for the scenario include amphibious assault ship (multi-purpose (LHD); amphibious transport dock (LPD-17 class); dock landing ship (LSD-41 class); landing craft air cushion, with service life extension program (LCAC [SLEP]); landing craft, utility (replacement) LCU(R); and littoral combat ship (LCS). See appendix B, tab 3, for future LCS capabilities.
- The squadron of maritime prepositioning ships (MPS) possesses the capabilities represented in the future MPF mission needs statement.
- One squadron of six maritime prepositioning force (future) MPF(F) ships with organic LCU(R) or equivalent landing craft is available.
- High-speed vessels (HSVs)/fast ferries (FFs) are further developed and fielded.
- The Marine Corps conducts operations within the context of a joint environment.
- Marine forces continue to conduct forcible entry operations with the initial assault projected from amphibious shipping.

b. Force Organization

Organization of the force is as follows:

- Marines operate within the Navy's Global CONOPS: the Marine Expeditionary Unit (MEU)/amphibious ready group (ARG) deploys as an expeditionary strike group (ESG).
- For this scenario, Marine forces task-organize a sea-based Marine Expeditionary Brigade (MEB) from forward-deployed ESGs and elements of the future MPF. Other scenarios may require a more robust, task-organized MEB (e.g., an amphibious MEB).
- Future maritime prepositioning shipping capabilities enable greater flexibility to tailor load plans, enhance expeditionary operations, and compliment amphibious shipping.
- The Baseline 2015 MEB Table of Organization (T/O) and Table of Equipment (T/E) serve as the basis for the T/O and T/E of the command element (CE), ground combat element (GCE), aviation combat element (ACE), and combat service support element (CSSE).
- The Marine Corps continues to employ Marine Air-Ground Task Forces (MAGTFs) with a CE, GCE, ACE (rotary-wing and fixed-wing), and CSSE as a combined-arms force.
- Except for aviation repair and supply, combat service support (CSS) capabilities are consolidated from the CE, GCE, and ACE into the CSSE. MAGTF elements retain a minimum CSS coordination capability.

c. Scenario

The scenario assumes the following:

- The fundamental capability sets for STOM should be fielded by 2015.
- The Baseline 2015 MEB T/O and T/E is the genesis for the CE, GCE, ACE, and CSSE T/O and T/E.
- The surface battlespace begins 25 nautical miles (nm) over the horizon (OTH) and extends inland for another 175 nm for a total of 200 nm. The MV-22 and the EFV allow the MAGTF to operate at much greater distances from shore. However, the EFV's ratio of sea time to land time affects sustainment planning. The ships of the sea base remain 25 nm from the shore only as it is operationally and tactically required.

Note

The ranges used in the scenario assumed that a suitable land base was not available to shore base large numbers of Marine forces at the coalition airfield. Because of other joint and coalition forces in the Joint Operations Area (JOA), the Marine Corps was given only enough room to operate KC-130Js and advanced electronic attack (AEA) aircraft. These parameters demanded reliance upon the MPF(F) and the sea base to create a sea-based force from which to operate.

Note

While the ground maneuver area expands to an initial 200 nm radius from the sea base, the air battlespace—particularly for fixed-wing aircraft—is expected to be larger, especially when creating conditions for success (reconnaissance, battlespace shaping, etc.).

- Nuclear, biological, and chemical weapons are not addressed. Although these weapons are a critical threat, their discussion unreasonably expands the scope of this initial effort.

Note

Illustrative planning scenarios define both geopolitical and military context, as well as operational "stressors" to provide a near infinite combination of potential scenarios. The scenario illustrates the ability of the force to task-organize and provide a rapid degree of force closure. Rapid force closure is attainable but has a different level of capability. The scenario highlights a MEU-level (ESG) combat capability that is rapidly scaled to form a MEB-level force. This MEB-level force has a forcible entry capability. It is important to note the new capabilities that new equipment brings to the scenario. For example, new amphibious ships continue to provide the backbone of our forcible entry capability, while new shipping (MPF[F]) provides for our rapid, selective reinforcement capability. These ships are designed to be complementary and interoperable, but not interchangeable. MEB-level forcible entry operations still require the capability inherent in amphibious ships.

d. Maneuver

Maneuver forces have to maintain a level of speed and operational tempo greater than the enemy's ability to react in order to achieve STOM's potential while mitigating risks. The MAGTF achieves this tempo through a combination of enhanced mobility, information superiority, improved organization, and focused training and education. The commander's intelligence preparation of the battlespace lays the foundation for ensuring that enemy vulnerabilities have been accurately located. Once the assault begins, the LFs have the agility to employ the full range of mobility options.

Clearly, the mobility options of the surface and vertically inserted forces differ. Within the scenario, each Marine in a surface assault battalion landing team (BLT) has a seat. The mobility and sustainment requirements of the LF and the lift requirements to conduct a BLT-sized vertical assault deep into enemy territory make it a high-risk maneuver. Planning for the use of this force must include relocation or a link up with other forces. However, this force offers tremendous potential in close terrain or in situations where it can continue to use vertical lift to reposition itself as events unfold.

Note

Based on the scenario, the inserted force is sustained from the sea base.

The full range of information operations, particularly deception, is employed to shape the battlespace. By melding national, operational, and tactical assets—to include fires and maneuver—the commander uses deception as a key enabler to maneuver.

Battlespace management and coordination are employed at all levels.

Coordination measures, whether fire or maneuver, are employed but are permissive rather than restrictive. Forces operating in EFVs with adjacent units (possibly joint, coalition, or allied forces) need to share a common, relevant operating picture.

The essence of STOM is tempo—the speed of action relative to the enemy over time. Achieving superior tempo requires the rapid build up of focused combat power ashore, tactical/operational flexibility, and maneuver (not simply movement) at and from the sea. Superior tempo is first achieved through utilizing all available ISR assets to develop an extensive common operational picture/common tactical picture (COP/CTP) and then projecting forces ashore where the threat is not located. The tempo is maintained by minimizing the footprint going ashore, launching maneuver task force elements from multiple ships to increase tempo, maximizing pre-boating of GCE combat vehicles and equipment, and maintaining the organization for maneuver at sea according to the organization for combat ashore.

Task force commanders organize, coordinate, and control their units for maneuver at sea and sequence their landing based on the tactical situation. Consequently, the landing plan resembles a land attack. Large units (e.g., BLTs) are allocated a littoral penetration zone (LPZ) (see fig. 1-1). The coastline of each LPZ is further subdivided into littoral penetration sites (LPSs), where a major subordinate element (e.g., a company) crosses the shore. Commanders maneuver their forces from ships to a line of departure, then to their assigned LPSs. Within each LPS, each vehicle actually touches the beach (or goes "feet dry" for vertically inserted forces) at a littoral penetration point (LPP). Based on terrain, these LPPs may not be evenly distributed across the LPSs.

The following establishes maneuverability guidelines:

- The MV-22, CH-53E (SLEP), EFV, and LCAC (SLEP) have been fielded. Without these items, the ship-to-shore movement plans based on their planned ranges are not feasible.
- The fielding of the future family of lighterage is complete.
- The M1A1 is still in use even though it places high demands on the available surface lift (LCU and LCAC).

Note

Although the addition of lighter assault gun vehicles and the commensurate decrease in the number of tanks is a possibility, that premise has not been applied to this CONOPS.

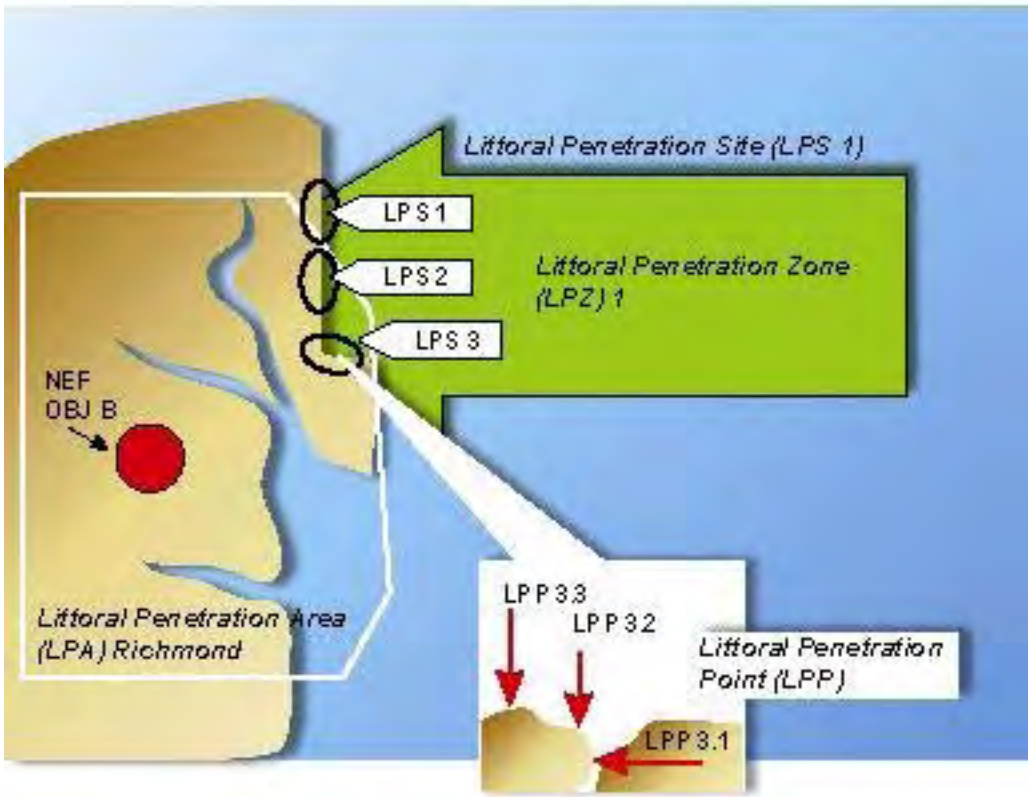

Figure 1-1. Littoral Control Measures.

- An LAV-like vehicle is critical to reconnaissance and screening missions. Existing LAV capabilities and planned improvements are the basis for this CONOPS rather than the anticipated replacement vehicle.
- Marines conduct STOM operations from amphibious ships and are reinforced from maritime prepositioning ships of the future.

e. Intelligence, Counterintelligence, and Deception

STOM operations occur over a much larger area and with a more rapid tempo than traditional amphibious operations, resulting in increased intelligence requirements. Satisfying these requirements is imperative. Current Marine Corps, naval, theater, and national intelligence capabilities are inadequate to achieve the wide area of coverage, speed, precision, and detail necessary to support STOM. Major efforts must be initiated to collect, analyze, and disseminate pre-hostility information. Operating forces must use this intelligence in their preparations, including incorporating it into their training and exercises. Collection assets must cover wide areas, provide redundancy, and be survivable.

Information operations, particularly deception, are one of the best economy of force measures. Information operations are coordinated at all levels of war, therefore, the operational commander must be able to take advantage of, and contribute to, the effort. The employment of dedicated deception assets, with command authority, pulls the enemy from our operating areas or mitigates

his efforts. All elements of the force are committed to the success of the deception operation; to do less puts the force in jeopardy.

Planning factors address the ability to conduct intelligence, surveillance, and reconnaissance operations against an expansive battlespace. STOM battlespace shaping and planning relies on increased intelligence, surveillance, and reconnaissance capabilities (e.g., hyperspectral imagery, increased and improved sensors, UAVs).

f. Fire Support

STOM operations continue to rely on the importance of combined arms in support of maneuver. The triad of air-, ground-, and sea-based fire support is central to the success of expeditionary forces. More accurate and mobile target acquisition radars and improvements in overall fire support command and control (C2) ensure more timely, accurate, and responsive fire support to Marines ashore easing naval logistic demands.

Advances in target acquisition and precision munitions improve the effectiveness of supporting fires while simultaneously easing logistic demands. However, an accurate, high-volume fires capability is still essential, particularly for targets that must be suppressed or neutralized rather than destroyed. NSFS, with its reduced logistic burden on ground forces, is an essential asset to engage these targets.

Battlespace shaping is facilitated by tactical aviation and a greatly improved, long-range NSFS capability. Surface STOM reaps the benefits of the lightweight 155mm howitzer (commonly referred to as the LW-155) with its improved maneuverability and responsiveness and its prime mover, the MTVR. Vertical STOM receives support from long-range NSFS, EFSS, and close air support (CAS). However, some trade offs in ground-based fire support may be necessary for a vertical STOM force in terms of the range of the operation and level of fire support required.

Sustainment of fire support assets is a critical issue for both vertical and surface STOM forces. While current and projected artillery units require a significant logistic tail, close examination of the entire STOM force's operational requirements reveals that no credible force can be inserted and sustained without a substantial logistic effort. However, as future technologies advance, this logistic effort may be reduced through improvements in vehicle fuel consumption, dramatic increases in battery life, and the lethality of new weapons. These improvements will reduce the number of systems required and will reduce footprint and sustainment demands.

Fire support coordination becomes an even more sensitive issue in joint operations. The advanced field artillery tactical data system (AFATDS) provides the ability to plan, execute, and deconflict the increased range of NSFS and ground-based weapons under consideration and development, as well as the increased use of aerial vehicles such as UAVs and loitering munitions.

Fire support is provided as follows:

- The LW-155, EFSS, and HIMARS are the organic indirect fire weapons.
- In the scenario, the EFSS is the MEU(SOC)'s primary, organic indirect fire support weapon.
- The MTVR is fully fielded and capable of towing the LW-155 and its ammunition simultaneously. It has improved cross-country mobility, but it has significant air transport limitations.
- The projected DD(X)s are in the fleet, 4 are available for use with the ESGs along with another 26 DDG/CG in either a direct support or general support role.
- More accurate, "smart" weapons that are capable of increased first-round kill probabilities ("smart" weapons impact ordnance sustainment requirements).
- Loiter weapons (cruise missile variants) remain on station in an area where a target is expected. The weapon then identifies the target's arrival and self-guides onto the target.
- Variable-effects munitions (multifuzed or rheostatic) are available and allow tailored fires with a reduced logistic burden.
- NSFS, MAGTF, and joint fires possess complementary capabilities.
- Sea-based joint strike fighters (JSFs) and attack helicopters.

g. Aviation

The ACE provides the MAGTF a preponderance of speed, mobility, and flexibility. While traditional aviation functions remain valid and are well understood, it is important to recognize that the MAGTF's overall reliance on the ACE across all warfighting functions is greatly increased in STOM. The ACE is essential to meeting sustainment requirements and may provide the majority of fires in support of vertically inserted forces. There may also be opportunities when the ACE serves as a maneuver element or is the focus of main effort during an operation.

A critical factor in the initial stages of a large-scale military build up is the availability of strategic airlift. The self-deployment capability of the MV-22, KC-130J, JSF, and AEA significantly reduce the demand on limited heavy airlift assets. Self-deployment greatly improves the ACE's strategic agility and influence on rapid force closure and support of at-sea arrival and assembly.

In the scenario, the ACE is challenged but is able to satisfy all of the MAGTF's requirements. The range and versatility of the MV-22 is evident throughout. Even if the MV-22 must fly at reduced speeds when carrying external loads, once the load is delivered, it transitions to the airplane mode and quickly returns to the sea base and generates another sortie. The key, however, is effective deck space (including MPF[F]) and aircrew and deck crew management, which are absolutely crucial to generating the high number of sorties and requires ingenuity and detailed planning. The CH-53E provides heavy lift for the MAGTF and is a critical factor in determining the operational range of the force. A CH-53E SLEP enhances the CH-53E's lifting capability and provide a more flexible and relevant vertical force in the future.

Aviation planning factors are as follows:

- The carrier air wing and the MAGTF ACE's fixed-wing elements primarily consist of JSFs. A Marine F-18D squadron embarks on the aircraft carrier. Twelve of the MAGTF's 42 JSFs embark on the LHDs. The remaining MAGTF JSFs also embark on the aircraft carriers.
- The anticipated range of future aircraft allows some degree of land basing to augment sea-based aviation. Further, some degree of land-based aviation support is necessary (e.g., refueling support).
- UAVs are used throughout the battlespace for intelligence gathering, decoys, weapons delivery, communications relay, and terminal guidance since they reduce the demands on manned aircraft for long loiter time missions.

h. Command and Control

The rapid and reliable collection, analysis, and dissemination of information and the resulting improved situational awareness, coupled with rapid decisionmaking and execution throughout the force, are the key to STOM's success. The distribution of voice and data traffic occurs over a collection of internetworked, wireless local area networks. This system is possible through the use of self-organizing, networked joint tactical radio system (JTRS) radios, aerial relay nodes, and a MAGTF broadcast service.

In order to reduce the footprint ashore, the MAGTF takes advantage of national and theater communications assets as well as the assets available at sea. The MEB elements ashore rely on mobile command posts using tactical data applications linked via networked JTRS to other ashore elements. These links are both LOS and OTH/BLOS. Limited satellite communications are augmented by communications relays on UAVs and other aircraft. Ashore to afloat communications are primarily OTH/BLOS and are supported by HMMWV satellite communications terminals as well as relayed JTRS networks. Afloat MAGTF staff elements and units rely primarily on shipboard C4 systems to support their C2 needs to forces ashore; joint C2 nodes and agencies; national systems; and to CONUS-based units, agencies, and organizations.

Command and control issues are as follows:

- The command relationships described in JP 3-02 are the basis for this CONOPS. The joint command relationships of support, tactical control (TACON), and operational control (OPCON) establish the available command authority options by the establishing authority.
- A ship dedicated to command and control, with sea-based and CONUS command support centers, enables the MEB and some MSE command posts to remain afloat and reduces lift requirements.
- Information operations are integrated across warfighting functions (i.e., command and control, maneuver, fires, intelligence, logistics, and force protection).
- The MAGTF commander's ability to control forces throughout a dispersed and distributed battlespace is enhanced and facilitated by FORCEnet.

- Future global information connectivity allows increased distributed staff functions and reachback.

i. Combat Service Support/Logistics

The CSSE provides logistic support primarily from the MPF(F) and amphibious sea base rather than from an established CSS area ashore, and support is delivered directly to the requesting unit ashore. See figure 1-2.

Note

The sea base is viewed as a set of capabilities, not one particular ship, class of ships, or group of ships. Sustainment of the sea-based force does not rely on a fixed port, intermediate support base (ISB), advanced naval base, or host nation support within the JOA.

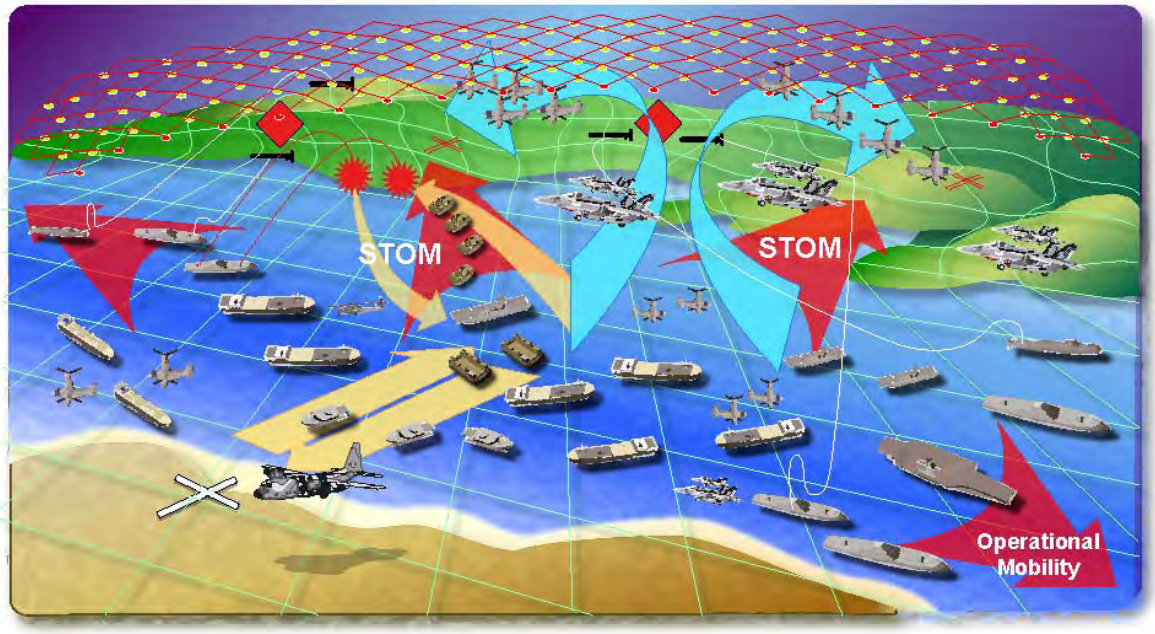

Figure 1-2. Seabasing.

A major characteristic of future CSS and logistic support is the migration of logistic functions and responsibilities (minus aircraft maintenance) to the MAGTF CSSE. This enhances the MAGTF's operational and tactical agility by allowing the MAGTF commander to position CSS/logistic capabilities where needed, improve CSS/logistic capabilities, reduce the logistic footprint, and eliminate redundancy.

The CSSE provides the predominance of ground logistic support across all elements of the MAGTF. It is the "process owner" for logistics and combat service support.

Except for medical capabilities, units within the CE, GCE, and ACE retain minimal logistic capabilities. Logistic officers within these units focus on requesting and coordinating logistic support received from the CSSE vice focusing on internal logistic support. For example, the logistic section (S-4, supply, motor transport, communications, electronics, ordnance) within an infantry battalion is reduced from over 50 Marines to less than 10.

The limited first echelon maintenance and supply functionality retained by the units focuses on location, movement, and distribution of supplies. Except for combat engineering missions and assets, all engineering capabilities are retained in the CSSE.

j. Maritime Prepositioning Force

The MPF(F) is a transformational capability critical to the success of STOM and is the linchpin of a successful sea base. It provides the combatant commander the ability to rapidly constitute a substantial, sustainable combat capability that is afloat in theater, ready to project maneuver elements ashore for operations as required, and able to transition to sustained operations ashore (SOA) with minimal reliance on the availability of access ashore in the operating area.

(1) Integration

Note

An ESG consists of MEU(SOC)s, ARGs, three surface combatants, one submarine (SSN), and it may be augmented by other forces as required (e.g. maritime patrol aircraft, littoral combat ships).

The integration of the ESG with the MPF(F) provides a robust, responsive, forward-deployed, power projection capability that can operate independently. The MPF(F) and the supporting seabasing network reinforce the initial attack on the objective area and provide additional forces and sustainment. As an integral part of an AF, the MPF(F) serves as the conduit for the flow of combat forces and sustainment operations. Examples of support include—

- Equipment integral to units employed in the initial assault that cannot be embarked as pre-boated loads on AF/ESG ships.
- On demand, selective offload of units, equipment, and supplies after the initial STOM to meet critical needs ashore.

The MPF(F) provides up to 20 days of accompanying supplies for the MPF MEB and embarked Navy units and personnel. It also provides stowage space for ESG supplies that could be taken off assault shipping loads to provide increased flexibility for the ESG to conduct STOM and seabasing operations on board amphibious ships. Additionally, stowage space is provided for certain supplies and equipment not carried on ESG shipping but are needed to support Navy and Marine Corps elements attached to in theater special operations forces (SOF).

Through seabasing, the LF is equipped and sustained by the MPF(F) and Navy combat logistic force (CLF) ships.

(2) Projected Capabilities

To effectively support an AF, the MPF(F) rapidly closes on the area of operations (AO) and is integrated with the force. The ships of the MPF(F) incorporate a high-speed transit capability that facilitates force closure to an LPA. Once in the LPA, forces and their initial sustainment are moved ashore from the sea base and MPF(F) platforms via air, surface, and/or surface-effect vehicles. The MPF(F) ship's numerous discharge points allow for the offload and distribution of various classes of supplies in a rapid and concurrent manner. The MPF(F) ship's internal design accommodates concurrent loading and offloading of landing craft and lighterage and facilitates the reception, storage, movement, maintenance, and reconfiguration of supplies while underway. These at-sea reception and discharge capabilities incorporate the ability to stock, access, embark, and deliver sufficient equipment and supplies to the LF and sea base from MPF(F) platforms. The MPF(F) can dispense personnel, supplies, and services via a spectrum of conveyances, and it serves as the throughput platform for follow-up strategic sealift and as an additional launch platform for forces executing a STOM mission.

A fully integrated, automated information system (AIS) facilitates all functions and actions conducted aboard the MPF(F). The CSSE and logistic sections use naval, logistic-specific decision support tools and applications within the same C2 process and systems used throughout the MAGTF. The receipt and embarkation of supplies, arrival and delivery of equipment, and distribution of sustainment services and personnel are tracked via a total asset visibility (TAV) system that provides the MAGTF and joint commanders with a real time logistical and operational status of the force. The AIS facilitates the logistical effort, reduces redundancy, and sufficiently tracks the logistic support of the LF in the LPA.

The MPF(F) retains many of the current capabilities and functions of the existing force. However, the following are new capabilities at the MAGTF and Expeditionary Strike Force (ESF) commanders' disposal:

- Force closure, at-sea reception, staging, onward movement and integration (RSOI), AF integration, indefinite sustainment, and reconstitution and redeployment.
- At-sea selective offload and vertical/surface replenishment capabilities.
- Handling throughput requirements from the supporting establishment to the sea base and LF.
- Shorter travel times to an LPA.
- Streamlined sustainment services.
- A unified naval AIS enabling joint operations.

As a result, the MPF(F) is even more of a force multiplier and operational tool than its current configuration, and the described MPF(F) capabilities are an integral part of STOM and the full range of OMFTS operations.

k. Mine Countermeasures

The amphibious force must be able to conduct forcible entry operations against the enemy's integrated anti-landing defense. ISR efforts support planning by defining the extent of the threat. Mines and obstacles are avoided whenever possible provided avoidance does not unduly jeopardize the force or mission accomplishment. Breaching and clearance are conducted when necessary to accomplish the overall mission.

To effectively project power in the littoral battlespace, the amphibious force locates, marks, avoids, or otherwise counters the mines and obstacles that constitute the enemy's integrated anti-landing defense. Amphibious forces require the capability to transit to the AO, and also the capability to maneuver OTH through the very shallow water, surf zone, and beach zone to the objectives ashore. The current concept of employment for countermine/counterobstacle systems is to detect and avoid when feasible. However, if the AF cannot avoid or inadvertently encounters a minefield, it must be capable of conducting a hasty in-stride breach. Used in this context, in-stride means without tactically significant disruption of the amphibious force's initiative, momentum, and operational tempo.

In the 2015 timeframe, technological advances will likely support remote and clandestine detection, classification, identification, marking, and monitoring of mines and obstacles at sea and ashore. Clandestine unmanned underwater vehicles (UUVs), high-speed surface craft, standoff munitions, and explosive/mechanical breaching systems will be used to neutralize mines and obstacles. While increasingly sophisticated mines will challenge the amphibious force, most will threaten through quantity, location, and explosive effect.

Integrated anti-landing defenses block, channelize, disrupt, and reduce maneuvering forces. A well-organized, trained, and equipped force can minimize these negative effects through timely ISR, maneuver, speed, and effective employment of a family of countermine/counterobstacle systems.

Mine countermeasures (MCM) requirements are as follows:

- MCM sufficient for forcible entry capability in order to avoid or neutralize sea mines in selected areas are essential to STOM (see ch. 11).
- Navy countermine/counterobstacle capabilities (e.g., ISR and assault breaching capabilities) enable maneuver from blue water through the beach exit zone.
- Marine countermine/counterobstacle capabilities enable maneuver from the beach exit zone to the objective.

l. Embarkation

STOM depends on the capability to rapidly configure and debark personnel and equipment required for a specific STOM mission. Because mission requirements will vary, both amphibious and MPF(F) platforms must be embarked utilizing techniques that will enable selective off-load.

These techniques will enable the preponderance of required combat power to close on the objective in the initial phase.

The need to land complete maneuver elements as quickly as possible requires that some reinforcing assets be delivered from amphibious and MPF(F) platforms directly into the assault to make up for shortfalls in pre-boated loads from the AF. As ship availability is limited on each coast and ship capabilities vary, building the MAGTF task organization from available forces requires the use of nontraditional relationships to form complete maneuver elements. Flexibility and adaptability are required by commands in building the working relationships that generally characterize Marine task-organized formations.

Chapter 2
Scenario

2001. General and Special Situations

Under the pretext of large-scale military exercises, Karona deploys major units along its coastline. Karona City is reinforced by division elements. CSSC-3 and C-802 surface-to-surface missiles deploy between Karona City and Kasta City. The surface-to-air threat is extensive with the deployment of the Karona missile system; CSA-1 batteries; and SA-5, SA-10C, and SA-6 systems. Once all forces are in place, the Karonan government stops ship trafficking along portions of its coast and demands tariffs for all goods. Particularly high tariffs are charged on oil products. In order to strengthen their control out into international waters, the Karonans place minebelts and conduct small boat patrolling.

a. Road to War

The following sequence of events precipitated the actions taken by Central Command's (CENTCOM's) combatant commander:

- In 2005, the reformist president's second term expired. The election was hotly contested between the reformists and conservatives. The conservatives won the election, but it was well known that the election was fraudulent. Large-scale riots resulted, particularly in the capital.
- Spring 2006, the unrest spread into a countrywide revolution.
- End of 2007, the conservatives emerged victorious, but the Karonan society split.
- By 2010, the military was purged of those who supported the reformists. But because of the revolution, the military was not yet a truly modern force.
- Also by 2010, Karona re-asserted itself in the region and was considered by its neighbors as a radical regime. Criticism of neighbors continued and resistance to any US presence in the region increased.
- In 2013, oil prices dropped. Overproduction caused a glut in the world market. With the US involved in operations other than war, the regime decided to boost revenues.
- In 2014, Karona restricted traffic in international waters along its coast. The Karonan military conducted large-scale exercises along the coast to cover unit movements and to carry out its plan. Karonan vessels participating in the exercises laid mines. Karonan marine forces consolidated on islands along the coast. Traffic along the coast was restricted and Karona charged a tariff on all products, particularly oil.
- In 2014, the United Nations passed a resolution denouncing Karona's actions as a violation of the freedom of the seas, but stopped short of approving any action.
- Winter 2015, the US President directed CENTCOM to take the actions necessary to open international waters along the coast of Karona.

- On D+7, Karona resolves to show dominance in the area and a Kilo-class submarine deploys out of Karona City and sinks a French-registered oil tanker in international waters in the Sea of Karona.

b. Timeframe

The scenario takes place in the winter of 2015. Resistance to initial CENTCOM actions results in escalation of hostilities that evolve into the scenario.

2002. Scenario Assumptions

Note

The major assumptions used in the development of the scenario provide a common framework. They are not exhaustive of all possible assumptions; rather, they set forth the major premises upon which the scenario is built.

The scenario begins with the understanding that this is a major global event that unfolds in 2015. The Karonan act of mining the international waters off of their coastline places the interests of the US and its allies at risk. Postulation of timelines, foreign National Command Authority decisions, geopolitical support, and host nation participation are major assumptions in the formation of the scenario.

Timelines and force flows are assumed as given. The scenario assumes that sufficient intelligence warning, strategic lift, and host nation support are provided in order to allow the US and allied forces to be emplaced strategically at the start of the scenario.

The battle within the scenario is a snapshot, and it focuses on the MAGTF's participation in a larger maritime campaign conducted by the combatant commander. The joint force commander (JFC) has the mission of re-opening and clearing the international sea lines of communications along the coast of Karona. The scenario assumes that whatever actions were planned prior to the moment have already taken place and that defensive engagements have occurred.

a. Status of US Air and Naval Supremacy

At the outset of hostilities, the Karonan air force has the ability to conduct surge operations against the ESG. In addition, Karonan ground forces have a good air defense system. These assets must be degraded before STOM can take place. Once the assault begins, the US has air superiority through pre-assault battlespace shaping.

The Karonan navy mainly consists of small, coastal patrolling crafts. Karonan frigates are the primary, armed security patrol crafts operating out of Karona City. The primary threat to US naval operations along the coast of Karona is the C-802 surface-to-surface missile (SSM), which

is fully integrated and operational on six modified missile patrol boats. The Karonan navy has also retrofitted two of its fastest frigates with the C-802 SSM system.

Since the revolution, Karona has indigenously produced most of its naval mines. North Korea has been the main source of imported mines. The numbers and types of mines are not known, but they most likely include Russian-style, bottom-influence mines; acoustic influence mines; Chinese-type, bottom-influence mines; and, possibly, propelled warhead mines. This combination of mining capabilities—

- Allows the Karonans to lay mixed minefields that are more resistant to countermeasures.
- Increases their capability to lay mines covertly.
- Improves their ability to lay mines in the deeper portions of international waters.

While Karona neither possesses dedicated modern minelaying platforms nor practices advanced minelaying techniques, almost all of their naval vessels and merchant ships have the potential to deliver mines. Karona also possesses two Kilo-class submarines that are capable of delivering mines. These submarines are home ported in Karona City.

b. Starting Strength of Threat Forces

Table 2-1 identifies the starting strength of Karonan forces. Karonan air defense systems and anti-ship missiles are reduced to 25 percent of their original strength. Figure 2-1 identifies the location of enemy units on D+5.

Table 2-1. Starting Strength of Karonan Forces.

Unit Designation	Type of Unit	Estimated Strength (%)
4th Karonan Revolutionary Guard Brigade	Infantry	75
1st Battalion of the 4th Brigade	Infantry	75
2d Battalion of the 4th Brigade	Infantry	75
3d Battalion of the 4th Brigade	Infantry	75
4th Battalion of the 4th Brigade	Infantry	75
14th Karonan Revolutionary Guard Brigade	Infantry	75
9th Karonan Revolutionary Guard Brigade (-)	Infantry	75
3d Battalion of the 9th Brigade (reinforced)	Infantry	75
Karonan Artillery Battalion	Towed artillery	75
1st Battalion of the 9th Brigade (reinforced)	Infantry	75
1st Commando Battalion	Special forces	75
7th Karonan Revolutionary Battalion (-)	Infantry	75
1st Karonan Revolutionary Guard Battalion	Infantry	75
2d Karonan Revolutionary Guard Tank Battalion	Armor	75
3d Karonan Marine Battalion	Marine infantry	75
1st Karonan Marine Battalion	Marine infantry	75
2d Karonan Marine Battalion	Marine infantry	75

Figure 2-1. Karonan Unit Locations (D+5).

c. Location of MAGTF Command

The MEB command element remains afloat. The regimental landing team (RLT) headquarters goes ashore.

2003. Area of Operations

The AO is the southern area of Karona that borders the Sea of Karona and controls international transshipment. It is an area of sparse population, with little economic value, and its people survive by fishing, smuggling, and eking out an existence on extremely unyielding land.

a. Time of Year

This scenario takes place in the winter of 2015.

b. Terrain and Vegetation

Karona's terrain ranges from smooth, lowland plains to rugged, snow-capped mountains. About half of Karona's terrain is without vegetation or has only sparse desert grass and scrub; however, small marshes are present through the country. There are no major rivers in the country; therefore, Karona faces an evergrowing water shortage (more than half of the country chronically lacks water). Specifically, Karona's terrain and vegetation are as follows:

- Plains cover 43 percent of the country.
- Hills cover 33 percent of the country and are located in the northwest and southeast.
- Mountains cover 24 percent of the country. The Karonas and the Cartoonas are the two prominent mountain ranges. Both of these ranges are high, rough, steep barriers that cover most of the western, southwestern, and north-central parts of the country.
- The lowland plains along the coast of the Sea of Karona is covered by marsh and measures 160 kilometers in width and extends about 120 kilometers inland.
- Mangrove swamps exist along the Sea of Karona's coast in small, scattered areas.

c. Climate

Karona's climate varies greatly by region. Temperatures near the Sea of Karona may range from 120 ºF in the summer to winter lows of 25 ºF. Most of the precipitation occurs in winter and spring and is caused by frontal depressions that pass inland from the Sea of Karona. Surface winds are generally from the north; they are exceptionally dry in the summer and cause the country's aridity. In the summer, southwest monsoon winds blow from the Sea of Karona, but they are too weak to cause rain. Karona's seasonal changes (hot summers, cold winters) occur abruptly with only brief, transitional springs and autumns.

Visibility in the area of operations is seldom less than 4 kilometers. The primary restrictions to visibility are dust, fog, precipitation, mirage, and shimmer. Blowing dust is generally an afternoon phenomenon, but haze resulting from suspended dust particles may restrict visibility both day and night, especially in the coastal lowlands. Dust haze limits air-to-ground visibility, especially on cloudless days. Blowing dust and dust haze are most common in the summer, but these conditions can occur in drier regions throughout the year. Along the coast, fog is limited to damp mornings in winter and spring. Along the Sea of Karona, an occasional complex interaction of dust, haze, and fog reduces visibility. Mirage and shimmer distort visibility from flat ground surfaces during the summer.

Ceilings lower than 1,500 meters occur along the Sea of Karona during summer and early autumn, particularly in the morning. Ceilings below 600 meters are generally limited to the Sea of Karona region during the summer monsoons and early autumn nights. Ceilings are rarely less than 300 meters at any location, except where clouds occasionally shroud high mountain slopes.

d. Special Phenomena

(1) Dust Storms and Sandstorms

Dust storms and sandstorms occur throughout Karona, and their frequency and severity depend on the topography and surface wind strength. Inland deserts, semi-desert areas, and the coast are subject to sandstorms. Winds on the lee side of salt-encrusted flats carry a high proportion of salt particles. Dust storms and sandstorms occur in the interior an average of 5 to 10 days a month.

In summer, the dust storms or sandstorms have gradual onsets. They can result from increased prevailing wind gustiness and be most severe during the heat of the day. Regardless of when these storms occur, they make travel impossible. Under the worst conditions, they can totally eliminate visibility.

(2) Mirage and Shimmer

Mirage and shimmer are phenomena that accompany heat and aridity in the low, flat interior and coastal areas of Karona. They distort and blur the line of sight and occur when the ground's heat causes convectional movements and density variations in the lower few feet of air. Because their intensity moderates 5 to 10 meters above ground level, they do not interfere with aerial observation. As an obstacle to ground visibility, mirages cause the outlines of objects to obscure, and they can affect depth perception (objects may appear nearer to the eye than they actually are). Mirages can also produce semblances of mountains, hills, and lakes. Mirages typically form in the summer, but they can occur on clear days when the ground is heated and wind is minimal.

e. Roads

Karona's road network totals 142,000 kilometers; nearly 50 percent of the network is paved. The coastal highway connects Karona City to Kasta City, and it is intermittently asphalt (3

inches thick, predominantly sand base) and gravel. Trafficability is difficult and this coastal road does not adequately support heavy vehicle traffic.

f. Infrastructure

(1) Transportation

Karona's large populated areas are widely scattered and transportation between them is difficult due to mountainous and desert terrain. Low funding and poor maintenance reduce the efficiency of the all-weather roads. Regardless of road conditions, motor vehicles, buses, and trucks are Karona's main means of transportation for both passengers and goods.

The main line of the state-owned railway system spans the distance between the northern most area of Karona and the Sea of Karona. The railway has spurs to some of the provincial capitals. In 1971, the railway was linked to the European rail system and stimulated trade and tourism, undercut airfares, and reduced sea transportation time. The Karonan portion of the eastern line to Singapore was also completed in 1971.

The state-owned Karonan Air services most major cities and provincial capitals within Karona. The capital and Karona City have international airports, but all airports are capable of handling jets. Some major European, Asian, and African airlines serve Karona.

(2) Port Facilities

Karona City is strategically located on the Sea of Karona and is Karona's most important naval base and busiest maritime commercial hub. It is the headquarters of Karona's naval district and home to Karona's three, Kilo-class submarines. The Karonans have invested heavily in developing Karona City. In 1997, Karona completed work on the Karona City railway, an ambitious project that linked Karona City with the Karonan interior over the Karona Mountains. This railway enables Karona to transport military units from its interior to the coast on short notice, allowing the rapid reinforcement of Karona City.

Although Kasta City is a small town with a small port, it can accommodate large vessels, including naval frigates and coastal patrol craft. The extent of the port facilities is unknown and is believed to be limited, but could probably accommodate lighterage. A 130-meter jetty is used for offloading small ships up to 2,000 tons. There is a small airfield at Kasta City with a 1,000 meter runway. The coastal highway links the port at Kasta City with Karona City. The Sea of Karona is subject to extreme seasonal weather patterns that may prohibit maritime traffic near Kasta City, especially during the monsoon season (June through September).

g. Cultural Life

The commemoration of Karbala permeates all of Karona's culture and finds expression in poetry, music, and the pessimistic view of the world. All religious ceremonies refer to Karbala, and no month passes without at least one day of mourning. None of the efforts of the monarchy, such as

the annual festivals of art and the encouragement of musicians and native craftsmen, changes the basic attitude that finds laughter and joy undesirable and, in some circles, even sinful.

There are, however, several festive occasions. The two most important occasions are Noruz, the Karonan New Year, and the birthday of the Twelfth Imam, whose second return they expect. The New Year celebration begins on the last Wednesday of the old year, is followed by a week-long holiday, and continues until the 13th day of the new year, which is a day for picnicking in the countryside. On the Twelfth Imam's birthday, cities sparkle with lights and the bazaars are decorated and teem with shoppers.

A wide range of articles, both utilitarian and decorative, is made of various metals and gems. The most famous metal-producing centers are the capital (gold), Karona City (silver), and Cartoona (copper). Cartoona is also known for its turquoise industry, and the Sea of Karona region is known for it natural pearls. The craft techniques are as divergent as the products themselves. Articles are cast, beaten, wrought, pierced, or drawn (stretched out). The most widespread techniques used for ornamentation are engraving, embossing, chiseling, damascening, encrusting, or gilding.

Two architectural trends have developed over time: an imitation of Western styles that had little relevance to the country's climate and landscape and an attempt to revive indigenous designs. The National Council for Karonan Architecture, founded in 1967, discourages blind imitation of the West and promotes the use of more traditional Karonan styles that are modified to serve modern needs.

The strict interpretation of the Bible's Second Commandment, which the Quran reiterates, discourages idolatrous painting and sculpture. However, this did not prevent Karonan artists from working in other media, such as calligraphy, illumination, weaving, ceramics, and metalwork. Western classical painting and sculpture were introduced in the late 19th century and adapted to Karonan themes.

For centuries, musical development was inhibited because of injunctions. Folk songs and ancient Karonan classical music were preserved only through oral transmission from generation to generation. During the 20th century, a music conservatory was founded in the capital and Western techniques were used to record traditional melodies and encourage new compositions. This trend was reversed in 1979 when the former restrictions on music were restored.

With support from the Ministry of Higher Education and Culture, a motion picture industry developed before the revolution. However, movie production by the private sector has been discontinued. The industry now concentrates on documentaries with historical, religious, and ethical themes, and it operates under the supervision of the Ministry of Islamic Guidance.

Museums are not numerous and are relatively recent, with two exceptions: the Palace Museum in the capital, which was opened in 1894, and the All Savior's Cathedral Museum, which was built by the Armenian community in 1905. The only gallery devoted solely to art is the Capital Museum of Modern Art, opened in 1977. Among the learned societies, all of which are located in the capital, the most important are the Ancient Karonan Cultural Society, the Karonan

Mathematical Society, and the Karonan Society of Microbiology. There are also a number of cultural, scientific, archaeological, anthropological, and historical research institutes. In addition to the universities libraries, there are public and private libraries in the capital.

Wrestling, horse racing, and ritualistic bodybuilding are Karona's traditional sports. Team sports were introduced from the West in the 20th century, the most popular being rugby and volleyball.

The development of municipal and amusement parks gained some momentum after World War II, but there are only a few playgrounds in major cities and only limited public camping areas. Several major cities have large sports stadiums.

The country's daily newspapers and periodicals are published primarily in the capital and must be licensed under the Press Law of 1979. The publication of any non-Muslim or anti-Muslim sentiments is strictly forbidden. Foreign correspondents are allowed into the country on special occasions. Despite constitutional guarantees of freedom of the press, censorship is ubiquitous.

Radio and television broadcasting stations serve Karona, and some radio broadcasts have international reception. Transmitters broadcast in local languages and dialects. Because of widespread illiteracy, audiovisual media are much more effective in the dissemination of information.

2004. Strategic Setting

Karona conducted a sustained effort to build up its military capabilities, which accelerated at the beginning of 2010. Karona desires to become the preeminent power in the region surrounding the Sea of Karona and to displace Western influence. Karonan leadership also perceives that its neighbors want US presence in the Sea of Karona removed and believes that the time is right to force this issue. To accomplish its objectives, Karona begins a series of overt and covert actions aimed at manipulating world oil prices, ejecting Western influence from the region, and establishing regional dominance. Karona's National Command Authority decides to initiate a series of covert terrorist actions to destabilize its neighbors.

2005. Threat Forces and Enemy Situation

Appendix C (classified) provides detailed information on the threat forces and the enemy situation. (Contact Doctrine Division, Marine Corps Combat Development Command, Quantico, VA, for access to appendix C.)

Chapter 3
Force Disposition and Composition

3001. Combined-Joint Task Force (CJTF)

The US deploys the standing C2 element from CENTCOM to theater. This organization, with augmentation, serves as the CJTF headquarters. In Phase I (pre-hostility operations), the CJTF provides command and control for the combat forces and assets involved in protecting the coalition and allied states, develops the ISR picture of Karona for future operations, and maintains freedom of navigation of the international waters of the Sea of Karona. When conditions are met for initiating Phase II (force flow and battlespace shaping), the CJTF coordinates the operations for flowing additional forces into theater, to include flexible deterrent options (FDOs), re-establishing freedom of navigation, and, if required, initiating a blockade on Karonan maritime movements. If Karona continues to disregard international law and the mandates of the international community, the CJTF transitions from quarantine-type operations to active offensive operations (Phase III, offensive and decisive combat) against Karona to ensure freedom of navigation through international waters. When the objectives of Phase III have been met, Phase IV (nation building) commences with the CJTF completing the development of a demilitarized zone and elimination/neutralization of combat capabilities south of a line approximately 100 miles inland from the coastline of Karona.

3002. Higher Commander's Intent

Upon indications and warnings, US forces deploy to international waters in the Sea of Karona in conjunction with coalition forces. The US seeks to assure allies and coalition partners during these operations. Concurrently, forces track anti-access assets and weapons of mass destruction (WMD) and/or weapons of mass effect (WME) assets. Major goals are to assess aerial ports of debarkation (APODs) and/or seaports of debarkation (SPODs) in the region and theater while conducting operations to deter against attacks on key regional allied and coalition partners.

Centers of gravity identified by the regional combatant commander include—

- Karonan government leadership and their lines of communication and control across the country to terrorist groups and sympathetic organizations.
- Karonan strategic economic resources and assets (e.g., oil production/refining facilities).
- Karonan WMD/WME assets and resources.
- Karonan major combat forces.

At the onset of hostilities, US forces defend the territorial integrity of the coalition states and the freedom of international waters and prevent Karonan forces from gaining control of the straits.

The Sea of Karona is of strategic importance for both coalition forces and the Karonan government. At the end of hostilities, the endstate desired by the coalition forces is to re-establish the freedom of navigation of international waters throughout the Sea of Karona, overthrow the current Karonan regime, create a demilitarized zone, and eliminate/neutralize combat capabilities south of a line approximately 100 miles inland from the coastline of Karona. Therefore, Karona's initial operational center of gravity is its military forces that were used to gain control of the Sea of Karona and threaten international shipping.

3003. Operational Objectives

a. Phase I: Pre-hostility Operations

Phase I objectives are as follows:

- Deter Karona from initiating hostile actions.
- Deploy forces into theater as rapidly as possible as the situation warrants.
- Protect forces from surprise attack.
- Increase threat condition and force protection measures for possible special operations attacks.
- Locate and target Karona's WMD sites. Prepare operational plans to neutralize or destroy WMD sites and resources. Execute covert operations against WMD sites and resources if directed.

b. Phase II: Force Flow and Battlespace Shaping

Phase II operational objectives include—

- Deploying coalition forces.
- Protecting coalition forces.
- Establishing air superiority and sea control over the international waters of the Sea of Karona and friendly operational areas to protect lodgment activities and coalition partners.
- Establishing protected use of international sea-lanes for military use and securing the international waters of the Sea of Karona and approaches.
- Providing 24-hour surveillance and reconnaissance capability in the area of responsibility.
- Establishing an initial operational area in the region of JFC Objective C for combat forces in order to execute future military operations.
- Executing deception plan and SOF missions.

c. Phase III: Offensive and Decisive Combat

Phase III objectives are as follows:

- Detect, identify, strike, and destroy threats to coalition forces.
- Neutralize or nullify WMD/WME attacks.
- Neutralize Karonan offensive capabilities on islands in the Sea of Karona.
- Establish sea control of the Sea of Karona.
- Attack Karonan assets and resources that impact on strategic centers of gravity.
- Overthrow the current Karonan regime.

d. Phase IV: Nation Building

Phase IV objectives are as follows:

- Create a demilitarized zone.
- Eliminate/neutralize combat capabilities south of a line approximately 100 miles inland from the coastline of Karona.
- Ensure freedom of navigation through international waters.
- Provide environment for establishment of new regime.

3004. Marine Forces

The Marine Corps' structure for this operation is based on the 2015 MEB. The STOM force in the scenario depicts a way to organize and structure forces to conduct STOM operations on a MEB scale. While the MAGTF in the scenario operates under a CJTF, that relationship is secondary to the focus of this effort. Command relationships for the scenario and real world operations would be in accordance with JP 0-2, *Unified Action Armed Forces (UNAAF)*.

3005. MAGTF

The overall MEB structure as envisioned in the 2015 MEB would be sufficient for STOM operations. Within each of the major subordinate elements there may be some changes. Force structure changes will be driven by the need to reduce the footprint ashore.

3006. MEB

The Marine Expeditionary Brigade (MEB) is the "middle-weight" MAGTF. It is a crisis response force capable of forcible entry and enabling the introduction of follow-on forces. It can serve as part of a joint or multinational force and can provide the nucleus of a joint task force

headquarters. The MEB is unique in that it is the smallest MAGTF with a fully-capable aviation element that performs all six functions of Marine aviation, is self-sustaining for a minimum of 20 days, and is capable of interoperating/integrating with naval/joint logistic systems for indefinite sustainment. A MEB is capable of rapid deployment and employment, deploying either by air, in combination with the maritime prepositioning ship (MPS), or by amphibious shipping. As a result, the MEB can conduct the full range of combat operations. The MEB is imbedded within the Marine Expeditionary Force (MEF); therefore, it is task-organized for specific missions from within the assets of the MEF. A MEB notionally consists of the following elements:

- A CE that may include additional assets such as command and control, force reconnaissance company, signals intelligence capabilities from the radio battalion, and engineering capabilities from the naval construction regiments.
- A GCE composed of an infantry regiment reinforced with artillery, reconnaissance, engineer, light armored reconnaissance, and assault amphibian units and other attachments as required.
- An ACE composed of a Marine aircraft group with combat assault transport helicopter, utility and attack helicopters, vertical/short takeoff and landing fixed-wing attack aircraft, air refuelers/transport aircraft, and other detachments as required.
- A CSSE task-organized around a brigade service support group (BSSG). This element has engineering; supply; transportation; landing support for beach, port, and airfield delivery; medical; and maintenance capabilities.

The MEB in the scenario was built from the following forces (see fig. 3-1):

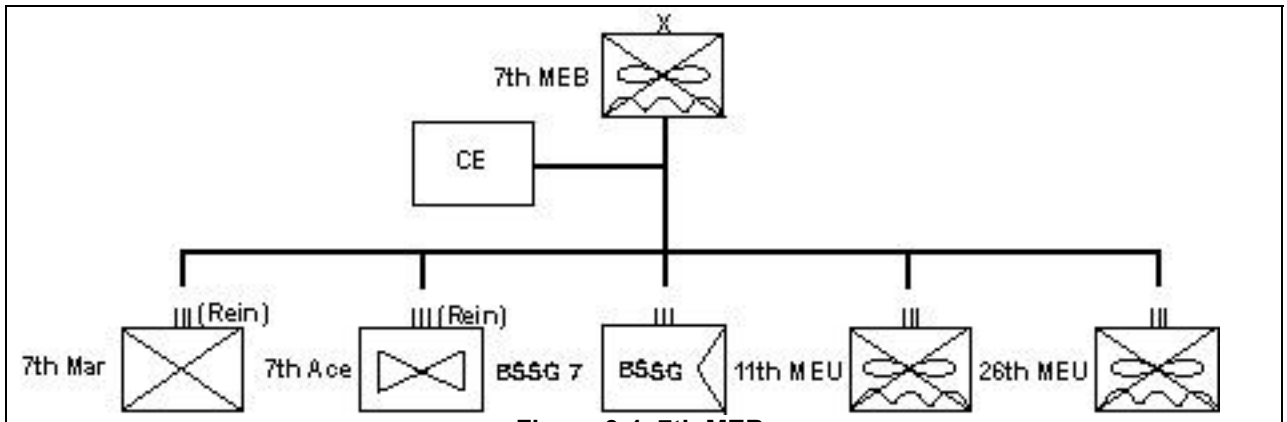

Figure 3-1. 7th MEB.

a. Command Element

The CE for the 7th MEB is organized as depicted in figure 3-2.

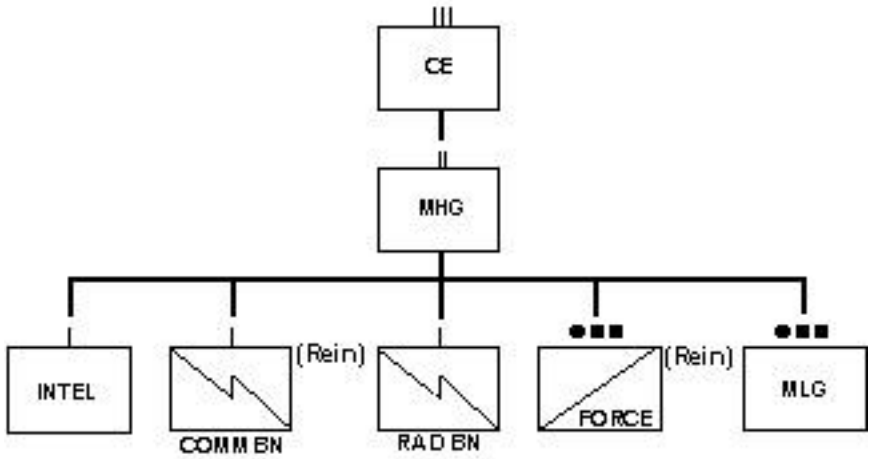

Figure 3-2. Command Element Organization.

b. Ground Combat Element

The 7th Marine Regiment is the GCE of the 7th MEB. The GCE of the MEB is typically a regimental-size force. For the scenario, the GCE was task-organized from the 7th Marine Regiment and supports/reinforces other maneuver elements of the MEB to include detaching forces to other maneuver elements. For the STOM scenario, the MEB GCE was organized as shown in figure 3-3.

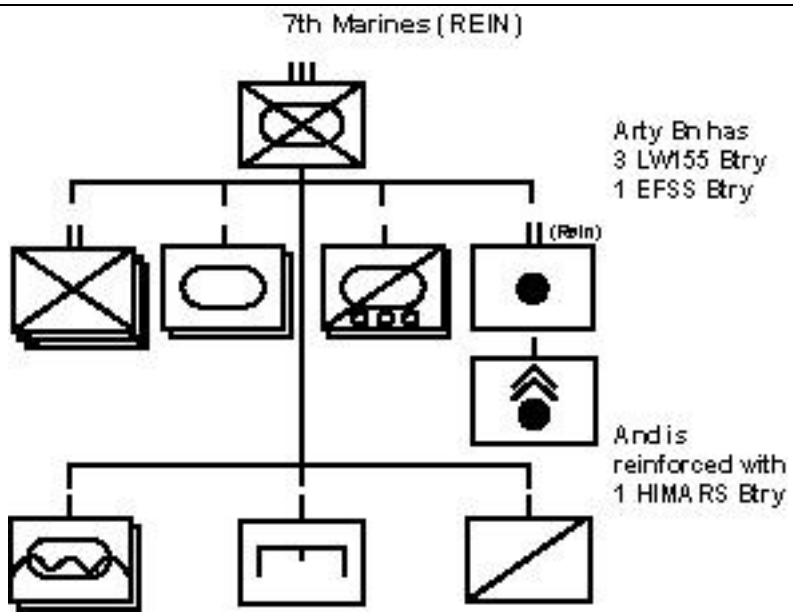

Figure 3-3. Ground Combat Element Organization.

c. Aviation Combat Element

As with the GCE, the ACE continues to be based on the appropriate standing aviation unit (wing, group or squadron). In the scenario, the MEB ACE is comprised of two reinforced Marine aircraft groups (MAGs) as depicted in figure 3-4.

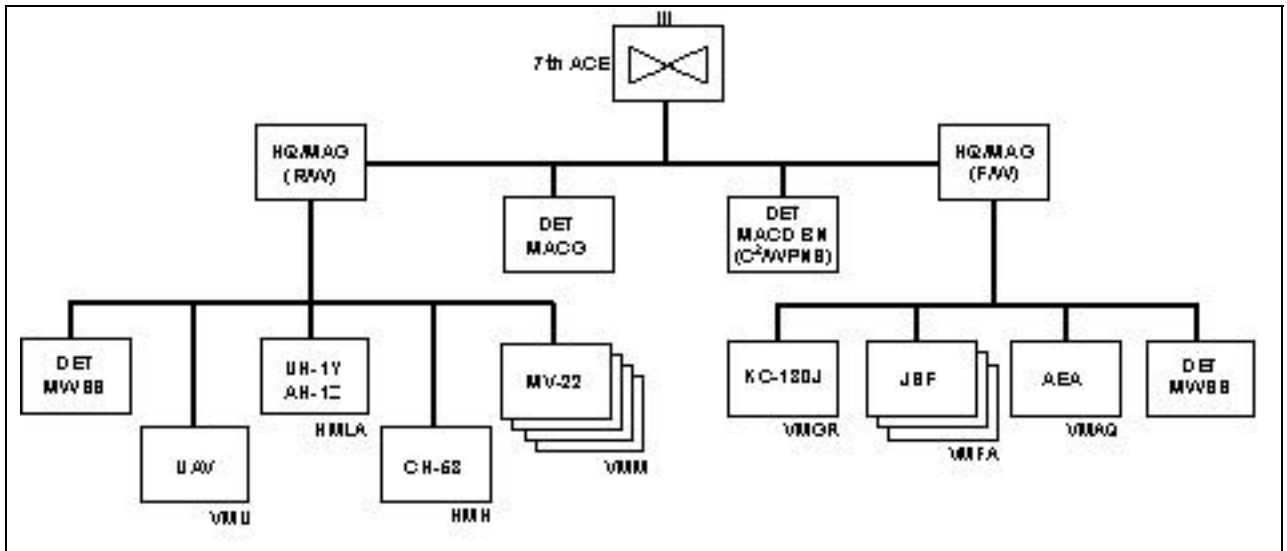

Figure 3-4. Aviation Combat Element Organization.

Note

In 2015, the detachment from the Marine air control defense battalion (MACD Bn) is established and consists of sensors (i.e., radars), Stingers, low altitude air defense (LAAD), C2, CLAWS, and weapons.

d. Combat Service Support Element

The combat service support element (CSSE) for the scenario is designated BSSG 7. The MAGTF's CSSE will have undergone significant organizational changes by 2015. The changes to the CSSE organization are detailed in chapter 7. The BSSG is structured at the battalion/company level as depicted in figure 3-5.

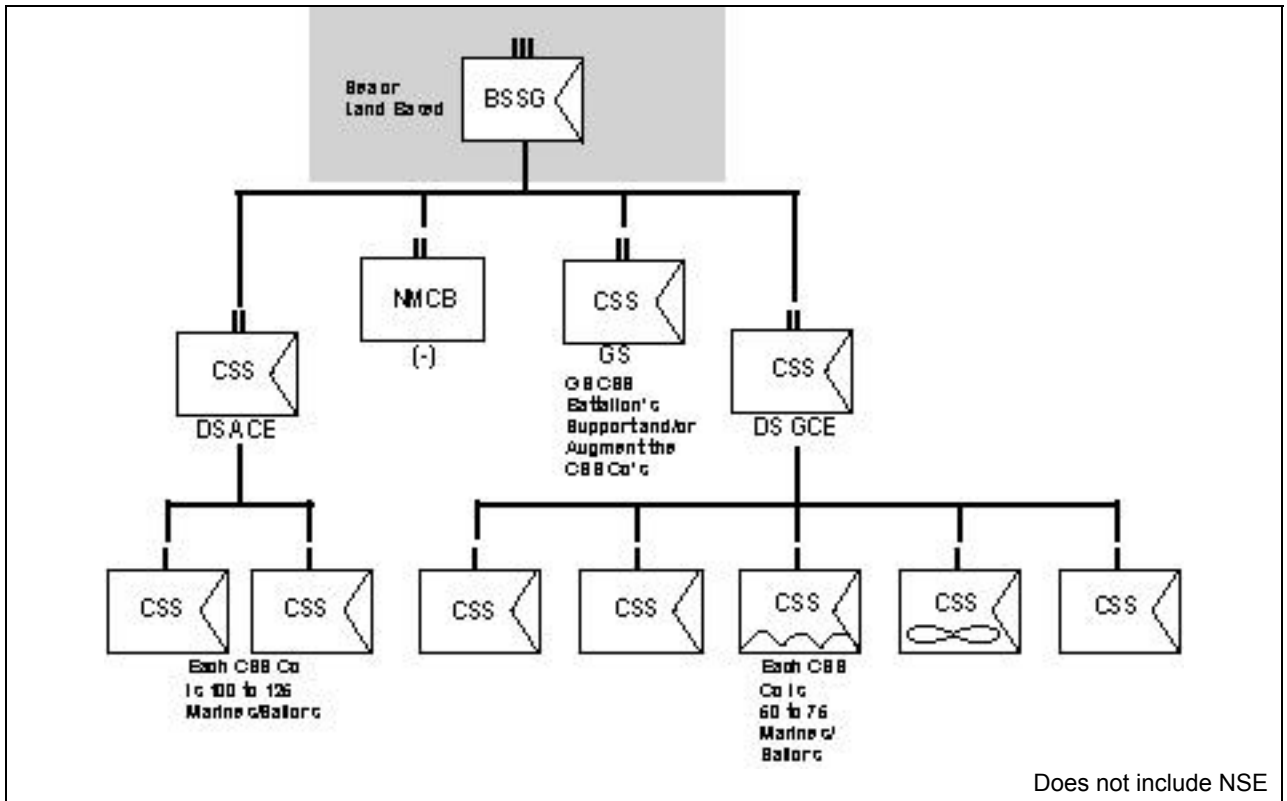

Figure 3-5. Combat Service Support Element Organization.

e. Marine Expeditionary Unit

The MEU in 2015 is structured predominately as it is today. In the scenario, the MEUs are organized as shown in figure 3-6.

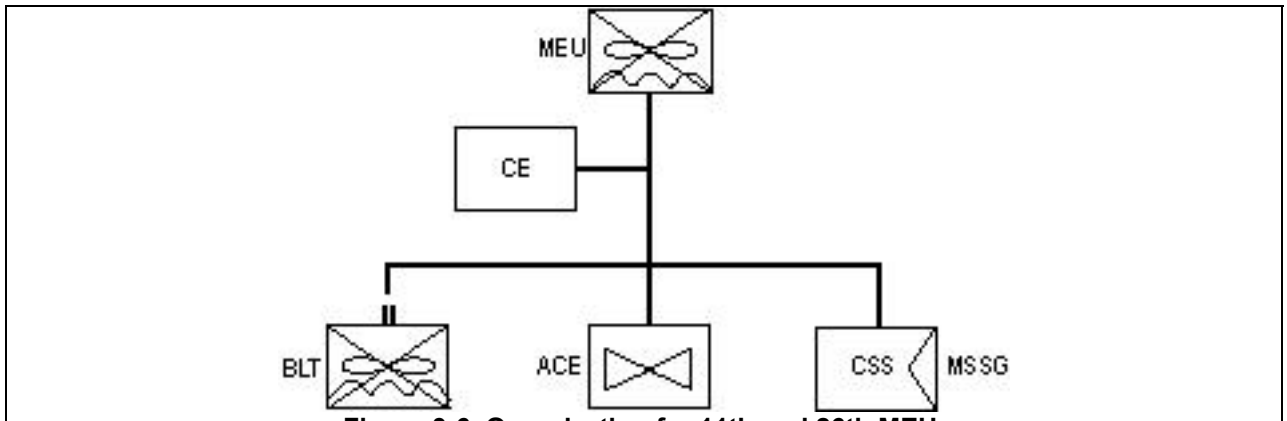

Figure 3-6. Organization for 11th and 26th MEU.

3007. MEB Troop List/Distribution

Given the organization described above, STOM forces consist of approximately 14,000 personnel. Tables 3-1 and 3-2 provide summary data of the personnel and equipment distribution. Appendix D provides more detailed data on the force list and distribution of forces for the execution of STOM in this scenario.

Table 3-1. MEB Troop List.

	11th MEU	26th MEU	Remaining MEB Forces (Sea-based) MPF(F)/CVNs	Remaining MEB Forces (Shore-based)	Total
CE	167	167	143		477
GCE	1,333	1,333	4,163		6,829
ACE	593	593	2,094/702	1,016	4,998
CSSE	228	228	1,043		1,499
Totals	2,321	2,321	7,443/702	1,016	13,803

Table 3-2. Selected MEB Equipment List.

Principal End Items	11th MEU	26th MEU	Remaining MEB Forces (Sea-based)	(Shore-based)
EFV	14	14	106	-
LAV	25	25	60	-
M1 Tank	4	4	29	-
M88 Recovery Vehicle	1	1	7	-
ABV	-	-	5	-
EFSS	8	8	8	-
LW-155mm	-	-	18	-
HIMARS	-	-	6	-
HMMWV (all variants)	139	139	1,034	37
MTVR (all variants)	27	27	466	10
LVS (all variants)	-	-	68	2
Engr Equipment	9	9	248	19
Total Vehicles:	219	219	2,029	68
MV-22	12	12	48	-
UH-1Y	3	3	9	-
AH-1W	6	6	14	-
CH53E(SLEP)	4	4	20	-
UAV	2	2	6	-
STOVL JSF	6	6	30	-
KC-130J	-	-	-	16
AEA	-	-	-	5

3008. MEB STOM Task Organization

Table 3-3 depicts how forces are tasked-organized to conduct STOM operations in the scenario.

Table 3-3. Task Organization.

TASK FORCE SURFACE

CE	
HQ 11th MEU	60
Det, Intelligence Bn	23
Det, Radio Bn	25
Det, Force Recon Co	23
Det, Marine Liaison Co (ANGLICO)	6
Det, Comm Bn	30
CE Totals	167

GCE	
BLT 1/1	
Infantry Bn 1/1(-)	735
EFSS Btry, 1/11	130
3d Plt, A Co, 1st Tanks	20
1stPlt (REIN), A Co, 3d AA Bn	48
1stPlt (REIN), A Co, 1st CEB	45
A Co, 1st LAR	139
Recon Plt, Div Recon Bn	20
G Co (REIN), BLT 2/2, 26th MEU	
G Co (REIN), 2/2	199
1st Plt, A Co, 2d Tracs	36
1st Plt, B Co, 2d Tanks	16
BN 1/7(REIN)	
Infantry Bn 1/7	934
Btry E (LW-155), 2/11	147
Co B, 1st Tanks	86
D Co (REIN), 3d AA Bn	202
2d Plt (REIN), B Co, 1st CEB	50
C Co, 1st LAR Bn	139
CSS Co A(DS), 7th BSSG	100
GCE Totals	3,046

ACE	
Squadron (Composite)	
VMM-1	204
Det, HMH-1	87
Det, HMLA-1	143
Det, VMFA-1	119
Det, MACD Bn-1	
Det, C2 Co	12
AD Sec, Wpns Co (LAAD)	12
Det, VMU-1	16
ACE Totals	593

CSSE	
MSSG-11	
MSSG HQ	20
Comm Det	8
Det, CSS Company (DS)	80
Det, CSS Company (GS)	120
CSSE Totals	228

TOTALS	4,025

Table 3-3. Task Organization (Continued).

TASK FORCE VERTICAL

CE	
HQ 26th MEU	60
Det, Intelligence Bn	23
Det, Radio Bn	25
Det, Force Recon Co	23
Det, Marine Liaison Co (ANGLICO)	6
Det, Comm Bn	30
CE Totals	167

GCE	
BLT 2/2	
Infantry Bn 2/2(-)	735
EFSS Btry, 1/10	130
1st Plt (REIN), A Co, 1st CEB	45
B Co, 2d LAR	139
Recon Plt, Div Recon Bn	20
B Co (REIN), BLT 1/1, 11th MEU	
B Co(REIN), 1/1	199
BN 2/7 (REIN)	
Infantry Bn 2/7	934
EFSS Btry, 2/11	147
2d Plt REIN), B Co, 1st CEB	50
CSS Co B(DS), 7th BSSG	100
GCE Totals	2,499

ACE	
Squadron (Composite)	
VMM-2	204
Det, HMH-2	87
Det, HMLA-2	143
Det, VMFA-2	119
Det, MACD Bn-2	
Det, C2 Co	12
AD Sec, Wpns Co (LAAD)	12
Det, VMU-2	16
ACE Totals	593

CSSE	
MSSG-26	
MSSG HQ	20
Comm Det	8
Det, CSS Co (DS)	80
Det, CSS Co (GS)	120
CSSE Totals	228
TOTALS	3,487

7TH MEB(-)

CE	
HQ 7th MEB	135
Det, Intelligence Bn	83
Det, Radio Bn	90
Det, Force Recon Co	23
Det, Marine Liaison Co (ANGLICO)	35
Det, Comm Bn	30
CE Totals	396

ACE	
HQ MAG (Composite)	
MAG (RW)	111
Det, MAG (FW)	30
VMM-3	204
VMM-4	204
VMM-5	204
VMM-6	204
HMH-3 (REIN)	368

Table 3-3. Task Organization (Continued).

7TH MEB(-) (CONTINUED)

GCE	
HQ Co, 7th Mar	162
Det, Div Comm Co	20
Recon Co(-)	90
BN 3/7 (REIN)	
Infantry Bn 3/7	934
Btry F (LW-155), 2/11	147
C Co, 1st Tanks	86
C Co (REIN), 3d Tracs	202
3d Plt (REIN), B Co, 1 st CEB	50
D Co, 1 st LAR Bn	139
Det, CSS Co C (DS), 7th BSSG	100
BN 2/11(-)(REIN)	
HQ Btry, 2/11	150
Btry F (LW-155), 2/11	147
HIMARS Btry, 11th Mar	105
CBR Det, HQ Btry, 11th Mar	8
Det, H&S Co, 1st Tanks	20
Det, AT Plt, 1st Tanks	30
B Co(-), 1st CEB	44
Det, Engr Supt Co, 1st CEB	32
GCE Totals	2,466

ACE (Continued)	
HMLA-3	465
VMFA-3	190
VMFA-4	190
VMFA-5	190
VMGR-1	368
VMAQ-1	255
Det, MACD Bn-2	
Det, C2 Co	50
Wpns Co(-) (LAAD)	108
Det, VMU-2	190
ACE Totals	3,331

CSSE	
BSSG-7(-)	
BSSG HQ	120
Comm Det	30
CSS Co (DS)	100
CSS Co (DS)	100
CSS Bn (DS) (ACE)	260
CSS Bn (GS)	300
CSSE Totals	910
TOTALS	7,113

The initial forces projected ashore consist of the following:

- Surface Task Force (TF)
  - 11th MEU reinforced (rein) with a battalion (rein) from the 7th Marines.
  - Mechanized company (rein) from the 26th MEU.
  - DSCSS company from BSSG 7.
- Vertical TF
  - 26th MEU, reinforced with a battalion (rein) from the 7th Marines.
  - 7th ACE.
  - DSCSS company from BSSG 7.

A mechanized battalion (rein) from 7th Marines is a sea-based reserve on D+8 . For further details see appendix E (Landing Plan). Table 3-4 provides a summary of the TFs ashore on D+8.

Table 3-4. Forces Ashore on D+8.					
	VERTICAL TF		SURFACE TF		TOTAL
	2/6(Rein)	2/7(Rein)	1/1(Rein)	1/7(Rein)	
PERSONNEL	1,143	1,010	1,288	1,420	4,861
MAJOR END ITEMS					
EFV	-	-	28	48	76
LAV	25	-	25	25	75
M1 Tank	-	-	8	14	22
M88 Recovery Veh	-	-	1	1	2
ABV	-	-	-	2	2
EFSS	8	8	8	-	24
LW-155	-	-	-	6	6
HIMARS	-	-	-	-	-
HMMWV (all variants)	83	83	98	82	346
MTVR (all variants)	-	-	5	21	26
LVS (all variants)	-	-	-	-	-
Engr Equipment	2	2	2	3	9
Total Vehicles	110	85	167	196	558

Additional forces projected ashore on D+9 include another mechanized battalion (rein) (initially the reserve on D+8), the artillery battalion(-), elements of the radio battalion, and elements of the 7th Marine Headquarters. Table 3-5 provides a summary of the TFs ashore on D+9.

Table 3-5. Forces Ashore on D+9.							
	VERTICAL TF		SURFACE TF			OTHER	TOTAL
	2/6(Rein)	2/7(Rein)	1/1(Rein)	1/7(Rein)	3/7(Rein)	7th MEB	
PERSONNEL	1,143	1,010	1,288	1,420	1,420	472	6,753
MAJOR END ITEMS							
EFV	-	-	28	48	48	4	128
LAV	25	-	25	25	25	-	100
M1Tank	-	-	8	14	14	-	36
M88 Recovery Veh	-	-	1	1	1	-	3
ABV	-	-	-	2	2	-	4
EFSS	8	8	8	-	-	-	24
LW-155	-	-	-	6	6	6	18
HIMARS	-	-	-	-	-	6	6
HMMWV (all variants)	83	83	98	82	82	90	518
MTVR (all variants)	-	-	5	21	21	30	77
LVS (all variants)	-	-	-	-	-	-	-
Engr Equipment	2	2	2	3	3	2	14
Total Vehicles:	110	85	167	196	196	132	886

3009. Force Closure

A MEB-sized MAGTF provides a sustainable forced-entry capability for the Department of Defense. However, the Marine Corps and the Navy do not have sufficient assets to be forward deployed in MEB size throughout the world. Given the notional locations of forces, likely shipping availability, and decision times in the scenario, it would take roughly 4-6 weeks for all forces to be in place and ready to commence operations if the amphibious MEB force were CONUS-based. This estimate represents the time required to assemble and load the required amphibious ships and the MPF(F) squadron. For the scenario, and in order to provide the JFC with a rapid response force capable of forcible entry, the MEB force is built from forces previously listed in this chapter.

MEB forces move via commercial and strategic transport aircraft, self-deploying aircraft, and intra-theater fast ferry (FF [HSV]) craft. Advance bases are established at a coalition nation (CN) airfield and seaport in the AO. Upon receipt of the deployment order, personnel from across all the MEB elements begin preparations of rotary-wing, fixed-wing, and tilt rotor aircraft and critical low density/high demand items (CLD/HD) for strategic airlift and self-deployment. Appendix F provides a detailed flow-in echelon (FIE) lift allocation.

Note

For the MPF(F), the term FIE, has a different meaning than the FIE, fly-in echelon, associated with current MPF operations. See the glossary (app. M) for a detailed definition.

An advance party (A/P) departs on movement day zero (CJTF C-3) via commercial airlift to Diego Garcia where its personnel board the MPF ships to arrange for arrival of the main body of the MPF(F) MEB sea-based FIE. The advance party is supported by an embarked military detachment aboard each ship including Marines, Navy, and contractor personnel charged with maintaining the spaces and equipment for the arriving MAGTF. A second A/P departs on the same day, but uses commercial ticketing, to establish liaison and movement control centers at the CN airfield and seaport.

The first increment of the main body commercial airlift departs on movement day one and arrives at Diego Garcia where personnel board MPF(F) ships for departure the next day. Upon departure of the MPF(F) ships, three fast ferry craft arrive from two, in-theater forward operating bases (FOB) to transport the second increment to the MPF(F) ships. As helicopters are prepared for C-17 loading, fixed-wing and tilt rotor aircraft begin their self-deployment. The first increment of strategic airlift containing MEB ACE (HMLA and HMH) aircraft, aircraft ground support equipment (AGSE), A/C maintenance equipment, and CLD/HD items departs for the CN airfield. Commercial airlift for deployment of ACE Marine aviation logistics squadron (MALS) and headquarters personnel (ACE A, B, C, and D increments) begins in conjunction with the strategic lift.

Upon arrival at Diego Garcia, the second, sea-based increment boards the FFs. The following day, the three FF craft depart for the MPF(F) ships at the en route rendezvous point (ERP) half-

way through the MPF(F) ships' 3-day transit to the AO. The second increment executes an at-sea personnel transfer and the FFs continue on to the CN seaport.

The third increment of MEB personnel are flown into the CN airfield and marshalled for further overland transportation to the CN seaport of embarkation (SPOE) where a FF is standing by that is positioned from a third FOB closer to the AO. The third increment begins FF transit to the MPF ships. MV22s embarked on the ESGs help move MEB ACE and CE personnel and CLD/HD cargo to MPF ships as required. Upon arrival, the three FFs from Diego Garcia support the movement to the sea base as required and/or prepare for further operations.

See appendix G for force flow table.

3010. Navy Force Flow

Tables 3-6 and 3-7 (on page 3-15) depict the flow of Navy forces into theater. With a CSG/ESG on station, the MPF(F) MEB arrives at the sea base. The MPF(F) sea-based FIE conducts at-sea transfers with the MPF(F) ships via HSV/FFs (six FFs on station) and MV-22's.

Note
LCSs would also flow into theater, but are not depicted in the tables.

Table 3-6. Navy Force Flow.

Force	Initial Location	Movement Order	Transit Time	Arrive
TBMD SAG	Forward deployed	C-3	3 days	C+0
CSG	Forward deployed	C-3	4 days	C+1
ESG	Forward deployed	C-3	4 days	C+1
SSGN	Forward deployed	C-3	6 days	C+3
ESG	Mediterranean	C-3	6 days	C+3
MPF(F)	Diego Garcia	C-1	5 days	C+3
HSV	Forward deployed	C-3	3 days	C+0
SSGN	Westpac	C-3	12 days	C+8
CSG	Westpac	C-10	18 days	C+8
ESG Escorts	Westpac	C-4	16 days	C+12
ESG (L-class)	Westpac	C-4	18 days	C+14
CSG	Japan	C-1	16 days	C+15
TBMD SAG	Japan	C-1	16 days	C+15
CSG Escorts	Atlantic	C+7	9 days	C+16
ESG Escorts	Atlantic	C+7	9 days	C+16

Table 3-7. Navy Force Flow (by ship type).															
	Day 0			D-day	D+1	D+5	D+6	D+7	D+8	D+9	D+10	D+12	D+13	D+14	
	C-3	C+0	C+1	C+2	C+3	C+7	C+8	C+9	C+10	C+11	C+12	C+14	C+15	C+16	Total
CVN			1-F				1-W						1-J		3
CG		1-F	2-F		1-M		1-W				1-W		2-J	2-A	10
DDG		2-F	3-F		1-M		2-W				1-W		4-J	3-A	16
DD(X)			1-F		1-M						1-W			1-A	4
MPF(F)					6-D										6
SSGN					1-F		1-W								2
LHD			1-F		1-M							1-W			3
LPD-17			1-F		1-M							1-W			3
LSD-41			1-F		1-M							1-W			3
SSN			1-F		1-M							1-W			3
HSV		6-F													6

Notes: A= Atlantic D= Diego Garcia
F= Forward Deployed J= Japan
M= Mediterranean W= Westpac

3011. Scenario Mission

a. Mission

Once the ESF is in theater, the 7th MEB is assigned the following mission:

> On order, 7th MEB conducts littoral penetrations in the vicinity of Karona City and aggressor airfield to seize JFC Objective C, concurrently deploys forces in the vicinity of camel highway to seize JFC Objective B in order to isolate Karona City, blocks enemy reinforcements, and enables the flow of follow-on forces. Be prepared to conduct offensive operations to support the seizure of JFC Objectives D and E in order to neutralize enemy anti-access threats to shipping within the straits and be prepared to conduct battle handover with follow-on forces as directed.

b. Concept of Operations

Based on the mission and mission analysis, the following concept of operations is developed:

> At H-hour on D+8, 7th MEB conducts an initial littoral penetration, within LPA Richmond, as a blocking force in the vicinity of Karona City. On order, continue the attack in support of JFC offensive operations. During this phase, the GCE is the main effort and conducts a two-battalion surface and a two-battalion vertical assault to block elements of the infantry battalion and to delay possible counterattacks by other enemy units. Be prepared to conduct operations to attack in zone to seize JFC Objectives D and E. MEB reserve on D-day consists of one, battalion-sized unit.

c. Scheme of Maneuver

Elements of the 11th MEU reinforced with a battalion (rein) of the 7th Marines, a mechanized company (rein) from the 26th MEU, and a direct support CSS company from BSSG 7 execute a surface attack to seize JFC Objective C. Concurrently, elements from the 26th MEU (reinforced with a battalion (rein) of the 7th Marines, 7th ACE, and a direct support CSS company from BSSG 7) execute a vertical assault to seize JFC Objective B. The reserve on D+8 is a mechanized battalion (rein) from 7th Marines located at the sea base.

The overall scheme of maneuver on D+8 is depicted in figure 3-7.

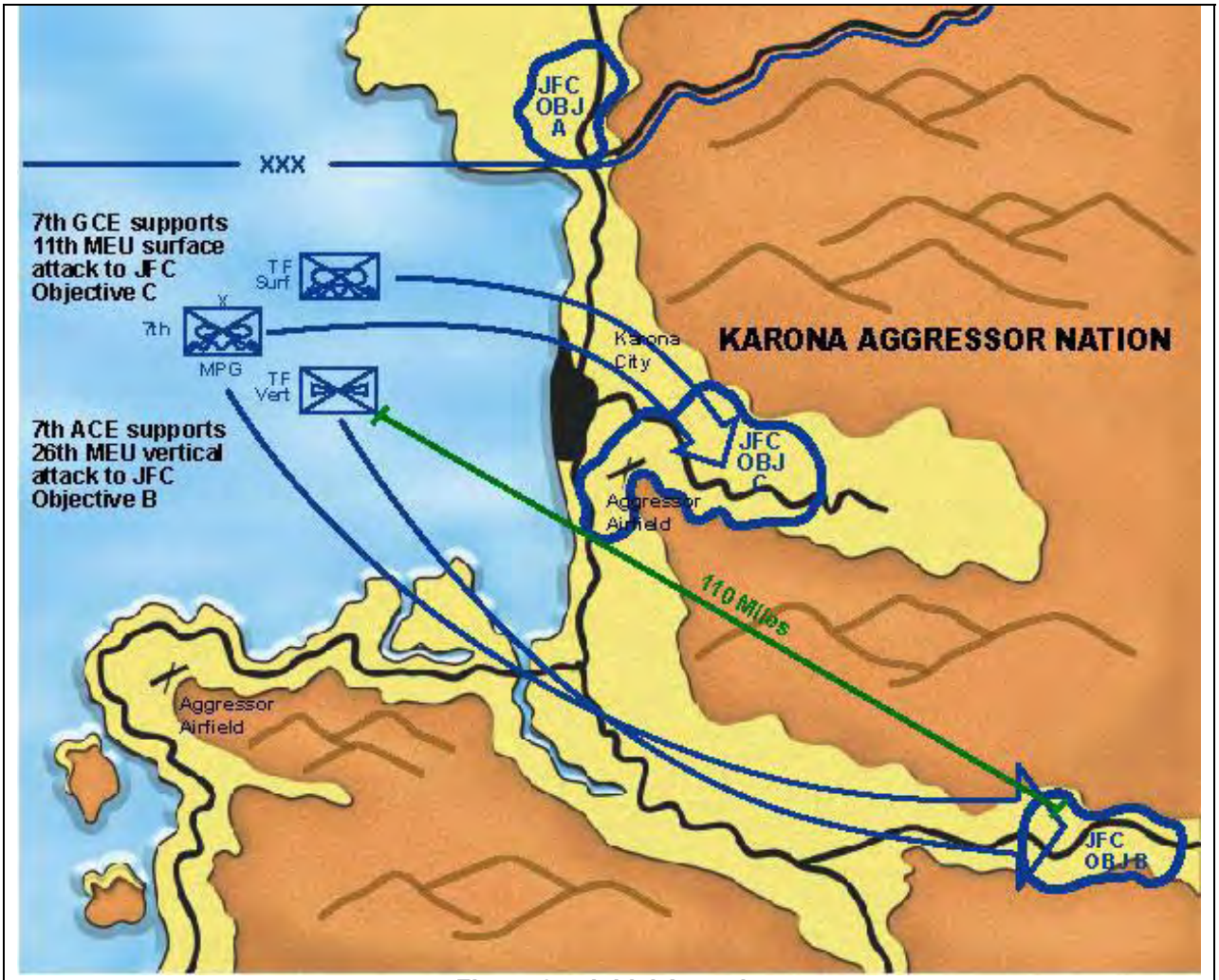

Figure 3-7. Initial Assault.

The follow-on mission's scheme of maneuver is as depicted in figure 3-8.

Figure 3-8. Follow-on Mission.

Chapter 4
Maneuver

4001. General

Maneuver warfare is based on the avoidance of the enemy's strengths and the exploitation of the enemy's weaknesses. Rather than attacking the enemy's strengths, Marines bypass the enemy's defense and penetrate those defenses through exploiting enemy weaknesses, attacking their centers of gravity and their critical vulnerabilities. The goal of maneuver warfare is to render the enemy incapable of effective resistance by shattering his morale, mental, and physical cohesion.

Maneuver provides a means to gain an advantage over the enemy. Traditionally, maneuver has meant moving in a way that gained positional—or spatial—advantage. For example, a force may maneuver to envelop an exposed enemy flank or deny him terrain that is critical to his goals. The commander may maneuver to threaten the enemy's lines of communications (LOC) and force the enemy to withdraw. The commander may maneuver to seize an objective that brings effective fire to bear against the enemy but protects the commander's forces against enemy fires.

To maximize the usefulness of maneuver, the commander must maneuver his forces in other dimensions as well. The essence of maneuver is taking action to generate and exploit some kind of advantage over the enemy as a means of accomplishing the commander's objectives as effectively as possible. That advantage may be psychological, technological, or temporal as well as spatial.

A force maneuvers in time by increasing relative speed and operating at a faster tempo than the enemy. Normally, forces maneuver both in time and space to gain advantage and, ultimately, victory at the least possible cost.

The objective of STOM is to generate and maintain overwhelming tempo through maneuver from the sea and to avoid the operational pause associated with a traditional force beachhead. This further allows the MAGTF to drive directly at the heart of the enemy forces. A generalized STOM scheme of maneuver is depicted in figure 4-1.

STOM is an expeditionary operation. Therefore objectives must be within striking distance of a sea-based force. What makes STOM such a potent weapon is the fact that the lethal range of naval forces has increased dramatically, and will continue to increase into the 2015 timeframe. Once the MAGTF objectives have been achieved, the MAGTF may re-embark and reconstitute to conduct further STOM operations elsewhere, or it may transition to sustained operations ashore (SOA). The employment of STOM operations must be analyzed and balanced with mission, enemy, terrain and weather, troops and support available-time available (METT-T) considerations prior to its employment.

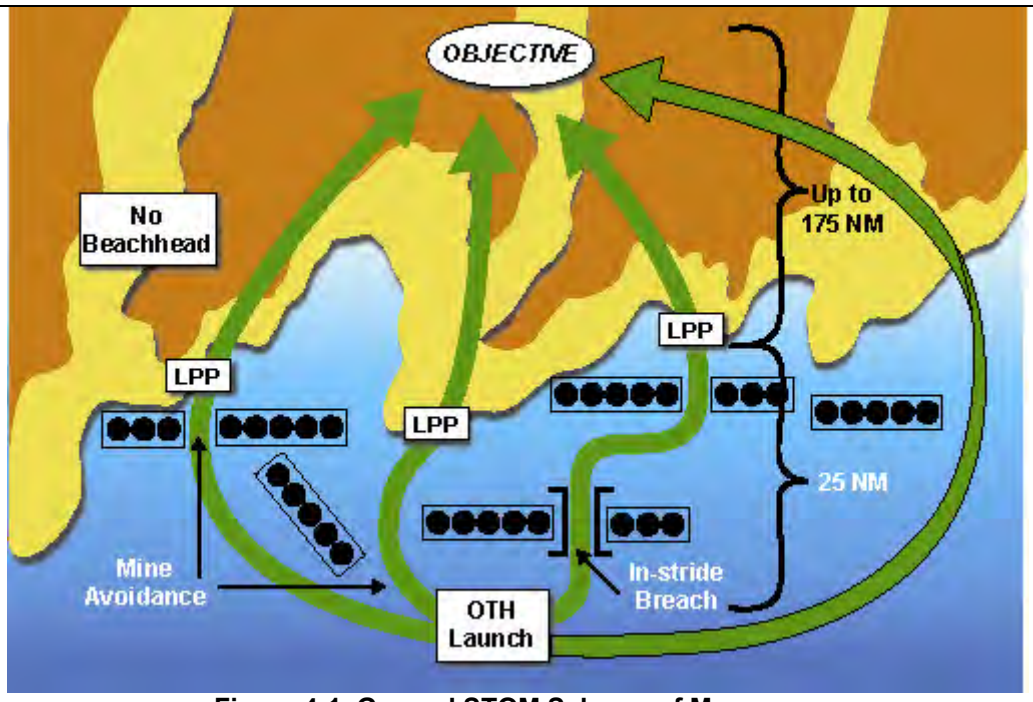

Figure 4-1. General STOM Scheme of Maneuver.

4002. Planning

The basics of the current Marine Corps Planning Process is still in use and valid for STOM operations in the 2015 timeframe. The MAGTF is still assigned a mission from which a concept of operations is developed. The commander's planning process is aided and expedited by improvements in C2 systems (FORCEnet), informational advantages, and enhanced capabilities within the ISR field. These improvements allow commanders the enhanced capability to gather and process information faster and more effectively than that of our adversaries.

4003. Concept of Operations

The MEB operates across a large geographic expanse to attack objectives located well inland and conduct rapid surface attacks over the horizon against the enemy's weaknesses. The MEB is not massed in the traditional sense of an amphibious assault, which results in extended LOC. The maneuver force must overcome these distances and inherent risks with increased speed and operational tempo.

Marine forces posses the mobility and agility to conduct deep operations. Vertical assault forces rely on their airborne assets for their mobility and increased operational tempo. The vertically inserted force capitalizes on battlefield shaping efforts and the dilemma created by the surface forces actions or attack. Skillful, initial positioning of maneuver forces in conjunction with fire support (precision/volume) allows vertical assault forces to be inserted and conduct operations

up to 110 nm inland within an 8-hour timeframe (hours of darkness) and to be supported directly and indefinitely from the sea base prior to either being reinforced, linked up with another force, or recovered back to the sea base.

4004. Maneuver at Sea

STOM removes the traditional dichotomy between the initial naval operation (the amphibious landing) and the subsequent land campaign. STOM is a seamless maneuver from the sea to inland objectives. Ships and landing craft are maneuver assets, not merely transportation mechanisms. However, it is useful for detailed understanding to decompose STOM into those actions that take place at sea and those that take place on land.

The at-sea maneuver is characterized by rapid, flexible maneuver of the forces from their ships, to the line of departure (LOD), and then along axes of advance to assigned LPPs. Commanders organize, coordinate, and control their units' maneuver at sea and sequence their landing based on METT-T in order to rapidly transition to maneuver ashore.

a. Organizing Forces

A key factor in organizing the force for STOM is the number of available debarkation points (well decks and flight decks) within the sea base. Past C2 systems limitations necessitated a rigid embarkation plan such as the co-location of units on a small number of vessels and cross-decking of personnel numerous times prior to execution for planning and pre-staging. Improved information dissemination permits greater flexibility for embarkation, deployment, and employment of forces from multiple vessels to include maximizing the use of all available debarkation points.

b. Projecting Force Ashore

A fundamental principle of projecting power ashore is creating and maintaining a high operational tempo for the force. STOM aims to provide a positional advantage against the enemy from the beginning of the operation.

(1) By Surface

In the scenario, the ESG's surface attack takes place in three cycles across one LPS. Table 4-1 summarizes the distribution of forces, by wave, used in the scenario. LAVs pre-boated on LCACs with the 26th MEU are transported to MPF(F) shipping for subsequent vertical assault. Additionally, a 26th MEU infantry company is cross-decked from LSD-41 to LPD-17 to execute their portion of the vertical assault. These actions allow for better use of aircraft deck spots across the ESG and MPF(F) and the ability to execute the vertical assault more quickly.

The scenario uses the following planning factors to support the surface attack from the MPF(F): 6 MPF(F) ships in the squadron, with an organic heavy surface lift capability (10 LCU[R] equivalents) and 28 aircraft operating spots (6 for 2 ships and 4 for 4 ships). The 7th Marines surface attack penetrates into its assigned LPS simultaneously with the 11th MEU at a different LPS. The surface attack is planned to take 8 to 9 hours to execute.

Table 4-1. Initial Surface Assault Cycles.

LPS-1 FROM ESG BN 1/1(REIN)		LPS-3 FROM MPF(F) BN 1/7(REIN)	
1st CYCLE			
28 EFV	2 MECH CO	48 EFV	3 MECH CO
5 LCAC	1 CAAT TM 81 MORT PLT	5 LCAC (2d run from ESG)	2 CAAT TM 81 MORT PLT
4 LCU(R)	2 TANK PLT	10 LCU(R) equivalent	1 TANK CO
	3 LAR PLT(REIN)		1 LAR CO
	DET, CMBTENGR		DET, CMBTENGR
	BN CMND GROUP		BN CMND GROUP
			DET, LAAD
2d CYCLE			
5 LCAC	DET, EFSS BTRY	5 LCAC (2d run from ESG)	DET, LW-155 BTRY
	DET, LAR CO		DET, WPNS CO
	DET, WPNS CO		DET, H&S CO
	DET, H&S CO		DET, LAAD
	DET, LAAD		
3d CYCLE			
5 LCAC	DET, EFSS BTRY	5 LCAC (2d run from ESG)	DET, LW-155 BTRY
2 LCU(R)	DET, LAR CO	2 LCU(R) equivalent	DET, DS CSS CO
	DET, WPNS CO		
	DET, H&S CO		
	DET, LAAD		
	DET, DS CSS CO		

By landing only essential vehicles and equipment in pre-boated landing craft distributed on multiple ships (if required), the surface attack forces should be able to rapidly assemble and maneuver to the beach with the preponderance of its combat power in the first landing cycle. Once the assault craft delivers the initial forces, they return to the AF to begin landing the remainder of the maneuver units and CSS units as necessary.

(2) By Air

Vertically inserted forces are most effective when they achieve surprise by their tactical positioning. To achieve this surprise, the force must be transported quickly and in mass. Table 4-2 summarizes the vertical assault data.

Table 4-2. Summary of Vertical Assault Waves.

Waves	MV-22 Sorties	CH-53E Sorties	Units	Equipment
1	49	17	2/2, 1/1, 2/7, 81 plt	22 HMMWVs, 5 LAVs, 4 EFSS
2	54	22	2/2, 2/7	36 HMMWVs, 11 LAVs, 6 EFSS
3	50	21	LAAD Det, CSS Det	54 HMMWVs, 9 LAVs, 6 EFSS, 4 tractors
4	42	16	1/10, 2/11, LAAD Det, CSS Det	54 HMMWVs
Note: This effort is support by 53 rotary-wing (AH-1/UH-1) and 32 fixed-wing (JSF) sorties				

4005. Coordination

a. STOM Surface Attack Methods of Control

The OTH STOM surface attack is characterized by high-speed maneuver commencing beyond visual and radar range of the shoreline, the potential use of one or more LPPs, and varying methods of control during the movement. The method of control employed depends upon several factors, including the mission and tactical situation, weather and visibility, volume of surface traffic (both military and civilian) and other hazards to navigation, and the communications capabilities of the controlling platform. In the past, the primary control officer (PCO), located aboard the primary control ship (PCS), provided this control function. However, in the conduct of STOM operations, the agency performing the control function may be aboard an amphibious ship, another landing craft, or an airborne platform.

b. Command and Control of the STOM Surface Attack

Command and control of EFVs, LCACs, and surface craft during the STOM surface attack still requires the employment of control techniques and measures within the littoral area in order to efficiently and expeditiously project the force ashore. During the surface attack, intelligence information flows from available assets, sensors, and other sources to all levels of C2 and provides commanders with critical information needed to direct the surface attack relative to the appropriate LPSs. In the case of independent or waypoint control, intelligence information may pass either by voice or by digital means directly to landing platforms during the attack from advance forces or sensors ashore enabling the force to alter selection of the LPSs.

Currently, a PCO, aboard the PCS and acting under the direction of the Navy Control Group, exercises control of AAV, LCAC, and surface craft units within a single LPZ. This relationship

is similar to an amphibious assault, where the PCO controls the flow of surface traffic across a beach. However, during the STOM attack, the sea is treated as maneuver space and includes tactical control measures. While working for the maneuver commander, the PCO's primary concern is to ensure the attack maintains momentum, surprise, and tactical flexibility in order to ensure its success. The PCO works closely with the MEB staff to coordinate control decisions affecting the surface attack.

Since the PCO is either located with the MEB staff or has direct connectivity, control decision recommendations come directly from senior commanders of units moving ashore. The common tactical picture (CTP) of units moving ashore allows information and decisions to be shared in real time. Because of this, there is no need to change command relationships from the moment units embark to go ashore to the moment those units secure the inland objectives, thereby maintaining unity of command and a focus on the operational tempo of the attack.

c. STOM Surface Attack Control Measures

Control measures form the "framework" for the execution of the STOM surface attack. These control measures aid both the controllers and the executors of the movement, providing leaders at all levels a common frame of reference while maintaining tactical flexibility. This not only aids in the execution of the primary plan, but also facilitates the quick execution of branch or sequel plans. These control measures also keep the surface attack force clear of areas that do not support maneuver in the sea (i.e., natural or manmade obstacles or beaches that do not support craft landings). It is envisioned that these control measures would be electronically superimposed over digital maps and provide a CTP to all leaders in real time of how and where the surface attack will be executed down to each individual craft moving ashore. Both craft commanders and the ground commanders have the same tactical picture and possess precise navigational aides. Because of this, tactical decisions can be made more rapidly; consequently, less radio traffic should be required.

Figure 4-2 identifies a notional landing area diagram for a STOM surface attack employing EFVs , LCACs, and LCU(R)s. The diagram represents a landing within an unrestrictive LPZ, comprised of three LPSs. Within each LPZ, there is one or more LPP. Figure 4-2 also identifies control measures to ensure sufficient dispersion between the LCACs, EFVs, and LCUs while also providing flexibility in the tactical execution of the surface attack. Specific routing is developed during the planning process.

Note

An unrestricted environment is an operating area that allows a commander to freely maneuver desired forces in order to accomplish operational and tactical objectives. The area is free of natural obstacles and the adversary's mines and manmade obstacles. Whereas, a restricted environment is an operating area where operational and tactical maneuver is impeded due to natural obstacles and/or an adversary's mines and manmade obstacles.

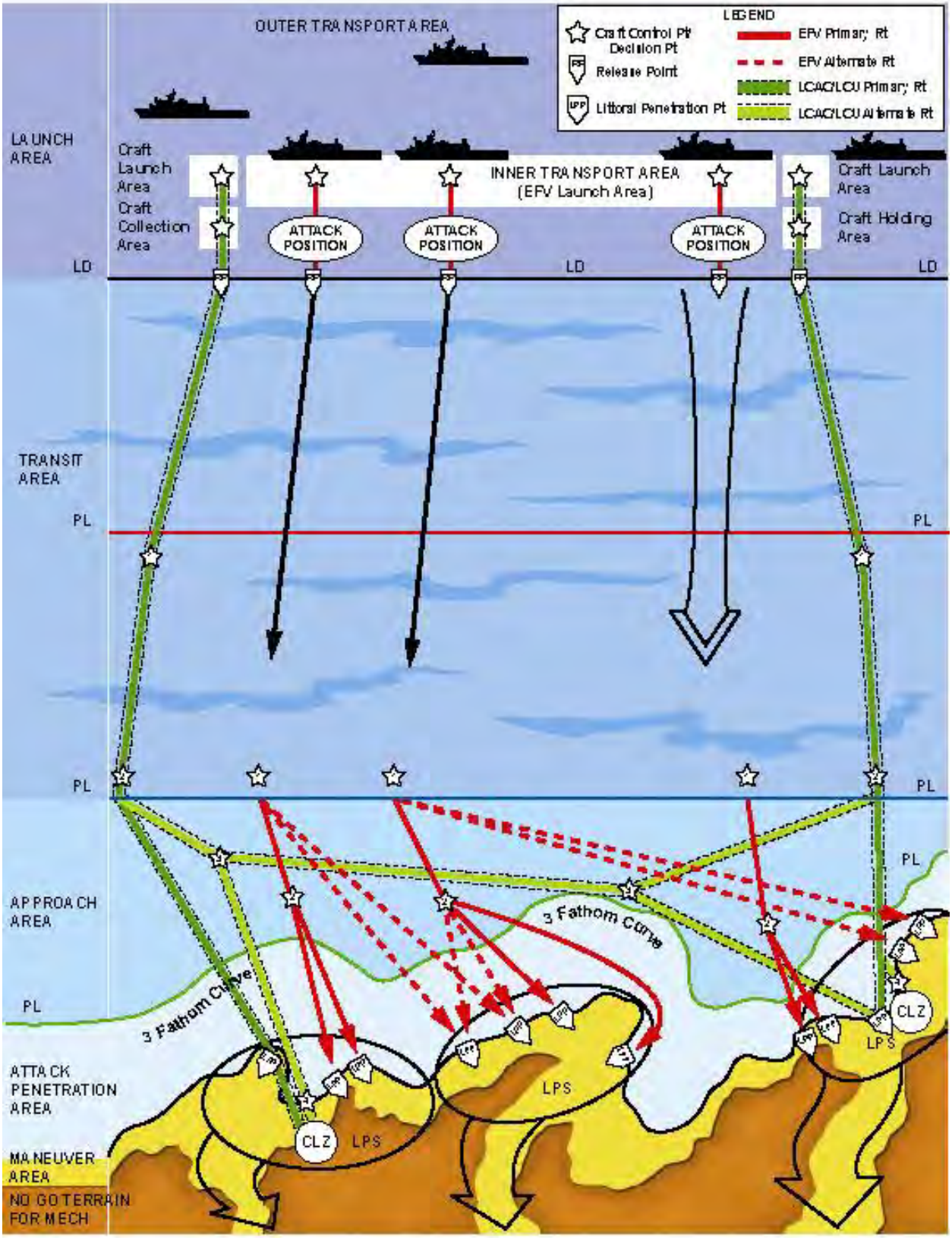

Figure 4-2. Landing Area Diagram for Notional LPZ.

The number and dispersion of LPSs and the associated routes within an LPZ are situation dependent. However, regardless of the number of LPSs, detailed planning provides for sufficient dispersion and control measures to ensure the safe and efficient maneuver of all landing craft. Although the sea is being used as maneuver space, there is a large number of craft moving at night over long distances to precise points past the beachheads to inland objectives. Control measures are used to ensure that the timing of the attack and its momentum is maintained throughout the approach to the LPPs. Once across the LPPs, it is critical that the force maintains its momentum as it attacks toward the objective. Effectively, the beach only represents a phaseline that the force passes through to attack the enemy. The use of these control measures is even more important when the surface attack force operates in an unrestricted environment requiring MCM operations . For a discussion of MCM restrictions, refer to chapter 11.

d. Execution of the STOM Surface Attack

There are four control areas during STOM where specific events occur. These areas help to shape the STOM surface attack landing diagram. The size of these areas is dependant on the mission and the hydrographic/geographic limitations of the area of operations. These areas are adjusted according to the tactical situation. However, generally they follow the guidelines discussed in the following subparagraphs.

(1) Launch Area

The launch area is where the AF ships maneuver to launch landing craft. EFVs are launched in transition mode (slow speed) within the amphibious vehicle launch area in the vicinity of designated launch points (LP). The LCACs and/or LCUs launch and maintain positions in the craft launching areas. Once units are in the water, the EFVs move to their attack positions and the LCACs/LCUs move to their craft holding areas. From there, all craft await the signal to conduct the attack and cross the LOD.

(2) Transit Area

The transit area is defined as the area between the LOD and the approach area. Within this area, the surface attack forces move at a high rate of speed and take the most direct routes to reach their intended LPSs. This conserves fuel, lessens crew fatigue, and helps ensure surprise. This is also where the attack forces move into their proper tactical formations and coordinate with the control ship to ensure there are no changes to their intended LPSs and LPPs. Both LCACs and EFVs continue to move at a high rate of speed and the base craft for each formation follows the designated route for its unit. At a predetermined point along the route, the force reaches a decision point (DP). It is at this point that the units are told either to continue to execute the primary route or are given orders to execute an alternate plan or route.

Note

This could be done at anytime along the route but having these DPs prevents other units from having to adjust speeds or routes to avoid possible collisions or improper timing of the attack with other units.

(3) Approach Area

The approach area is defined as the area from the initial points (IPs) to the 3-fathom curve. When the surface attack force reaches a predetermined IP along its route, it has entered the approach area. The IP is where the maneuver commander makes the final decision as to what LPS is attacked. To ensure that momentum is maintained, this decision must be made prior to crossing the IP. The decision should be made at the DP immediately preceding the IP, allowing the unit to make the appropriate adjustments if a heading change is required at the IP due to the force executing these routes at a high rate of speed. It is also in this area that the surface force is visible to enemy surface radar and/or observation from shore. Because of this, EFVs begin to scan the shoreline for targets and embarked troops begin preparations for possible disembarking once ashore. Attack aircraft supporting the surface attack also begin coordination to support the attack through the LPS to the objectives inland.

(4) Attack Penetration Area

The attack penetration area is the area from the 3-fathom curve to the shoreline. Along the surface attack routes, the start of the attack penetration area is indicated by a DP. Because the 3-fathom curve depends on hydrographic data and geography, this line (or DP) is at irregular distances to the shoreline. Once at the DP, the surface attack force reduces speed. The EFV normally comes off plane in the vicinity of the 3-fathom curve (18 feet of water depth) to configure from high water speed mode to transition mode. This depth allows suitable clearance for movement of EFV appendages. Once in transition mode, with the suspension deployed, the EFVs can negotiate off shore obstacles and sandbars. LCACs also use this 3-fathom curve to begin preparations to come ashore. At the DPs, units begin to branch off along their routes to their assigned LPPs. The LPPs are specific points on the shoreline where the lead craft touches down. Once units touch down, the STOM surface attack transitions to a ground attack and seamlessly moves past the beach exits to inland objectives. The only exception is the LCACs and surface craft that debark their loads and use egress routes to return to the launch area to embark more LFs coming ashore.

4006. Maneuver Ashore

a. Landing of the Attack Forces

(1) Initial Landing of Surface Attack Forces

The first units ashore in most STOM surface missions are reinforced mechanized infantry companies that have the ability to land in the face of possible resistance and quickly move past the beach exits to their inland objectives. These mechanized companies are typically reinforced with units suitable to maintain operational tempo and speed while providing overwhelming firepower. LAVs assume their role of forward reconnaissance for the ground maneuver elements. The tanks and EFVs typically move as mechanized teams. If tanks and LAVs are part of the surface attack, typically the EFVs come ashore first as the lead element and provide security for the subsequent LCACs as the tanks and LAVs are offloaded at the craft landing zone (CLZ).

Once past the beach exits, the force quickly adjusts to a movement-to-contact configuration, with screening elements in the lead (as was displayed in the scenario). This small-scale passage of lines takes place through the use of improved information sharing between the units. It is important to realize that this attack normally occurs at night with most mechanized platforms within the GCE possessing a thermal capability that enhances night operations. In addition, the EFV, LAV, and tank platforms have stabilized, all-weather gun systems that allow them to shoot on the move in adverse weather and low visibility conditions more effectively. This greatly enhances the GCE's ability to maintain its operational tempo while attacking the enemy or seizing critical objectives. (See fig. 4-3.)

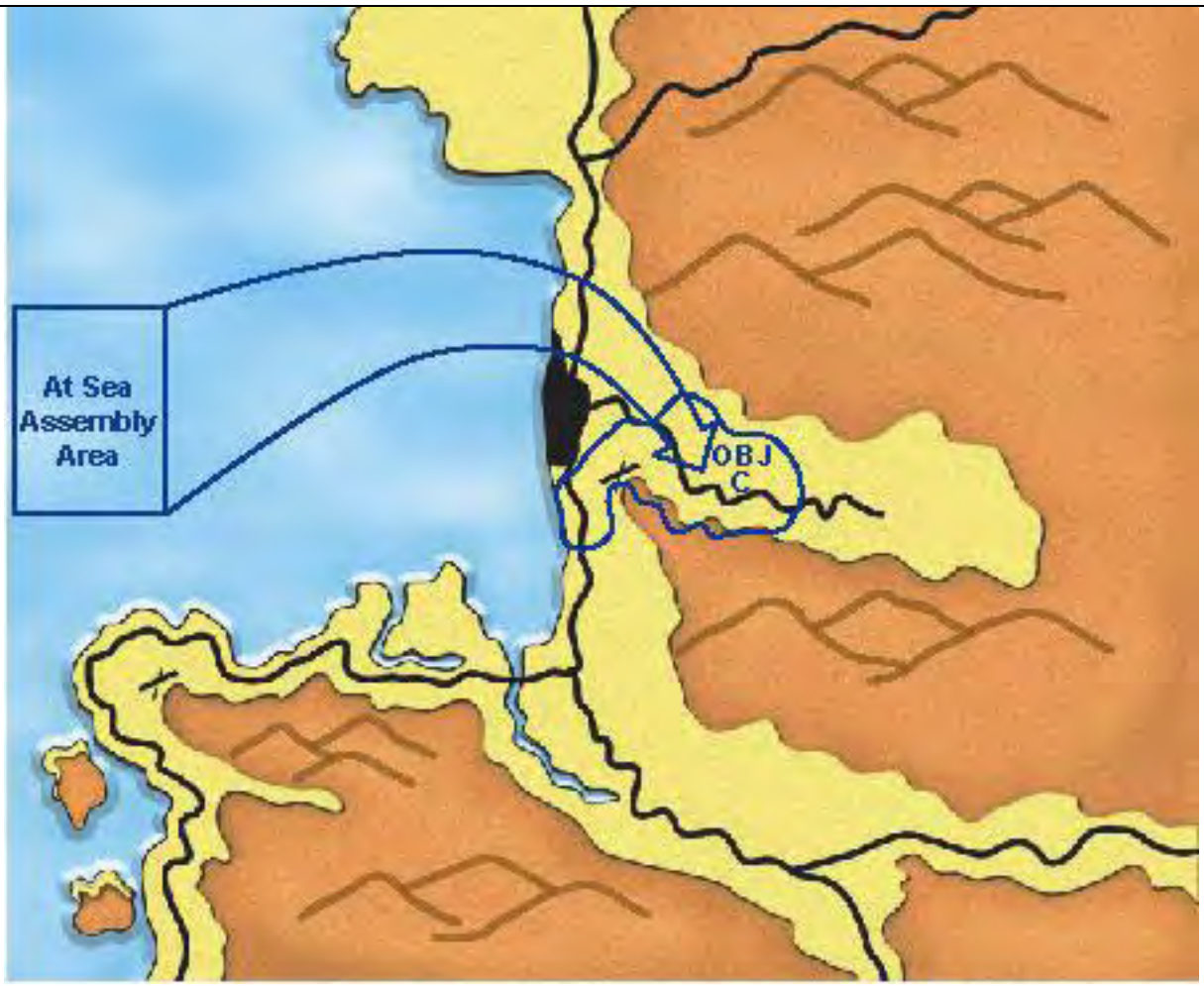

Figure 4-3. Surface Attack.

(2) Importance of Speed for the Surface Attack

Initial landings in STOM operations take place at LPPs that may be quite distant from the initial objectives. The attacking force must exploit weaknesses in the enemy's defensive disposition, allowing the MAGTF to cover the distance faster than the enemy can react. The surface attack forces must make every effort not to become decisively engaged with enemy forces while en route to their objectives. For this reason, routes must be chosen carefully since any disruptions along these routes have the possibility to isolate or split forces and allow the enemy time to react.

(3) Fires During the Surface Attack

When the initial surface attack forces come ashore there is a heavy reliance on mutually-supporting fire systems within the MAGTF. The surface attack initially relies heavily upon NSFS and aviation assets to provide the preponderance of supporting fire. As soon as operationally practical, organic indirect fire support (LW-155, HIMARS, EFSS) is employed to support and cover the maneuver of forces. MAGTF planners must consider these fire support requirements in detail in order to support the attack. Since speed is important to the surface attack, fires are planned to support the operational tempo of the force and prevent the enemy from interdicting the maneuver of the force. The deeper the surface attack objectives, the more likely that the proportionality of fires will shift from NSFS to aviation and organic indirect support. A more detailed discussion of fires can be found in chapter 6.

(4) Role of Combat Engineering in the Surface Attack

The focus of effort for combat engineers during the surface attack is mobility for the forces attacking ashore. Engineers are located to support the lead units, coordinating directly with the Navy MCM units, and are providing a hasty breaching capability of any obstacle and/or minefield along the axis of advance. Their purpose is to maintain the tempo and speed of the operation. Engineers are mounted, have the same mobility as the force, and possess survivable breaching systems (e.g., ABV). By 2015, it is anticipated that most breaching systems are air delivered. However, the MAGTF must still possess breaching assets within the GCE in the event the air-delivered breaching munitions cannot be dropped or are expended. Engineers, like all other units within the maneuver force, have access to the CTP and should be able to receive ISR information in real time that prepares them for possible obstacles as they maneuver. Once a force seizes an objective, the engineers' priority of work shifts from mobility to survivability and countermobility.

(5) Casualty Evacuation of Surface Attack Forces

The handling of casualties during the surface attack is a significant challenge due to the distances and the tactical environment present during STOM operations. The extended battlespace of STOM operations poses a significant challenge for commanders and their forces to execute timely evacuation of casualties back to the sea base. Medical evacuations back to the beaches and then back to ship via surface craft will most likely not be the preferred option. During the initial attack, most casualties are evacuated via air assets. MAGTF planners must consider the demands on aviation assets when forces are simultaneously conducting both a surface attack and vertical attack. Advances in medicine and the ability to share real time information between corpsmen on the scene and doctors back at the ships greatly increase the capability to treat patients more efficiently and effectively. For example, STOM forces bring small medical teams ashore to help stabilize patients prior to being transported back to the sea base while the patient diagnosis is transmitted to the doctors on the sea base in real time. The aim is to ensure hospital personnel at the sea base are more aware of a patient's condition prior to his arrival in order to apply appropriate treatment. A more detailed discussion of casualty evacuations can be found in chapter 7.

(6) Vertical Assault

The initial actions of the vertical assault force and the control measures used to direct it will remain consistent with warfighting principles and current doctrine. What will changed is the ability to conduct the insert over a greater distance. This ability affects the range of MAGTF aircraft and provides leaders with pre-assault visualization of the landing zone and the ability to maintain situational awareness while en route to the landing zone. In STOM, the vertically inserted forces rely on aviation assets and organic vehicles to provide mobility for the force. Dismounted infantry still have a large role that affects the maneuver of the heliborne force. The ability to externally carry numerous vehicles provides the force with the mobility needed to conduct deep operations. For the scenario, the vertical assault forces are inserted 85 miles inland. A vertical assault, in combination with the surface attack of a STOM operation, places the enemy on the horns of a dilemma that requires him to respond to our actions thereby putting him at a disadvantage. In effect, the enemy's actions may be complicit in his own demise as he attempts to react to our fire and maneuver. (See fig. 4-4.)

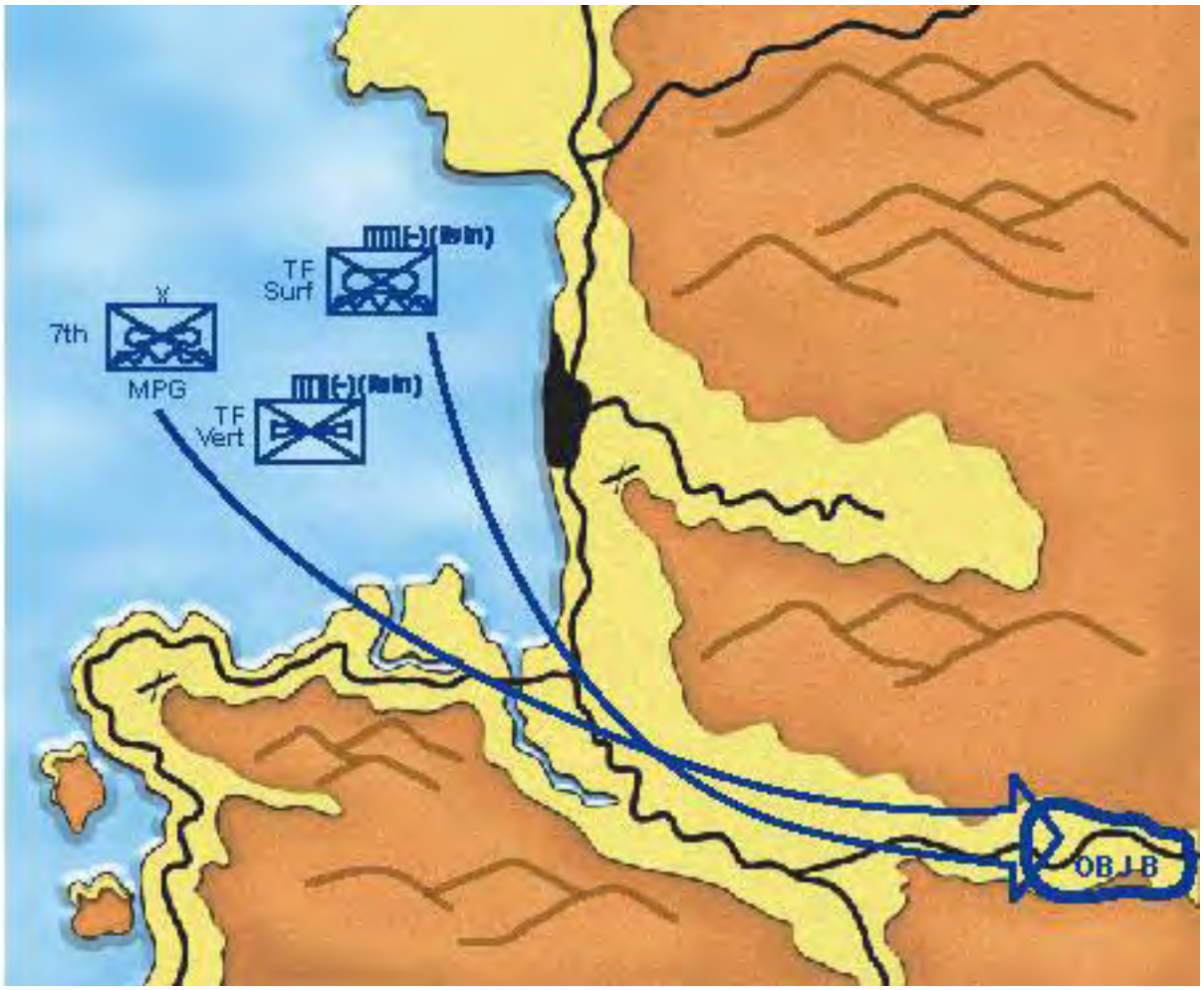

Figure 4-4. Vertical Assault.

(7) Follow-on Missions for STOM Attacking Forces

Once the surface and/or vertical forces have defeated the enemy or achieved their initial objectives, they can then be given subsequent missions while still being sustained from the sea base. If the situation dictates, these forces may be withdrawn back to the sea base, reconstituted, and reemployed as necessary**.** In the scenario, MEB forces are given a follow-on mission to conduct attacks to the south to clear enemy units in zone and secure Objectives D and E. See figure 3-8. As the MEB conducts this mission, the sea base positions itself to provide continuous operational and logistic support; therefore, during STOM operations, there is no need for tactical units to conduct operational pauses while logistic support continues to be built up and positioned to support further maneuver.

b. Battlespace Coordination

The need for fire and maneuver battlespace coordination measures remains consistent with current doctrine. Paradoxically, the improved dissemination of coordination measures as part of the CTP (see ch. 8) reduces the number of measures necessary. The coordination measures used continue to be permissive in nature to allow responsiveness.

Chapter 5
Air Operations

5001. General

Marine aviation gives the MAGTF the preponderance of its speed, mobility, flexibility, and lethality. The air reconnaissance, electronic surveillance, and deep strike capabilities of MAGTF aviation assets are integral in shaping the battlespace. During a surface attack, MAGTF aviation assets provide flexible and responsive fire support and observation. Additionally, during a vertical assault, MAGTF aviation assets provide maneuver and the potential for tactical surprise.

5002. Battlespace Shaping

Shaping is lethal and nonlethal activities conducted throughout the battlespace to influence the enemy's capabilities, forces, and/or commander's decision. The MAGTF commander sets the conditions for decisive action by conducting shaping actions. The MAGTF commander establishes specific shaping goals that complement the JFC's goals. Shaping incorporates a wide array of functions and capabilities and consists of more than just fires and targeting. It may include, but is not limited to direct attack, information operations (specifically psychological operations and selected electronic warfare operations), civil affairs, public affairs, engineer operations, and preventive medical services. Logistic operations, such as the marshalling of critical ammunition, fuel, and supplies to facilitate future operations shape both friendly and threat forces. The ACE is essential to the MAGTF's ability to perform many or all of these functions.

MAGTF aviation from the AF conducts battlespace shaping before it closes with the chosen LPA. In the initial stages of the joint operation, the MAGTF commander provides excess sorties to the JFC. As the situation dictates, the MAGTF commander retains a majority of the sorties for direct support. ESG aviation assets (e.g., JSF, UAV, MV-22 inserted reconnaissance teams) increase both the JFC and MAGTF commanders' situational awareness and begin the task of reducing the enemy force. MAGTF aviation assets reach deep within the enemy's territory to identify named areas of interest (NAIs), targeted areas of interest (TAIs), decision points, and to identify targets for fires. In preparation for the insertion of forces, landing zones (LZs) and littoral penetration points (LPPs) are reconnoitered to determine their suitability. UAVs, space-based systems, and manned aircraft develop a picture of the current battlespace. This COP is then linked to mission planning systems within the MAGTF in order to update battle plans.

5003. Setting the Conditions

As the force assembles, assault support assets cross-deck personnel and equipment within the sea base in preparation for the assault.

Based on the MPF(F)'s concept of at-sea integration, Marines can be flown from an intermediate location to MPF ships well in advance of the offload. The subsequent en route time is used to prepare vehicles and weapons for combat. In the scenario, a portion of the FIE lands at the coalition APOD. As MPF ships approach the LPZ, MV-22s, that self deployed from the east coast to the APOD, begin to airlift Marines to the ships, thereby affording several days to prepare vehicles and equipment for immediate employment.

Efficient deck space management is critical to aviation support of STOM operations. Deck space management requires both ingenuity and detailed planning to be effective. The MPF(F), with multiple deck spots per squadron, provides the flexibility required to sustain a high tempo of operations throughout the AF. The scenario assigns 28 MV-22 deck spot equivalents per squadron and each squadron consists of 2 ships with 6 deck spots and 4 ships with 4 deck spots.

UAVs, FA-18Ds advanced tactical airborne reconnaissance system (ATARS), space-based systems, and organic MAGTF sensors locate and track enemy forces. Marine air conducts strike coordination and reconnaissance (SCAR), interdiction, and tactical air coordination in support of MAGTF shaping actions and subsequent concept of operations. These platforms also provide the initial bomb damage assessment that is verified by UAVs and national assets. Reducing enemy air and surface-to-air missile threats to an acceptable level is a high priority for the MAGTF commander. Committing much of the ACE to the JFC's air superiority effort in the early stages of the operation helps the MAGTF operate without prohibitive interference from enemy aircraft and missile defenses during later phases of the operation. Electronic warfare platforms gather electronic intelligence (ELINT) and orchestrate exploitative electronic attacks against the enemy's C2 nodes and early warning assets, blinding him to our intentions and severing his links to his tactical systems. The JSF, in an electronic attack (EA) role, takes advantage of low observable technologies to gain an exploitative advantage over the enemy. When STOM operations commence, emphasis on the deep battle adjusts to MAGTF objectives and vulnerable enemy nodes that might interfere with STOM. To maintain operational surprise, MAGTF aviation assets address multiple areas rather than concentrating on specific objectives.

Opportunities for rehearsal may be limited. Therefore, rehearsals may consist of virtual-reality rehearsals or limited launching (one deck cycle) of LCAC, CH-53E, and MV-22 to simulate launching an entire package to another LPA or to an LPZ within Objective LPA. While limited launching represents a fraction of the aircraft required to lift the entire force, flight and division leaders receive exposure to the environment and conditions that may prevail during the actual STOM operation. The rehearsal can also serve as an effective deception or feint.

5004. Operational Parameters

The following subparagraphs define the operational parameters established for the scenario.

a. Aircraft

Aircraft data is contained in appendix H, tab 1. Specific aircraft capabilities are as follows:

- MV-22s carry a maximum of 24 Marines.
- CH-53Es carry a maximum of 36 Marines.
- CH-53Es external lifts are limited to 30,000 pounds (two vehicles or one LAV per external lift). Average external load airspeed 125 kts.
- MV-22 external loads are configured for 10,000 pounds or less (one vehicle per lift). Average external load airspeed 135 kts.
- Ideal ambient conditions prevail throughout the operation (15 ^{o}C, LZ altitude 1,400 feet above mean sea level).
- Aircraft availability, sortie readiness rates, and combat attrition rates are shown in table 5-1.

Table 5-1. Aircraft Availability and Required Sorties for Initial Assault.

Aircraft Type	MEU Aircraft (2 MEUs)	MEB		Total Aircraft	Readiness Rate	D+8		
		Aircraft	Squadrons			Aircraft Required	Sorties Flown	Sortie Rate
MV-22	24	48	4	72	.80	49	195	4.0
CH-53E	8	20	1	28	.70	17	76	4.5
AH-1Z	8	18	1	26	.75	19	48	2.5
UH-1Y	6	9	1	15	.75	4	8	2.0
JSF	12	30	3	42	.85	16	32	2.0
AEA	--	5	1	5	.85	2	6	3.0
KC-130J	4	12	1	16	.75	5	15	3.0

Planning factors for attrition rates:
First 7 days: .25 per 100 sorties for JSF; .5 per 100 sorties of all others.
The next 8 days are one half of the first 7-days' rates .

- AH-1Z and UH-1Y helicopters are fueled and armed from LPDs and MPF ships. Subsequently, they may be fueled at the MAGTF forward arming and refueling points (FARP) when established ashore. Each platform provides 90 minutes time on station during the surface attack and 60 minutes during the vertical assault while working from sea-based platforms located 25 nm from the coast.
- Appendix H, tab 2 provides planned speeds for aircraft in various mission profiles and the planning factors for spotting, spreading, starting, loading, unloading, refueling, and shutting down of assault support aircraft.
- Aircraft lay down and vertical assault force disposition is shown in table 5-2.

Table 5-2. Vertical Assault Force Disposition.																
		Air-	CV		LHD		LPD		LSD		MPF					
Aircraft	Total	base	1	2	1	2	17	18	20	21	1	2	3	4	5	6
MV-22	72				12	12					12	12	12	12		
CH-53E	28				4	4					6	6	4	4		
AH-1Z	26				4	4		4							7	7
UH-1Y	15				3	3		2							3	4
JSF	42		20	10	6	6										
AEA	5	5														
KC-130J	16	16														
Disposition of Air Assault Forces																
Troops	2,153				355	209	446				476	632	35	12		
HMMWVs	166				38		42				32	38	10	6		
LAVs	25										25					
Seetrac	4						2				2					

b. Flight Deck

The Navy's *Required Operational Capabilities-Projected Operational Environment (ROC-POE)* document outlines a flight deck manning level that supports 10 hours of flight operations per day for LHDs. However, this does not include 90 minutes for preflight operations (e.g., deck prep, foreign object damage walk) and 90 minutes for post-flight operations (e.g., re-spot).

In the scenario, the MEB commander realizes that forces at LF Objective B and Objective C rely heavily on aviation for combat and combat service support, requiring 10 hours of flight quarters (a 13-hour flight deck crew day). Accordingly, the 7th MEB G-3 and air officer develop a plan that echelons aviation assets and orchestrates flight deck availability. For the initial assault:

- LHD-1, LHD-2, LPD-17, LPD-18, and all six MPF flight decks are open.
- 1.5 hours are used to prepare the flight deck, spot, spread, preflight, and start-up aircraft.
- 10 hours of flight operations occur.
- 1.5 hours are used to shut down, fold, and stow aircraft.
- 8 hours of crew rest is needed.
- Number and type of aircraft flown is depicted in table 5-2.

After the initial assault, 16 percent of the MEB's vertical lift/rotary-wing platforms remain available for post-assault operations. During the crew rest period, casualty evacuation (CASEVAC), tactical recovery of aircraft and personnel (TRAP), and rotary-wing/fixed-wing attack packages are established on a 30-minute alert. Following the crew rest period, one ESG and half of the MPF ships man for flight quarters and provide fire support (in the form of CAS) and sustainment for forces ashore. During the post assault phase of the operation, opening half of the available flight decks at any one time permits the establishment of a sustainable battle rhythm and the ability to support a 24-hour air operations capability.

5005. Surface Attack

As the surface force maneuvers to the shore, rotary-wing aviation (AH-1Z and UH-1Y) provides forward air control, C2 (as needed), CAS, and maneuver force escort. The goal is to keep the enemy off balance, make the enemy react to our force, and avoid our forces stalling in the vicinity of the beach.

Some assault support assets are apportioned for TRAP, CASEVAC, rapid ground refueling (RGR), and aerial refueling of CAS platforms in support of the surface attack. The remaining assault support assets prepare for the vertical assault.

Planning addresses air-inserted FARPs that allow EFVs, LAVs, , tanks, and rotary-wing/tilt rotor aviation assets to refuel. These FARPs, task-organized onto MV-22s and CH-53Es, provide RGR and rearming for almost all ground and air platforms. The quick insertion and extraction of FARPs are essential to their success.

Although the surface attack is primarily an LCAC, EFV, and LCU(R) evolution, the ACE provides significant assets in support of this effort. The introduction of friendly troops causes a re-apportionment of fixed-wing, rotary-wing/tilt rotor, and UAV assets. Tactical air (TACAIR) assets become more focused on the close fight, yet are still involved in the deep battle. Joint assets engage targets in the enemy's rear area, while most Marine JSFs and apportioned FA-18Ds prosecute close air support and armed reconnaissance against TAIs for the ground commander.

During this phase, joint assets must prosecute air superiority and strike missions without substantial Marine participation, although some augmentation may be necessary. With forces moving quickly to engage the enemy, aviation-delivered fires become critical to success. UH-1Ys and FA-18Ds provide forward air controller (FAC[A]) control of fires close to friendly forces while JSFs and AH-1Zs deliver ordnance. The FAC(A) also directs NSFS (from DD[X] and other decks) and artillery fires as the force closes in on its objectives.

5006. Vertical Assault

The vertical assault moves two reinforced infantry battalions, a combat service support detachment, their ammunition, and additional personnel to landing zones located in the AO's eastern sector. The assault is executed in 4 waves and consists of 2,153 Marines, 25 LAVs, 170 vehicles and supporting equipment that lands within 7 hours and 45 minutes (or one period of darkness). To give the ground commander the maximum build up of combat power on the objective, a launch of assault support aircraft is planned so that the entire first wave lands within 10 minutes after L-hour. JSF sorties are dedicated to armed reconnaissance of the routes (to include alternate routes) and to providing proximity and detached escort for the flights of assault support aircraft.

JSFs escorting the MV-22s fly ahead and conduct real time reconnaissance of the planned ingress routes and the landing zone, passing updated threat locations to the MV-22s via data link. JSFs use on board radio frequency (RF) and infrared (IR) sensors to surveil landing zones and verify that they are clear for vertical assault. MAGTF advanced electronic attack (AEA) aircraft jam hostile radars and communications links previously identified by intelligence sources to mask the inbound force. The JSF jams any actively radiating surface to air missile (SAM) site that was not previously identified or engaged by the AEA.

Once in the objective area, JSFs remain on station to begin CAS coverage. AH-1Zs are attached, when necessary, to the CH-53E flights to ensure safe passage to the objective area. AH-1Zs clear the LZs and, when able, ensure a "cold" LZ. If the LZ is "hot," they conduct actions against the enemy that facilitates the insert or recommend an alternate LZ.

Three subsequent waves of Marines and equipment are flown in as rapidly as fueling and deck cycles allow. CH-53Es bear the majority of the heavy-lifting burden, as the MV-22's speed makes it the primary personnel transport. Once all Marines are inserted, the MV-22 takes on an additional sustainment role of delivering supplies and evacuating casualties.

In the scenario, two large ground maneuver elements are in contact with the enemy; therefore, allocation of aviation assets is important as the tempo of flight deck operations is maximized to accommodate the throughput of personnel and equipment. The vertical assault requires 63 percent of tilt rotor and rotary-wing assets.

The vertical assault is based on the following details:

- Flying window is 1815–0415(local).
- Deck cycle and marshalling the first wave requires 1 hour and 15 minutes.
- Push time is 1930 (local).
- H-hour is 2000 (local).
- Bravo, Echo, and Gulf companies of 7th Battalion are in zone by 2010 (local).
- 25 LAVs and personnel are in zone by 0200 (local).
- All vertically lifted units are in place by 0315 (local).
- The time required from the initial push until the last load is in the LZ is 7 hours and 45 minutes.
- One hour is required to recover the final CH-53Es leaving the LZ back aboard ship.
- The order of landing in appendix H, tab 3 provides details on the wave composition, timing, aircraft assignment, and load composition for all aspects of the vertical assault.
- On D-day, the following number of loads are airlifted ashore:
  - 48 off of LHD-1.
  - 9 off of LHD-2.
  - 56 off of LPD-17.
  - 159 off of MPF shipping.
- JSF provides one division for the surface assault and one division for the vertical assault.

a. Escort Missions

The distance from the AF to LF Objective C is 110 miles. One division of AH-1Z attack helicopters are on station 15 minutes prior to L-hour and the arrival of assault aircraft. A detached escort is provided by JSFs. AH-1Zs are relieved on station by AH-1Zs escorting subsequent external load carrying CH-53Es. A division of JSF provides fixed-wing CAS over the objective.

b. Assault Support

The missions of CASEVAC, mass casualty, reinforcement, TRAP, emergency extract, and immediate sustainment are embedded within support of the vertical assault. Aircraft on 30-minute alert from LHD-2 provide this support for the surface assault.

c. TACAIR

Three JSF squadrons self-deploy from CONUS to support MEB operations from two CVs located within the AO and conduct five of the six functions (excluding assault support) of Marine aviation. They, along with the JSF's from the MEU, provide 24-hour flight coverage in the AO and the preponderance of fire support until all NSFS assets arrive on station. The MEB employs the carrier-based JSFs to provide CAS during the initial assault, allowing LHD-1 and LHD-2 to focus on projecting combat power ashore. KC-130J, sourced from the shore base, provides direct air support center (airborne) (DASC[A]) support throughout the assault. Additional KC-130Js establish tanker tracks and provide fuel to extend the time on station of tactical aircraft. During subsequent operations, LHD JSF aircraft are on alert to respond to JFC Objective B in 40 minutes and JFC Objective C in 33 minutes and are launched as needed to support operations ashore.

d. Rotary-wing Attack

Prior to commencing STOM operations, an infantry company from LSD-41 is cross-decked to LPD-17 for the pending air assault and AH-1Zs cross-deck to LPD-18s and four of the six MPF ships. LPD-18 conducts expanded four spot operations. Five divisions of AH-1Zs and three UH-1Ys provide continuous support of Objectives B and C for the duration of the 7th MEB insert (see fig. 5-1). LSD deck landing spots can provide fuel to these aircraft, but do not possess ammunition and ordnance facilities/personnel for build up and re-arming operations afloat. Following the initial assault, 38 percent of the ACE's AH-1Z and UH-1Y assets can provide one division airborne on each objective area and two divisions on 30-minute alert, which is supportable for extended periods.

Note

Establishing the MAGTF FARP significantly increases aviation's capability to provide support to the MEB. The MAGTF FARP reduces response times and opens up deck landing spots for MV-22s and CH-53Es.

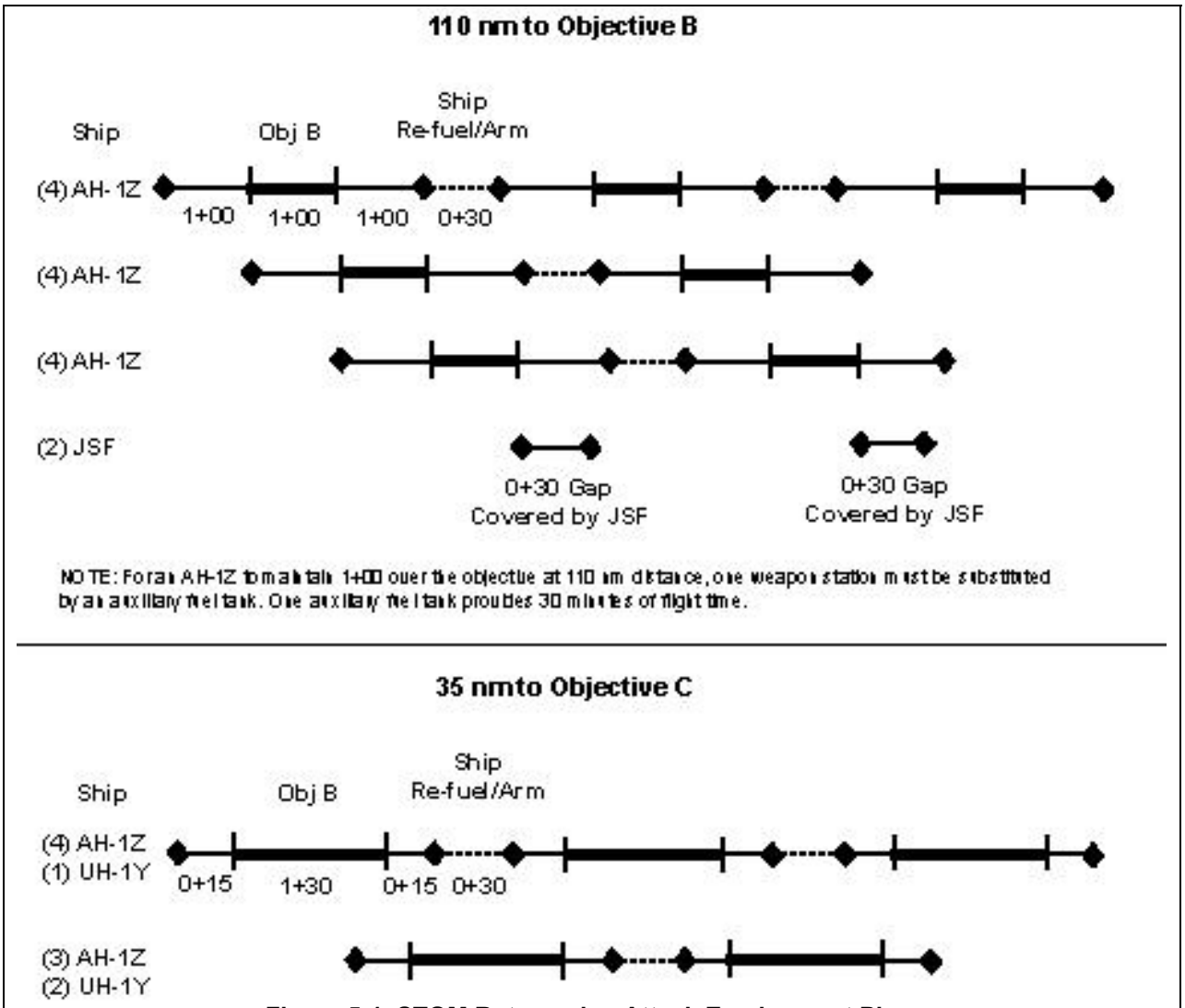

Figure 5-1. STOM Rotary-wing Attack Employment Plan.

5007. UAV Employment

Range limitations withstanding, tactical UAVs provide commanders with the organic ability to search the LPA, help to determine the most advantageous location for conducting STOM operations and LPZ division, and monitor LPSs and LPPs for enemy activity prior to and during the assault. The tactical UAV may identify threats to either surface or vertical maneuver forces as they proceed from ship to their LPZs/LPSs/LPPs/LZs, providing actionable intelligence during the conduct of the operation.

One or more tactical UAVs may be embarked on amphibious ships equipped with a tactical control system (TCS) in support of an embarked MAGTF. Normally, each MEU is supported by a Marine detachment in CONUS that is ready to deploy and embark on short notice. Typically, a UAV operates from LPD-17 class ships to avoid flying dissimilar aircraft in close proximity to

each other. Marine forces operating from ships utilize the ship-based GCS to control a UAV. Ship-based MAGTFs receive additional support from UAVs embarked on surface combatants operating with the AF.

A Marine VMU detachment embarks with all organic equipment, including mobile ground control stations (GCSs). GCSs are stowed below deck awaiting movement ashore. GCSs, with embedded TCS capability, are installed on all LPDs and LHDs. Marines operating a tactical UAV aboard ship use the ship's GCS, launch and recovery equipment, and SE. During this configuration, some components are mounted on the ship; e.g., data link antennas, control stations. A mobile, tactical UAV supports movement ashore. A ship-launched UAV can be handed off to a HMMWV-based GCS on shore. This type of operation offers greater mission flexibility in support of the supported GCE commander since UAVs provide a responsive intelligence-gathering platform at the disposal of the commander.

When possible, the tactical UAV detachment supporting the MAGTF locates in close proximity to the ACE infrastructure to reduce the aviation logistic footprint. The tactical UAV combat operations center (COC) and (GCS) locate in close proximity, when feasible, to MAGTF C2 agencies such as the tactical air command center (TACC), DASC, and fire support coordination center (FSCC).

The total UAV system is transportable by two HMMWVs and standard trailers. These vehicles can deploy within amphibious ships, within C-130/C-17 aircraft, and externally by MV-22 tilt rotor aircraft and CH-53E helicopters.

Tactical UAVs support the following tasks:

- *Reconnaissance and Surveillance*. The UAV provides a multisensor capability for surveillance of areas of interest. Through electro-optical-infrared (EO-IR) and other emerging sensor modular mission payloads (MMPs), UAV systems monitor an area of interest, limited only by air vehicle availability.
- *Intelligence Development and Production*. The UAV's day/night imagery (EO-IR) MMP makes it an ideal asset for collecting order of battle data in denied areas. Additionally, these products are often simultaneously distributed to higher headquarters all-source intelligence analysts. When placed in general support, these products may be directed to the MAGTF intelligence analysts for subsequent processing and dissemination to subordinate units.
- *Fire Support/Target Acquisition*. Subject to its range, the UAV provides real time targeting identification, designation, and BDA of areas of interest for NSFS and CAS. The UAV provides a quick-response organic asset that locates, identifies, and, if necessary, tracks additional critical targets. The UAV's baseline laser designator provides target designation for terminal guidance of precision weapons. The system supports precision targeting of both stationary and mobile targets for engagement.
- *Communications Relay*. The UAV system may be employed as a voice and data communications relay. The UAV decreases dependency on satellites or manned aircraft and extends communications range beyond the line-of-sight. The baseline UAV has a limited, embedded communications relay. The UAV can be equipped

with an MMP capable of supporting data relay functions. MMPs allow digital data connectivity between forces ashore and afloat including high bandwidth messages for targeting, operational maneuver, and situation reports.

5008. Sustainment

During initial planning, both rotary-wing and fixed-wing assets are allocated to meet the sustainment requirements. Table 5-3 depicts the estimated sustainment sortie requirement.

Table 5-3. Sustainment Sorties.

	D+9				**Daily Sustainment After D+9**			
	Objective B		**Objective C**		**Objective B**		**Objective C**	
	V-22	**CH-53**	**V-22**	**CH-53**	**V-22**	**CH-53**	**V-22**	**CH-53**
Food	2		2		2		3	
Water		3		3		3		6
Fuel		2		11		2		20
Ammunition	6		14		5		27	
Total Sustainment	8/5		16/14		7/5		30/26	
Total Sorties	24 V-22/19 CH-53				37 V-22/31 CH-53			
Total Aircraft	12 V-22/8 CH-53				12 V-22/10 CH-53			
Time to Complete	5 hours				5 hours			

The MEB HQ's G-4 and BSSG coordinate the number of short tons required for each unit per day and aviation planners build an integrated tasking order (ITO) to meet the requirement. Capacity depends upon the number of aircraft available and the priority of other missions. Once sustainment planning is established, delivery arrangements are streamlined.

On D+9, 24 MV-22 and 19 CH-53E sorties are required to deliver 298 short tons of ammunition, food, fuel, water, and other supplies needed to sustain Marine forces at both objectives. After D+9, daily sustainment to support the forces ashore requires 37 MV-22 and 31 CH-53E sorties. Sustainment requirements for Objective B and Objective C can be delivered by air in 5 hours.

Chapter 6
Fire Support

6001. General

The Marine Corps concept of STOM requires the application of traditional combined arms and maneuver warfare principles. Specifically, STOM fire support must be able to "shape the battlespace, set conditions for decisive action, and support maneuver," as stated in the Hanlon letter dated 12 March 02. Fire support accomplishes this through both physical (destructive) and psychological (morale, mental) means. Fire support must be complementary, overlapping, and redundant. The systems required to provide this fire support include field artillery, mortars, air support, and NSFS.

6002. Battlespace Shaping

As the force closes within the JOA, fires are employed to help shape the battlespace. Aviation (both organic and joint) and long-range NSFS (tube and missile) execute fire support missions prior to the introduction of organic, MAGTF surface fire support (artillery and mortars). A combination of low observable precision weapons and reconnaissance surveillance and target acquisition (RSTA) assets are used to defeat the threat's air defense systems in order to enable the use of these assets. The ultimate aim of this battlespace shaping is to create the conditions for decisive action. STOM operations represent one of the decisive actions the commander can execute.

6003. Surface STOM Support of Maneuver

In the scenario, the surface TF consists of two reinforced infantry battalions maneuvering ashore. They are supported by one, 6-gun LW-155mm howitzer battery and one, 8-tube 120mm mortar battery of EFSS. The LW-155 battery carries a basic load of 672 rounds of 155mm ammunition while the EFSS battery carries a basic load of 840 rounds of 120mm ammunition. Between both batteries there are 1,512 rounds of ammunition. During the ship to shore maneuver, the surface force is provided close supporting fires by aviation and NSFS. These complementary, overlapping, and redundant systems are essential until surface fire support organic to the surface force is established ashore. To this end, missions on and beyond the selected LPPs in support of the surface maneuver are planned. Subsequent to landing, there is a continued need for planned and on call fire support from aviation and NSFS in order to augment the organic fires of the MAGTF.

Note

The 120mm mortar is a placeholder for a system to be determined (e.g., 105mm, box of rockets).

On the second day of the surface assault, D+9, an additional reinforced infantry battalion lands with one LW-155 battery for fire support. Additionally, one LW-155 battery and one HIMARS battery of six launchers are available for general support of the MEB. The LW-155 batteries carry a combined basic load of 744 rounds of 155mm ammunition. The HIMARS battery carries a basic load of 324 rockets between the six launchers with re-supply carriers.

6004. Vertical STOM Support of Maneuver

The vertical assault force maneuvers from the LZs to the objectives and is supported by two 120mm mortar batteries with a combined total of 16 tubes of EFSS. The force carries a combined, total basic load of 1,680 rounds of 120mm ammunition. During the flight to the LZs, the vertical assault force is supported exclusively by fixed-wing and rotary-wing aviation. Subsequent to landing there is a continued need for planned and on call fire support from aviation. Aviation support must continue in order to augment the organic fires of the vertically inserted force and provide the essential complementary, overlapping, and redundant fire support.

6005. Fire Support Coordination

Fire support coordination is the continuous process of implementing fire support planning and managing all available fire support systems. It involves operational, tactical, and technical considerations and the exercise of fire support C2. It provides the means to deconflict attacks, reduce duplication of effort, facilitate battlespace shaping, and avoid fratricide. Coordination procedures must be highly automated, flexible, and responsive to change. Simplified procedures for approval and concurrence should be established, as well as highly permissive protocols for automated systems. However, fire support coordination should not be automated to the extent that the commander or the fire support coordinator (FSC)—the “man in the loop”—cannot monitor and override all automated functions.

a. Fire Support Coordination Center/Supporting Arms Coordination Center

STOM operations require detailed coordination between the AF and the forces ashore. This coordination takes place in the FSCC/supporting arms coordination center (SACC). The maneuver forces must be able to rapidly mass the effects of various weapons systems without physically massing the systems.

The FSCC/SACC provides a means to network sensor/target acquisition systems, weapons platforms, C2 warfare systems, intelligence analysis, and targeting elements. Although it may consist of personnel and supporting equipment that are physically co-located, it will probably

involve a combination of physical, electronic, and virtual links. The networked nature of the FSCC/SACC permits rapid, effective execution of fire support without imposing restrictions on continuous, direct sensor-to-shooter links.

The FSCC/SACC monitors aircraft sorties and manages allocations to ensure the most appropriate and responsive fire support to each planned and immediate mission request. In the scenario, the joint force air component commander (JFACC) apportions fixed-wing aircraft via the air tasking order/integrated tasking order (ATO/ITO) process to support the STOM operation. The control of MAGTF aviation in joint operations is governed by the policy for C2 of Marine Corps tactical air as stated in future joint publications.

b. Airspace Control in the LPA

High altitude trajectories and flight paths of advanced NSFS systems (e.g., extended range guided munition [ERGM], autonomous naval support round (ANSR), long range land attack projectile [LRLAP]) that achieve a very high trajectory, greater than 80,000 feet, could pose airspace control conflicts. The anticipated use of airspace at these altitudes requires coordination with the JFACC. Coordination among multiple agencies decreases fire support responsiveness; therefore, a joint resolution of this matter at the earliest possible date is essential. If coordination with the JFACC is required, the acquisitions communities of the Air Force, Navy, and Marine Corps have to coordinate their efforts to ensure the fielding of interoperable automated C2 systems that can minimize the time required for this coordination.

Possible procedural solutions include an airspace coordination area (ACA) established around the delivery system and another around the target area. These ACAs extend to a ceiling beyond which the risk to other aircraft is considered minimal. Another method employs ACAs that creates a corridor from the delivery system to the target.

Additionally, the size of an LPA spans hundreds of miles due to STOM's extended operational reach. Because of these ranges, the MAGTF commander must be able to quickly attack deep targets of opportunity in support of his intent. To further ease coordination, the LPA ceiling could be pushed to the maximum ordinate of missile and ERGM trajectories.

c. Procedural vs. Real Time Coordination

The Navy is exploring the possibility of real time coordination of fire support. This encompasses the ability to track all airborne objects (e.g., planes, helicopters, missiles, UAVs, gun projectiles) and deconflict them almost instantly in time and space. Integration of a ground tactical picture for coordination with maneuver may be less problematic from a systems standpoint. However, what remains an issue among the Services is the degree of permissiveness that higher level fire support coordination agencies possess in attacking targets in a maneuver unit's zone of action.

The design of fire support coordination measures (FSCMs), their boundaries, and their proper use achieves the desired coordination with maneuver so that fire support effectively supports the commander's intent.

Airspace coordination and deconfliction will continue to be a challenge in the joint arena. Beyond the extremely high trajectories of long-range weapon systems, the proliferation of UAVs further clutters the airspace. Because of this, the ability to track the location of aircraft in real time and deconflict maneuver and fire support assets becomes increasingly critical to success.

6006. NSFS Weapon Systems

In the scenario, the ships in table 6-1 can provide NSFS on D+8. Of the ships shown in the table, only half are available each day to conduct NSFS missions, leaving the other half to conduct replenishment and other missions.

Table 6-1. NSFS Ships.

					Day 0					D-day	D+1	D+2	D+3	D+4	D+5	D+6	D+7	D+8
	C-7	C-6	C-5	C-4	C-3	C-2	C-1	C+0	C+1	C+2	C+3	C+4	C+5	C+6	C+7	C+8	C+9	C+10
CG								1-F	2-F		1-M					1-W		
DDG								2-F	3-F		1-M					2-W		
DD(X)									1-F		1-M							

Origin of ship: F = Forward-deployed in theater
M = Mediterranean
W = Westpac

By 2015, NSFS will be a critical factor in the ability to conduct STOM operations (see *CG MCCDC NSFS Requirements Letter* in app. I). The NSFS systems in table 6-2 supports surface TF maneuvers. The weapons systems in table 6-2 are the 5"/62 gun firing the ERGM and the 155mm advanced gun system (AGS) firing the LRLAP, which are currently under development. These systems provide the range required for NSFS coverage during STOM operations.

Table 6-2. NSFS Assets.

	System	Rate	Range	Ammunition
DDG/CG x 2	5"/62	10 rpm ERGM 16/20 rpm	63 nm	HE unitary warhead
	5"/54	Conventional	13 nm	HE, SMOKE, WP
DD(X) x 2	AGS	10 rpm	100 nm	HE, DPICM, SADARM, BAT

NSFS can then engage preplanned (particularly scheduled) targets and provide artillery counterfire, allowing organic artillery to focus on providing direct support fires for maneuver and increasing the tempo at which the MAGTF as a whole, and the artillery in particular, can operate.

Along with the NSFS assets listed above, both the Tomahawk land attack missile (TLAM) and tactical Tomahawk (TACTOM) can be employed in support of STOM operations. The Tomahawk is an all-weather, highly survivable, submarine or ship-launched land-attack cruise missile. It provides 24-hour, all-weather strike capability. Tomahawk strike missions are planned and directed by unified, joint, and battle group commanders. Strike planners select, task, and coordinate Tomahawk strike tasking, and the launch area coordinator (LAC) coordinates execution of the TLAM missions. During flight, the missile derives navigational fixes from one or more potential sources, as directed by the mission planner.

The Navy is acquiring a new generation TACTOM cruise missile capable of attacking strategic, operational, and tactical targets. The new TACTOM will provide surface combatants with an improved ability to conduct tactical missions. Specifically, it will be able to loiter over a target area for some hours, allow surface combatants to redirect the missile while in flight, and allow warfighting commanders to use its on board camera to assess battle damage of the target.

6007. Ground-based Fire Support Weapon Systems

Subsequent operations ashore derive the bulk of fire support from organic MAGTF systems. These highly responsive, close supporting fires are continually augmented by aviation and NSFS where possible. Table 6-3 identifies the ground-based fire weapons support systems used in the scenario. The following subparagraphs are a detailed break out of the contents of table 6-3.

Table 6-3. Ground Assets.

Unit	System	Rate	Range	Ammunition
1 Bn of 18 MPF(F) MEB	LW-155	2/5 max	45 km	HE, SMK, DPICM, SADARM, BAT
1 Btry of 6 MPF(F) MEB	HIMARS MRL	6 sec	45-100 km	DPICM, SADARM, BAT
1 Btry of 8 MPF(F) MEB	120mm mortar	4/10 max	8.2-13 km rifled tube	HE, SMK, DPICM, WP, Illum, HE RAP
2 Btry of 8 One per MEU	120mm mortar	4/10 max	8.2-13 km rifled tube	HE, SMK, DPICM, WP, Illum, HE RAP
Infantry Bn organic	Predator		600 m	
	Javelin x 8		2,500 m	
	AAWS-H x 8		3,500 m	
	60mm mortar		3,480 m	HE, WP, Illum
	81mm mortar		5,792 m	HE, WP, RP, Illum
Maneuver assets	EFV-30mm			
	Tanks-120mm			
	LAV 25			
	LAV-AT			
	LAV-M		5,792m	HE, WP, RP, Illum

a. Infantry Mortars

Organic 81mm and 60mm mortars remain the “infantry commander’s hip pocket artillery,” and they play an increasingly critical role in effective fires due to the distances incurred with a STOM operation.

b. Artillery

(1) Direct Support

In the scenario, the MEB’s artillery organization consists of one direct support battalion of towed LW-155 (three batteries of six howitzers each), one general support battery of HIMARS multiple rocket launchers (six launchers), and three batteries of an EFSS (eight, 120mm mortars) to

support each infantry regiment. The EFSS is internally transportable in the MV-22, and it is the fire support system that deploys with the MEUs.

The LW-155's preplanned product improvement (P3I), towed artillery digitization (TAD) package makes on board position location and computation of firing data possible. This digitization package substantially reduces howitzer emplacement times. For example, current battery night emplacement time is 20 minutes. With the P3I, the same time requirement is reduced to 3 minutes, thus reducing crew fatigue and increasing responsiveness (less time to emplace) and survivability (less time to displace and avoid enemy counterfire).

Improvements in NSFS and the accuracy of artillery fire (from both the observer and firing battery) combine with better ISR to reduce the expenditure of rounds on suspected enemy locations, easing the demand for ammunition resupply. Improved packaging and standardization should decrease the volume and weight of transporting ammunition, thereby increasing the number of rounds carried per transport.

The LW-155 artillery system (tube and prime mover) requires embarkation on and transport to the beach via lighterage (LCAC or LCU). Once ashore, towed artillery maneuvers predominantly by using established road systems. Cross-country movement is possible for the MTVR and LW-155, but is limited to terrain that is favorable for wheeled vehicles. Additionally, artillery does not possess the ability to negotiate inland rivers and lakes like the EFV-mounted force that it supports, but it must rely on bridging assets and other transports.

(2) General Support

The addition of one rocket battery provides the MEB commander the ability to help shape his area of influence and effect his area of interest. The HIMARS system, currently being acquired by the Marine Corps, provides a multiple launch rocket system for deep artillery fires (ranges of up to 100 km). This reach provides the MEB commander with a counterbattery fire capability that is not currently organic to the MEB.

6008. Target Acquisition

a. Target Acquisition and Sensors

Target acquisition is the detection, identification, and location of a target in sufficient detail to permit the effective use of weapons. A sensor is a piece of equipment that detects and may indicate and/or record objects and activities by means of energy or particles emitted, reflected, or modified by those objects. Effective employment of fires in support of STOM relies significantly on the management and integration of all available sensor and target acquisition systems. Target acquisition and sensor sources include ground sources, airborne sources, national systems, and military space systems. The C2 system must provide for the rapid passage of target acquisition information to commanders and staffs at all levels. Integrated sensors must provide information that allows commanders to make rapid, accurate decisions.

b. Ground Systems

Target information is obtained by patrols, combat reports, remote sensors, locating and surveillance devices, and observation. The forward observer is the traditional target acquisition means for the fire support system. Marines equipped with devices such as the target location, designation, and hand-off system continue to be a major target acquisition source.

c. Counterbattery Radar

For the scenario, the counterbattery radar consists of the AN/TPQ-46A system mounted on a HMMWV to ease its movement ashore. However, the AN/TPQ-46A has a limited range (24 km for rockets, 18 km for artillery) considering the employment distances of the force in 2015. Therefore, increased capabilities will need to be explored. Weapons locating radars will continue to play a significant role in acquiring enemy mortar, artillery, and rocket systems. Sea-based fire support must have radar systems that are capable of acquiring enemy indirect fire support systems, depending on the operating ranges and sensor horizon.

Chapter 7
Logistics

7001. General

Historically, logistics for amphibious operations involved massive beach support areas with sprawling fuel farms, extensive ammunition dumps, and huge supply stockpiles. Every landing, opposed or otherwise, had a phase that required build up of supply depots ashore in preparation for subsequent operations. Because of this phased approach, opportunities were not exploited and the enemy gained time to react. The maneuver forces relied upon the establishment of logistic bases ashore in order to continue their operations inland. The Marine Corps has always been unique in its ability to conduct sustainable forcible entry operations from the sea. The trend of decreasing access within key areas of the world's littorals demands a transformation in how Marine forces project power ashore and the means to support them. This chapter describes future CSS organizations, seabasing, sea-based logistics, embarkation considerations, and the concept for logistic support during STOM operations.

7002. Seabasing and Sea-based Logistics

Inherent in STOM operations is the ability to sustain and support operations ashore from the sea base. While this results in eliminating the "iron mountain" of materiel and equipment ashore that is normally associated with an amphibious operation, it requires that the MAGTF's CSSE and logistic support processes transform in form and function. This transformation equates to a reduction in footprint and force protection requirements ashore while enhancing the operational capabilities of supported units.

Sea-based logistics is the means to support littoral power projection from over the horizon, and it is independent of sovereignty restriction and overseas basing requirements. The sea base is the conduit through which supplies, equipment, and personnel move ashore for reinforcement and sustainment operations as well as the source for non-end-item user maintenance, engineering, and health service support to the force.

The sea base provides the capability to logistically sustain operations as long as required, allowing the MAGTF to reduce, but not eliminate, the logistic footprint ashore. Within the operational environment and dependent upon the situation, mission, enemy, terrain and time, highly mobile, tailored, and capable CSS units facilitate maneuver throughout the force. If an expanded expeditionary campaign ashore is directed, the CSSE seamlessly transitions ashore without changing its unit organization and processes.

The MPF(F) ships are a critical element in the sustainment of the sea base during STOM operations. MPF(F) ships integrate with a deployed LF and act as throughput platforms for

sustainment and the FIE of larger forces. The MPF(F) provides the continuous, uninterrupted sustainment of the LF and provides and/or augments logistic support capabilities that cannot be performed on amphibious shipping. Examples of this are higher echelon maintenance, storage of specialized equipment and supplies, and interoperability with naval and commercial platforms. If properly configured and loaded, amphibious ships can logistically support STOM operations exclusive of the presence of MPF(F) ships. However, these operations are limited in duration and scope because of the inherent limitations of amphibious ships.

7003. Shipping and Lighterage

Two ESGs and an MPF(F) (MEB sea-based increment) make up the ship force mix for the scenario. Table 7-1 illustrates the ship and landing craft mix.

Table 7-1. Shipping and Landing Craft Availability.

Ship Class	Quantity	Quantity LCUs	Quantity LCACs
LHD	2		6
LPD-17	2		4
LSD-41	2	4	
Future MPF		10	
Total	6	14	10

The heavy surface lift is provided by 14 LCU(R)s or a comparable lighterage craft (see table 7-2).

Table 7-2. Landing Craft Characteristics.

Landing Craft	Speed (kts)	Load Capacity	Range	Vehicle Stowage (sq ft)
LCU(R)	10-15	186-206 short tons	1,000 nm or 10 days of independent steaming	2,840-3,300
LCAC (SLEP)	35	72 tons	100 nm	1,800

7004. Embarkation

STOM forces embark aboard amphibious ships and MPF(F) shipping based upon the operational situation. Embarkation plans for the MEUs are developed based on mission responsibilities, landing force task organization, concept of employment and operations, seabasing concept, and ship and craft availability. Competing embarkation considerations generally result in a compromise between optimized amphibious ship load outs, unit integrity, speed in debarkation during the assault, and selective offload phases of a landing.

a. Planning Considerations

STOM generates additional planning considerations for amphibious embarkation. It is essential that the MAGTF be embarked to provide flexibility and promote the rapid build up of combat power ashore and sustainment required by maneuver forces. The embarked force must be able to selectively offload, maintain and sustain its forces ashore, and rapidly recover and reconstitute forces if needed. Space to achieve these capabilities is accomplished through a combination of methods, for example—

- Do not embark contingency supplies and/or equipment that could be sourced from MPF(F), other naval shipping, or overseas prepositioned stocks; e.g., cold weather gear, tanks, trucks.
- Universal assignment of equipment; e.g., HMMWVs can be loaded on board ship, quickly mobile loaded, and given to any unit.
- Load plans allow access to specific types of equipment and supplies.
- Maintaining embarkation discipline. Space required/designated for staging and maintenance are not used for storage.

b. Organization for Embarkation

The MAGTF embarks forces to optimize the capability to execute STOM operations. Organization for embark may sacrifice some unit integrity and employ judicious spread loading of the task force across the sea base to take advantage of additional landing craft and aircraft spots. This allows for a more rapid assembly and maneuver from ships during STOM. For example, an infantry battalion conducting a vertical STOM could embark on one LHD with 6 operational VTOL spots for launch, but if it were embarked on 2 LHDs then it needs 12 operational spots to speed up its build up ashore. Another example is an LAR battalion task force embarked on five ships that allows it to land all of its LAVs, pre-boated in LCACs, in one lift. Future C2 capabilities should reduce the difficulties that can be attributed to spread-loading units.

Figure 7-1 identifies the organization for embarkation and assignment to shipping for both MEUs.

Figure 7-2, on page 7-5, identifies the MPF(F) MEB organizations loaded across the six ships. In the scenario, an MPF(F) MEB integrates with two MEUs, the sea base increment of the FIE is assigned/embarked in accordance with the spread loading and configurations and loading characteristics of the MPF(F) ships.

LHD-2 (11th MEU)	LPD-18 (11th MEU)	LSD-42 (11th MEU)
Composite squadron MEU CE BLT 1/1 HQ Det MEB HQ Group Arty Btry (EFSS) Det MSSG CE ACE CE BSSG CE (Fwd) Bravo Co 1/1 Det Wpns 1/1 Co, 1st LAR Bn Det 3d LAAD Bn Det VMU-1	H&S Co (-) 1/1 Alpha Co, 1/1 Wpns Co (-), 1/1 1st Plt, Alpha Co, 3d AA Bn Det 1st CEB Recon Plt, 1st Recon Bn Det, MSSG	MSSG (-) LFSP/BMU 3d Plt, Alpha Co, 1st Tk Bn Charlie Co, 1/1
LHD-1 (26th MEU)	**LPD-17 (26th MEU)**	**LSD-41 (26th MEU)**
Composite squadron MEU CE BLT 2/2 HQ Det MEB HQ Group Arty Btry (EFSS) Det MSSG CE ACE CE BSSG CE (Fwd) Echo Co 2/2 Det Wpns 2/2 Co, 2d LAR Bn Det 2d LAAD Bn Det VMU-2	H&S Co (-) 2/2 Golf Co, 2/2 Wpns Co (-), 2/2 1st Plt, Bravo Co, 2d AA Bn Det 2d CEB Recon Plt, 2d Recon Bn Det MSSG	MSSG (-) LFSP/BMU 1st Plt, Bravo, 2d Tk Bn Fox Co, 2/2

Figure 7-1. MEU Organization for Embarkation.

7005. CSS Employment and the Concept of Logistic Support

A major characteristic of future CSS and logistic support is the realignment of logistic functions and responsibilities (minus aircraft maintenance) to the MAGTF CSSE. This enhances the operational and tactical agility by allowing the MAGTF commander to reduce the logistic footprint, improve CSS/logistic capabilities, eliminate redundancy, and position CSS/logistic capabilities where needed.

a. CSS Employment in the MAGTF (ESG MEU)

The MEU's MSSG is formed into three distinct organizations: CE, direct support (DS) company, and general support (GS) company. The DS company is task organized and positioned to best support GCE and ACE operations. The GS company focuses on deliberate engineering, utilities, heavy ground transportation, distribution, and maintenance for the entire MEU. The GS company provides augmentation to the DS company during task organization as needed based upon the concept of operation, realizing that the ACE remains mostly sea-based with the exception of MAGTF support sites.

MPF(F)	MPF(F)	MPF(F)
CE MEB HQ Det Intel Bn Det Radio Bn Det Force Recon Bn Det Comm Bn **CSSE** BSSG HQ(-) GCE DS Co (x 2) **GCE** 7th Mar Regt HQ 1st Bn, 7th Mar B Co, 1st Tank Bn B Co, 3d EFV Bn 2d Plt(REIN) B Co 1st CEB C Co, 1st LAR Bn **NSE** Det ACU Det BMU	**GCE** 2d Bn, 7th Mar C Co, 1st Tank Bn C Co, 3d EFV Bn Det HqBtry 2d Bn 11th Mar E Btry, 2nd Bn 11th Mar F Btry, 2nd Bn 11th Mar HIMARS Btry B Co, 1st LAR Bn **CSSE** Det BSSG HQ GCE DS Co (x 2) **NSE** Det ACU Det BMU	**GCE** 3d Bn, 7th Mar 3d Plt (REIN) B Co 1st CEB EFSS Btry G Btry, 2d Bn 11th Mar Recon Co **CSSE** GCE DS C Co, BSSG -7 **NSE** Det ACU
MPF(F)	**MPF(F)**	**MPF(F)**
ACE Det MAG HQ VMM (x 2) HMLA Det MWSS **CSSE** Det BSSG HQ NCB (-) BDE GS Bn **NSE** Det ACU	**ACE** VMM HMH Det MACG **CSSE** ACE DS Co **NSE** Det ACU	**ACE** VMM VMU Det MACD Bn **CSSE** ACE DS Co **NSE** Det ACU
Note: The characteristics of the future MPF ships have yet to be determined.		

Figure 7-2. MPF(F) Organization for Embarkation.

b. CSS Employment in the MPF(F) MEB

The MPF(F) MEB CSSE is the BSSG formed by a CE, GCE DS battalion, ACE DS battalion, and a brigade (GS) battalion.

The BSSG CE is sea-based with the MEB CE and has the capability to move ashore if required. The CE is designed to coordinate CSS and logistics (these are distinct functions) within the MAGTF and with naval and joint organizations.

The GCE DS is organized to maintain/facilitate operational momentum of the GCE maneuver units. The battalion's CE is light, agile, and normally co-located with the GCE CE to coordinate CSS actions for the GCE. In the scenario, two heavy CSS companies support the two surface attack mechanized maneuver units. A lighter CSS company supports the vertical assault maneuver unit. The fourth and fifth CSS companies support the remaining GCE units.

The ACE DS battalion organizes into two CSS companies. The battalion's CE is co-located with the ACE CE. A heavy CSS company supports MAGTF operations at a forward operating base (FOB) or an expeditionary airfield (EAF) if required for sustained operations ashore with an emphasis on ACE requirements. A second, lighter CSS company supports ACE operations within the initial movement cycles ashore to include the establishment of FARPs. ACE air defense units operating ashore in support of the GCE are supported by the GCE DS battalion.

The BSSG GS battalion (GS Bn) is both sea- and shore-based as required. The battalion facilitates the movement of people, equipment, and supplies to and from the sea base and the forces ashore. The battalion also provides deliberate engineering, heavy MT, and maintenance and supply support for the entire MEB. The MEB commander can shift CSS elements/assets as required across the battlefield to place CSS when and where it is needed.

c. CSS Command and Control and Autonomic Logistic Capability

The CSSE and logistic sections throughout the MAGTF use the same C2 processes and AIS as the remainder of the MAGTF and are augmented by the Global Combat Support System-Marine Corps (GCSS-MC). Embedded in GCSS-MC is the MAGTF's logistic C2 functionality, transaction/asset management tools, deployment management tools, and a shared data environment. Additionally, autonomic logistics will enable the MAGTF to actively monitor the operational status of ground tactical equipment on the battlefield. On board systems capture and transmit mission critical data (i.e., identification, location, fuel and ammunition levels, mobile load, and system health) into the GCSS-MC and the MAGTF COP. This capability provides the MAGTF commander with real time information on a unit's mission readiness ashore and enhances the CSSE capability to respond rapidly and effectively to conditions on the battlefield.

d. Concept of Logistic Support

All units going ashore carry their basic allowance (BA) of class V (ground ammunition) and one day of supply (DOS) of class I (rations and water) and class III (bulk/packaged fuel and petroleum, oil and lubricants [POL]). The surface and air-landed maneuver forces also carry at a minimum, one day of ammunition (DOA) of class V (ground) computed at the current combined assault rate (MCO 8010.1E) and one DOS of class I (rations and water), with the exception of the LW-155 battery, which goes ashore with 2 DOA (2d MPF[F] surface cycle) and 3 DOA in the 3d cycle. Refueling ashore will be conducted using the expeditionary refueling system (EFS) that can be transported by the MV-22, CH-53E, or on available ground transportation assets.

CSSE personnel and equipment either go ashore as an entire CSS company or they are task-organized units whose mobility matches the mobility of the supported units. These CSS units are task functional sets of personnel, supplies, and equipment on board the sea base that can rapidly surge ashore in response to changing tactical or logistical requirements. They can also be inserted into another CSS company, task unit, or logistic node. Table 7-3 reflects elements of a medical/CSS company(-) task-organized to flow in on D+8 (see app. J, tab 1). Additional examples of CSS unit are provided in appendix J (tabs 2 and 3).

Table 7-3. Sample CSS Company(-).			
CASEVAC unit/helo team CSS co(-) light	**Personnel/Vehicle Equipment**	**Quantity**	**# PAX**
	HMMWV, MRC	2	
Missions:	MP/comm pers		8
CASEVAC	HMMWV, AMB	1	
	HSS pers		3
CSS throughput	HMMWV, CGO	1	
	HST pers		8
Small combat equipment replace, recover, and evacuate			
	Total	4	19

During the first few hours of the attack. Two vertical DS CSS companies(-) (as depicted in table 7-3) are introduced ashore between H+4 hrs to H+5 to provide HST (throughput) and medical support until the first surface-landed combat service support detachment (CSSD) crosses the LPP at approximately H+7 hrs. One DS CSS company(-) is sourced from the 26th MEU to support the surface attack and the other is sourced from the BSSG to support the air assault. In lieu of having air transported material handling equipment ashore, emergency resupply packages are configured to allow for quick breakdown and distribution.

After all maneuver forces are ashore on D+8, the remainder of the DS CSS company(-) from MSSG-26 and DS Co(-) from BSSG-7 (GCE DS CSS battalion) are cycled ashore to provide sustained logistic support. These companies are comprised of truck-mounted assets that follow in support of the maneuver elements as they progress forward. They possess enough vehicles and equipment to carry the sustainment and personnel required to move the surface maneuver elements to the objective and beyond if the tactical situation allows. Since convoys are inherently vulnerable to attack, the use of combined arms is crucial to the survivability of the CSS company. CSS companies have limited organic force protection capabilities (shoulder-fired, crew served, and vehicle-mounted weapons), but they can draw upon the MAGTFs direct and indirect fire support systems to include CAS and NSFS. The MAGTF C2 system allows the CSS companies and the maneuver unit S-4 logistic personnel to share the same COP and coordinate delivery of resupply at designated locations. If feasible, supported units may provide a mobile security element to rendezvous with and escort the CSS Co(-) as it moves in-land from the LPPs. Principally, DS CSS units ashore identify and coordinate the CSS/logistic sustainment of the maneuver units vice maintaining large quantities of supplies and equipment.

On D+9, additional CSS companies flow ashore to bolster sustainment operations. The DS CSS companies carry mobile-loaded sustainment only, while the GS CSS companies have the capability to displace and transport all assets from temporary locations. Support is provided through a combination of the following:

- *DS CSS Companies.* DS CSS companies provide support as far forward as practical to supported units in order to mediate unit distribution of sustainment. For example, DS CSS companies deliver class V directly to artillery batteries.
- *MAGTF Support Site (MSS).* The MSS is built around a FARP. It is emplaced on existing suitable hard surfaces or EAF matting carried aboard the MPF(F). The MSS

refuels, re-arms, and provides emergency maintenance to MEB aircraft (including JSF) and tactical ground equipment, as necessary.

- *Transfer Points*. Vertically lifted CSS units with helicopter support team (HST) and throughput capabilities are positioned to replenish DS CSS companies.

(1) Supply

DS CSS units coordinate the resupply of maneuver units. Supplies are obtained first from the LF stocks of the AF followed by sustainment from the MPF(F). In combination, the LF and MPF(F) provide the MAGTF with continuous uninterrupted sustainment. The LF has up to 10 DOS embarked on AF shipping and up to 20 more DOS available aboard the MPF(F) vessels. The future vision is an uninterrupted sustainment of the sea base through integration with naval and joint distribution systems. Tables 7-4 and 7-5 contain the scenario's bulk resupply and sustainment requirements for the TFs. Planning factors for D+9 operations are based upon combined assault rates (MCO 8010._). For the scenario, vertical assault forces have less personnel, less combat systems than the mechanized force, and are considered to be less mobile with fewer intense engagements from D+10 to D+14. Consequently, a 30 percent reduction in class I and class V sustainment is planned for and is reflected in table 7-5. Sustainment for surface forces is planned to remain constant during the same timeframe. Appendix K provides detailed data on sustainment requirements (at the combined assault rate per day) for the scenario.

Table 7-4. D+9 Resupply Requirements.

TF	Class I (s/t)		Class III (s/t)	Class V (s/t)	Totals
	Food	Water	Fuel	Ammo	
Surface	6.9	33.7	113.2	67.1	220.9
Vertical	5.5	26.8	15.2	29.6	77.1
Total	12.4	60.5	128.4	96.7	298.0

Table 7-5. D+10 to D+14 Daily Sustainment Requirements.

TF	Class I (s/t)		Class III (s/t)	Class V (s/t)	Totals
	Food	Water	Fuel	Ammo	
Surface	11.8	57.3	202.9	136.6	408.6
Vertical	5.5	26.8	10.6	20.7	63.6
Total	17.3	84.1	213.5	157.3	472.2

Once ashore, supplies and equipment are transported, distributed, and maintained by the direct support CSS company supporting the maneuver forces. Figures for weight and gallons are based on current supply usage information. Usage data for future vehicles and equipment and weapons systems were derived from current and projected capabilities.

(2) Maintenance

As prescribed by the realignment of CSS/logistic responsibilities, using units retain first echelon capabilities. CSS units retain the appropriate level of second and third echelon maintenance capabilities as required by the scenario. The supporting CSS unit coordinates the repair, evacuation, abandonment, or destruction of damaged equipment and supplies. Repairs that cannot be executed in the field are performed on the AF and/or MPF(F) sea base as appropriate.

"Plug and play" components are used whenever possible rather than repairable individual components. For maintenance requirements ashore above the capability of the using unit, fly-in contact teams from the sea base are used. Autonomic logistic sensors on ground tactical equipment enable the CSSE to employ maintenance contact teams rapidly and effectively on the battlefield. Equipment that cannot be repaired may need to be abandoned, demilitarized, cached, or possibly destroyed based upon the tactical situation. Robust field repair facilities can be established ashore when required.

(3) Bulk Liquids

One of STOM's greatest logistical challenges is the distribution of bulk liquids from AF and MPF(F) shipping to the maneuver units. Refueling ashore is conducted with the use of an advanced bladder system that can be transported in air, surface, and/or ground transportation assets. Additional ground refueling support is obtained from KC-130Js or CH-53s where the terrain of the supported unit is conducive to safe aircraft operations. Future reductions in requirements for class III for both ground and aviation assets should be attainable by taking advantage of developments in more fuel-efficient engines, power trains, and fuel cells.

As with class III, water poses a similar challenge to transport because of its weight, especially when air transport is required. The development and fielding of mobile, lightweight water purification units can decrease sustainment requirements from the sea base if adequate water sources are available.

(4) Transportation and Lines of Communications

Transportation of personnel, equipment, and supplies from home bases or points of origin to the theater is categorized into three phases:

- The first phase is the intertheater or strategic movement that uses MPF(F) shipping, Air Mobility Command transport, and commercial wide-body aircraft. Supporting fixed-wing and tilt wing aircraft self-deploy during this phase.
- The second phase is the intratheater or operational movement that uses in theater fast ferry (HSV) vessels and Air Force C-130, C-17, or KC-130 aircraft to transport personnel from FOBs, ISBs, or en route rendezvous points (ERP) to the sea base, ashore assembly areas, or in between as required. Marine Corps operational support airlift (OSA) aircraft already in theater to support the MAGTF commander may also provide limited, expeditious movement of high priority personnel, documents, or parts.
- The third phase is the tactical movement phase that consists of transit through the littorals. Attack unit personnel and equipment are cycled ashore across LPZs, LPSs, LPPs, or into LZs via EFVs, LCAC, LCU(R), MV-22, CH-53, and aerial delivery means.

Ground maneuver forces do not maintain traditional LOCs open to the rear, nor do they have to. While they advance, both the vertical and surface-landed forces can pinpoint and input into the COP the most suitable/most benign logistic delivery points available, which is viewed by the

sea-based CSSE CE. Once a point is established and the CSSE is ashore, by default, the defense of the LOC becomes its responsibility. To ensure the security of the CSS units/LOCs within the future battlespace, in-depth force protection and defensive tactics training (e.g., convoy defense, vehicle unloading battle drills) are essential requirements for all CSS military occupational field personnel.

As forces penetrate deeper inland, aviation assets deliver most of the initial support for the attack, either directly to pre-planned points for the supported unit or to a CSS unit ashore for further transport to the supported unit.

While airlift of supplies is the most expedient means of transportation, it alone cannot indefinitely sustain all forces ashore for numerous reasons, to include weather, maintenance, and personnel/equipment size and bulk. As a result, there will still be a reliance on surface (LCU[R] and LCAC) assault craft and land transportation systems to sustain maneuver forces ashore.

(5) Engineering

In the scenario, general engineering operations ashore are limited. Combat engineering will likely consist of demolition, obstacle removal, and barrier/obstacle construction while general engineering functions will include explosive ordnance disposal, power production, and utilities. Although extensive vertical/horizontal construction is a capability of STOM operations, it is likely outside the purview of Marine forces.

(6) Health Service Support

Health service support (HSS) capabilities aboard the AF and particularly the sea base (MPF[F]) provide preventive and restorative health services throughout the AO. Real time medical threat surveillance and hazard reporting support the maneuver elements with timely information and countermeasures for the avoidance or mitigation of environmental threats. HSS elements organic to the maneuver force or attached to CSS companies respond to casualty-producing events as close to the time and place of wounding as possible. CSS company HSS elements organize to provide support. These CSS task-organized units (identified in fig. 7-3 and app. J, tabs 2 and 3) are tailored to provide rapid assessment, stabilization, and prompt return to duty or level II forward resuscitative surgery (FRSS) procedures with the intent of evacuating patients to the sea base as soon as practical.

A care technician accompanies seriously wounded personnel to monitor and provide therapeutic interventions, supported by medical supervision accessed through reachback communications capabilities. Upon arrival at the sea base (i.e., casualty receiving and treatment ship [CRTS] of the AF or MPF[F] ship), wounded personnel become the responsibility of the Navy. The MPF(F) sea base provides level III Navy medical capability with sufficient operating tables, critical care beds and ward beds and medical services appropriate to the support of an MPF (MEB). Expected capability is a level between CRTS and the current hospital ship (TAH). Navy medical personnel are located aboard the sea base and provide necessary medical services and coordinate evacuations to medical treatment facilities outside of the theater of operations.

As identified in chapter 5, CASEVAC is supported by apportioned vertical assault support assets. In addition, it may be feasible to conduct CASEVAC via surface means such as LCAC or LCU(R) depending on the time of injury and the relative momentum of the surface task force and its distance from usable LPPs.

(7) Services

Services reside primarily aboard the sea base. Services provided ashore consist primarily of military police (MP) security support as required by the tactical situation. Services such as legal, administration, religious ministries, and information systems support are only transitioned ashore as needed to support the MAGTF commander's scheme of maneuver.

(8) Sustainment of STOM Operations

Future MAGTF operations are sustained through a naval/joint distribution process. For the MAGTF, the MPF(F) interfaces with Navy platforms, to include amphibious ships and the CLF, and also interfaces with commercial ships, which is crucial to sustainment. This combination of joint, naval, and Marine Corps capabilities enables the continuous uninterrupted sustainment of Marine and joint forces. Figure 7-3 depicts how the MPF(F) may integrate into a future distribution system.

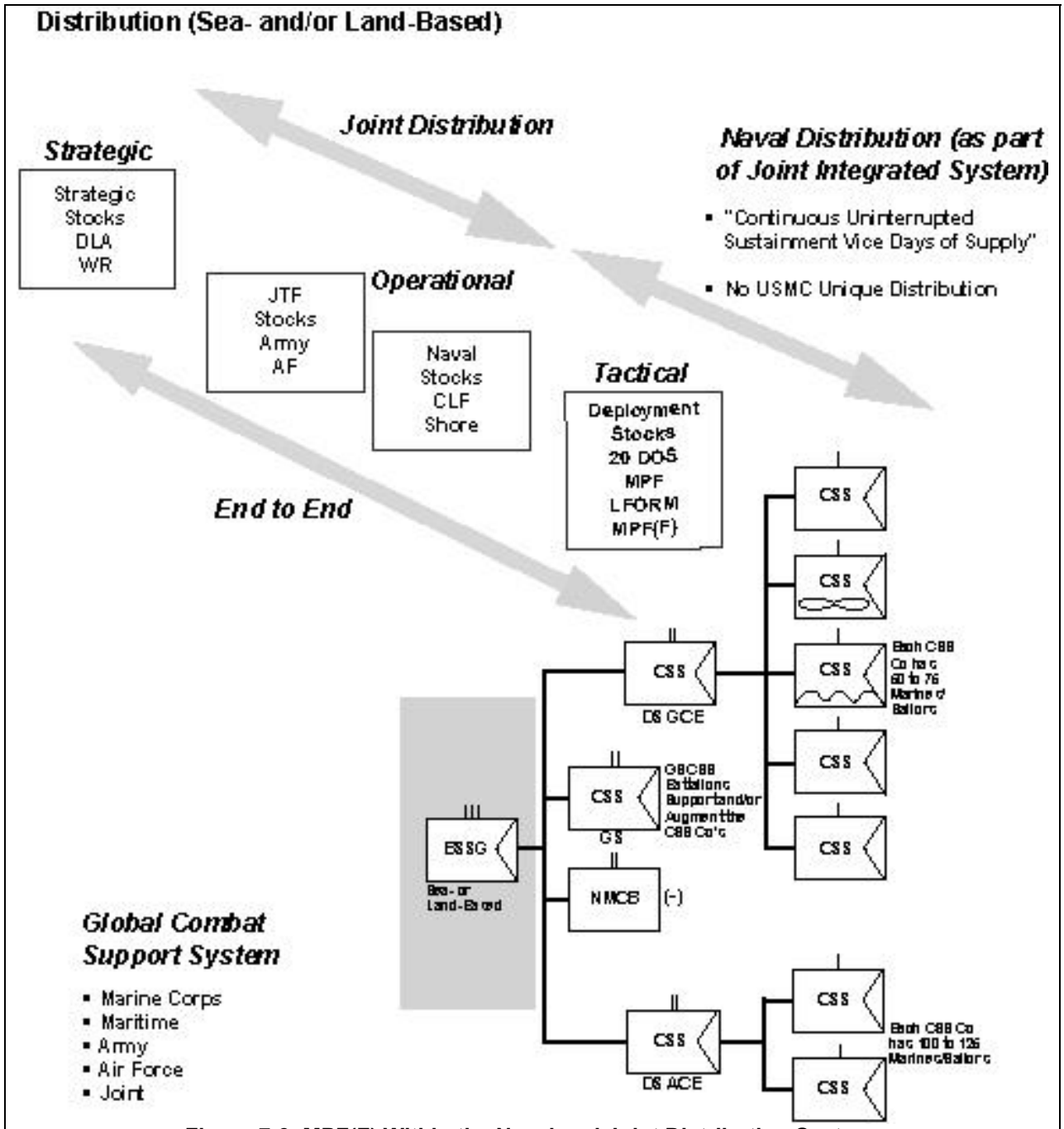

Figure 7-3. MPF(F) Within the Naval and Joint Distribution System.

Chapter 8
Command and Control Support Structure

8001. General

The basic elements of command and control are people, information, and the C2 support structure. This chapter focuses on the C2 support structure or, more specifically, the MAGTF C2 system that is embedded within the larger naval C2 system and ultimately the overarching joint C2 system. The MAGTF C2 system links people (e.g., commanders, combatants, support providers, system operators) and information (e.g., COP/CTP, situation reports, fire support requests, intelligence feeds). It is fully networked with the joint C2 system through the FORCEnet conduit provided by the naval C2 system.

Because technology is *constantly* evolving, the systems within the MAGTF C2 system envisioned in 2015 are still emerging. For the purpose of this CONOPS, both current and projected systems are referenced to illustrate an example of the required concepts and capabilities for effective C2 in a STOM environment.

8002. STOM Implications on C2

a. Operating From a Sea Base

Typically, the MAGTF command element and major subordinate command elements are located aboard and exercise C2 from the sea base. This does not preclude the MAGTF commander or subordinate commanders from transitioning their C2 ashore as the situation dictates. The MEB commander is supported by a single, integrated "blue-green" staff that operates key C2 nodes from the sea base. In the scenario, the MEB, GCE, and ACE headquarters operate aboard amphibious ships, while the CSS headquarters operates aboard the MPF(F) ships. This C2 arrangement does not preclude various combinations of command structure aboard different vessels. For STOM operations, the command element must have the capability to conduct OTH voice, video, and data network links to provide connectivity to the maneuver elements and/or for operational reachback to CONUS-based resources.

b. Reduced Infrastructure Ashore

Historically, hierarchical communications links were established using relatively low bandwidth, stationary transmission systems in a point-to-point fashion supporting a linear battlefield. STOM is nonlinear—with operations taking place over large distances with widely dispersed forces. The MAGTF C2 system must keep pace with the fastest moving elements of the MAGTF, while providing an OTH network from the sea base to the maneuver forces ashore.

c. Collaborative C2

The staffs of the higher echelon commands, although all within the sea base, are physically dispersed among the many ships of the sea base. The MAGTF C2 system must support long-distance collaboration and operations in a distributed manner. Inherent to the conduct of collaborative operations is reachback. Higher headquarters, staff members, and support providers may not be located within the sea base or even in theater. High bandwidth communications are required to reach these CONUS-based resources. Imagery or other intelligence support is one example of resources that can be attained via reachback.

8003. Architecture Description

STOM requires dispersed forces to be able to coordinate all the warfighting C2 functions between themselves and central controlling agencies for each functional area. Control agencies may be co-located or assigned to subordinate commanders for operational control. The MAGTF C2 system facilitates decentralized decisionmaking and enhanced situational awareness at all echelons and is an adaptable and intuitive system that is fully interoperable in a joint environment. Marine forces access, manipulate, and use information in real or near real time to develop a common tactical and operational understanding of the battlespace. Marine forces, to the tactical unit level, have connectivity to theater and national assets and the ability to disseminate information throughout the joint force. The MAGTF C2 system fully supports integrated collaborative planning efforts and functions in any environment, whether sea-based, transitioning ashore, or on the move. While traditional command centers may be established ashore during sustained operations, the STOM C2 architecture allows for dynamic establishment of networks (both voice and data) between multiple organizations. The architecture is adaptable to environmental and organizational changes in the formation of network paths. Finally, an important aspect of the architecture is that all classes and classifications of information share the same network backbone. Voice, video, and data share the same switching and transmission systems, regardless of their level of classification.

a. Wide Area Network

The systems architecture envisioned for the scenario is a self-organizing, wide area network (WAN) based upon the joint tactical radio system's (JTRS's) ground (vehicle-mounted and man-portable), airborne, and maritime tactical radios. These JTRS radios interconnect all elements of the STOM force—the various combatant and support ships of the sea base; rotary-wing, tilt rotor, and fixed-wing aircraft; and the low-power, wireless local area networks (WLAN) used by the maneuver and support ground forces. JTRS radios, operating as wireless bridges, interconnect various tactical headquarters operating out of EFVs, HMMWVs, or LAVs on the battlefield.

The scenario uses the *Performance Specification JTRS Software Waveform, Wideband Networking Waveform (WNW)* document dated 6 Aug 02 to determine communications planning ranges for various JTRS radio variants. When using antennas and power levels suitable for the

respective host platforms, the WNW "line-of-sight," point-to-point range meets the following requirements:

- Air-to-air at least 370 km (200 nm).
- Air-to-ground/surface at least 370 km (200 nm).
- Ground-to-ground at least 10 km (5.4 nm).
- Ship-to-ship at least 28 km (15 nm).
- Ship-to-shore at least 28 km (15 nm).

Air-to-air and air-to-ground/surface ranges apply to aircraft flying at altitudes where radio frequency (RF) propagation is unaffected by terrain, foliage, or other features. If aircraft fly at altitudes where RF propagation is affected, at a minimum, the WNW network provides ranges comparable to the ground-to-ground requirement between low-flying aircraft or between aircraft and ground WNW network nodes, which are listed above. However, the WNW still supports communications between these low-flying aircraft and C2 aircraft (e.g., airborne warning and control system) up to the air-to-air range given above.

b. Wireless Local Area Network

The WLAN at the battalion and below level consists of a meshed network of radios capable of passing voice and data. Examples of these types of systems are the Enhanced Position Location Reporting System (EPLRS) radios that provide battalion to company level communications links and the Single Channel Ground and Airborne Radio System (SINCGARS) that provides company to platoon level communications links. These systems are currently fielded and are presented for illustrative purposes of how the WLAN may look like in 2015. The WLAN ties into the overall JTRS WAN backbone via vehicle- (e.g., EFV, LAV, HMMWV) or man-portable JTRS radios at the command level of these units.

c. COP/CTP

A shared COP/CTP is available throughout the STOM force via vehicle-mounted and hand-held display units. These units graphically display blue and red forces as well as overlays of the operating area. They are capable of automatically updating their own position via global positioning system (GPS) receivers and passing that information throughout the WLAN/WAN to other graphic display devices of adjacent units or directly to the command element aboard the sea base. The Data Automated Communications Terminals (DACT) running Command and Control PC (C2PC) is an example of the devices that will provide a shared COP/CTP via the interlinked WLAN/WAN.

d. Aerial Relay Nodes

To prevent network fragmentation and provide OTH communications, UAV, UH-1Y, KC-130J, or other airborne relay nodes augment the terrestrial portion of the WAN backbone. Similarly, broadband line of sight (LOS) and satellite terminals (e.g., Secure Mobile Anti-Jam Reliable

Tactical Terminal [SMART-T]) supplement the tactical radio network where heavy traffic concentrations are likely or ranges are extended.

e. MAGTF Broadcast Service

A MAGTF broadcast service improves the rate of information distributed and reduces the overall volume of communications traffic. It provides one-way, high throughput dissemination of imagery, video, weather, television programming, and large volume theater message traffic (e.g., air tasking order). The MAGTF broadcast service relies on "smart push–user pull" with some information automatically going out over the broadcast to all receivers and other information being sent only to subscribers of that information. In order to ensure that all applicable nodes in the network receive the broadcast with a minimum of retransmission, the broadcast service is aerial or satellite-based.

8004. Support of STOM

Command posts of units conducting STOM must posses the mobility to keep pace with the increase in operational tempo of the maneuver forces. Traditional "leap frog" displacement of sprawling command posts is time consuming and can potentially create operational pauses during STOM operations. The command posts of the MAGTF C2 system must enable commanders and staffs to function while on the move. Tactical command posts immediately start operating within the surface and vertical assault elements upon launch of the assault forces.

a. Surface Attack

While in the launch area, the commanders aboard surface assault craft (as part of the initial cycle) establish communications with higher, supporting, adjacent, and lower units via the JTRS radio WAN. Graphic display devices mounted in the surface assault craft develop and maintain the COP/CTP by automatically updating their location via GPS and passing that information in the form of tracks or icons within the surface assault force to higher headquarters. Separate graphic displays provide the commander and surface assault craft commanders the ability to visually display the heading and respective lanes while displaying depictions of adjacent surface assault craft during the movement from the launch area to the beach. While in the transit area, surface assault craft receive voice and data intelligence, reconnaissance, and fire support information that allows the battalion staffs to prepare intelligence products and to command, control, and coordinate supporting fires. Providing OTH communications links, from the ship to the objective, requires some form of aerial retransmission platform provided by a UAV, UH-1Y, KC-130J, or EFV(C/Ps) with embedded wide/narrow band SATCOM. Additionally, MV-22s, if equipped with JTRS radios, have the ability to communicate via narrow band UHF SATCOM. At the craft initial points, between the transit and approach areas, surface assault craft commanders may decide or be given orders from the appropriate commander to shift from primary to alternate approach lanes as the situation unfolds. Heading updates are passed to the appropriate vehicle drivers and appropriate troop commander displays are updated with the new

target LPPs within the new LPS. Similar mission changes are issued and received when the leading element of the surface assault craft crosses the 3-fathom curve and enters the attack penetration area.

Once the initial force is inserted, it establishes and maintains C2 with senior, adjacent, and subordinate maneuver units via man-packed JTRS radios utilizing satellite or high frequency waveforms.

Once ashore, the EFV(C) is the primary mobile tactical command post for the maneuver forces. The EFV(C) is equipped with local and OTH voice and data communications and a shared COP/CTP of the expanding battlespace. As operations progress, more robust vehicle-mounted modular COCs, satellite-based transmission systems (e.g., SMART-T), and mobile intelligence centers (e.g., TROJAN Special Purpose Intelligence Remote Integrated Terminal [TROJAN SPIRIT]) phase ashore.

b. Vertical Assault

During the vertical assault from the launch area to the LZs, commanders establish communications with higher, supporting, adjacent, and lower units via the JTRS radio WAN. Hand-held graphic display devices develop and maintain the COP/CTP by automatically updating their locations via GPS and passing that information, in the form of tracks or icons, to the vertical assault force and to higher headquarters. While flying to the objective, commanders and staffs receive voice and data intelligence, reconnaissance, and fire support information that keeps the commanders and staffs informed of the latest intelligence updates and allows for command, control, and coordination of supporting fires. Providing OTH communications links, from the ship to the objective, requires some form of aerial retransmission platform provided by a UH-1Y, KC-130J, or some other platform or combination thereof. If needed, the vertical assault force can be redirected from primary to alternate LZs while updating the graphic overlay on the maneuver force commander's hand-held graphic devices. Once the initial force is inserted, man-packed JTRS radios or satellite communications terminals such as the AN/PSC-5 establish and maintain C2 with senior, adjacent, and subordinate maneuver units. During this critical and vulnerable time, aerial C2 platform(s) facilitate the critical communications links back to the sea base for fire, intelligence, and logistic support. Limitations associated with man-packed radios and battery power require reliance on vehicle-mounted COCs and/or C2-variant LAVs that must be airlifted in to provide the vertical assault element with longer range vehicle-powered C2 command posts from which to operate. As operations progress, other systems (e.g., UAVs) provide additional WAN links, more robust vehicle-mounted modular COCs, and satellite-based transmission systems (e.g., SMART-T) that can be employed ashore.

8005. C2 Capabilities

To ensure successful STOM operations, the MAGTF C2 system possesses self-organization, ubiquitous communications relays, COP/CTP display, cooperative interface, and consolidated network capabilities.

a. Self-Organization

The MAGTF C2 network is a self-organizing and meshed (vice point-to-point) network to the maximum extent possible. This requires a communications system that provides the flexibility to change its characteristics "on the fly." This may include immediate changes in cryptographic keying material or waveforms without requiring major hardware reconfigurations. It may also require establishing additional mobile, ad hoc networks that tie into dissimilar networks that carry needed information for the new mission. The network must be capable of adapting to network congestion, loss of nodes, and topology changes while continuing to deliver the most important and urgent information. Units must be able to join and leave networks with little operator effort. Some nodes will move at the highest speeds and rapidly enter and exit the networks (e.g. aircraft) perhaps at great distances. The set-up and operation of the network is largely automated, thereby reducing the manpower and equipment footprint ashore.

b. Ubiquitous Communications Relays

To effect a self-organizing meshed network, C2 nodes must not only act as transceivers but as relay devices as well. Where practical, the man-packed and vehicle-mounted C2 nodes carried by combat units serve as the primary means for WAN connectivity for maneuver elements. This meshed network is made possible by a cooperative, multihop relay system. C2 nodes receiving information from distant nodes are capable of automatically forwarding the data toward the destination node in much the same way as routers direct data on today's Internet. Forwarding occurs via a "best path" determination, which is based on factors such as distance and hardware capabilities. For example, vehicle-mounted radios are preferred relays over man-packed systems because of their greater power output and range. When factors such as intervening terrain or rapid movement make tactical unit C2 nodes insufficient, C2 node equipped aircraft provide range extension to prevent network fragmentation. Figure 8-1 depicts the MAGTF C2 system's ubiquitous communications relay nodes that provide transparent connectivity between users.

c. COP/CTP Display

The COP/CTP of all forces involved in the STOM operation is critical in a fluid battlespace. The nodes of the MAGTF C2 system must be able to automatically or manually determine their own position location via the GPS and transmit COP/CTP updates simultaneously to all applicable warfighter C2 display nodes. With this capability, commanders at all levels can reasonably expect all those within the unit to see the same relevant picture linked to mission, task, and purpose. This requires the means to broadcast or multicast the required information while maximizing use of the available bandwidth.

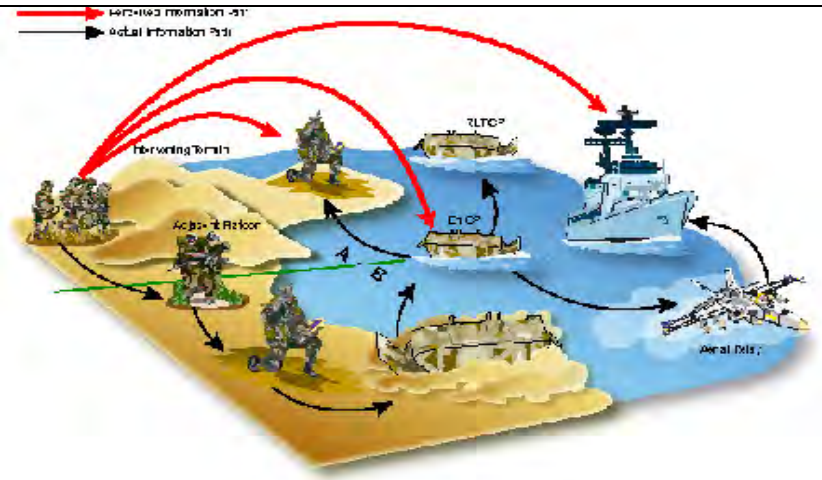

Figure 8-1. Apparent Versus Actual Information Paths.

d. Cooperative Engagement

The MAGTF C2 system architecture enables "cooperative engagement" between platforms and sensors synchronized by commanders. The purpose of cooperative engagement is to support the commander's decisionmaking (e.g., directing the focus and distribution of maneuver forces and fires in multiple engagements) process. A cooperative engagement capability requires an enhanced quality of information—information that is relevant, timely (urgent), precise, and actionable. The application of cooperative engagement enables fires and enhances maneuver. For example, a warfighting system (manned/unmanned ground/aerial) sees a target but cannot engage for a variety of reasons (bad weather, poor positioning or angle of fire, inadequate weapon, or desire to not compromise own position), the C2 node then sends a target report to another system that can effectively engage from a position of advantage.

e. Consolidated Networks

Joint C2 system nodes that are able to seamlessly operate with each other regardless of their location (ground, air, or sea-based) consolidate the number of current parallel networks. A consolidated network requires that bandwidth management measures be employed to efficiently use available bandwidth. The current multitude of dedicated voice channels must be replaced with a limited number of command voice channels and general-purpose data channels. Most information that is distributed is standard, redundant, or easily repeatable data such as friendly unit locations, target locations, or 9-line CAS briefs. Data can be distributed much more efficiently than voice communications using standard message formats. For example, an operator or commander can display a preformatted 9-line CAS brief on a hand-held device, fill in the blanks with pertinent data, and send the request via a data burst vice tying up a voice link, which slowly passes the same information. By distributing as much information as possible as standard preformatted data messages, voice communications are reduced to conversations between "actuals" allowing the naval and joint forces to more efficiently employ their C2 infrastructure assets.

8006. Vulnerabilities

The enemy will undoubtedly see our widely dispersed C2 infrastructure as a target. Therefore, all C2 nodes must possess shielding to protect them from electromagnetic pulses or other forms of destructive electromagnetic bursts, and critical nodes must be protected from physical and electronic compromise. To provide this protection, the commander prioritizes and apportions his resources as with other battlefield systems. Transmission nodes conduct over-the-air keying and re-keying of cryptographic fills and network node identifiers to provide network security. Dedicated relay nodes should not require embedded communications security or be capable of any input or output functions so if compromised they cannot be used to electronically infiltrate the MAGTF C2 system. Network managers must have the capability to identify and exclude (lock out) individual nodes in order to maintain physical security if an individual node becomes questionable.

Chapter 9
Intelligence Operations

9001. Intelligence Support

The basic nature of intelligence remains unchanged across the operational spectrum. However, STOM poses significant challenges to intelligence operations due to greater distances, rapid mobility, compressed timeframes, and the degree of precision required. The intelligence support of STOM encompasses the following:

- Supporting the commander's planning and decisionmaking process, which requires the intelligence capability to establish situational awareness early and maintain it throughout the operation, accurately and rapidly analyze information and data, and rapidly develop comprehensive intelligence preparation of the battlespace (IPB).
- Maintaining a comprehensive ISR network to support multiple concurrent expeditionary operations, which requires tactical self-sufficiency to support MAGTF fires and maneuver and the ability to employ reachback in order to leverage national and theater assets and enable joint operations.
- Facilitating operational maneuver and precision engagement, which requires intelligence to support maneuver and assure access, target intelligence, information operations, and force protection.

9002. Planning and Decisionmaking

STOM's success is dependant upon the ability to deploy quickly and to rapidly exploit an opportunity. Accurate, timely, and easily accessible intelligence increases the quality and speed of accelerated planning and decisionmaking. The commander depends heavily on intelligence to provide the situational awareness he needs to formulate his decisions. Additionally, data and information are processed into relevant intelligence through analysis. Finally, IPB supports the planning and decisionmaking process.

a. Situational Awareness

Situational awareness is achieved through battlespace visualization in the form of the common operational picture/common tactical picture (COP/CTP). Track management, database synchronization and replication, and database organization procedures (e.g., metadata tagging) must be well established, understood, and thoroughly integrated into training at all levels.

Database backup and redundant communications paths are established and available. Appropriately trained and staffed communications and systems administration personnel ensure operability of data paths. This ensures that the COP is always available to all levels of command.

Graphic displays form the foundation for the COP/CTP, and they are the preferred method of intelligence dissemination during STOM operations. Displays must be user-defined, object oriented, and scalable in terms of geographic area and detail. They must be web-enabled to ensure access to all intelligence databases, imagery and geospatial libraries, and precision engagement files and products. Procedures that integrate intelligence with operations, fires, and combat service support are critical to the commander's ability to obtain a COP/CTP. These procedures must be established and practiced. Data storage requirements need to be identified prior to deployment.

b. Analysis

It is critical that commanders understand an enemy's strengths and weaknesses in order to identify and exploit critical vulnerabilities. Analysis is the process used by intelligence analysts to assist the commander in identifying the COG, critical vulnerabilities, and possible enemy courses of action. The cultural aspects of an area of operations as well as the traditional military order of battle and terrain aspects are analyzed. Training and established procedures reduce the time required to receive sensor data, enter it into the database, and disseminate it in a usable form. The commander's critical information requirements are established in advance so knowledge queries can be programmed rapidly. Procedures for processing requests for information (RFIs) are established and rehearsed.

c. Intelligence Preparation of the Battlespace

Thorough IPB is integral to planning and decisionmaking. In addition to basic infrastructure data (e.g., characteristics of airfields, ports, roads, terrain), IPB requires population information (e.g., ethnic demographics, refugee movement patterns, areas of disease, humanitarian concerns). Basic infrastructure and population data is collected, tagged, and stored prior to the operation in order to meet compressed planning windows. IPB products and data are developed and prepositioned prior to a crisis so intelligence analysts can focus on current indications and warning and situational awareness demands. Theater intelligence centers must be leveraged early and often to assist in IPB to support planning.

9003. Comprehensive ISR Network

Accessing all necessary information requires establishing and maintaining a network that links the MAGTF to all available resources, ranging from tactical collection assets on the battlefield to national assets and databases. In the early stages of an operation, the MAGTF depends on theater and national collection assets for situational awareness and reaches back to receive information. The ability to network with these organizations is critical, however, theater and national assets cannot provide all the unique situational awareness required by the MAGTF commander. The MAGTF commander also relies on organic tactical intelligence collection, analysis, and management to achieve tactical self-sufficiency.

a. Tactical Self-sufficiency

Although reachback is a viable intelligence option, the MAGTF commander maintains responsive organic collection assets and the ability to process and manage intelligence, thus ensuring tactical self-sufficiency.

The MAGTF maintains an organic collection capability in order to direct its organic fires and maintain tactical situational awareness. This organic collection capability gives the commander an array of responsive sensors to support the close battle. The commander also uses these assets to meet high priority intelligence requirements if links to theater and national support assets are interrupted. At the lower tactical level, collection assets are essential to engage targets within the range of organic indirect fire weapons, to maintain unit security, and to maintain force protection. Maneuver units require responsive organic or direct support capabilities in order to develop their situation, avoid contact with major enemy forces or strong points, identify exploitable opportunities, and aid in the development of rapid responses to fleeting opportunities. Critical, organic MAGTF assets include radio battalions, intelligence battalions, reconnaissance battalions, force reconnaissance companies, and UAV squadrons.

To remain tactically self-sufficient, an intelligence analysis and fusion cell and an intelligence management team are forward with the MAGTF command element. This team fuses intelligence received from the disparate sources, evaluates its quality and relevance, and provides continuous feedback to the supporting establishments and the MAGTF command element as appropriate. It also translates the commander's intelligence requirements into succinct collection and production demands for the supporting establishment.

b. Reachback

The Marine Corps' *Warfighting Concepts for the 21st Century* defines the long-term objectives of reachback. Meeting these objectives within STOM requires that we reduce our operational footprint and leverage theater, national, and service organizations/agencies outside the area of operations for classified and open-source studies, data, and actionable intelligence. Achieving these objectives requires—

- Robust, reliable, and redundant communications links.
- A supporting establishment dedicated to supporting the engaged MAGTF.
- Clearly prioritized intelligence requirements.
- Established MAGTF tactics, techniques, and procedures (TTP) for reachback.

(1) Robust, Redundant, and Reliable Communications Links

Robust, redundant, and reliable communications links are not controlled by the intelligence staff, but they are influenced by the intelligence staff early in the planning process. By integrating intelligence systems personnel into the G-6/S-6 operations cells, intelligence requirements for bandwidth (Non-Secure Internet Protocol Router Network [NIPRNET], Secure Internet Protocol Router Network [SIPRNET], and JWICS) and the intelligence portion of the C4I architecture that provides reliability and redundancy are addressed early in the planning process.

Concurrently, intelligence officers establish measures that minimize reduction in intelligence support if a communications failure occurs. These measures include periodic back up of databases on tape, CD-ROMs, or stand alone servers; printing critical information/imagery to paper; or establishing secondary dissemination paths (e.g., Trojan Spirit, international maritime satellite [INMARSAT], courier). STOM dictates that the MAGTF operate unsupported for limited amounts of time. Failure to provide for this eventuality gives our enemies an obvious center of gravity to target.

(2) Supporting Establishment

Reachback affords deployed forces access to supporting establishment resources located out of the area of operations. The key intelligence organization within the Marine Corps supporting establishment is the Marine Corps Intelligence Activity (MCIA). MCIA provides intelligence through local analysis and collaboration with joint intelligence centers, regional security operations centers, national agencies (e.g., Defense Intelligence Agency), and other Service's intelligence activities. These other agencies study and analyze emerging structural and cultural problems, crises, and conflicts around the world; initiate in-depth studies of potential strategies, tactics, and asymmetric responses to US actions; and develop pre-emption options. Early in the planning process, MCIA helps the MAGTF establish connectivity with other agencies and understand that agency's capabilities. The Marine Corps must also establish liaisons with other supporting establishment commands and agencies to ensure MAGTF requirements are understood in order to produce the intelligence required for expeditionary operations.

(3) Clearly Prioritized Intelligence Requirements

The competition for bandwidth among all MAGTF functions (command, air, ground, combat service support) is fierce since reachback is used to reduce the forward-deployed footprint. Therefore, the intelligence staff must have a clear understanding of the commander's intent, the intelligence plan that supports the concept of operations, and intelligence priorities. These priorities must be communicated to all the supporting establishment units, organizations, or agencies to prevent squandering valuable bandwidth on unnecessary information.

(4) Establishment of MAGTF TTP for Reachback

Employing reachback requires more than the simple establishment of a communications link to be effective; it requires—

- Identification of functions to be accomplished.
- Establishment of techniques and procedures to be used.
- Coordination of staff functions, especially operations.
- Establishing interfacing requirements.

To be effective, techniques and procedures are established, practiced, and refined prior to actual execution. The supporting establishment is an extension of the deployed MAGTF staff; and, therefore, has the same understanding of the commander's intent and operates in the same battle rhythm as the deployed forces.

9004. Maneuver and Precision Engagement

a. Maneuver

STOM is executed in an expanded battlespace, which requires that situational awareness is maintained over a greater geographic space and that information requirements increase significantly. Facilitating maneuver requires intelligence support in an anti-access environment, specifically mines and natural and manmade obstacles.

(1) Countermine and Counterobstacle Operations

Operational and tactical mobility is crucial to the successful execution of STOM anti-access efforts. The MAGTF must be able to locate, identify, and overcome both natural and manmade impediments to mobility. Mines, obstacles, adverse terrain, and built-up areas can all impede the MAGTF's mobility. Mines, particularly in the littorals, pose a significant threat to MAGTF mobility. All appropriate collection means and platforms (e.g., satellites, aircraft, ground reconnaissance) are used to determine the location and extent of enemy barriers, obstacles, and minefields prior to the initiation of an operation. Assets identify the limits, composition, and density of minefields. Conversely, the determination that reported minefields are actually empty is equally important.

(2) Urban Environments

Urban environments can hamper intelligence collection because the adversary often has significant tactical advantages. A sympathetic population and an intimate knowledge of the terrain can put an enemy in close quarters with our forces before he is detected. Another challenging aspect of urban terrain is that major cities consist of a myriad of interior spaces, usually inside structures or underground. Therefore, data fusion and detailed analysis from a variety of sources become extremely important. IPB products identify the presence and shape of unique structures, including tunnels and sewers, before forces arrive on the scene.

Urban intelligence operations also place unique demands on databases and visualization applications, for example:

- Visualization applications provide three-dimensional interior renderings, to include individual rooms in a building and even specific locations within a room.
- Databases store and transfer information between designated units.

(3) Logistic Operations

During STOM, logistic units transit areas that are not under friendly control in order to support the MAGTF assets ashore. In sea-based operations, small- and medium-sized CSS units regularly insert from and extract to sea-based platforms in support of operations ashore. While these movements are coordinated with the GCE and ACE, they are independent missions and require enhanced C2, fires, and intelligence support. When the MAGTF is operating in a non-sea-based

environment, CSS units operate and support forward-deployed units in basically the same manner. To ensure survivability and freedom of movement, CSS units require access to the same comprehensive operational information and intelligence as maneuver units. Additionally, intelligence concerning existing indigenous resources and infrastructure is essential for logistic planning and for reducing the quantity and type of materials to be delivered from the sea base.

b. Precision Engagement

Precision engagement provides STOM with an enabling capability, but its employment demands unprecedented amounts of detailed and accurate intelligence. Precision engagement is not possible without precise targeting intelligence, and the speed at which precise targeting information is developed is critical. Therefore, prepositioned target intelligence and validation procedures must be established and well rehearsed.

An integral part of target intelligence is BDA. The ability to rapidly assess effects on target, determine whether or not a re-strike is required, and develop the intelligence necessary to execute a re-strike is essential in a rapidly moving STOM environment. BDA often requires a complete execution of the intelligence cycle in a matter of hours, which presents collection and analysis management challenges to the intelligence staff. The staff must continue to collect and analyze intelligence in support of current and future planning while also collecting and analyzing intelligence in support of BDA targets. BDA is also performed in support of information operations by determining the impact of our operations on the adversary's communications capabilities, morale, discipline, and ability to maintain situational awareness.

9005. Information Operations

Information operations are the actions that affect an adversary's perceptions and information systems while defending our own. Aimed to influence decision makers, operations are applicable across the spectrum of conflict. Information operations support battlespace shaping, force enhancement, force protection actions, and any other activities that facilitate the application of combat power.

STOM information operations requirements create complex intelligence demands. Reliance on information technology and systems presents an obvious target for asymmetric attack by our enemies. Therefore, safeguarding information operations is paramount.

a. Battlespace Shaping

The integrated use of informational activities and fires, both lethal and nonlethal, to achieve a common purpose is essential. The MAGTF necessarily focuses on the battlespace's physical and informational aspects that affect decisive maneuver. The use of information operations to shape the battlespace extends beyond the physical domain and includes consideration of the political, cultural, and informational aspects of the battlespace, including the perceptions of key leaders.

b. Force Enhancement

Offensive information operations require broad-based intelligence support. IPB that supports offensive information operations is a continuous process that develops a detailed knowledge of the adversary's use of information and information systems. Intelligence support for offensive information operations planning builds upon traditional IPB and requires a comprehensive understanding of the adversary's decisionmaking process, the cultural and political influences that dominate his society, and a technical knowledge of his information systems.

c. Force Protection

Information systems enable and enhance warfighting capabilities; however, dependence on information systems may create vulnerabilities. Intelligence support can assist in the identification of threats to MAGTF information systems. Risk management decisions are based on the anticipated requirements and information resources that need the most protection. Defensive information operations integrate and coordinate policies and procedures, operations, personnel, and technology to protect and defend friendly information and information systems. Offensive action can be used to pre-empt or to respond to an adversary's activities.

Force protection includes the security measures used to protect Service members, civilian employees, family members, facilities, and equipment in all locations and situations. Monitoring indications and warnings are requirements for forces in garrison and in CONUS. Intelligence procedures and operations address the fact that the enemy places no distinction between military, civilian, combatant, and noncombatant targets and personnel. The threat reaches from the deployed forces to all bases (CONUS and outside the continental United States [OCONUS]) and stations.

9006. Operational Support Tasks

STOM intelligence operational support is all encompassing. STOM intelligence requirements can include, but are not limited to the following:

- Detailed terrain, weather, and hydrographic analysis to identify suitable LPPs (e.g., beach gradients, potential CLZs, helicopter landing zones [HLZs]).
- Standoff collection capabilities that satisfy OTH requirements.
- Intelligence and information systems that allow for full integration with national, theater, and joint/multinational organizations.
- Dissemination systems that link widely dispersed forces afloat and forces on or closing with the LF objectives.
- Flexible intelligence systems that can influence the decisionmaking process during the waterborne/airborne movement of the LF (e.g., alter the selection of LPPs upon the arrival of LF elements at DPs and phaselines.).

a. Preparing the Sea Areas

The AF prepares the sea areas in the LPA by conducting mine countermeasures operations and hydrographic surveys, as necessary. Given the great dispersion of forces within the LPA, it may be necessary to establish en route rendezvous points (ERPs) within the sea areas.

b. Pre-D-day Reconnaissance and Preparation

Airborne ISR is an essential intelligence-gathering element and is normally executed by national or theater assets in coordination with the JFACC (if established) and in concert with the ATO. LF- and carrier-based aviation units provide multisensor imagery of areas of interest, thereby augmenting theater and national ISR assets. Electronic warfare (EW) and aircraft sensors enhance the real time airborne reconnaissance capabilities of the AF. In addition, UAV reconnaissance of potential landing sites and associated littoral areas enhances intelligence gathering and reduces risk to personnel.

Reconnaissance assets track enemy movements, acquire targets, attempt to determine enemy intentions, and prepare the LPPs for the assault force. Manned reconnaissance; UAVs; remote sensors; satellite imagery; and other Service, theater, and national assets may also employed.

c. Beach Reconnaissance

Beach reconnaissance collects recent, detailed information on beach gradients, obstacles (natural and manmade), tide and surf, water depths, contour of the sea bottom, routes of egress from the beaches, soil trafficability, beach defenses, and suitability of selected LPPs for the surface assault.

d. Preparation of LPZs and LPPs

The AF uses clandestine means to prepare the LPZs/LPPs for passage of landing craft, landing ships, and amphibious vehicles. Natural or manmade obstacles that exist between the 3½ fathom curve and the high-water mark and that impede the landing are destroyed or marked.

At a minimum, intelligence addresses the following:

- Location of underwater obstacles.
- Soil trafficability.
- Bridge capacity.
- Ground slope and conditions in HLZs.

A detailed study of enemy capabilities determines all order of battle factors, in-depth terrain, hydrography, and weather analysis.

UAVs may conduct surveillance of areas of interest, including LPSs, objective areas, enemy positions, and lines of communications.

e. Identification of Defenses Ashore

Intelligence locates and identifies beach, drop zone (DZ), and LZ defenses in the LPA; gun emplacements; observation and control posts; and any other enemy capability that could impede the advancement of the LF to their objectives.

f. Electronic Countermeasures

Signals intelligence obtains information on enemy communications and electronic facilities in and adjacent to the LPA. These facilities are neutralized, destroyed, or marked for exploitation by the AF. The AF also implements electronic protection measures to mitigate any hostile electronic warfare threat.

g. Meteorological and Oceanographic Information

The AF observes and reports meteorological and oceanographic data in the LPA; specifically, surf, sea state, and weather conditions in the intended LPZs.

h. Manned Reconnaissance

Reconnaissance assets may confirm the suitability of select LPPs or satisfy other reconnaissance requirements prior to landing operations. As the assault progresses and assets are recovered, reconnaissance assets prepare for subsequent missions (recovery time and sensor assets require some maintenance prior to reinsertion).

Reconnaissance assets use organic intelligence and reconnaissance capabilities to conduct local reconnaissance and surveillance. These assets may be inserted prior to H-hour to observe tactical objectives or control fires. Once initial assaults are completed, reconnaissance assets may be recovered and re-employed or continue to support the scheme of maneuver.

i. Support to Targeting

Intelligence supports targeting by providing details of target types, locations, and movement; assessment of possible collateral damage; and the capability to assess the effectiveness of targeting. Therefore, there is a requirement for close integration of targeting priorities since the adversary's C2 elements may provide a unique source of intelligence, an assessment determines the advantage of destruction against intelligence exploitation.

j. Comprehensive ISR Network

The MAGTF establishes an operational intelligence network that connects tactical collection assets on the battlefield to theater and national assets and databases. Theater and national assets cannot provide the MAGTF commander with the required situational awareness in the early stages of an operation. Therefore, collection assets must be layered from the national level down to the tactical maneuver units, and the MAGTF's organic sensors form the front end of a responsive ISR network.

Chapter 10
Maritime Prepositioning Forces of the Future

10001. General

The maritime prepositioning force of the future (MPF[F]) is a transformational capability that allows a combatant commander to rapidly constitute a substantial, sustainable, combat capability afloat in theater with minimal reliance on availability of access ashore in the operating area. This force is ready to project maneuver elements ashore for operations in conjunction with an ESG or independently as required, and it can transition to sustained operations ashore (SOA) as necessary.

Successful transition to an MPF(F) capability is essential in implementing the Marine Corps concepts of EMW, OMFTS, SOA, and STOM. MPF(F) makes OMFTS a fully attainable capability to the JFC. This is consistent with the *Department of the Navy Transformation Roadmap* that provides "power and access… from the sea," focusing on Sea Strike, Sea Shield, Sea Basing, and FORCEnet. It is also consistent with emerging naval concepts (e.g., ENS and the forthcoming Naval Concept for Joint Operations), with joint doctrine (e.g. Forcible Entry Operations); and with the tenets for transformation set forth in the *Quadrennial Defense Review (QDR) Report.*

MPF(F), when combined with an ESG (present MEU[SOC]/ARG, surface combatants, maritime patrol aircraft, and a submarine), provides a robust, responsive, forward-deployed power projection capability that can operate completely independent of close shore bases and thus negate anti-access strategies of countries with divergent strategic interests.

For a comparison of current and future MPF capabilities see appendix L (MPF[F] Capabilities Matrix).

Note

Appendix L is subject to change to reflect refinements in ongoing studies to include the 2015 MEB structure, the MPF(F) AOA and associated scenarios, and the Navy/Marine Corps sea basing CONOPS.

10002. Systems-of-systems

The MPF(F) consists of the future MPS; the MPF(F) MEB and its equipment stowed aboard the ships and FIE personnel; and the Navy support element of the Future (NSE(F)), which is developed to support MPF(F) operations. The MPF(F) operates as part of a maritime prepositioning group (MPG).

The MPF(F) is scalable and can be tailored to accomplish any assigned mission. It supports the full range of conflict, from the smallest noncombatant evacuation operation (NEO) or humanitarian assistance/disaster relief effort to SOA and possesses the capability to reinforce the assault echelon of an AF's LF. MPGs can provide follow-on forces for forcible entry operations (e.g. amphibious assault, air landing, airborne assault operations) as articulated in JP 3-18, *Joint Doctrine for Forcible Entry Operations*.

MPF(F) ships provide a range of dynamic seabasing capabilities. They allow the MPF(F) MEB to conduct arrival and assembly afloat, improve force protection by minimizing footprint ashore, and provide a mobile sea base that can be protected by other naval assets. MPF(F) ships provide billeting and working spaces for the maneuver elements that move ashore, along with billeting and work spaces, support facilities, and integrated equipment (e.g., flight operations, aviation logistics, logistics, equipment maintenance, command and control, medical, habitability) necessary to support the maneuver elements from the sea base. Aboard MPF(F), equipment and supplies are configuration and stowed for rapid access and staging according to priority of need, including equipment and supplies that may be required if, and when SOA operations commence.

MPF(F) platforms provide a means of receiving materiel and personnel from the strategic pipeline while underway; dispatching units ashore by air or surface; supporting dispatched units with equipment, personnel, and supplies ashore as required; and recovering units to the sea base for reconstitution and further movement and operations ashore. The platforms also allow for the reconstitution/regeneration of the MAGTF/MPF(F) capability while afloat.

An MPF(F) squadron provides a mobile base upon which an MPF(F) MEB can perform all the functions previously performed in a tactical assembly area (TAA) ashore. These capabilities enable the MPF(F) ships to support other naval forces by reinforcing CLF support capabilities. The MPF(F)'s mobility provides passive force protection, but it will rely on other naval (e.g., CSG or ESG) or joint forces for active force protection. The synergy of an MPF(F) operating as part of an MPG, with an ESG and/or a CSG, provides a powerful, integrated naval expeditionary warfighting capability.

10003. Operational Capability

The MPF(F) represents a significant change in the capability of naval forces to constitute in theater rapidly, without the need for access to a port/airfield combination to accomplish arrival and assembly. It has the capacity to receive and ready combat forces, to project them ashore, to support and sustain them from the maritime prepositioning ships squadron (MPSRON), and to recover them to the sea base as required.

The MPF(F) can move its MAGTF maneuver elements ashore using STOM procedures while supporting and sustaining them from the sea base and limiting the footprint and force protection requirements ashore. By minimizing the amount of equipment that must be transported with the MEB sea-based FIE, the strategic lift requirement is reduced to less than half of that required for a current MPF MEB. If events call for SOA, the remaining MEB SOA FIE personnel are phased

into theater as needed. The MPF(F) sea-based increment operates on or from the sea base. The SOA FIE generally operates ashore, with support from the sea base.

10004. MPF(F) Requirements

See appendix L.

10005. Capabilities

The capabilities of MPF(F) are best illustrated through an examination of each of its pillars: force closure, amphibious force integration, indefinite sustainment, reconstitution and redeployment, and force protection

a. Force Closure

Although some elements of the Marine Corps are always forward deployed, operations of the size described in chapter 3 require the assembly of forces from across the globe. Marine and Navy units deploy by a combination of surface ships and strategic, theater, and tactical airlift to meet MPF(F) shipping while it is underway or en route to the objective area.

A new concept for the MPF(F) is the en route rendezvous point (ERP). The ERP is a designated temporary location somewhere en route to the amphibious objective area (AOA) where troops embark aboard the MPF(F) ship for further movement to the theater. It is not an ISB, nor is it a forward operating base (FOB), as it may only be used for a specific MPF(F) operation. The ERP concept is shown in figure 10-1. Ideally, it contains a port and airfield complex that can handle the draft of the MPF(F) vessels and receive transcontinental flights. However, the ERP could be a specific longitude/latitude where vertical lift assets deliver forces to MPF(F) ships at sea. If an airfield complex is available, commercial passenger aircraft (charter or civil reserve air fleet [CRAF]) may be the predominant carrier. Since the preponderance of the arriving force's supplies and equipment are prepositioned on the MPF(F) ships, more strategic airlift assets are available for other requirements.

b. Amphibious Force Integration

The MPF(F) operates as part of the Naval Expeditionary Force by integrating with AF shipping within the sea base. In the scenario, the MPF(F) reinforces the AF with the FIE MAGTF and resupply and sustainment support. Essentially, the MPF(F) takes on the role historically assumed by the assault follow-on echelon.

(1) Maintenance and Supply Support

The MPF(F) provides maintenance support for its aircraft, surface assault craft, and EFVs. The MPF(F) enhances the versatility and striking power of the AF through its lighterage interface capabilities, cargo handling systems, and C4I interfaces. On board cargo handling and delivery systems providing selective offloads and transfer of supplies within the sea base are compatible with naval and commercial delivery systems and incorporate the means to deliver support ashore. The MPF(F) has the capability to load/offload personnel and supplies/equipment at sea using various modes of transfer and at a rate sufficient to support the operational requirement.

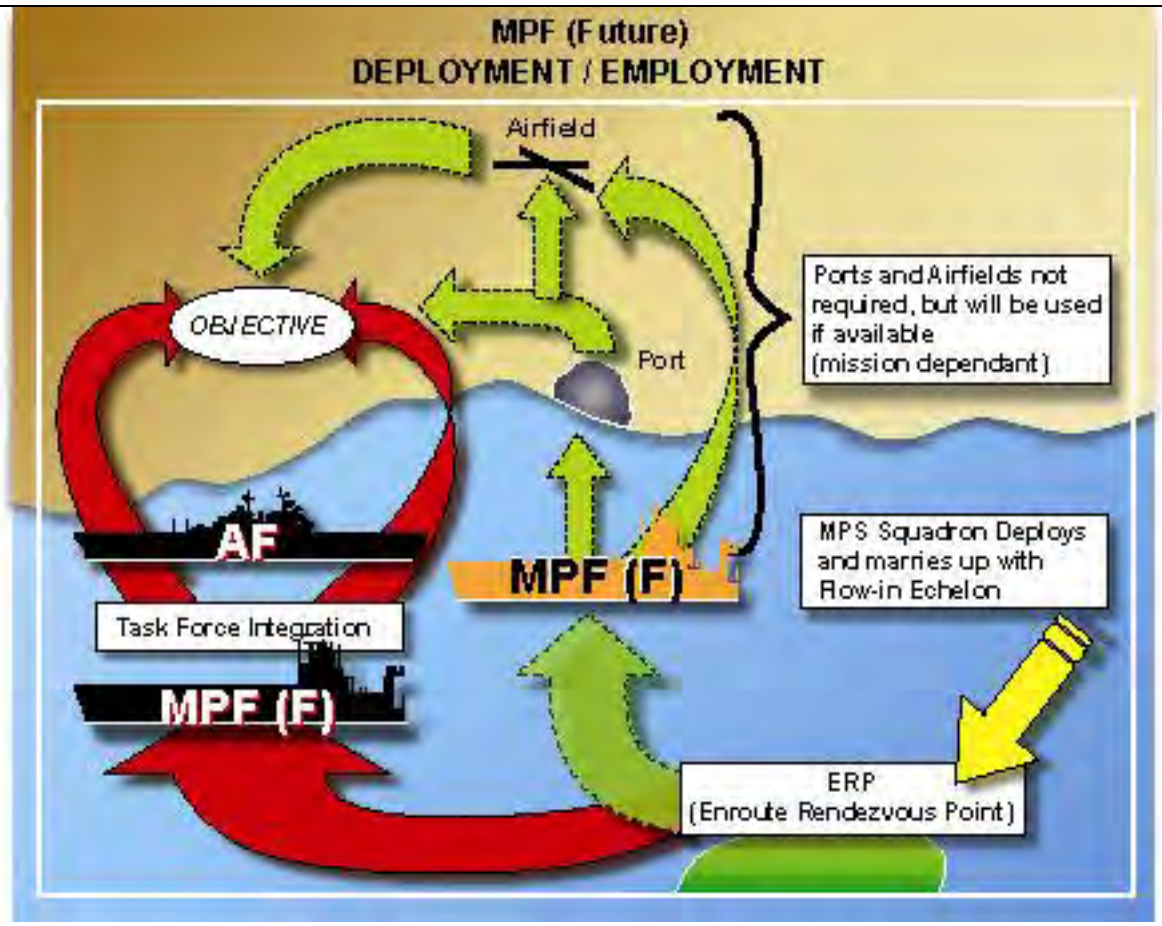

Figure 10-1. ERP Concept.

(2) Tactical Asset Launch Platform

A difference between the current MPF and the MPF(F) is the tactical launch rather than the administrative offload of embarked assets. The MPF(F) provides facilities and support for the tactical employment of assault support aircraft and surface attack/landing craft; EFV; and a family of organic lighterage. This lighterage provides a mix of capabilities including speed, endurance, and payload capacity compatible with MPS and amphibious shipping. MPF(F) platforms provide additional flight deck spots and the facilities needed to receive, maintain, refuel, rearm, and launch VTOL/VSTOL, rotary-wing, and UAV assets.

(3) Command, Control, Communications, and Computers (C4)

The MPF(F) is interoperable with other naval, interagency, joint, and combined forces. By possessing a sufficient C4 capability that facilitates all operational and logistic functions, MPF(F) ships serve as alternate afloat CP facilities for headquarters up to MEB-size.

c. Indefinite Sustainment

STOM envisions that the force can operate from a sea base for an indefinite period of time. The MPF(F) is the heart of the sea base providing a conduit for supplies (worldwide sourcing of MAGTF assets) and the platform for a host of CSS functions.

(1) Supply

The MPF(F) serves as a sea-based terminal, throughput center and conduit for logistic support and sustainment. It can receive, store, maintain, manage, and deploy the equipment and supplies needed to sustain logistic support of MAGTF and Fleet operations for an indefinite period. To fulfill this role, the MPF(F) can access 100 percent of the prepositioned principal end items within 48 hours. The MPF(F) receives and distributes all nonprepositioned principal end items of the MAGTF in the same time period.

MPF(F) at-sea transfer capabilities allow for integration with the AF, to include surface combatants, and facilitate the role of supply point with the ability to take delivery from arriving military and commercial shipping and rotary-wing or tilt-rotor aircraft. Performing this role for an extended period demands that the ships store and maintain lighterage and cargo transfer platforms.

The MPF(F) provides for the production and storage of sufficient water to support MAGTF demand.

Should shore basing be required, the MPF(F) possesses the flexibility to support logistic and maintenance efforts ashore. The MPF(F) can safely navigate and access a wide range of ports worldwide. This includes the ability to conduct roll on/roll off and lift on/lift off cargo operations in commercial marine cargo terminals as well as over-the-horizon and in-stream cargo operations in unimproved ports.

(2) Maintenance

Most berthing and support facilities in the MPF(F) ships are used to house sea-based echelon personnel for a short duration (i.e., transit to the objective area). However, some support personnel remain on the sea base for extended periods of time.

A number of the cargo spaces in MPF(F) shipping are designed for reconfiguration for mission purposes. For example, cargo storage space can become a maintenance and repair facility. As a result, the MPF(F) has space that supports both aviation materiel/small arms ordnance and ground equipment asset maintenance, storage, support, and service facilities. Space for

maintenance and support of aeronautical materiel/ordnance supports the configuration and operation of mobile maintenance facilities deployed as components of the Marine aviation logistics squadron.

(3) Medical Capabilities

Emerging health care concepts (*Concept for Naval Force Health Protection - 21*) detail the level of care required within the sea base. As currently envisioned, the Navy's CRTS and MPF(F) vessels provide a flow-through surgical capability and essential hospitalization and stabilization services. The level of care is sufficient to preserve and sustain life while preparing evacuees for movement to the T-AH or transfer to CONUS or other shore-based medical treatment facilities.

d. Reconstitution and Redeployment

The MPF(F) must be capable of in-theater, at-sea reconstitution and redeployment to expedite immediate employment to follow-on missions.

e. Force Protection

The ships of the MPF(F) derive protection from several sources. Their primary source of protection comes from integration with the AF, conducting operations over the horizon thereby reducing the target signature. The additional troop berthing and C4I capabilities also improve protection for both the ships and embarked personnel.

Chapter 11
Mine Countermeasures Concept of Employment

11001. General

Mines and obstacles in the littorals have the potential to be the greatest impediment to STOM operations. They can quickly diminish speed, surprise, maneuverability, and tempo in STOM if not properly assessed, planned for, and defeated. An aggressive and carefully planned countermine/counterobstacle (CMCO) effort that starts very early in the JTF IPB/ISR process is critical. The goal of the countermine effort is to allow the commander freedom of maneuver. This can be obtained through the early covert identification, location, and selection of potential breaching lanes. Forces have the capability to conduct selective breaching of mines/obstacles quickly and to mark them from the sea base all the way to the force objectives. Although the ultimate goal of unconstrained maneuver in an MCM environment will not have been met by 2015, current efforts provide improved maneuverability to support a regimental-sized surface assault. These efforts include the provision for at least four transit lanes per battalion (two primary and two secondary) and at least eight LPPs per regiment. Mines and obstacles are the responsibility of the JFC and Navy for detection, neutralization, and breaching from the sea base to the beach exits. Marine Corps assets are responsible for breaching mines and obstacles from the beach exits inland to the force objectives. This chapter contains an operational template for the employment of CMCO assets in support of STOM.

11002. Threat

In the future, we must be prepared to face a range of threats far more lethal than today's. More than 48 of the world's navies have minelaying capabilities and access to mine inventories. At least 30 countries are actively engaged in the development and manufacture of sophisticated new mines. Of these, 20 are known mine exporters. An even greater number of nations possess the ability to lay landmines. Although most of the world's stockpiled mines are relatively old, they remain lethal and are easily upgraded. Often described as a "poor man's artillery," mines present a significant threat on land, on the beach, and in water shallower than 300 feet. This is where the greatest number of mines is most effective and where power projection missions require that US forces operate.

Adversarial nations may field advanced mines on their own, bypassing traditional development cycles by adapting market technologies to their needs, often with the specific goal of defeating US objectives. They will likely mine chokepoints, interrupt sea lines of communication (SLOC), and place obstacles in protective and defensive fields as countermobility weapons at anticipated landing or port break-in sites. Minefields will be laid in deep to shallow water, in conjunction with obstacles in very shallow water, in the surf zone, over the beach, and on land. These

defenses will be an integrated part of an overall fire support and barrier plan. Figure 11-1 illustrates obstacles and land, bottom, and moored sea mines that compose the littoral threat.

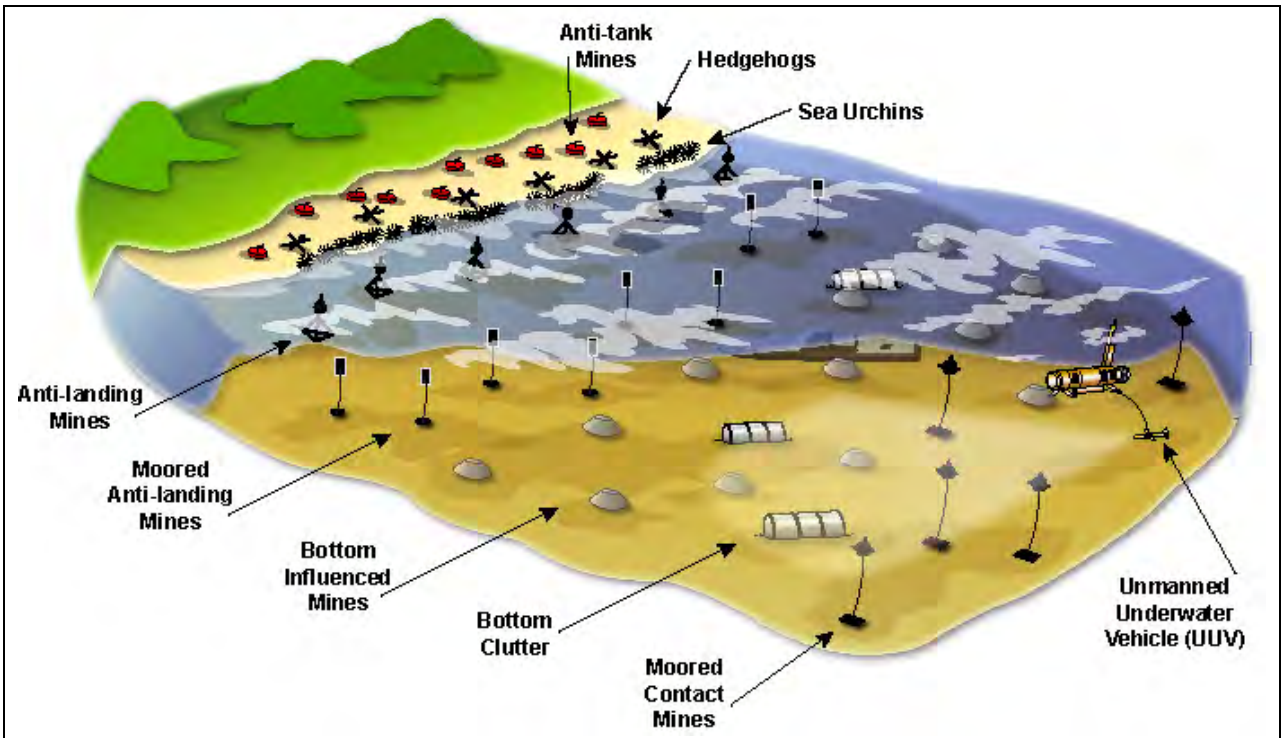

Figure 11-1. Littoral Mine Threat.

Although capabilities, such as those listed below, will improve in the next 15 to 20 years, the greatest danger is still the sheer number of mines:

- Cheap and widely available electronics and microcomputers with improved signal processing and logic capabilities and a reduction in firing mechanism volume and power consumption.
- Application of modern signal processing techniques and development of more sensitive influence sensors that allow a larger threat radius and greater target discrimination.
- Increased explosive density with greater lethality, especially in propelled warheads.
- Resistance to MCM using vehicle and/or ship counters, unconventional shapes, anechoic coating on cases, a reduction in metallic materials, active burial systems to reduce target strength, hardened casings, and blast resistant fuse designs.
- Increased operating depths on land and sea, increased use of wireless or acoustic-linked remote control, longer ranges, and improved guidance during attack for propelled-warheads.

Non-explosive obstacles are often protected by and reinforced with mines in the surf zone and on the beach to further complicate the MCM effort. The main effort is to destroy, stop, or slow landing craft while channeling assault forces into concentrations of covering fire. Barrier plans feature a combination of natural terrain features such as rivers and tidal flats tied into manmade

obstacles such as concrete cubes, hedgehogs, tetrahedrons, log posts, sea urchins, barbed wire, and antitank ditches.

11003. Events

a. Intelligence Preparation of the Battlespace

To conduct a thorough IPB, analysis begins even before an operation is planned. In peacetime, national, theater, and organic intelligence elements gather threat and environmental information for input into databases, and intelligence agencies conduct detailed studies on potential conflict areas.

b. Wide Area Surveillance

Wide area surveillance is conducted to confirm or deny the presence of threat obstacles and mine activity, as well as to determine the best areas for conducting amphibious operations. As part of its overall IPB, the operating force requires mine threat and environmental information from national and theater level assets—satellite imagery, signals intelligence, and human intelligence—in order to identify the best possible LPAs over which to conduct an attack.

c. Clandestine Reconnaissance

Once cued, tactical reconnaissance systems such as unmanned underwater vehicles (UUVs), UAVs, UGVs, and vertical takeoff unmanned aerial vehicles (VTUAVs) are sent into prospective LPZs/LPSs/LPPs and routes to the prospective force objectives inland. These systems report on the mine/obstacle threats in real time, thus providing the CTP/COP with information necessary for COA decisions and breaching site selections. The clandestine reconnaissance capabilities and the use of deception are required to maintain operational surprise. The ability to operate clandestinely allows the force to enter the LPA early and conduct a thorough reconnaissance to reduce the risk of mines and obstacles.

Figure 11-2 depicts some activity associated with CMCO reconnaissance. Tactical reconnaissance assets help determine the presence, density, and location of mines and obstacles within each selected LPS. The reconnaissance of the shallow water (SW) through the very shallow water (VSW) regions (200' to 10' depth of water) of the LPZ is conducted by clandestine and low observable UUVs. The reconnaissance of the surf zone (SZ) (10'- 0'), beach zone (BZ), and beach exit zone (BEZ) of each selected LPS is conducted primarily by manned reconnaissance and UAV assets. In the future, this will be done by UAVs and small crawling UUVs capable of remaining on station and underwater for long periods of time until the attack occurs. As systems become more mature, depths and zones of responsibility may shift and be redefined.

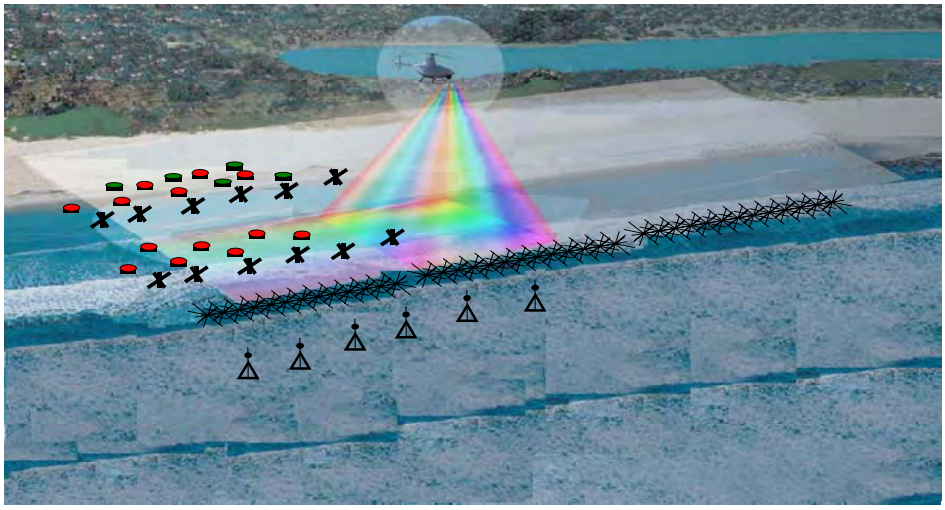

Figure 11-2. UAV Mine and Obstacle Reconnaissance.

d. CMCO Battlespace Shaping

During battlespace shaping, the goal is to provide conditions favorable to the success of the AF's mission. ISR operations continue to enable identification of changes to the situation due to enemy action or environmental effects. The CTP is constantly updated. Air and maritime superiority is gained and maintained. Precision and area fires destroy or neutralize key enemy capabilities.

AFs from CONUS begin to deploy on C-day. Organic ESG MCM assets and forward-based MCM, airborne mine countermeasures (AMCM), and surface mine countermeasures (SMCM) assets and their supporting shipping is dispatched to the LPA as early as possible to support advance force MCM operations until the main force arrives in theater. MCM ships, helicopters, and explosive ordnance disposal (EOD) units continue to be forward based and can be employed to conduct MCM operations over the horizon. Certain other dedicated MCM forces can be flown into theater to support operations. Additionally, forward-deployed carrier battle groups (CVBGs) and ARGs have the organic assets to augment dedicated MCM. AF assets employ upon arrival in the AO.

If the rules of engagement (ROE) allow, operating forces interdict the enemy's threat mining assets by targeting mine storage areas, minelaying equipment, and minelaying units (i.e., combat engineers) and engage these targets as early as possible.

e. Neutralization/Breaching and Navigation/Lane Marking

If the course of action (COA) dictates maneuver through the enemy defenses, the AF must possess the capability to have mines and obstacles breached/neutralized and maneuver synchronized from ship to objective. It also requires the ability to precisely navigate these areas and have the breached lanes marked either physically or virtually for safe passage of all units.

On D-day, the AF executes its planned STOM through surface and vertical assaults. Mines and obstacles are bypassed whenever possible and breached in compliance with mission accomplishment when necessary. Where necessary, the mines located in the approaches from deep water through the VSW are neutralized prior to landing craft or EFV transit. Mine lines and obstacle belts, lanes, and areas in the LPS (SZ and beach) are breached to allow the passage of the attack force, as required. The breaching is conducted preceding the transit of the assault craft, far enough in advance to not slow the momentum, but close enough that the location of specific LPPs is not unduly divulged.

The AF also requires the ability to precisely navigate these areas and have the breached lanes marked for safe passage of its units. Once breached, marking of the lanes is required, electronically or visually. For precise navigation, all crafts and vehicles have displays showing their location with respect to the breached lane (electronic marking). Visual marking may be required for follow-on operations. In a GPS-denied environment (either through jamming or individual craft and vehicle equipment failure), visual marking provides a redundancy that assists in keeping the craft in the lane. Visual marking addresses the fact that many operations occur during hours of darkness, through fog, smoke, etc., and possible sea state three conditions when visual cues are not yet visible. In all cases, lanes are marked with identification of the lane entry point, lateral limits along the lane, and the lane exit point where the actual breach occurred, not where breaching was planned.

This means that every LCAC, EFV, and LCU(R) must possess a CTP that displays clear lanes through the breached areas. Craft and vehicle operators use on board systems to precisely navigate the battlespace. These navigation and marking systems are secure, redundant (e.g., electronic and visual), and jam resistant (improvements to GPS or non-GPS systems). These systems mark cleared/breached lanes through the defenses and transmit that information to the CTP/COP. This data must be available to every craft commander and have the ability to be updated in real time since breaching may occur only moments before the forces reach the selected lanes in order to achieve maximum surprise. This also avoids an undesired pause in tempo while conducting the surface attack.

f. Standoff Breaching/Neutralization

Assault breaching systems (ABS) (e.g., continuous rod warhead [CRW], mine penetrator) are delivered by standoff delivery systems (STODS) via air or NSFS (or a combination of both). They are employed and synchronized with the AF commander to breach through SZ/BZ/BEZ mine and obstacle defenses. UUVs have placed charges or tags on mines in the VSW and SW (under the horizon), which are either command-detonated by the force or targeted by killer UUVs prior to the AF maneuver elements reaching a mine or obstacle line (see fig. 11-3).

Synchronization of neutralization/clearance and breaching operations with the maneuver force is critical. LPPs are obscured from the threat by visual and electronic means. Assets such as the Marine Corps' ABV, Gladiator anti-personnel obstacle breaching system (APOBS), and tank plows are used from the BEZ onward to the objective as necessary.

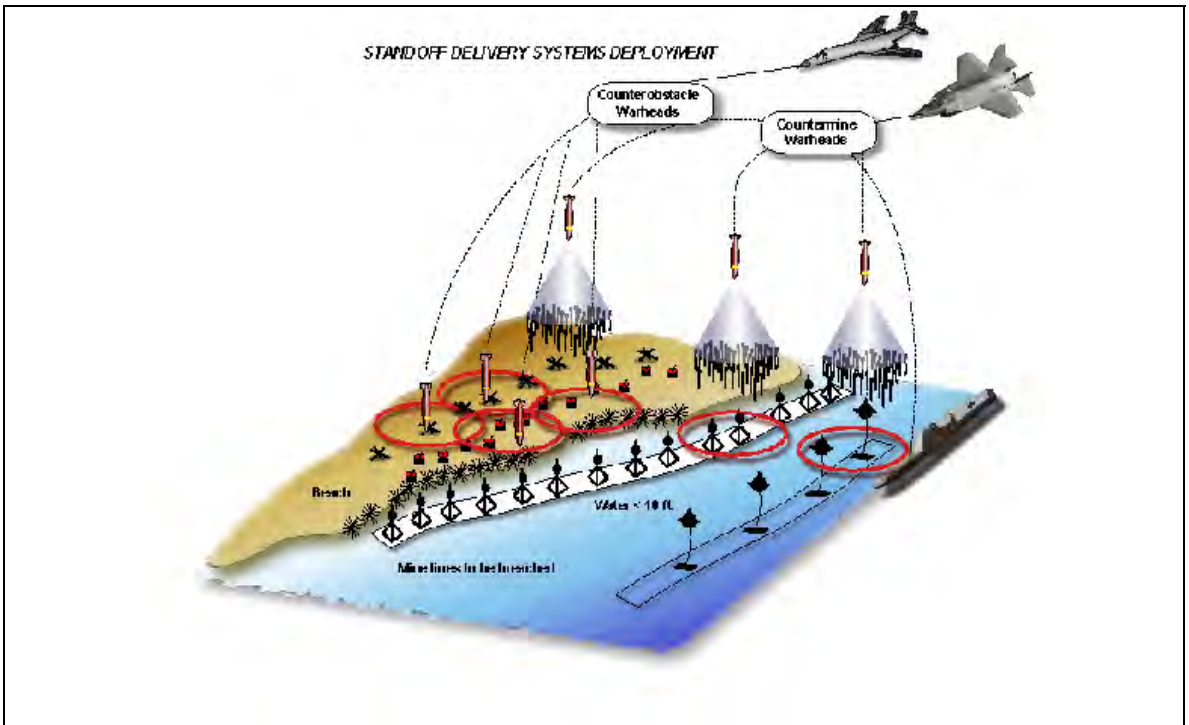

Figure 11-3. Standoff Breaching.

g. Clearance Operations

Upon projecting the MAGTF's combat power ashore, naval MCM/CMCO assets continue to conduct clearance operations of the AO to sustain the maneuver force ashore. As forces move inland, the initial assault area expands to support logistic requirements. The approach lanes and areas on the beach are expanded or additional lanes are breached/cleared to a specified level, and, if possible, proofed.

If the AF moves laterally along the coast, additional lanes and areas in alternate locations are reconnoitered and cleared to assist support, logistic, reinforcement, and/or withdrawal requirements. All available assigned and supporting MCM assets—surface, airborne, and underwater—are utilized.

h. Control Measures for an MCM STOM Restrictive Environment

MCM puts maneuver restrictions on forces moving ashore but it should not be considered that forces are channelized or constrained for extended periods during the attack. If conducted correctly, the enemy will not know what LPSs and LPPs the surface attack forces have selected until it is too late to react. Additionally, before the attack occurs, enemy systems capable of

overwatching the breach sites are neutralized and/or obscured by naval surface fire and air-dropped munitions. This allows the force to move quickly through the lanes to maintain speed to their objectives with only minimal degradation to operational tempo. Ideally there should be no support force or assault force required as in traditional breaching operations until encountering MCM operations further inland.

The control measures depicted in figure 11-4 show what the surface force must consider when transiting breach lanes to the beach exits. It may become necessary for EFVs and LCUs to share a lane to reach a desired LPP because the 2015 MEB is projected to have the capability to make eight attack lanes across the LPZ and two CLZs. If this occurs, there must be sufficient deconfliction and coordination. LCACs can use any breached lane that is adjacent to a CLZ. Due to the beach geography and/or hydrographic considerations, lanes are of sufficient size to allow use by all amphibious assault craft and are marked both virtually and physically.

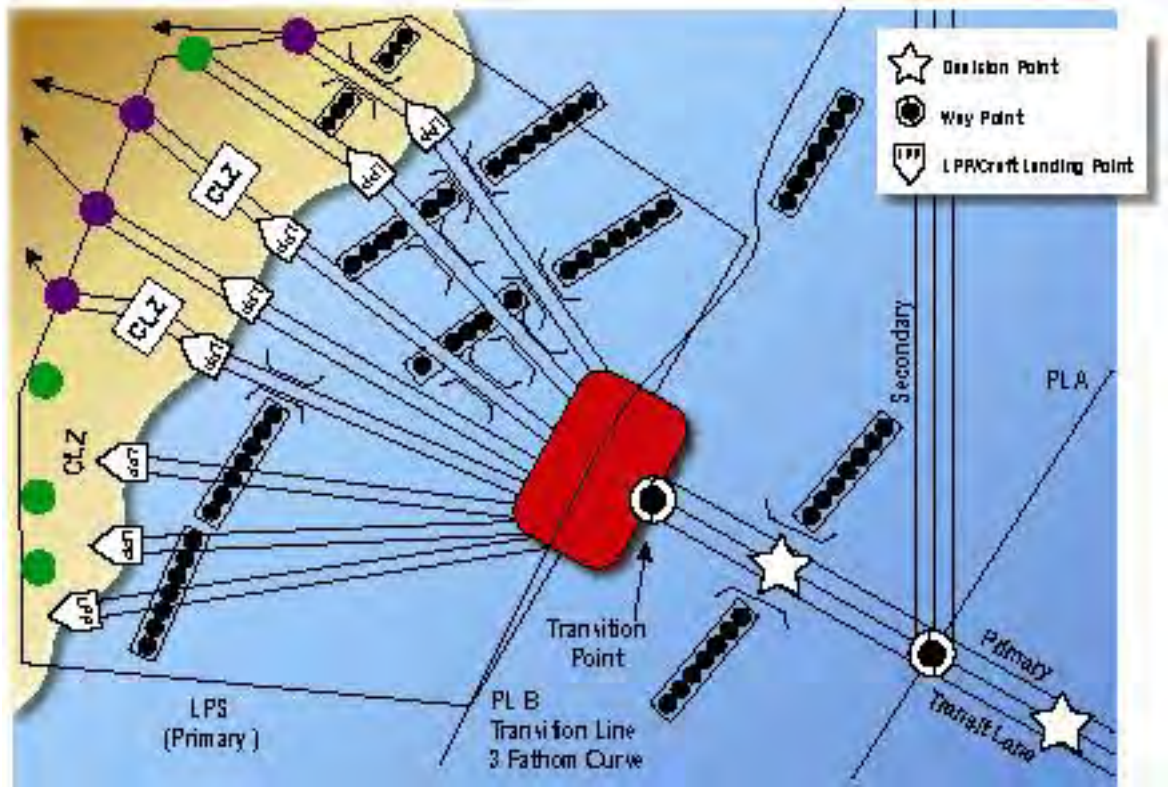

Figure 11-4. STOM Control Measures for an MCM Environment.

If possible, CLZs are placed beyond any mine and obstacle belt on the beach to minimize the area clearance requirements. In addition to the CLZ, EFVs and tanks and vehicles coming off the LCAC to the beach exit need cleared lanes. The areas and lanes are breached to neutralize antitank mines, but not necessarily antipersonnel mines, and will be approximately 5 yards wide. Landmine and obstacle clearance systems, to clear antipersonnel mines and any remaining antitank mines, are some of the first equipment brought ashore by the landing craft. Lane selection and throughput are directly tied to the mission of the surface force coming ashore.

Maneuver unit commanders monitor intelligence updates and the developing tactical situation to ensure lanes are cleared. They decide on which LPS (primary or secondary) to use at approximately the halfway point in the transit to the beach. Some time after that LPS decision point, maneuver unit commanders decide between primary and secondary LPPs within the LPS.

Once ashore and through the beach exits, Marine Corps breaching assets remove any hasty/deliberate minefields that may be employed to influence their maneuver to the objectives. If the MCM plan is successful, lanes should be cleared up to the surface attack objectives just prior to forces coming ashore and should not require any proofing. However, if breaching is required inland, the ABV is the primary lane clearing/proofing vehicle for ground forces. The M1A1 tank is the most survivable and lethal ground platform and can provide an effective support force through breaches if required. Tanks can also be mounted with a mine plow to provide lane proofing. The EFV has no capability to internally transport breaching systems or to utilize trailer-mounted line charges in the surface attack. EFVs do not have the same level of survivability as ABV and M1A1. These factors should be considered if mines are a possibility once ashore. It is envisioned that the ABS can breach the SZ/BZ and will be used to breach mines and obstacles further inland in support of the AF, and it can also effectively exploit the EFV's speed and firepower to maintain the momentum of the attack.

i. Transiting Minebelts Integrated With Obstacles and Barriers

The AF attack may have to negotiate not only mines but also obstacle belts imbedded between or behind minefields. The envisioned ABS and CRW breaching systems will be able to detonate mines in the breach lanes and also clear a variety of emplaced obstacles. Figure 11-5 shows the type of potential obstacle belts that must be negotiated from VSW/SZ to the beach exits. Once past the beach exits, the surface attack force could encounter similar obstacle belts.

j. Operations

For a MEB, notionally two BLTs conduct surface attacks and one BLT conducts a vertical assault. Figure 11-6 depicts the notional geometry for the surface attack of two BLTs.

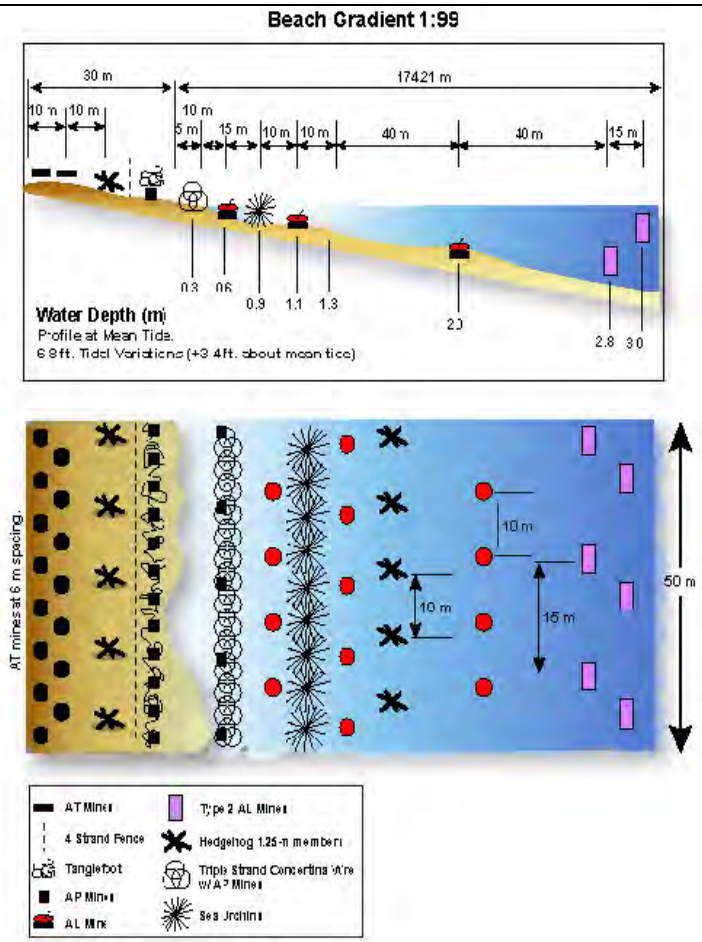

Figure 11-5. Obstacle Belts.

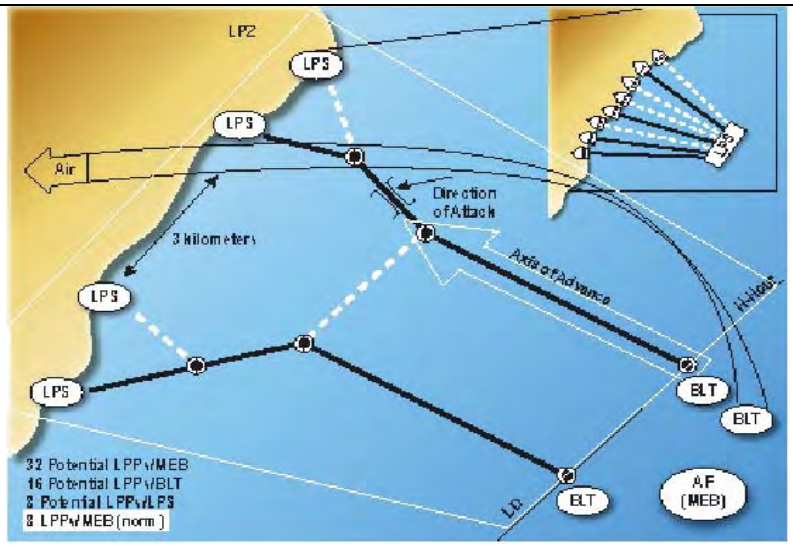

Figure 11-6. Two BLT Schemes of Maneuver.

For the MEB in the scenario, the surface TF conducts a surface attack while the vertical TF conducts a vertical assault. The EFV, LCAC, and LCU(R) disembark from the ships, gather at the attack position, and cross the LD. For each surface battalion, the EFV companies lead the assault and are followed by a light armored reconnaissance (LAR) company, tank company, and weapons company, which are embarked on an LCAC/LCU(R). The LCU(R) transits through the same lanes as the EFV and the LCAC. The surface TF has a primary and secondary LPS to choose from. In areas where reconnaissance has not found any mines or obstacles, units operate and maneuver along an axis of advance under the control of the unit commander. When units reach a mined area, they are restricted to a direction of attack—staggered column (preferred) or a column—in a lane through the mined areas. If the reconnaissance effort is not sufficient to determine that a particular area is not mined (due to either the state of reconnaissance technology or limited time and assets), the commander may decide to use a more restricted direction of attack (lanes) the entire distance from the LD to shore. In the scenario, each LPS has four primary and four secondary LPPs from which the TF commander can choose, which is consistent with projected 2015 MCM capabilities. In order to exploit the sea as maneuver space, a 2015 MEB must have the capability to conduct reconnaissance of 32 potential LPPs, even though as few as 8 may be designated for use and eventually breached.

Figure 11-7 depicts the control measures for each BLT. A decision point at Phaseline Alpha allows the commander to change to the secondary LPS if the tactical situation warrants. Phaseline Bravo is set at a depth of approximately 5 meters, this allows the EFV to come off plane without running aground and serves as a decision point. The EFV companies in each BLT choose four out of the possible eight LPPs based upon the developing tactical situation. Depending on terrain, the LPPs could be within 500 meters of each other. The LPS is notionally 5 kilometers in width. The BLTs, and thus the LPSs, are approximately 3 kilometers apart.

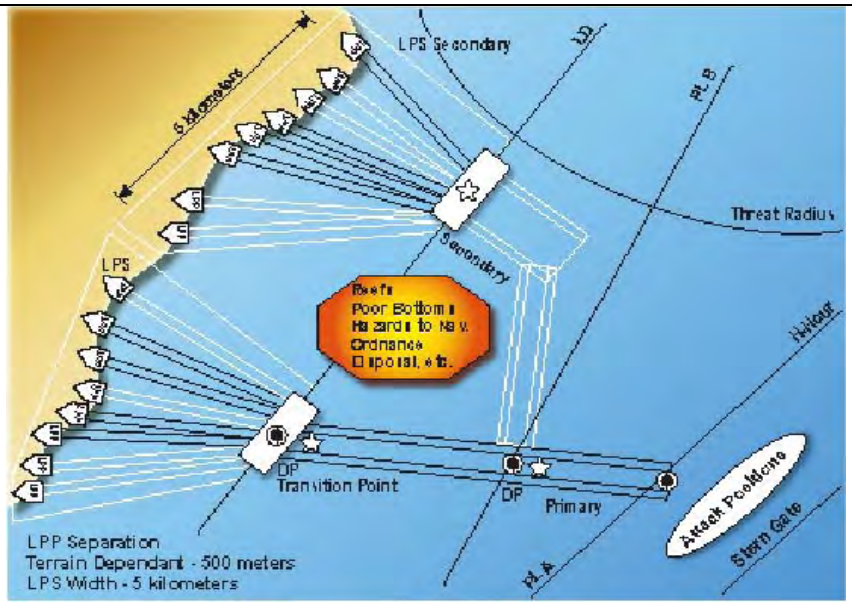

Figure 11-7. BLT Control Measures.

The lane widths and geometry in figure 11-8 depicting the geometry for the LPS were taken from the *Amphibious Operations in a Mine Environment Mission Area Analysis (MAA) Concept of Operations (CONOPS)* and are still under development. Lane widths have not been agreed upon. The lane width depends on the formation (staggered column in this case), the navigation capability of the craft and/or vehicle, and the lateral damage range possible from any influence mines located just outside the lane, if actuated. One lane width calculation (designated Navigation Case One) is based on the capabilities of the EFV and LCAC with a navigation error root mean square (RMS) of 6.8 yards (with autopilot capability). Another lane width (designated Navigation Case Two) is based on the capabilities of the EFV and the LCAC with a navigation error RMS of 15 yards (without autopilot capability). For water depths greater than 55 meters, the Navigation Case One lane width is 190 yards and the Navigation Case Two lane width is 240 yards, assuming 6 RMS. For water depths between 55 meters and 5 meters, the Navigation Case One lane width is 240 yards and the Navigation Case Two lane width is 290 yards. For water depths 5 meters or less, the Navigation Case One lane width is 120 yards and the Navigation Case Two lane width is 170 yards.

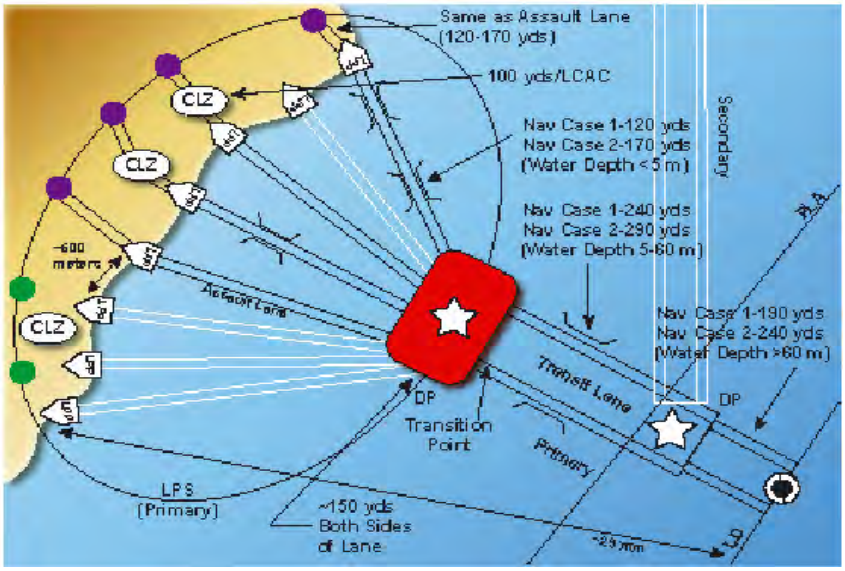

Figure 11-8. LPS Geometry.

There is a need for areas adjacent to the lane and in approximately 5 meters of water (to accommodate EFV transition off plane) and/or within 1,500 meters from shore to accommodate the range of the EFV gun to provide overwatch, covering fires, and the salvage of damaged craft and vehicles. The EFV provides critical firepower that suppresses enemy fires ashore as other EFVs are landing, particularly in a mined environment when vehicles are required to "funnel" into the LPP in a staggered column or column formation instead of in tactical formation. The size of these areas depends on the tactical situation and the function planned for the areas. Notionally, they are a few hundred yards wide. These areas are preferably in an unmined area, but would require reconnaissance and possible breaching.

On the beach, the LCAC requires CLZs in which to land and disembark their vehicles and lanes wide enough to access the CLZs. Optimally, each LCAC needs a 100-yard wide craft-landing site (CLS) within the CLZ (per NWP 3-02.1). The size of the CLZ depends on how many

LCACs are planned at each LPP and the amount of available backshore beach width. Notionally, each LPS has two primary CLZs that accommodate approximately four or five LCACs each. If at all possible, the CLZs are placed beyond mines and obstacle belts on the beach to minimize the area clearance requirements. In addition to the CLZ, breached lanes are needed for the EFVs, as well as the tanks and vehicles coming off the LCAC, to the beach exit. The areas and lanes are breached in order to neutralize antitank mines, but not necessarily antipersonnel mines, and are approximately the same width as the assault lane coming into the beach. Landmine and obstacle clearance systems that clear antipersonnel mines and any remaining antitank mines are among the first equipment to arrive ashore via landing craft.

The naval requirement is for reconnaissance, deliberate breaching, and subsequent clearance of the mine and obstacle threat from deep water through the landward limits of the LPS (beach exit)—"stern gate through the beach"—in support of amphibious operations.

k. COP and CTP

Critical to successful STOM operations is improved situational awareness throughout the force by rapid, reliable dissemination of information. The distribution of voice and data traffic occurs over a collection of internetworked wireless LANs. This system is possible through the use of self-organizing, networked JTRSs; aerial relay nodes; and a MAGTF broadcast service.

A CTP is maintained and disseminated to the lowest appropriate level in the MAGTF. During planning, staffs are provided with the most up-to-date information on where mines have been identified and where gaps exist. During the assault, maneuver forces have an electronic map of the area that identifies where mines are located and the lanes that have been breached, as well as where friendly forces are located in relation to them. The display continuously updates throughout the assault and during follow-on operations.

l. Force Protection

Ships, landing crafts, and ground combat vehicles should minimize their acoustic, magnetic, and pressure signatures as much as practical in order to reduce the likelihood of influencing or actuating a mine. Additionally, precise navigation helps vehicles and landing craft stay in breached or cleared lanes, thereby, reducing the chances of encountering a mine or obstacle. Precise navigation includes accurate navigation sensors, navigation information displayed in a manner easily and quickly understood by the craft and/or vehicle operator, and adequate power and control surfaces required for maneuver.

Conclusion

This document is a step toward realizing STOM as an operational reality. This CONOPS starts to bridge the gap between how we operate today and how we will operate in the future and is based on current, emerging, and future projected capabilities. The Marine Corps currently possesses the capability to conduct STOM to a limited extent, but this CONOPS specifically addresses the Marine Corps' future STOM operational capabilities, its emerging systems and platforms, and how we will conduct STOM operations in the future. It does not answer every question for conducting STOM operations; rather, it lays the foundation for continued study, wargaming, and experimentation and requires regular updating as systems, capabilities, and decisions evolve.

This CONOPS represents the confluence of several efforts: mission area analysis (MAAs) (i.e., MCM MAA), the MPF(F) AOA effort, the Baseline 2015 MEB, and the emerging seabasing CONOPS. All of these efforts have overlaps and interconnections that are integral to conducting STOM operations in the future.

Using current and projected capabilities, the basics of the MAGTF staff planning process were applied in order to execute a scenario derived from the Defense Planning Guidance. Planning and execution of the STOM operation within the scenario resulted in the following metrics:

- Conducted OTH (25 nm) operations from a sea base.
- Conducted forcible entry operations ashore by projecting two reinforced battalions 110 nm in 8 hours (during the hours of darkness).
  - The MEB projected ashore a vertical TF consisting of 2,153 Marines, 25 LAVs, 16 EFSS, and 170 vehicles.
  - The initial element of this TF (Bn [Rein]) was inserted 110 nm from the sea base within an 8 hour period of darkness using 271 sorties from the flight decks of 3 amphibious ships and 6 MPF(F) ships.
- Conducted forcible entry operations ashore by projecting a surface TF of two reinforced battalions OTH during hours of darkness. The surface TF conducted a surface attack in a mined environment using 4 lanes per battalion ultimately landing 2 reinforced battalions for a total of—
  - 2,708 Marines.
  - 76 EFVs.
  - 50 LAVs.
  - 22 M1A1 tanks.
  - 2 M88 retrievers.
  - 2 ABVs.
  - 8 EFSS.
  - 6 LW-155s.
  - 180 HMMWVs.
  - 26 MTVRs.
- Demonstrated the capability to close a MEB force of over 13,000 Marines within a 7-day period using multidimensional strategic lift assets.

- This global force closure was accomplished by self-deploying 30 JSF, 48 MV-22s, 5 AEAs, 12 KC-130s, and 314 personnel. Commercial airlift included 22, 747s transporting a total of 9,094 personnel. Strategic lift included 48 C-17s transporting 20 CH-53s, 9 UH1s, 18 AH1s, aviation ground support equipment, critical low density/high-demand CLD/HD cargo and 182 personnel. Further, this force completed at-sea arrival and assembly using MV-22s, and HSV.
- The entire MEB force, as an element of the ESF, closed within 7 days and was prepared to conduct STOM operations on D+5.
    - Prior to STOM operations being executed, US Navy warfare ships totaling 2 CVNs, 5 CGs, 2 DDXs, 8 DDGs, 2 SSGNs, 2 SSNs, 2 LHDs, 2 LPDs and 2 LSDs closed in theater to form the ESF.
    - Six MPF(F) ships, the projected MPSRON of the future, closed into the JOA within a 7- day period.
    - The ESF composed of the CSG, the ESG, and the MPG formed a dynamic sea base from which naval power was poised to be projected ashore.
- On D+10 the maneuver forces ashore were sustained primarily by air assets carrying 101.4 S/Ts of Class I, 213.5 S/Ts of CL III, and 157.3 S/Ts of CLV. The TFs ashore numbered 6,753 Marines.

In order for the Marine Corps to conduct STOM operations as described in the scenario, we require the following competencies:

<u>Joint/Multinational Enabling</u>

- Joint C4I to allow interoperability.
- Ability to enable follow-on forces.
- Share JTF's Common Relevant Operating Picture (CROP) at the strategic, operational, and tactical level across all four dimensions—sea, air, land, time—of the battlespace.
- Conduct forcible entry operations. The MEB must be capable of projecting combat power from the sea in the face of armed opposition to either conduct a single operation to achieve operational or strategic objectives or to conduct the initial phase of a campaign that enables introduction of follow-on forces.
- Support the JFC's ability to rapidly shape the battlespace conditions necessary to gain/maintain access.
- Coordinate and conduct joint and combined integrated fires.
- Access and leverage national, theater, Service, and coalition intelligence through a comprehensive ISR network.

<u>Strategic Agility</u>

- Conduct collaborative planning, rehearsal, execution, assessment, and information management during deployment and employment.
- Deploy by any combination of amphibious shipping and strategic airlift/sealift and marry up with maritime or geographically prepositioned force assets to rapidly assemble a complete fighting force in theater.
- Conduct en route arrival and assembly of forces at sea.
- Conduct force closure into theater from origin within 7 days.

Operational Reach

- The MEB can conduct assigned operational level mission.
- Can conduct independent operations (within context of joint operations).
- The MEB can operate from expeditionary sites to support sustained land operations ashore with joint or coalition partners.
- Employable as an operational maneuver element.

Tactical Flexibility

- Full-spectrum Navy/USMC countermine/counterobstacle capability to enable forcible entry at the time and place of our choosing.
- MEB conducts multiple, concurrent, dissimilar missions; rapidly transitioning from one task to the next while providing multidimensional capabilities (air, land, and sea).
- Provide six functions of Marine aviation.
- Employ surface-delivered fires to support MEB-sized force at maximum operational reach (up to 200 nm).
- Employ organic tactical RSTA assets to support MEB operation.

Support and Sustainment

- Project, support, and sustain a brigade-sized force up to 110 nm. Integrate with Navy, joint, and national logistic systems.
- Support sea-based operations, shore-based operations, or a combination of both without host nation support (HNS) or fixed ports and/or airfields.
- Conduct integrated seamless logistic support across all elements of the MAGTF.
- Conduct logistic operations using all expeditionary platforms.
- Provide indefinite uninterrupted sustainment**.**

In addition to the capabilities listed by competency above, the following specific capabilities are also required:

- Rapid force closure: rapid force closure leverages our current competency in the forward deployment of sustainable, immediately employable, combat-ready forces combined with a future MPF.
- Phased at-sea arrival and assembly: phased at-sea arrival and assembly is the ability to move directly to the sea base and assure rapid deployment of a MEB-sized force without the need for HNS within the JOA.
- Selective offload: the selective offload of specific equipment and supplies to tailor general purpose forces for specific missions.
- Integrated power projection: integrated power projection occurs when fully networked, forward-deployed naval forces and platforms maneuvering on the sea enable combat operations in support of the joint campaign.
- Persistence and sustainment: persistence and sustainment provide longevity and flexibility of the sea base.
- Reconstitution: reconstitution on the sea base enables rapid re-employment of a fully capable naval force for subsequent operations.
- Ships and landing craft: amphibious ships and lighterage (LCS, LCAC SLEP, LCU[R], HSV):

    - The development of an advanced amphibious ship, such as a dual tram, to significantly increase the combat capability of the ACE in support of STOM operations.
    - The development of a family of future lighterage to provide a heavy surface lift capability and interface between the various platforms (MPF[F] and AF) of the task force.
- CH53-SLEP: the ability to lift light armored vehicles or MAGTF expeditionary family of fighting vehicles (MEFFV) 110 nm with the CH53-SLEP.
- MV-22: the MV-22 can transport multiple types of vehicles in order to provide ground combat and reconnaissance units with an improved ground mobility capability and a high mobility weapons platform.
- UAV/UUV/UCAV: UAV/UUV/UCAV provide multifunction, multimission platforms to conduct ISR, MCM, fires support, target acquisition and engagement, and communications relay.
- C2 (COP and joint interoperability): the ability to provide command, control, and coordination of maneuvering forces from shipboard launch points through the battlespace and to conduct C2 from inside the EFV (at the well deck and while on the move).
- CSS logistics:
    - Increased fuel efficiency for vehicle and aircraft engines and engine-powered support equipment.
    - Rechargeable batteries (easily and quickly) for vehicles and equipment.
    - Aerodynamic fairings for external lift vehicles and pallets.
    - Standardized ammunition packaging.
    - Variable munitions (configurations usable on air and surface weapons platforms/systems).
    - Vehicle mountable auxiliary fuel bladders for high usage rate assets.
    - Optimal cargo handling systems that allow fast, efficient on-load and off-load of cargo into transportation aircraft (MV-22, CH-53E, KC-130J), both at the ship and the objective.
- MCM: detect, locate, identify, neutralize, and destroy mines and obstacles during all phases of the operation.
- Indirect fire: the development of an internally air-transportable indirect fire system is critical. The scenario used the 120mm mortar as the EFSS, but further exploration of other systems is warranted.
- Vehicles: internally-transported vehicle, a LW-155 prime mover, and a recovery vehicle for the EFV.

STOM treats the sea as maneuver space focusing the force on the operational objective, providing increased flexibility to strike the enemy's critical vulnerabilities. The STOM-capable MAGTF provides the JFC with the capability to achieve its operational objectives through timely power projection and flexible forcible entry.

Appendix A
Terms of Reference

STOM CONOPS: Terms of Reference

Terms of Reference (TOR) to outline STOM CONOPS.

Purpose: Concept of operations on how Marine forces will conduct STOM operations in the 2015 timeframe.

Audience: Navy, Marine Corps, and Office of the Secretary of Defense (OSD).

STOM: STOM is conducting combined arms maneuver through and across the water, air, and land of the littoral battlespace directly to inland objectives. STOM is not aimed at seizing a beach for lodgment, but at projecting combat units ashore in their fighting formations against a decisive objective to ensure mission accomplishment.

Planning Factors:

1. The Marine Corps mission, as prescribed in the National Security Act of 1947 (amended), will not change from FY 2002 to FY 2015.
2. The current statutory missions performed by the U.S. Army, U.S. Air Force and U.S. Navy, as set forth in U.S. Code Title X, will not change in a meaningful manner.
3. Authority and responsibility currently held by combatant commanders as a result of the Goldwater-Nichols Defense Reorganization Act of 1986 will not change in a meaningful manner from FY 2002 to FY 2015.
4. Naval forces will organize, deploy, employ, and sustain within the interdependent and complementary concepts of Expeditionary Maneuver Warfare (EMW), Sea Strike, Sea Shield, and Sea Basing, enabled by FORCEnet.
5. Marine forces will conduct operations in accordance with the Draft Naval Operating Concept (NOC), EMW, Operational Maneuver From the Sea (OMFTS), STOM, Enhanced Network Seabasing, and other signed naval concepts.
6. The MAGTF will exercise command and control within a continuum comprised of sea-based, en route, and land-based locations, using the system of systems provided by FORCEnet.
7. Future global information connectivity will allow increased distributed staff functions and reachback.
8. Marines will conduct STOM operations from amphibious ships and reinforced from maritime propositioning ships of the future.
9. Marines will operate within the Navy's Global CONOPS (the MEU/ARG will deploy as an Expeditionary Strike Group (ESG)).
10. Marine forces will composite a sea-based MEB from forward deployed ESGs and with elements of the future maritime prepositioning force.
11. Future maritime prepositioning shipping capabilities will enable amphibious shipping greater flexibility to tailor load plans enhancing expeditionary operations.
12. For the purpose of this CONOPS, the Baseline 2015 MEB T/O T/E spreadsheet served as the genesis for the GCE, ACE, CE, and CSSE T/O T/E.
13. The Marine Corps will continue to employ MAGTFs with a GCE, ACE (R/W & F/W), CE, and CSSE as a combined arms force.

14. Except for aviation repair and supply, CSS capabilities will be consolidated from the GCE, ACE, and CE into the CSSE.
15. NSFS, MAGTF, and joint fires must possess complimentary capabilities.
16. Principal end items: EFV, MV-22, AH-1Z, UH-1Y, CH-53E(SLEP), STOVL JSF, LW-155, HIMARS, EFSS, LAV(SLEP), M1A1, MTVR, LVS-R, CLAWS, UAV/UCAV, ABV, and other significant programs of record and initiatives.
17. Amphibious ships and lighterage: LHA, LHA(R), LHD, LPD-17, LSD-41, LSD-49, LCAC(SLEP), LCU(X).
18. The squadron of maritime prepositioning ships used in this CONOPS will possess the capabilities represented in the future maritime prepositioning force mission needs statement.
19. High-speed vessels (HSVs) will be developed and fielded.
20. Marine forces, as part of the ESG, will be capable of conducting forcible entry operations.
21. Greater capability for conducting sea-based operations.
22. Navy countermine/counterobstacle capabilities, to include ISR and assault breaching, will enable maneuver from blue water through the beach exit zone.
23. Marine countermine/counterobstacle capabilities will enable maneuver from the beach exit zone to the objective.
24. CSS operations will be conducted from the sea base and assets will be delivered directly to the requesting unit ashore as needed.
25. The Marine Corps will have the capability to conduct over-the-horizon (OTH) operations.
26. The Marine Corps will conduct operations within the context of a joint environment.

Characteristics:

Focuses on the operational objective

- STOM is the tactical implementation of OMFTS by the MAGTF to achieve the joint force commander's operational objectives.

Treats the sea as maneuver space

- STOM uses the sea for force protection, a base of operations, and as an avenue of approach against an adversary.
- Applies maneuver warfare to forcible entry operations from the sea.

Emphasizes intelligence, deception, and flexibility

- Marine forces conduct STOM operations to project power ashore at multiple points, focused to attack at the decisive place and time, with sufficient strength to ensure mission accomplishment.
- Creates multiple dilemmas for the adversary.

Applies strength against weakness

- The capabilities within STOM (operational reach and tactical flexibility) allow Marine forces to strike an adversary's operational or tactical center of gravity and critical vulnerabilities.

Creates overwhelming tempo and momentum

- STOM operations reduce the footprint of forces ashore while maintaining the tempo of operations through seabasing.

Integrates all elements in accomplishing the mission

- While operating in a joint or combined environment, the Naval forces will employ all available assets in STOM to maximize the effectiveness of the landing force.

CG, MCCDC will exercise executive authority for CMC in production of STOM CONOPS.

Approved/Date:

12 December 2002

E. Hanlon, Jr.
LtGen, USMC
Commanding General, Marine Corps Combat Development Command

SYSTEM	RANGE (T)	WEIGHT (T)	SPEED (T)	TRANSPORTABILITY	IOC
GCE					
Expeditionary Fighting Vehicle (EFV)	400 Km (post 25 nm high speed water swim) 1500m (30mm gun)	76,200 lbs.	20-25 kts. (High water) 69 kph (HWY) 48 kph (OFF)	C-17, C-5, all Navy amphibious and landing craft, MPF(F), military/commercial trucking	FY-08
Assault Breecher Vehicle (ABV)	446 Km	≤60 tons (combat load)	17 kph (Dry Land)	C-17, C-5, Navy landing craft, LCAC, MPF(F), comm. ships	FY-05
DD(X) Adv Gun	100 nm	N/A	TBD	N/A	FY-12
Expeditionary Fire Support System (EFSS)	7.2+ Km	≤3,000 lbs.	N/A	MV-22 internally (INT) CH-53E (internally)	FY-06
Gladiator – Tactical Unmanned Ground Vehicle (TUGV)	4 Km	1,300–1,500 lbs.	25 kph	MV-22 (INT), CH-53E, C-130, HMMWV, M101A3 & M105A2 trailer	FY-07
High Mobility Artillery Rocket System (HIMARS)	45+ Km (rocket) 480 Km (vehicle)	30,000 lbs.	90 kph (HWY)	C-130, MPF(F), commercial shipping	FY-08
Light Armored Vehicle (LAV) (SLEP)	600Km	30,000 lbs. (29,200 per PM LAV)	80 kph (HWY) 5 kph (Water)	C-130, C-17, LCAC CH-53E (Externally)	FY-05
M1A1 (FEP)	446 Km	67 tons (combat load)	17 kph	C-17, C-5, Navy landing craft, LCAC, MPF(F), comm. ships	FY-05
Predator	17-600 m	22 lbs.	N/A	Man portable	FY-04
M777E1 LW155 Howitzer	22+ Km (ballistic) 30-40 Km (rocket)	≤10,000 lbs.	N/A	CH-53 externally (EXT), MV-22 (EXT), C-130	FY-05

Table 1. Materiel Requirements Matrix.

SYSTEM	RANGE (T)	WEIGHT (T)	SPEED (T)	TRANSPORTABILITY	IOC
***ACE**					
AH-1Z	110 nm	18,500 lbs. Max wt. 2,716 lbs. (payload)	140 kts.(cruise)	C-17, C-5	FY-10
CH-53 (SLEP)	110 nm combat radius (30,000 external load)	110 nm combat radius 30,000 externally TBD Internally (probably 20,000 internally)	150 kts (cruise). (with internal load) External speeds dependent on external loads – up to 150 kts.	C-17, C-5, Self deploy dependent on range	FY-12 Potential for FY8 or FY9 based on new build option
Complementary Low Altitude Weapon System (CLAWS)	400 Km (vehicle)	10,300 lbs.	72 kph (vehicle)	CH-53 (EXT), C-130, C-17, C-5, amphibious ships, LCAC	FY-05
Joint Strike Fighter (JSF) - STOVL	450-550 nm (combat radius)	29,735 lbs. (empty) 43,135 lbs. (fueled)	Supersonic	C-17	FY-10
KC-130J	3000 nm	155,000 lbs. T/O 45,000 lbs. of cargo	374 kts. (max) 300 kts. (cruise)	Self deployable	FY-03
MV-22	200 nm (w/INT LD) 100 nm (w/EXT LD)	8,000 lbs. (INT payload) 10,000 lbs. (EXT payload)	240 kts. (w/INT LD) 150 kts. (w/EXT LD)	Self deploy	FY-04
Pioneer (PIP)	110 nm	90 lbs. payload	65 kts.	C-130, HMMWV	FY-03
TIER 1 UAV (small unit remote)	2.7nm	1 man lift 1 lbs. payload	35 kts.	Man packable	FY-03
TIER II UAV (Close Range)	27 nm	2 man lift 25 lbs. payload	65 kts.	KC-130, 2 HMMWV w/ with GCS shelters and 1 air vehicle trailer	FY-05
TIER III UAV (Vert take off and land)	110-200 nm	200 lbs. payload	65 kts.	KC-130	FY-09

Table 1. Materiel Requirements Matrix.

SYSTEM	RANGE (T)	WEIGHT (T)	SPEED (T)	TRANSPORTABILITY	IOC
UH-1Y	110 nm	18,500 lbs. Max wt. 3,120 lbs. (payload)	140 kts. (cruise)	C-17, C-5	FY-08
CSSE					
Autonomic Logistics	Platform specific	Platform mounted	N/A	Platform mounted	**TBD**
En Route Care System (ERCS)	N/A	Two man portable	N/A	All aircraft	FY-03
Expeditionary Fuel System (EFS)	20 gal/min (issue/receive)	Small configuration(30 gal): 150 lbs. (empty);400 (full). Medium configuration (300gal): 250 lbs. (empty); 2,250 lbs. (full)	N/A	All rotary wing aircraft, amphibious and logistics vehicles.	FY-06
Family of ITV	480 Km	≤7,200 lbs. (GVW) 1,500 lbs. (HAUL)	96 kph	CH-53, MV-22, CV-22, MH-47	FY-01 (Hold)
Fast Attack Vehicle (FAV)	720 Km	4,700 lbs. (GVW)	104 kph (HWY)	CH-53E (INT)	Fielded
Forward Resuscitative Surgery System (FRSS)	N/A	5,140 lbs.	N/A	MV-22 (INT/EXT)	FY-03
HMMWV (Light)	440 Km	≤5,900 lbs. (Curb wt) ≤10,000 lbs. (GVW)	112 kph (HWY) 48 kph (OFF)	MV-22 (EXT),CH-53 (DUAL EXT LOAD), C-130, C-141, C-5	Fielded
HMMWV (Heavy)	440 Km	≤7,258 lbs. (Curb wt) ≤10,300 lbs. (GVW)	96 kph (HWY) 48 kph (OFF)	MV-22 (EXT),CH-53 (DUAL EXT LOAD), C-130, C-141, C-5	Fielded
HMMWV (Medical)	440 Km	≤7,660 lbs. (Curb wt) ≤9,000 lbs. (GVW)	96 kph (HWY) 48 kph (OFF)	MV-22 (EXT), CH-53 (EXT), C-130, C-141, C-5	Fielded
(LVSR) Logistics Vehicle System Replacement	480 Km	**TBD** (GVW) 22.5 tons (HAUL HWY) 16.5 tons (HAUL OFF)	88 kph (HWY) 40 kph (OFF)	C-141, C-17, C-5, MPF(F), LCAC, LCU	FY-06

Table 1. Materiel Requirements Matrix.

SYSTEM	RANGE (T)	WEIGHT (T)	SPEED (T)	TRANSPORTABILITY	IOC
Medium Tactical Vehicle Replacement (MTVR)	480 Km	≤28,000 lbs. (Curb wt) ≤58,690 lbs. (GVW) 15.0 tons (HAUL HWY) 7.1 tons (HAUL OFF) 8.5 tons (TOW)	104 kph (HWY) 48 kph (OFF)	CH-53 (EXT curb wt cargo variant) C-130, C-141, C-17, C-5, MPF(F), LCAC, commercial shipping.	FY-02
C4I					
Communications Emitter Sensing and Attacking System (CESAS)	20 Km	HMMWV mounted	N/A	HMMWV mounted	FY-03
Counterintell. and Human Intell. Equipment Program(CIHEP)	N/A	140 lbs.	N/A	Two man portable	Fielded
Digital Technical Control Facility (DTC)	480 Km	9662 lbs. (shelter wt) ≤28,000 (MTVR Curb wt) 37,662 lbs. (Total System)	104 kph (HWY) 48 kph (OFF)	CH-53 (MTVR curb wt), C-130, C-141, C-17, C-5, MPF(F), LCAC, commercial shipping	FY-02
Global Broadcast Service (GBS)	Platform limited	470 lbs.	Speed of platform	Any platform that can carry two transit cases	FY-05
(IAS) Integrated Analysis System	N/A	2 HMMWVs	N/A	HMMWV mounted	Fielded
Join Surveillance Target Attack Radar System (JSTARS)	200 Km	13,000 lbs.	N/A	CH-53, MV-22, HMMWV mounted	FY-02
Joint Tactical Radio System (JTRS)	Mission determines equipment	**TBD**	N/A	Man-portable, vehicle mounted, a/c mounted	FY-05
Joint Tactical Terminal (JTT)	N/A	45-50 lbs. (man portable) 100 lbs. (rack-mounted)	N/A	Man portable	Fielded

Table 1. Materiel Requirements Matrix.

SYSTEM	RANGE (T)	WEIGHT (T)	SPEED (T)	TRANSPORTABILITY	IOC
Lightweight Multiband Satellite Terminal (LMST)	Platform limited	2,429 lbs. (terminal wt.) 7,258 lbs (HMMWV-Heavy) 9,687 lbs. (Total system)	Speed of platform	All aircraft, HMMWV, LCAC, etc.	FY-03
Mobile Electronic Warfare Support System(MEWSS)	N/A	30,000-32,000 lbs. (LAV mounted)	N/A	LAV mounted	FY-00
Secondary Imagery Dissemination System (SIDS)	N/A	10 lbs.	N/A	Man-portable	Fielded
Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART-T)	440 Km	<10,300 lbs. (terminal wt + HMMWV)	Speed of HMMWV	HMMWV mounted, C-130, C-141, C-17, CH-53E (EXT), CH-47 (EXT)	FY-01
Small Unit Remote Scouting System (SURSS)	30 Km	6-15 lbs.	N/A	Man portable	FY-04
Tactical Control Analysis Center (TCAC)-PIP	N/A	12,500 lbs.	N/A	C-130, CH-53 (EXT)	Fielded
Tactical Data Network (TDN) DDS	Platform Limited	800 lbs	Speed of Platform	Any platform that can carry 4 transit case system	FY-02
TDN Gateway	440 Km	3,920 lbs. (shelter wt.) 5,900 lbs. (Lt. HMMWV) 9,825 lbs. (Total system)	112 kph (HWY) 48 kph (OFF)	HMMWV mounted, CH-53 (EXT), CH-47 (EXT), C-130, C-141,C-17,C-5, MPF(F), LCAC, commercial shipping	FY-02
Tactical Elevated Antenna Mast System (TEAMS)	56+ Km	212 lbs. (mast) 198 lbs. (standard equip) 40 lbs. (mission equip)	N/A	HMMWV	FY-05

Table 1. Materiel Requirements Matrix.

SYSTEM	RANGE (T)	WEIGHT (T)	SPEED (T)	TRANSPORTABILITY	IOC
Tactical Exploitation Group (TEG)	N/A	3 HMMWVs	N/A	C-130, CH-53 (EXT), LCAC	FY-02
Tactical Electronic Reconnaissance Processing and Evaluation System (TERPES)	N/A	10,510 lbs.	N/A	C-17, C-141, C-130, CH-53	Fielded
Tactical Imagery Production System (TIPS)	440Km	13645 lbs.	96 KPH (HWY) 48 KPH (OFF)	C-130, C-141, C-17, C-5, MPF(F), LCAC	FY-03
Team Portable Collection System Upgrade (TPCS)	N/A	1317-1760 lbs.	N/A	HMMWV or team-portable	Fielded
Trojan Spirit II	440 Km	<10,300 lbs. (terminal wt + HMMWV)	Speed of HMMWV	HMMWV mounted, C-130, C-141, C-17, CH-47(EXT)	FY-03
Trojan LITE II	Platform limited	1,400 lbs. (terminal wt.) 5,900 lbs. (HMMWV-Light) 7,300 lbs. (Total system)	Speed of platform	All aircraft, HMMWV, LCAC, etc.	FY-02
Technical Surveillance Countermeasure Equipment (TSCM)	N/A	630 lbs.	N/A	All aircraft, HMMWV	Fielded

Table 1. Materiel Requirements Matrix.

SYSTEM	RANGE (T)	WEIGHT (T)	SPEED (T)	TRANSPORTABILITY	IOC

*** All aviation systems based on a standard day at sea level.**

Acronyms:
FEP = Firepower Enhancements Program
GVW = Gross Vehicle Weight (vehicle fully equipped, loaded and serviced for operation, EXCLUDING personnel)
HMMWV = High Mobility Multipurpose Wheeled Vehicle
ITV = Internally Transportable Vehicles
IOC = Initial Operational Capability
JSF-STOVL = Joint Strike Fighter Short Take-Off Vertical Landing
MPF(F) = Maritime Prepositioning Force (Futures)
PIP = Product Improvement Program
SLEP = Service Life Extension Program
UAV = Unmanned Air Vehicle

Table 1. Materiel Requirements Matrix.

SYSTEM	ARMAMENT
GCE	
EFV	- Bushmaster II 30 mm Cannon: Main (AP) with 55 ready and 100 stowed rounds. Main (HE) With 160 ready and 300 stowed rounds. - M240 7.62mm machine gun with 600 ready and 1600 stowed rounds.
ABV	- Twin .50 CAL machine guns (anti-personnel) with 500 rounds and maximum effective range of 1800m. - Two M58 linear demolition charges with maximum effective range of 90m.
DD(X) Adv Gun	- Two 155mm Advanced Gun Systems, each supported by a 450- 600 round magazine, having a range of 100 nm.
EFSS	- Helicopter transportable medium caliber indirect fire weapon with a range of 7.2+ Km.
Gladiator (TUGV)	- M240G medium machine gun (anti-personnel) with 800 rounds/ball tracer and max effective range of 1800m. - M249 squad automatic weapon with 800 rounds/ball tracer and max effective range of 1000m. - Anti personnel obstacle breaching system (1/system) for wire obstacle breaching and AP minefield breaching. Has max effective range of 75m. - Light vehicle obstruction smoke system used for obscuration or non-lethal rounds for crowd control. Has max effective range of 110m.
HIMARS	- Can fire M26 or GMLRS rocket.
LAV (SLEP)	- 25mm chain gun (anti-amor) with 210 ready and 420 stowed rounds. M791 armor-piercing discarding sabot with tracer (APDS-T). Max effective range of 1700 meters. M792 High Explosive Incendiary with Tracer (HEI-T). Max effective range of 1600 meters. - M240 7.62mm machine gun (anti-personnel) with 400 ready and 1200 stowed rounds. Max effective range of 900 meters (tracer burnout). - Smoke grenades (8 ready and 8 stowed) for obscuration.
M1A1 Main Battle Tank (FEP)	- M256 120mm main gun capable of delivering both kinetic energy (sabot) and chemical energy (heat). Total of 40 main gun rounds. Max effective range 2000 meters. - M2 .50 CAL machine gun. 1000 rounds. Max effective range of 1800 meters. - M240 7.62mm machine gun. 10,000 rounds for coax mounted next to the main gun, 1,400 rounds for loader's weapon mounted on top of turret. Max effective range of 900 meters (tracer burnout) - M16A2 5.56 crew weapon. 210 rounds. - M67 hand grenades. 8. - M250 smoke grenade launchers (2). (12 ready and 12 stowed) 24 rounds.

Table 1B. Materiel Requirements System Weapons Maxtrix.

SYSTEM	ARMAMENT
Predator	- Predator is a fire and forget light anti-tank weapon with a range of 17–600m.
M777E1 LW 155	- Max rate of fire is 4 rounds per minute. - Sustained rate of fire is 2 rounds per minute. - Round typed:155mm High Explosive (HE), Improved HE, HE Rocket Assisted Projectiles (HE RAP) Dual Purpose Improved Conventional Munitions (DPICM), Area Denial Artillery Munitions (ADAMS), Remote Anti-Amour Munitions (RAAM), Illum, Smoke, Improved Smoke, White Phosphorous.
***ACE**	
AH-1Z	- 20mm turreted canon with 650 rounds. - Four external wing stations capable of firing 2.75” rockets, Hellfire (point target/anti-amour) and two wingtip station Sidewinder (anti-air) missiles.
CH-53 (SLEP)	- Two M3M .50 caliber machine guns. M3M .50 CAL Ramp mounted Machine Gun
CLAWS	- AMRAAM ground to air missiles (4-6 per launcher) with 20 Km range.
JSF-STOVL	- GAU 12 (25mm x 250) missionized weapon carried externally. - 2 xx 1000 lb air to ground weapons plus 2 x AIM 120 missiles. - Six external hardpoints capable of carrying 13,000 lbs.
KC-130J	N/A
MV-22	- M3M .50 CAL ramp mounted Machine Gun.
TIER 1 UAV	N/A (Dragon Eye)
TIER II UAV	N/A
TIER III UAV	N/A (Pioneer PIP)
UH-1Y	- M-240 7.62 Machine Gun. - M3M .50 CAL Machine Gun. - GAU-17 7.62 mm Machine Gun. - Capable of carrying thirty-eight 2.75” rockets.
CSSE	
Autonomic Logistics	N/A
ERCS	N/A
EFS	N/A

Table 1B. Materiel Requirements System Weapons Maxtrix.

SYSTEM	ARMAMENT
Family of ITV	TBD
FAV	- Capable of mounting M240G 7.63mm, M2 .50 CAL, or MK-19 40mm machine gun.
FRSS	N/A
HMMWV (Light)	* variants of the HMMWV are capable of being utilized as a TOW missile carrier, or as an Armament Carrier for M240G 7.62mm, M2 .50 CAL, or MK-19 40mm machine gun.
HMMWV (Heavy)	* variants of the HMMWV are capable of being utilized as a TOW missile carrier, or as an Armament Carrier for M240G 7.62mm, M2 .50 CAL, or MK-19 40mm machine gun.
HMMWV (Medical)	N/A
LVSR	N/A
MTVR	- Capable of mounting M2 .50CAL, or MK-19 40mm machine gun with weapon mount installed.
C4I	
CESAS	N/A
CIHEP	N/A
DTC	N/A
GBS	N/A
IAS	N/A
JSTARS	N/A
JTRS	N/A
JTT	N/A
LMST	N/A
MEWSS-PIP	N/A
SIDS	N/A
SMART-T	N/A
SURSS	N/A
TCAC-PIP	N/A
TDN DDS	N/A
TDN Gateway	N/A
TEAMS	N/A
TEG	N/A
TERPES	N/A
TIPS	N/A

Table 1B. Materiel Requirements System Weapons Maxtrix.

SYSTEM	ARMAMENT
TPCS	N/A
Trojan Spirit	N/A
TSCM	N/A

*** All aviation systems based on a standard day at sea level.**

Acronyms:
ABV = Assault Breecher Vehicle
CESAS = Communications Emitter Sensing and Attacking System
CIHEP = Counterintelligence and Human Intelligence Equipment Program
CLAWS = Complementary Low Altitude Weapon System
DTC = Digital Technical Control Facility
EFSS = Expeditionary Fire Support System
EFS = Expeditionary Fuel System
EFV = Expeditionary Fighting Vehicle
ERCS = En Route Care System
FAV = Fast Attack Vehicle
FEP = Firepower Enhancements Program
FRSS = Forward Resuscitative Surgery System
GBS = Global Broadcast Service
HIMARS = High Mobility Artillery Rocket System
HMMWV = High Mobility Multipurpose Wheeled Vehicle
IAS = Integrated Analysis System
ITV = Internally Transportable Vehicles
JSF-STOVL = Joint Strike Fighter Short Take-Off Vertical Landing
JSTARS = Joint Surveillance Target Attack Radar System Connectivity
JTRS = Joint Tactical Radio System
JTT = Joint Tactical Terminal
LAV = Light Armored Vehicle
LMST = Lightweight Multiband Satellite Terminal
LVSR = Logistics Vehicle System Replacement
MEWSS-PIP = Mobile Electronic Warfare Support System (Product Improvement Program)
MTVR = Medium Tactical Vehicle Replacement
PIP = Product Improvement Program

Table 1B. Materiel Requirements System Weapons Maxtrix.

SYSTEM	ARMAMENT

SIDS = Secondary Imagery Dissemination System
SLEP = Service Life Extension Program
SMART-T = Secure Mobile Anti-Jam Reliable Tactical Terminal
SURSS = Small Unit Remote Scouting System
TCAC-PIP = Tactical Control Analysis Center (Product Improvement Program)
TDN DDS = Tactical Data Network DDS
TDN Gateway = Tactical Data Network Gateway
TEAMS = Tactical Elevated Antenna Mast System
TEG = Tactical Exploitation Group
TERPES = Tactical Electronic Reconnaissance Processing and Evaluation System
TIPS = Tactical Imagery Production System
TPCS = Team Portable Collection System Upgrade
TSCM = Technical Surveillance Countermeasure Equipment
TUGV = Tactical Unmanned Ground Vehicle
UAV = Unmanned Air Vehicle

Table 1B. Materiel Requirements System Weapons Maxtrix.

Tab 3. Littoral Combat Ship

Sea Power 21 is the Navy's vision of the 21st century's warfighting imperatives and is grounded in current naval capabilities and force structure. *Sea Power 21* describes ships, aircraft, submarines and units connected through a netted and distributed architecture. The littoral combat ship (LCS) is one of the projected Navy future surface combatants. It will allow the Navy to operate in the contested littorals and to significantly improve the Navy's ability to counter growing anti-access threats. The LCS will also play an integral role in Sea Strike, Sea Shield, and Sea Basing, enabled by FORCEnet.

The LCS will contribute to the success of future joint operations by playing a role in gaining, sustaining, and exploiting littoral maritime superiority to ensure access for a wide range of U.S. military actions – including the requirement to extend combat reach. Forward deployed, innovatively manned, and operating in fully networked groups, the LCS will host a variety of manned and unmanned vehicles and exploit highly advanced stealth, survivability, automated systems and seakeeping ability to each other in order to maximize the joint warfighter's ability to conduct operations throughout the littoral.

The LCS will directly support Sea Strike operations by enabling forced entry for joint power projection forces, including support for the Marine Corps and special operations forces. It will contribute to Sea Shield through its unique capability to respond quickly, operate in the littoral environment, and conduct focused missions with a variety of networked off board systems. Sea Shield's antisubmarine warfare, mine countermeasures, and surface warfare missions will be enhanced through the employment of a distributed LCS force. The LCS's conduct of these missions, along with persistent surveillance and reconnaissance, will assure access for the joint force. The LCS will enable Sea Basing by providing security for joint assets and by acting as a logistic element for joint mobility and sustainment.

Focused and Continuing Missions

The LCS operates effectively throughout the range of military operations to influence events at sea and ashore if it is part of a distributed force that is networked to off board systems and to power projection elements (e.g., CSGs, ESGs, and other Services' capabilities). Two major categories of missions are envisioned:

- *Focused Missions*. The LCS will employ reconfigurable modules tailored to specific missions such as ASW, MCM, and SUW, including high-density small boat attacks. Since an LCS will generally operate as part of a distributed force of many LCSs, groups of ships may be discretely configured so that more than one mission is conducted throughout the force. For example, one "squadron" may be conducting ASW operations, while another "squadron" is detecting and classifying sea mines.
- *Continuing Missions*. The LCS will always self-defend; conduct intelligence, surveillance, and reconnaissance (ISR); deliver personnel and material; perform maritime interception operations/ SLOC patrols; conduct information warfare; and

participate heavily in force protection. The LCS's core capabilities (sensing, command, control, communications, processing capability, and weapons) will support these continuing missions as well as off board systems that may be performing focused missions.

Note
Continuing missions may also be conducted in a distributed manner.

Employment Scheme

The number of LCSs available, the specific scenarios in different theaters, the requirements of the *Global Naval Concept of Operations*, and other issues will affect how an LCS is employed. The capability of the LCS to operate in the littoral in peacetime, act as a primary ISR platform through periods of rising tension, conduct covert delivery of sensors and personnel, or support forced entry through active access assurance will further influence how it is employed. Three basic employment methods are envisioned:

- *Integrated with CSG/ESG*. Several LCSs, with tailored mission configurations, would deploy with a CSG/ESG to provide vanguard scouting, pouncing support, and other taskings as defined by the commander.
- *Division Operations*. A number of LCSs would be forward deployed to maintain a continuous presence in critical theaters of operations. As a first response capability, the ships would build the situational awareness in the littoral in anticipation of sanction enforcement, forced entry, information operations, strike operations, and land warfare. They would then integrate into JTF assets and continue the assured access mission.
- *Limited Independent Operations*. A single, forward-deployed LCS would be able to respond rapidly and support a wide range of inherent (mobility) missions (e.g., SOF support, logistics, MIO, NEO, HA, medical) in a low threat environment.

Appendix C
Threat Forces and Enemy Situation

This APPENDIX is classified. For access contact:

Doctrine Division, Marine Corps Combat Development Command
Quantico, VA

TO/TE OF FORCES ASHORE

STOM CONOPS D+8
VERTICAL STOM

UNIT	TG Sub Totals	PERS	TAM	Alpha TAMs	MEWSS AN/MLQ-36A	TPQ-46A (FIRE FINDER System)	MRC-JTRS Veh (MRC-138/140/142/145 Replacement)	SMART-T System	MAGTF BORDER GATEWAY	DTC MSC	Bravo TAMs	M9 ACE	Tractor AWD w/ attachments	Forklift RT	Delta TAMs	Trlr Chassis M353 (3.5 Ton)	Trlr Chassis M116A3	Trk MTVR Mk 25 w/winch	Trk MTVR Mk 28 Ext Long Bed w/winch	Trlr, Sm M101	Trlr, Med (M105A2 replacement)
				---->>>	A0966	A1440	AX001	A3232	AX003	AX004	---->>>	B0589	B2482	B2566	---->>>	D0080	D0085	D0198	D1062	D0850	D0860
TF VERT UNDER COMMAND OF 26thMEU																					
BLT 2/2 (-)(REIN)																					
H&S Co 2/2(-)(REIN)	91				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
BLT 2/2 HQ GROUP		44			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
H&S Co(-)		40			-	-	6	-	-	-		-	-	-		-	-	-	-	2	-
Det, Intelligence Bn		7			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co E/2/2(REIN)	209				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co E/2/2		182			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, Javelin/Wpns/2/2		4			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, 1/A/2ndCEB		10																			
Det, H&S/2/2		13			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co F/2/2(REIN)	209				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co F/2/2		182			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, Javelin/Wpns/2/2		4			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, 1/A/2ndCEB		10																			
Det, H&S/2/2		13			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co B/1/1(REIN) (att from 11MEU)	209				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co B/1/1		182			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, Javelin/Wpns/1/1		4			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, 1/A/1stCEB		10																			
Det, H&S/1/1		13			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
WPNS Co(-)/2/2	123				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Wpns Co(-)		18			-	-	2	-	-	-		-	-	-		-	-	-	-	-	-
Det, H&S Co		4			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
81mm Mort Plt		57			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
CAAT 1		22			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
CAAT 2		22			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co B/2ndLARBn	133	133			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Cmbt EngrPlt(-) 1/A/2ndCEB	6	6			-	-	-	-	-	-		-	-	-		-	-	-	-	1	-
EFSS Btry/1/10	112	112			-	-	2	-	-	-		-	-	-		-	-	-	-	8	-
Air Def Sec/Wpns Co/MACD Bn	12	12			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
DS CSS Co(-)/MSSG-26	39	39			-	-	2	-	-	-		-	2	-		-	-	-	-	-	-
TOTALS BLT 2/2 (-)(REIN)	1,143				-	-	12	-	-	-		-	2	-		-	-	-	-	11	-

TO/TE OF FORCES ASHORE

STOM CONOPS D+8 VERTICAL STOM	Trlr, Water M149A1	Trk, Amb M997	Trk, Amb M1035	Trk, MTVR MK30 Dump w/winch	Trk, HMMWV TOW M1045	Trk, HMMWV Cargo M998	Trk, HMMWV HMG M1043	ITV	Echo TAMs	AVLB	XM777 LW155	M1096A HIMARS	EFSS	EFV-C	EFV-P	LAV-AT	LAV-C2	LAV-25	LAV-L	LAV-M	LAV-R
UNIT	D0880	D1001	D1002	D1073	D1125	D1158	D1159	DX001	---->>>	E0150	E0671	E06X1	E06X2	E0857	E0858	E0942	E0946	E0947	E0948	E0949	E0950
TF VERT UNDER COMMAND OF 26thMEU																					
BLT 2/2 (-)(REIN)																					
H&S Co 2/2(-)(REIN)	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
BLT 2/2 HQ GROUP	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
H&S Co(-)	-	-	2	-	-	6	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Det, Intelligence Bn	-	-	-		-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Co E/2/2(REIN)	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Co E/2/2	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Det, Javelin/Wpns/2/2	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Det, 1/A/2ndCEB																					
Det, H&S/2/2	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Co F/2/2(REIN)	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Co F/2/2	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Det, Javelin/Wpns/2/2	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Det, 1/A/2ndCEB																					
Det, H&S/2/2	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Co B/1/1(REIN) (att from 11MEU)	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Co B/1/1	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Det, Javelin/Wpns/1/1	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Det, 1/A/1stCEB																					
Det, H&S/1/1	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
WPNS Co(-)/2/2	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Wpns Co(-)	-	-	-	-	-	2	3	-		-	-	-	-	-	-	-	-	-	-	-	-
Det, H&S Co	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
81mm Mort Plt	-	-	-	-	-	6	-	-		-	-	-	-	-	-	-	-	-	-	-	-
CAAT 1	-	-	-	-	4	-	4	-		-	-	-	-	-	-	-	-	-	-	-	-
CAAT 2	-	-	-	-	4	-	4	-		-	-	-	-	-	-	-	-	-	-	-	-
Co B/2ndLARBn	-	-	-		-	-	-	-		-	-	-	-	-	-	4	1	14	3	2	1
Cmbt EngrPlt(-) 1/A/2ndCEB	-	-	-	-	-	4	-	-		-	-	-	-	-	-	-	-	-	-	-	-
EFSS Btry/1/10	-	-	-	-	-	24	-	-		-	-	-	8	-	-	-	-	-	-	-	-
Air Def Sec/Wpns Co/MACD Bn	-	-	-	-	-	1	-	-		-	-	-	-	-	-	-	-	-	-	-	-
DS CSS Co(-)/MSSG-26	-	1	-		-	4	-	-		-	-	-	-	-	-	-	-	-	-	-	-
TOTALS BLT 2/2 (-)(REIN)	-	1	2	-	8	47	11	-		-	-	-	8	-	-	4	1	14	3	2	1

TO/TE OF FORCES ASHORE

STOM CONOPS D+8
VERTICAL STOM

UNIT	Mine Blade	M88A2	M1A1	Assault Breacher Vehicle		Avenger	CLAWS	HMMWV Manpads Rack Veh	FDC FOR CLAWS		Total Items Check
	E0996	E1377	E1888	EX003		E1836	EX101	DX101	AX107		
TF VERT UNDER COMMAND OF 26thMEU											
BLT 2/2 (-)(REIN)											
H&S Co 2/2(-)(REIN)	-	-	-	-	-	-	-	-	-		-
BLT 2/2 HQ GROUP	-	-	-	-	-	-	-	-	-		-
H&S Co(-)	-	-	-	-	-	-	-	-	-		16
Det, Intelligence Bn	-	-	-	-		-	-	-	-		-
Co E/2/2(REIN)	-	-	-	-		-	-	-	-		-
Co E/2/2	-	-	-	-		-	-	-	-		-
Det, Javelin/Wpns/2/2	-	-	-	-		-	-	-	-		-
Det, 1/A/2ndCEB											
Det, H&S/2/2	-	-	-	-		-	-	-	-		-
Co F/2/2(REIN)	-	-	-	-		-	-	-	-		-
Co F/2/2	-	-	-	-		-	-	-	-		-
Det, Javelin/Wpns/2/2	-	-	-	-		-	-	-	-		-
Det, 1/A/2ndCEB											
Det, H&S/2/2	-	-	-	-		-	-	-	-		-
Co B/1/1(REIN) (att from 11MEU)	-	-	-	-		-	-	-	-		-
Co B/1/1	-	-	-	-		-	-	-	-		-
Det, Javelin/Wpns/1/1	-	-	-	-		-	-	-	-		-
Det, 1/A/1stCEB											
Det, H&S/1/1	-	-	-	-		-	-	-	-		-
WPNS Co(-)/2/2	-	-	-	-		-	-	-	-		-
Wpns Co(-)	-	-	-	-		-	-	-	-		7
Det, H&S Co	-	-	-	-		-	-	-	-		-
81mm Mort Plt	-	-	-	-		-	-	-	-		6
CAAT 1	-	-	-	-		-	-	-	-		8
CAAT 2	-	-	-	-		-	-	-	-		8
Co B/2ndLARBn	-	-	-	-		-	-	-	-		25
Cmbt EngrPlt(-) 1/A/2ndCEB	-	-	-	-		-	-	-	-		5
EFSS Btry/1/10	-	-	-	-		-	-	-	-		42
Air Def Sec/Wpns Co/MACD Bn	-	-	-	-		1	2	2	-		6
DS CSS Co(-)/MSSG-26	-	-	-	-		-	-	-	-		9
TOTALS BLT 2/2 (-)(REIN)	-	-	-	-		1	2	2	-		132

STOM CONOPS D+8
VERTICAL STOM

UNIT	TG Sub Totals	PERS	TAM	Alpha TAMs	MEWSS AN/MLQ-36A	TPQ-46A (FIRE FINDER System)	MRC-JTRS Veh (MRC-138/140/142/145 Replacement)	SMART-T System	MAGTF BORDER GATEWAY	DTC MSC	Bravo TAMs	M9 ACE	Tractor AWD w/ attachments	Forklift RT	Delta TAMs	Trlr Chassis M353 (3.5 Ton)	Trlr Chassis M116A3	Trk MTVR Mk 25 w/winch	Trk MTVR Mk 28 Ext Long Bed w/winch	Trlr, Sm M101	Trlr, Med (M105A2 replacement)
				—>>>	A0966	A1440	AX001	A3232	AX003	AX004	—>>>	B0589	B2482	B2566	—>>>	D0080	D0085	D0198	D1062	D0850	D0860
BN 2/7(REIN)																					
H&S Co 2/7(-)(REIN)	91				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
BLT 2/7 HQ GROUP		44			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
H&S Co(-)		40			-	-	6	-	-	-		-	-	-		-	-	-	-	2	-
Det, Intelligence Bn		7			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co E/2/7(REIN)	209				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co E/2/7		182			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, Javelin/Wpns/2/7		4			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, 2/B/1stCEB		10																			
Det, H&S/2/7		13			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co F/2/7(REIN)	209				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co F/2/7		182			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, Javelin/Wpns/2/7		4			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, 2/B/1stCEB		10																			
Det, H&S/2/7		13			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co G/2/7(REIN)	209				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co G/2/7		182			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, Javelin/Wpns/2/7		4			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, 2/B/1stCEB		10																			
Det, H&S/2/7		13			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
WPNS Co(-)/2/7	123				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Wpns Co(-)		18			-	-	2	-	-	-		-	-	-		-	-	-	-	-	-
Det, H&S Co		4			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
81mm Mort Plt		57			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
CAAT 1		22			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
CAAT 2		22			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
CmbtEngrPlt(Rein)	10				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Plt 2/B/1stCEB(-)		6			-	-	-	-	-	-		-	-	-		-	-	-	-	1	-
Det, EngrSptCo/1stCEB		4			-	-	-	-	-	-		-	2	-		-	-	-	-	-	-
EFSS Btry/2/11	112	112			-	-	2	-	-	-		-	-	-		-	-	-	-	8	-
Air Def Sec/Wpns Co/MACD Bn	12	12			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
DS CSS Co B(-)/BSSG-7	35	35			-	-	2	-	-	-		-	-	-		-	-	-	-	-	-
TOTALS BN 2/7(REIN)	1,010				-	-	12	-	-	-		-	2	-		-	-	-	-	11	-

STOM CONOPS D+8
VERTICAL STOM

UNIT	Trlr, Water M149A1	Trk, Amb M997	Trk, Amb M1035	Trk, MTVR Mk30 Dump w/winch	Trk, HMMWV TOW M1045	Trk, HMMWV Cargo M998	Trk, HMMWV HMG M1043	ITV	Echo TAMs	AVLB	XM777 LW155	M1096A HIMARS	EFSS	EFV-C	EFV-P	LAV-AT	LAV-C2	LAV-25	LAV-L	LAV-M	LAV-R
	D0880	D1001	D1002	D1073	D1125	D1158	D1159	DX001	—>>>	E0150	E0671	E06X1	E06X2	E0857	E0858	E0942	E0946	E0947	E0948	E0949	E0950
BN 2/7(REIN)																					
H&S Co 2/7(-)(REIN)	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
BLT 2/7 HQ GROUP	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
H&S Co(-)	-	-	2	-	-	6	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Det, Intelligence Bn	-	-	-		-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Co E/2/7(REIN)	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Co E/2/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Det, Javelin/Wpns/2/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Det, 2/B/1stCEB																					
Det, H&S/2/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Co F/2/7(REIN)	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Co F/2/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Det, Javelin/Wpns/2/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Det, 2/B/1stCEB																					
Det, H&S/2/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Co G/2/7(REIN)	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Co G/2/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Det, Javelin/Wpns/2/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Det, 2/B/1stCEB																					
Det, H&S/2/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
WPNS Co(-)/2/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Wpns Co(-)	-	-	-	-	-	2	3	-		-	-	-	-	-	-	-	-	-	-	-	-
Det, H&S Co	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
81mm Mort Plt	-	-	-	-	-	6	-	-		-	-	-	-	-	-	-	-	-	-	-	-
CAAT 1	-	-	-	-	4	-	4	-		-	-	-	-	-	-	-	-	-	-	-	-
CAAT 2	-	-	-	-	4	-	4	-		-	-	-	-	-	-	-	-	-	-	-	-
CmbtEngrPlt(Rein)	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Plt 2/B/1stCEB(-)	-	-	-	-	-	4	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Det, EngrSptCo/1stCEB	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
EFSS Btry/2/11	-	-	-	-	-	24	-	-		-	-	-	8	-	-	-	-	-	-	-	-
Air Def Sec/Wpns Co/MACD Bn	-	-	-	-	-	1	-	-		-	-	-	-	-	-	-	-	-	-	-	-
DS CSS Co B(-)/BSSG-7	-	1	-		-	4	-	-		-	-	-	-	-	-	-	-	-	-	-	-
TOTALS BN 2/7(REIN)	-	1	2	-	8	47	11	-		-	-	-	8	-	-	-	-	-	-	-	-

STOM CONOPS D+8
VERTICAL STOM

UNIT	Mine Blade	M88A2	M1A1	Assault Breacher Vehicle		Avenger	CLAWS	HMMWV Manpads Rack Veh	FDC FOR CLAWS		Total Items Check
	E0996	E1377	E1888	EX003		E1836	EX101	DX101	AX107		
BN 2/7(REIN)											
H&S Co 2/7(-)(REIN)	-	-	-	-	-	-	-	-	-		-
BLT 2/7 HQ GROUP	-	-	-	-	-	-	-	-	-		-
H&S Co(-)	-	-	-	-	-	-	-	-	-		16
Det, Intelligence Bn	-	-	-	-		-	-	-	-		-
Co E/2/7(REIN)	-	-	-	-		-	-	-	-		-
Co E/2/7	-	-	-	-		-	-	-	-		-
Det, Javelin/Wpns/2/7	-	-	-	-		-	-	-	-		-
Det, 2/B/1stCEB											
Det, H&S/2/7	-	-	-	-		-	-	-	-		-
Co F/2/7(REIN)	-	-	-	-		-	-	-	-		-
Co F/2/7	-	-	-	-		-	-	-	-		-
Det, Javelin/Wpns/2/7	-	-	-	-		-	-	-	-		-
Det, 2/B/1stCEB											
Det, H&S/2/7	-	-	-	-		-	-	-	-		-
Co G/2/7(REIN)	-	-	-	-		-	-	-	-		-
Co G/2/7	-	-	-	-		-	-	-	-		-
Det, Javelin/Wpns/2/7	-	-	-	-		-	-	-	-		-
Det, 2/B/1stCEB											
Det, H&S/2/7	-	-	-	-		-	-	-	-		-
WPNS Co(-)/2/7	-	-	-	-		-	-	-	-		-
Wpns Co(-)	-	-	-	-		-	-	-	-		7
Det, H&S Co	-	-	-	-		-	-	-	-		-
81mm Mort Plt	-	-	-	-		-	-	-	-		6
CAAT 1	-	-	-	-		-	-	-	-		8
CAAT 2	-	-	-	-		-	-	-	-		8
CmbtEngrPlt(Rein)	-	-	-	-		-	-	-	-		-
Plt 2/B/1stCEB(-)	-	-	-	-		-	-	-	-		5
Det, EngrSptCo/1stCEB	-	-	-	-		-	-	-	-		2
EFSS Btry/2/11	-	-	-	-		-	-	-	-		42
Air Def Sec/Wpns Co/MACD Bn	-	-	-	-		-	-	**5**	-		6
DS CSS Co B(-)/BSSG-7	-	-	-	-		-	-	-	-		7
TOTALS BN 2/7(REIN)	-	-	-	-		-	-	**5**	-		107

STOM CONOPS D+8
SURFACE STOM

UNIT	TG Sub Totals	PERS	TAM	Alpha TAMs	MEWSS AN/MLQ-36A	TPQ-46A (FIRE FINDER System)	MRC-JTRS ven (MRC-138/140/142/145 Replacement)	SMART-T System	MAGTF BORDER GATEWAY	DTC MSC	Bravo TAMs	M9 ACE	Tractor AWD w/ attachments	Forklift RT	Delta TAMs	Trlr Chassis M353 (3.5 Ton)	Trlr Chassis M116A3	Trk MTVR Mk 25 w/winch	Trk MTVR Mk 28 Ext Long Bed w/winch	Trlr, Sm M101	Trlr, Med (M105A2 replacement)
				—>>>	A0966	A1440	AX001	A3232	AX003	AX004	—>>>	B0589	B2482	B2566	—>>>	D0080	D0085	D0198	D1062	D0850	D0860
TF SURF UNDER COMMAND OF 11thMEU																					
BLT 1/1 (-)(REIN)																					
H&S Co1/1(-)(REIN)	103				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
BLT 1/1 HQ GROUP		41			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
H&S Co(-)		37			-	-	6	-	-	-		-	-	-		-	-	-	-	3	-
Det,HqPlt/A/3rdAABn		12			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, Intelligence Bn		7			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, RadBn		6			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co A/1/1(REIN) MECH TM	256				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co A/1/1		182			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Plt 1/A/3rdAABn		36			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Plt 3/A/1stTankBn		16			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, Javelin/Wpns/1/1		4			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, 1/A/2ndCEB		5																			
Det, H&S/1/1		13			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co G/2/2(REIN) MECH TM (att from 26MEU)	256				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co G/2/2		182			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Plt 1/A/2ndAABn		36			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Plt 1/B/2ndTankBn		16			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, Javelin/Wpns/1/1		4			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, 1/A/2ndCEB		5																			
Det, H&S/1/1		13			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co C/1/1(REIN) (RESERVE)	199				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co C/1/1		182			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, Javelin/Wpns/1/1		4			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, H&S/1/1		13			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
WPNS Co(-)/1/1	123				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Wpns Co(-)		18			-	-	2	-	-	-		-	-	-		-	-	-	-	-	-
Det, H&S Co		4			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
81mm Mort Plt		57			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
CAAT 1		22			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
CAAT 2		22			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co A/1stLARBn	133	133			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
CmbtEngrPlt(Rein)	30				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Plt 1/A/1stCEB		26			-	-	-	-	-	-		-	-	-		-	-	-	-	1	-
Det, EngrSptCo/1stCEB		4			-	-	-	-	-	-		2	-	-		-	-	-	-	-	-
EFSS Btry/1/11	112	112			-	-	2	-	-	-		-	-	-		-	-	-	-	-	-
Air Def Sec/Wpns Co/MACD Bn	12	12			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
DS CSS Co(-)/MSSG-11	64	64			-	-	2	-	-	-		-	-	-		-	-	2	3	1	2
TOTALS BLT 1/1 (-)(REIN)	1,288				-	-	12	-	-	-		2	-	-		-	-	2	3	5	2

STOM CONOPS D+8
SURFACE STOM

	Trlr, Water M149A1	Trk, Amb M997	Trk, Amb M1035	Trk, MTVR Mk30 Dump w/winch	Trk, HMMWV TOW M1045	Trk, HMMWV Cargo M998	Trk, HMMWV HMG M1043	ITV	Echo TAMs	AVLB	XM777 LW155	M1096A HIMARS	EFSS	EFV-C	EFV-P	LAV-AT	LAV-C2	LAV-25	LAV-L	LAV-M
UNIT	D0880	D1001	D1002	D1073	D1125	D1158	D1159	DX001	--->>>	E0150	E0671	E06X1	E06X2	E0857	E0858	E0942	E0946	E0947	E0948	E0949
TF SURF UNDER COMMAND OF 11thMEU																				
BLT 1/1 (-)(REIN)																				
H&S Co1/1(-)(REIN)	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
BLT 1/1 HQ GROUP	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
H&S Co(-)	-	-	2	-	-	6	-	-		-	-	-	-	-	-	-	-	-	-	-
Det,HqPlt/A/3rdAABn	-	-	-	-	-	-	-	-		-	-	-	-	2	2	-	-	-	-	-
Det, Intelligence Bn	-	-	-		-	1	-	-		-	-	-	-	-	-	-	-	-	-	-
Det, RadBn	-	-	-	-	-	1	-	-		-	-	-	-	-	-	-	-	-	-	-
Co A/1/1(REIN) MECH TM	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Co A/1/1	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Plt 1/A/3rdAABn	-	-	-	-	-	-	-	-		-	-	-	-	-	12	-	-	-	-	-
Plt 3/A/1stTankBn	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Det, Javelin/Wpns/1/1	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Det, 1/A/2ndCEB																				
Det, H&S/1/1	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Co G/2/2(REIN) MECH TM (att from 26MEU)	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Co G/2/2	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Plt 1/A/2ndAABn	-	-	-	-	-	-	-	-		-	-	-	-	-	12	-	-	-	-	-
Plt 1/B/2ndTankBn	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Det, Javelin/Wpns/1/1	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Det, 1/A/2ndCEB																				
Det, H&S/1/1	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Co C/1/1(REIN) (RESERVE)	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Co C/1/1	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Det, Javelin/Wpns/1/1	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Det, H&S/1/1	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
WPNS Co(-)/1/1	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Wpns Co(-)	-	-	-	-	-	2	3	-		-	-	-	-	-	-	-	-	-	-	-
Det, H&S Co	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
81mm Mort Plt	-	-	-	-	-	8	-	-		-	-	-	-	-	-	-	-	-	-	-
CAAT 1	-	-	-	-	4	-	4	-		-	-	-	-	-	-	-	-	-	-	-
CAAT 2	-	-	-	-	4	-	4	-		-	-	-	-	-	-	-	-	-	-	-
Co A/1stLARBn	-	-	-		-	-	-	-		-	-	-	-	-	-	4	1	14	3	2
CmbtEngrPlt(Rein)	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Plt 1/A/1stCEB	-	-	-	-	-	4	-	-		-	-	-	-	-	-	-	-	-	-	-
Det, EngrSptCo/1stCEB	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
EFSS Btry/1/11	-	-	-	-	-	24	-	-		-	-	-	8	-	-	-	-	-	-	-
Air Def Sec/Wpns Co/MACD Bn	-	-	-	-	-	1	-	-		-	-	-	-	-	-	-	-	-	-	-
DS CSS Co(-)/MSSG-11	-	2	1	-	-	4	4	-		-	-	-	-	-	-	-	-	-	-	-
TOTALS BLT 1/1 (-)(REIN)	-	2	3	-	8	51	15	-		-	-	-	8	2	26	4	1	14	3	2

STOM CONOPS D+8 SURFACE STOM	LAV-R	Mine Blade	M88A2	M1A1	Assault Breacher Vehicle		Avenger	CLAWS	HMMWV Manpads Rack Veh	FDC FOR CLAWS		Total Items Check
UNIT	E0950	E0996	E1377	E1888	EX003		E1836	EX101	DX101	AX107		
TF SURF UNDER COMMAND OF 11thMEU												
BLT 1/1 (-)(REIN)												
H&S Co1/1(-)(REIN)	-	-	-	-	-	-	-	-	-	-		-
BLT 1/1 HQ GROUP	-	-	-	-	-	-	-	-	-	-		-
H&S Co(-)	-	-	-	-	-	-	-	-	-	-		17
Det,HqPlt/A/3rdAABn	-	-	-	-	-		-	-	-	-		4
Det, Intelligence Bn	-	-	-	-	-		-	-	-	-		1
Det, RadBn	-	-	-	-	-		-	-	-	-		1
Co A/1/1(REIN) MECH TM	-	-	-	-	-		-	-	-	-		-
Co A/1/1	-	-	-	-	-		-	-	-	-		-
Plt 1/A/3rdAABn	-	-	-	-	-		-	-	-	-		12
Plt 3/A/1stTankBn	-	1	-	4	-		-	-	-	-		5
Det, Javelin/Wpns/1/1	-	-	-	-	-		-	-	-	-		-
Det, 1/A/2ndCEB												
Det, H&S/1/1	-	-	-	-	-		-	-	-	-		-
Co G/2/2(REIN) MECH TM (att from 26MEU)	-	-	-	-	-		-	-	-	-		-
Co G/2/2	-	-	-	-	-		-	-	-	-		-
Plt 1/A/2ndAABn	-	-	-	-	-		-	-	-	-		12
Plt 1/B/2ndTankBn	-	1	-	4	-		-	-	-	-		5
Det, Javelin/Wpns/1/1	-	-	-	-	-		-	-	-	-		-
Det, 1/A/2ndCEB												
Det, H&S/1/1	-	-	-	-	-		-	-	-	-		-
Co C/1/1(REIN) (RESERVE)	-	-	-	-	-		-	-	-	-		-
Co C/1/1	-	-	-	-	-		-	-	-	-		-
Det, Javelin/Wpns/1/1	-	-	-	-	-		-	-	-	-		-
Det, H&S/1/1	-	-	-	-	-		-	-	-	-		-
WPNS Co(-)/1/1	-	-	-	-	-		-	-	-	-		-
Wpns Co(-)	-	-	-	-	-		-	-	-	-		7
Det, H&S Co	-	-	-	-	-		-	-	-	-		-
81mm Mort Plt	-	-	-	-	-		-	-	-	-		8
CAAT 1	-	-	-	-	-		-	-	-	-		8
CAAT 2	-	-	-	-	-		-	-	-	-		8
Co A/1stLARBn	1	-	-	-	-		-	-	-	-		25
CmbtEngrPlt(Rein)	-	-	-	-	-		-	-	-	-		-
Plt 1/A/1stCEB	-	-	-	-	-		-	-	-	-		5
Det, EngrSptCo/1stCEB	-	-	-	-	-		-	-	-	-		2
EFSS Btry/1/11	-	-	-	-	-		-	-	-	-		34
Air Def Sec/Wpns Co/MACD Bn	-	-	-	-	-		3	2	2	-		8
DS CSS Co(-)/MSSG-11	-	-	1	-	-		-	-	-	-		22
TOTALS BLT 1/1 (-)(REIN)	1	2	1	8	-		3	2	2	-		184

STOM CONOPS D+8
SURFACE STOM

UNIT	TG Sub Totals	PERS	TAM	Alpha TAMs	MEWSS AN/MLQ-36A	TPQ-46A (FIRE FINDER System)	MRC-JTRS ven (MRC-138/140/142/145 Replacement)	SMART-T System	MAGTF BORDER GATEWAY	DTC MSC	Bravo TAMs	M9 ACE	Tractor AWD w/ attachments	Forklift RT	Delta TAMs	Trlr Chassis M353 (3.5 Ton)	Trlr Chassis M116A3	Trk MTVR Mk 25 w/winch	Trk MTVR Mk 28 Ext Long Bed w/winch	Trlr, Sm M101	Trlr, Med (M105A2 replacement)
				—>>>	A0966	A1440	AX001	A3232	AX003	AX004	—>>>	B0589	B2482	B2566	—>>>	D0080	D0085	D0198	D1062	D0850	D0860
BN 1/7(REIN)																					
H&S Co1/7(-)(REIN)	103				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
BLT 1/1 HQ GROUP		41			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
H&S Co(-)		37			-	-	6	-	-	-		-	-	-		-	-	-	-	4	-
Det,HqPlt/D/3rdAABn		12			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, Intelligence Bn		7			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, RadBn		6			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co A/1/7(REIN) MECH TM	235				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co A/1/7		182			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Plt 1/D/3rdAABn		36			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, Javelin/Wpns/1/7		4			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, H&S/1/7		13			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co B/1/7(REIN) MECH TM	235				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co B/1/7		182			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Plt 2/D/3rdAABn		36			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, Javelin/Wpns/1/7		4			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, H&S/1/7		13			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co C/1/7(REIN) MECH TM	235				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co C/1/7		182			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Plt 3/D/3rdAABn		36			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, Javelin/Wpns/1/7		4			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, H&S/1/7		13			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
WPNS Co(-)/1/7	141				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Wpns Co(-)		18			-	-	2	-	-	-		-	-	-		-	-	-	-	-	-
Det, H&S Co		4			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
81mm Mort Plt		57			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, HqPlt/D/3rdAABn		18																			
CAAT 1		22			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
CAAT 2		22			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co C/1stLARBn	133	133			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co B, 1st Tank Bn	58	58			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
CmbtEngrPlt(Rein)	57				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Plt 1/B/1stCEB		36			-	-	-	-	-	-		-	-	-		-	-	-	-	1	-
Det, H&S/3rdAABn		6			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, EngrSptCo/1stCEB		15			-	-	-	-	-	-		2	-	-		-	-	-	-	-	-
Btry E (LW155), 2/11	147	147			-	-	4	-	-	-		-	-	1		-	-	16	-	2	6
Air Def Sec/Wpns Co/MACD Bn	12	12			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
DS CSS Co A(-)/BSSG-7	64	64			-	-	2	-	-	-		-	-	-		-	-	2	3	1	2
TOTALS BLT 1/7(REIN)	1,420				-	-	14	-	-	-		2	-	1		-	-	18	3	8	8

STOM CONOPS D+8 SURFACE STOM	Trlr, Water M149A1	Trk, Amb M997	Trk, Amb M1035	Trk, MTVR Mk30 Dump w/winch	Trk, HMMWV TOW M1045	Trk, HMMWV Cargo M998	Trk, HMMWV HMG M1043	ITV	Echo TAMs	AVLB	XM777 LW155	M1096A HIMARS	EFSS	EFV-C	EFV-P	LAV-AT	LAV-C2	LAV-25	LAV-L	LAV-M
UNIT	D0880	D1001	D1002	D1073	D1125	D1158	D1159	DX001	—>>>	E0150	E0671	E06X1	E06X2	E0857	E0858	E0942	E0946	E0947	E0948	E0949
BN 1/7(REIN)																				
H&S Co1/7(-)(REIN)	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
BLT 1/1 HQ GROUP	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
H&S Co(-)	-	-	2	-	-	6	-	-		-	-	-	-	-	-	-	-	-	-	-
Det,HqPlt/D/3rdAABn	-	-	-	-	-	-	-	-		-	-	-	-	2	2	-	-	-	-	-
Det, Intelligence Bn	-	-	-		-	1	-	-		-	-	-	-	-	-	-	-	-	-	-
Det, RadBn	-	-	-	-	-	1	-	-		-	-	-	-	-	-	-	-	-	-	-
Co A/1/7(REIN) MECH TM	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Co A/1/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Plt 1/D/3rdAABn	-	-	-	-	-	-	-	-		-	-	-	-	-	12	-	-	-	-	-
Det, Javelin/Wpns/1/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Det, H&S/1/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Co B/1/7(REIN) MECH TM	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Co B/1/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Plt 2/D/3rdAABn	-	-	-	-	-	-	-	-		-	-	-	-	-	12	-	-	-	-	-
Det, Javelin/Wpns/1/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Det, H&S/1/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Co C/1/7(REIN) MECH TM	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Co C/1/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Plt 3/D/3rdAABn	-	-	-	-	-	-	-	-		-	-	-	-	-	12	-	-	-	-	-
Det, Javelin/Wpns/1/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Det, H&S/1/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
WPNS Co(-)/1/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Wpns Co(-)	-	-	-	-	-	2	3	-		-	-	-	-	-	-	-	-	-	-	-
Det, H&S Co	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
81mm Mort Plt	-	-	-	-	-	8	-	-		-	-	-	-	-	-	-	-	-	-	-
Det, HqPlt/D/3rdAABn															6					
CAAT 1	-	-	-	-	4	-	4	-		-	-	-	-	-	-	-	-	-	-	-
CAAT 2	-	-	-	-	4	-	4	-		-	-	-	-	-	-	-	-	-	-	-
Co C/1stLARBn	-	-	-		-	-	-	-		-	-	-	-	-	-	4	1	14	3	2
Co B, 1st Tank Bn	-	-	-		-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
CmbtEngrPlt(Rein)	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Plt 1/B/1stCEB	-	-	-	-	-	4	-	-		-	-	-	-	-	-	-	-	-	-	-
Det, H&S/3rdAABn	-	-	-	-	-	-	-	-				-	-	-	2	-	-	-	-	-
Det, EngrSptCo/1stCEB	1	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Btry E (LW155), 2/11	1	-	1		-	4	3	-		-	6	-	-	-	-	-	-	-	-	-
Air Def Sec/Wpns Co/MACD Bn	-	-	-	-	-	1	-	-		-	-	-	-	-	-	-	-	-	-	-
DS CSS Co A(-)/BSSG-7	-	2	1	-	-	4	4	-		-	-	-	-	-	-	-	-	-	-	-
TOTALS BLT 1/7(REIN)	2	2	4	-	8	31	18	-		-	6	-	-	2	46	4	1	14	3	2

STOM CONOPS D+8 SURFACE STOM	LAV-R	Mine Blade	M88A2	M1A1	Assault Breacher Vehicle		Avenger	CLAWS	HMMWV Manpads Rack Veh	FDC FOR CLAWS		Total Items Check
UNIT	E0950	E0996	E1377	E1888	EX003		E1836	EX101	DX101	AX107		
BN 1/7(REIN)												
H&S Co1/7(-)(REIN)	-	-	-	-	-	-	-	-	-	-		-
BLT 1/1 HQ GROUP	-	-	-	-	-	-	-	-	-	-		-
H&S Co(-)	-	-	-	-	-	-	-	-	-	-		18
Det,HqPlt/D/3rdAABn	-	-	-	-	-		-	-	-	-		4
Det, Intelligence Bn	-	-	-	-	-		-	-	-	-		1
Det, RadBn	-	-	-	-	-		-	-	-	-		1
Co A/1/7(REIN) MECH TM	-	-	-	-	-		-	-	-	-		-
Co A/1/7	-	-	-	-	-		-	-	-	-		-
Plt 1/D/3rdAABn	-	-	-	-	-		-	-	-	-		12
Det, Javelin/Wpns/1/7	-	-	-	-	-		-	-	-	-		-
Det, H&S/1/7	-	-	-	-	-		-	-	-	-		-
Co B/1/7(REIN) MECH TM	-	-	-	-	-		-	-	-	-		-
Co B/1/7	-	-	-	-	-		-	-	-	-		-
Plt 2/D/3rdAABn	-	-	-	-	-		-	-	-	-		12
Det, Javelin/Wpns/1/7	-	-	-	-	-		-	-	-	-		-
Det, H&S/1/7	-	-	-	-	-		-	-	-	-		-
Co C/1/7(REIN) MECH TM	-	-	-	-	-		-	-	-	-		-
Co C/1/7	-	-	-	-	-		-	-	-	-		-
Plt 3/D/3rdAABn	-	-	-	-	-		-	-	-	-		12
Det, Javelin/Wpns/1/7	-	-	-	-	-		-	-	-	-		-
Det, H&S/1/7	-	-	-	-	-		-	-	-	-		-
WPNS Co(-)/1/7	-	-	-	-	-		-	-	-	-		-
Wpns Co(-)	-	-	-	-	-		-	-	-	-		7
Det, H&S Co	-	-	-	-	-		-	-	-	-		-
81mm Mort Plt	-	-	-	-	-		-	-	-	-		8
Det, HqPlt/D/3rdAABn												6
CAAT 1	-	-	-	-	-		-	-	-	-		8
CAAT 2	-	-	-	-	-		-	-	-	-		8
Co C/1stLARBn	**1**	-	-	-	-		-	-	-	-		25
Co B, 1st Tank Bn	-	**4**	-	**14**	-		-	-	-	-		**18**
CmbtEngrPlt(Rein)	-	-	-	-	-		-	-	-	-		-
Plt 1/B/1stCEB	-	-	-	-	-		-	-	-	-		5
Det, H&S/3rdAABn	-	-	-	-	-		-	-	-	-		2
Det, EngrSptCo/1stCEB	-	-	-	-	**2**		-	-	-	-		5
Btry E (LW155), 2/11	-	-	-	-	-		-	-	-	-		44
Air Def Sec/Wpns Co/MACD Bn	-	-	-	-	-		**2**	**3**	-	-		6
DS CSS Co A(-)/BSSG-7	-	-	**1**	-	-		-	-	-	-		22
TOTALS BLT 1/7(REIN)	**1**	**4**	**1**	**14**	**2**		**2**	**3**	-	-		**224**

STOM CONOPS D+9
SURFACE STOM & MISC FORCES GOING ASHORE

UNIT	TG Sub Totals	PERS	TAM	Alpha TAMs	MEWSS AN/MLQ-36A	TPQ-46A (FIRE FINDER System)	MRC-JTRS ven (MRC-138/140/142/145 Replacement)	SMART-T System	MAGTF BORDER GATEWAY	DTC MSC	Bravo TAMs	M9 ACE	Tractor AWD w/ attachments	Forklift RT	Delta TAMs	Trlr Chassis M353 (3.5 Ton)	Trlr Chassis M116A3	Trk MTVR Mk 25 w/winch	Trk MTVR Mk 28 Ext Long Bed w/winch	Trlr, Sm M101	Trlr, Med (M105A2 replacement)
				—>>>	A0966	A1440	AX001	A3232	AX003	AX004	—>>>	B0589	B2482	B2566	—>>>	D0080	D0085	D0198	D1062	D0850	D0860
TF SURF UNDER COMMAND OF 7th MEB																					
BN 3/7(REIN)																					
H&S Co3/7(-)(REIN)	103				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
BLT 3/7 HQ GROUP		41			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
H&S Co(-)		37			-	-	6	-	-	-		-	-	-		-	-	-	-	4	-
Det,HqPlt/C/3rdAABn		12			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, Intelligence Bn		7			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, RadBn		6			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co I/3/7(REIN) MECH TM	235				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co I/3/7		182			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Plt 1/C/3rdAABn		36			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, Javelin/Wpns/3/7		4			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, H&S/3/7		13			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co K/3/7(REIN) MECH TM	235				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co B/3/7		182			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Plt 2/C/3rdAABn		36			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, Javelin/Wpns/3/7		4			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, H&S/3/7		13			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co L/3/7(REIN) MECH TM	235				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co C/3/7		182			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Plt 3/C/3rdAABn		36			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, Javelin/Wpns/3/7		4			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, H&S/3/7		13			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
WPNS Co(-)/3/7	141				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Wpns Co(-)		18			-	-	2	-	-	-		-	-	-		-	-	-	-	-	-
Det, H&S Co		4			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
81mm Mort Plt		57			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, HqPlt/D/3rdAABn		18																			
CAAT 1		22			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
CAAT 2		22			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co D/1stLARBn	133	133			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Co C, 1st Tank Bn	58	58			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
CmbtEngrPlt(Rein)	57				-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Plt 3/B/1stCEB		36			-	-	-	-	-	-		-	-	-		-	-	-	-	1	-
Det, H&S/3rdAABn		6			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, EngrSptCo/1stCEB		15			-	-	-	-	-	-		2	-	-		-	-	-	-	-	-
Btry F (LW155), 2/11	147	147			-	-	4	-	-	-		-	-	1		-	-	16	-	2	6
Air Def Sec/Wpns Co/MACD Bn	12	12			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
DS CSS Co C(-)/BSSG-7	64	64			-	-	2	-	-	-		-	-	-		-	-	2	3	1	2
TOTALS BN 3/7(REIN)	1,420				-	-	14	-	-	-		2	-	1		-	-	18	3	8	8

STOM CONOPS D+9
SURFACE STOM & MISC FORCES GOING ASHORE

UNIT	Trlr, Water M149A1	Trk, Amb M997	Trk, Amb M1035	Trk, MTVR Mk30 Dump w/winch	Trk, HMMWV TOW M1045	Trk, HMMWV Cargo M998	Trk, HMMWV HMG M1043	ITV	Echo TAMs	AVLB	XM777 LW155	M1096A HIMARS	EFSS	EFV-C	EFV-P	LAV-AT	LAV-C2	LAV-25	LAV-L	LAV-M
	D0880	D1001	D1002	D1073	D1125	D1158	D1159	DX001	—>>>	E0150	E0671	E06X1	E06X2	E0857	E0858	E0942	E0946	E0947	E0948	E0949
TF SURF UNDER COMMAND OF 7th MEB																				
BN 3/7(REIN)																				
H&S Co3/7(-)(REIN)	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
BLT 3/7 HQ GROUP	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
H&S Co(-)	-	-	2	-	-	6	-	-		-	-	-	-	-	-	-	-	-	-	-
Det,HqPlt/C/3rdAABn	-	-	-	-	-	-	-	-		-	-	-	-	2	2	-	-	-	-	-
Det, Intelligence Bn	-	-	-		-	1	-	-		-	-	-	-	-	-	-	-	-	-	-
Det, RadBn	-	-	-	-	-	1	-	-		-	-	-	-	-	-	-	-	-	-	-
Co I/3/7(REIN) MECH TM	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Co I/3/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Plt 1/C/3rdAABn	-	-	-	-	-	-	-	-		-	-	-	-	-	12	-	-	-	-	-
Det, Javelin/Wpns/3/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Det, H&S/3/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Co K/3/7(REIN) MECH TM	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Co B/3/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Plt 2/C/3rdAABn	-	-	-	-	-	-	-	-		-	-	-	-	-	12	-	-	-	-	-
Det, Javelin/Wpns/3/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Det, H&S/3/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Co L/3/7(REIN) MECH TM	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Co C/3/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Plt 3/C/3rdAABn	-	-	-	-	-	-	-	-		-	-	-	-	-	12	-	-	-	-	-
Det, Javelin/Wpns/3/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Det, H&S/3/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
WPNS Co(-)/3/7	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Wpns Co(-)	-	-	-	-	-	2	3	-		-	-	-	-	-	-	-	-	-	-	-
Det, H&S Co	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
81mm Mort Plt	-	-	-	-	-	8	-	-		-	-	-	-	-	-	-	-	-	-	-
Det, HqPlt/D/3rdAABn															6					
CAAT 1	-	-	-	-	4	-	4	-		-	-	-	-	-	-	-	-	-	-	-
CAAT 2	-	-	-	-	4	-	4	-		-	-	-	-	-	-	-	-	-	-	-
Co D/1stLARBn	-	-	-		-	-	-	-		-	-	-	-	-	-	4	1	14	3	2
Co C, 1st Tank Bn	-	-	-		-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
CmbtEngrPlt(Rein)	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Plt 3/B/1stCEB	-	-	-	-	-	4	-	-		-	-	-	-	-	-	-	-	-	-	-
Det, H&S/3rdAABn	-	-	-	-	-	-	-	-				-	-	-	2	-	-	-	-	-
Det, EngrSptCo/1stCEB	1	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Btry F (LW155), 2/11	1	-	1		-	4	3	-		-	6	-	-	-	-	-	-	-	-	-
Air Def Sec/Wpns Co/MACD Bn	-	-	-	-	-	1	-	-		-	-	-	-	-	-	-	-	-	-	-
DS CSS Co C(-)/BSSG-7	-	2	1	-	-	4	4	-		-	-	-	-	-	-	-	-	-	-	-
TOTALS BN 3/7(REIN)	2	2	4	-	8	31	18	-		-	6	-	-	2	46	4	1	14	3	2

STOM CONOPS D+9 SURFACE STOM & MISC FORCES GOING ASHORE	LAV-R	Mine Blade	M88A2	M1A1	Assault Breacher Vehicle		Avenger	CLAWS	HMMWV Manpads Rack Veh	FDC FOR CLAWS		Total Items Check
UNIT	E0950	E0996	E1377	E1888	EX003		E1836	EX101	DX101	AX107		
TF SURF UNDER COMMAND OF 7th MEB												
BN 3/7(REIN)												
H&S Co3/7(-)(REIN)	-	-	-	-	-	-	-	-	-	-		-
BLT 3/7 HQ GROUP	-	-	-	-	-	-	-	-	-	-		-
H&S Co(-)	-	-	-	-	-	-	-	-	-	-		18
Det,HqPlt/C/3rdAABn	-	-	-	-	-		-	-	-	-		4
Det, Intelligence Bn	-	-	-	-	-		-	-	-	-		1
Det, RadBn	-	-	-	-	-		-	-	-	-		1
Co I/3/7(REIN) MECH TM	-	-	-	-	-		-	-	-	-		-
Co I/3/7	-	-	-	-	-		-	-	-	-		-
Plt 1/C/3rdAABn	-	-	-	-	-		-	-	-	-		12
Det, Javelin/Wpns/3/7	-	-	-	-	-		-	-	-	-		-
Det, H&S/3/7	-	-	-	-	-		-	-	-	-		-
Co K/3/7(REIN) MECH TM	-	-	-	-	-		-	-	-	-		-
Co B/3/7	-	-	-	-	-		-	-	-	-		-
Plt 2/C/3rdAABn	-	-	-	-	-		-	-	-	-		12
Det, Javelin/Wpns/3/7	-	-	-	-	-		-	-	-	-		-
Det, H&S/3/7	-	-	-	-	-		-	-	-	-		-
Co L/3/7(REIN) MECH TM	-	-	-	-	-		-	-	-	-		-
Co C/3/7	-	-	-	-	-		-	-	-	-		-
Plt 3/C/3rdAABn	-	-	-	-	-		-	-	-	-		12
Det, Javelin/Wpns/3/7	-	-	-	-	-		-	-	-	-		-
Det, H&S/3/7	-	-	-	-	-		-	-	-	-		-
WPNS Co(-)/3/7	-	-	-	-	-		-	-	-	-		-
Wpns Co(-)	-	-	-	-	-		-	-	-	-		7
Det, H&S Co	-	-	-	-	-		-	-	-	-		-
81mm Mort Plt	-	-	-	-	-		-	-	-	-		8
Det, HqPlt/D/3rdAABn												6
CAAT 1	-	-	-	-	-		-	-	-	-		8
CAAT 2	-	-	-	-	-		-	-	-	-		8
Co D/1stLARBn	1	-	-	-	-		-	-	-	-		25
Co C, 1st Tank Bn	-	4	-	14	-		-	-	-	-		**18**
CmbtEngrPlt(Rein)	-	-	-	-	-		-	-	-	-		-
Plt 3/B/1stCEB	-	-	-	-	-		-	-	-	-		5
Det, H&S/3rdAABn	-	-	-	-	-		-	-	-	-		2
Det, EngrSptCo/1stCEB	-	-	-	-	2		-	-	-	-		5
Btry F (LW155), 2/11	-	-	-	-	-		-	-	-	-		44
Air Def Sec/Wpns Co/MACD Bn	-	-	-	-	-		2	3	-	-		6
DS CSS Co C(-)/BSSG-7	-	-	1	-	-		-	-	-	-		22
TOTALS BN 3/7(REIN)	1	4	1	14	2		2	3	-	-		**224**

STOM CONOPS D+9
SURFACE STOM & MISC FORCES GOING ASHORE

UNIT	TG Sub Totals	PERS	TAM	Alpha TAMs	MEWSS AN/MLQ-36A	TPQ-46A (FIRE FINDER System)	MRC-JTRS ven (MRC-138/140/142/145 Replacement)	SMART-T System	MAGTF BORDER GATEWAY	DTC MSC	Bravo TAMs	M9 ACE	Tractor AWD w/ attachments	Forklift RT	Delta TAMs	Trlr Chassis M353 (3.5 Ton)	Trlr Chassis M116A3	Trk MTVR Mk 25 w/winch	Trk MTVR Mk 28 Ext Long Bed w/winch	Trlr, Sm M101	Trlr, Med (M105A2 replacement)
				—>>>	A0966	A1440	AX001	A3232	AX003	AX004	—>>>	B0589	B2482	B2566	—>>>	D0080	D0085	D0198	D1062	D0850	D0860
MISC 7THMEB																					
WILL BE LANDED nlt D+1 FOR THIS SCENARIO																					
ASSUMPTION IS THAT WILL LAND BY SURFACE MEANS																					
Det, HQ Co(Rein), 7thMar	80	80			-	-	9	-	-	-		-	-	-		-	-	-	-	2	-
Det, Div Comm Co	20	20			-	-	3	1	2	2		-	-	-		-	-	-	-	-	-
Det, Anti-Tank Plt, 1stTank Bn	30	30			-	-	-	-	-	-		-	-	-		-	-	-	-	-	-
Arty Bn(-)(Rein)	312																				
HQ Btry		60			-	-	8	-	-	-		-	-	-		-	-	2	-	2	1
Btry G (LW155), 2/11		147			-	-	4	-	-	-		-	-	1		-	-	16	-	5	8
G/S Btry (HIMARS)		105			-	-	4	-	-	-		-	-	1		-	-	12	-	4	4
CBR Det, HQ Btry, Arty Regt		8			-	1	-	-	-	-		-	-	-		-	-	-	-	-	-
Det, Radio Bn (MEB)	30	30			1	-	4	-	-	-		-	-	-		-	-	-	-	2	-
TOTALS MISC	472				1	1	32	1	2	2		-	-	2		-	-	30	-	15	13

STOM CONOPS D+9
SURFACE STOM & MISC FORCES GOING ASHORE

	Trlr, Water M149A1	Trk, Amb M997	Trk, Amb M1035	Trk, MTVR Mk30 Dump w/winch	Trk, HMMWV TOW M1045	Trk, HMMWV Cargo M998	Trk, HMMWV HMG M1043	ITV	Echo TAMs	AVLB	XM777 LW155	M1096A HIMARS	EFSS	EFV-C	EFV-P	LAV-AT	LAV-C2	LAV-25	LAV-L	LAV-M
UNIT	D0880	D1001	D1002	D1073	D1125	D1158	D1159	DX001	—>>>	E0150	E0671	E06X1	E06X2	E0857	E0858	E0942	E0946	E0947	E0948	E0949
MISC 7THMEB																				
WILL BE LANDED nlt D+1 FOR THIS SCENARIO																				
ASSUMPTION IS THAT WILL LAND BY SURFACE MEANS																				
Det, HQ Co(Rein), 7thMar	-	-	1		-	4	4	-		-	-	-	-	2	2	-	-	-	-	-
Det, Div Comm Co	-	-	-		-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Det, Anti-Tank Plt, 1stTank Bn	-	-	-		12	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Arty Bn(-)(Rein)																				
HQ Btry	1	-	-		-	4	-	-		-	-	-	-	-	-	-	-	-	-	-
Btry G (LW155), 2/11	1	1	1		-	5	3	-		-	6	-	-	-	-	-	-	-	-	-
G/S Btry (HIMARS)	1	1	1		-	5	3	-		-	-	6	-	-	-	-	-	-	-	-
CBR Det, HQ Btry, Arty Regt	-	-	-		-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Det, Radio Bn (MEB)	-	-	-		-	4	-	-		-	-	-	-	-	-	-	-	-	-	-
TOTALS MISC	3	2	3	-	12	22	10	-		-	6	6	-	2	2	-	-	-	-	-

STOM CONOPS D+9
SURFACE STOM & MISC FORCES GOING ASHORE

	LAV-R	Mine Blade	M88A2	M1A1	Assault Breacher Vehicle		Avenger	CLAWS	HMMWV Manpads Rack Veh	FDC FOR CLAWS		Total Items Check
UNIT	E0950	E0996	E1377	E1888	EX003		E1836	EX101	DX101	AX107		
MISC 7THMEB												
WILL BE LANDED nlt D+1 FOR THIS SCENARIO												
ASSUMPTION IS THAT WILL LAND BY SURFACE MEANS												
Det, HQ Co(Rein), 7thMar	-	-	-	-	-		-	-	-	-		24
Det, Div Comm Co	-	-	-	-	-		-	-	-	-		8
Det, Anti-Tank Plt, 1stTank Bn	-	-	-	-	-		-	-	-	-		**12**
Arty Bn(-)(Rein)												-
HQ Btry	-	-	-	-	-		-	-	-	-		18
Btry G (LW155), 2/11	-	-	-	-	-		-	-	-	-		51
G/S Btry (HIMARS)	-	-	-	-	-		-	-	-	-		42
CBR Det, HQ Btry, Arty Regt	-	-	-	-	-		-	-	-	-		1
Det, Radio Bn (MEB)	-	-	-	-	-		-	-	-	-		11
TOTALS MISC	-	-	-	-	-		-	-	-	-		**167**

TO/TE OF FORCES ASHORE

STOM CONOPS SUMMARY OF FORCES ASHORE

UNIT	PERS	TAM	Alpha TAMs	MEWSS AN/MLQ-36A	TPQ-46A (FIRE FINDER System)	MRC-1HS vehi (MRC-138/140/142/145 Replacement)	SMART-T System	MAGTF BORDER GATEWAY	DTC MSC	Bravo TAMs	M9 ACE	Tractor AWD w/ attachments	Forklift RT	Delta TAMs	Trlr Chassis M353 (3.5 Ton)	Trlr Chassis M116A3	Trk MTVR Mk 25 w/winch	Trk MTVR Mk 28 Ext Long Bed w/winch	Trlr, Sm M101	Trlr, Med (M105A2 replacement)	Trlr, Water M149A1	Trk, Amb M997	Trk, Amb M1035	Trk, MTVR Mk30 Dump w/winch
			—>>>	A0966	A1440	AX001	A3232	AX003	AX004	—>>>	B0589	B2482	B2566	—>>>	D0080	D0085	D0198	D1062	D0850	D0860	D0880	D1001	D1002	D1073
D-DAY LANDING																								
TF SURFACE																								
BLT 1/1	1,288			-	-	12	-	-	-		2	-	-		-	-	2	3	5	2	-	2	3	-
BN 1/7(REIN)	1,420			-	-	14	-	-	-		2	-	1		-	-	18	3	8	8	2	2	4	-
TOTAL TF SURFACE	2,708			-	-	26	-	-	-		4	-	1		-	-	20	6	13	10	2	4	7	-
TF VERTICAL																								
BLT 2/2	1,143			-	-	12	-	-	-		-	2	-		-	-	-	-	11	-	-	1	2	-
BN 2/7(REIN)	1,010			-	-	12	-	-	-		-	2	-		-	-	-	-	11	-	-	1	2	-
TOTAL TF VERTICAL	2,153			-	-	24	-	-	-		-	4	-		-	-	-	-	22	-	-	2	4	-
TOTAL FORCES LANDING ON D+8	4,861			-	-	50	-	-	-	-	4	4	1		-	-	20	6	35	10	2	6	11	-
D+9 LANDING																								
BN 3/7(REIN)	1,420			-	-	14	-	-	-	-	2	-	1		-	-	18	3	8	8	2	2	4	-
MISC	472			1	1	32	1	2	2	-	-	-	2		-	-	30	-	15	13	3	2	3	-
TOTAL FORCES LANDING ON D+9	1,892			1	1	46	1	2	2		2	-	3		-	-	48	3	23	21	5	4	7	-
FORCES ASHORE D+9																								
TOTAL FORCES ASHORE AT END OF D+9	6,753			1	1	96	1	2	2	-	6	4	4		-	-	68	9	58	31	7	10	18	-

TO/TE OF FORCES ASHORE

STOM CONOPS SUMMARY OF FORCES ASHORE

UNIT	PERS	TAM	Trk, HMMWV TOW M1045	Trk, HMMWV Cargo M998	Trk, HMMWV HMG M1043	ITV	Echo TAMs	AVLB	XM777 LW155	M1096A HIMARS	EFSS	EFV-C	EFV-P	LAV-AT	LAV-C2	LAV-25	LAV-L	LAV-M	LAV-R	Mine Blade	M88A2	M1A1	Assault Breacher Vehicle
			D1125	D1158	D1159	DX001	—>>>	E0150	E0671	E06X1	E06X2	E0857	E0858	E0942	E0946	E0947	E0948	E0949	E0950	E0996	E1377	E1888	EX003
D-DAY LANDING																							
TF SURFACE																							
BLT 1/1	1,288		8	51	15	-		-	-	-	8	2	26	4	1	14	3	2	1	2	1	8	-
BN 1/7(REIN)	1,420		8	31	18	-		-	6	-	-	2	46	4	1	14	3	2	1	4	1	14	2
TOTAL TF SURFACE	2,708		16	82	33	-		-	6	-	8	4	72	8	2	28	6	4	2	6	2	22	2
TF VERTICAL																							
BLT 2/2	1,143		8	47	11	-		-	-	-	8	-	-	4	1	14	3	2	1	-	-	-	-
BN 2/7(REIN)	1,010		8	47	11	-		-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL TF VERTICAL	2,153		16	94	22	-		-	-	-	16	-	-	4	1	14	3	2	1	-	-	-	-
TOTAL FORCES LANDING ON D+8	4,861		32	176	55	-		-	6	-	24	4	72	12	3	42	9	6	3	6	2	22	2 -
D+9 LANDING																							
BN 3/7(REIN)	1,420		8	31	18	-		-	6	-	-	2	46	4	1	14	3	2	1	4	1	14	2
MISC	472		12	22	10	-		-	6	6	-	2	2	-	-	-	-	-	-	-	-	-	-
TOTAL FORCES LANDING ON D+9	1,892		20	53	28	-		-	12	6	-	4	48	4	1	14	3	2	1	4	1	14	2
FORCES ASHORE D+9																							
TOTAL FORCES ASHORE AT END OF D+9	6,753		52	229	83	-		-	18	6	24	8	120	16	4	56	12	8	4	10	3	36	4

TO/TE OF FORCES ASHORE

STOM CONOPS SUMMARY OF FORCES ASHORE

UNIT	PERS	TAM	Avenger	CLAWS	HMMWV Manpads Rack Veh	FDC FOR CLAWS		Total Items Check	SUBTOTS	HMMWV (ALL VARIANTS)
			E1836	EX101	DX101	AX107				
D-DAY LANDING										
TF SURFACE										
BLT 1/1	1,288		3	2	2	-		184		98
BN 1/7(REIN)	1,420		2	3	-	-		224		82
TOTAL TF SURFACE	2,708		5	5	2	-		408		
TF VERTICAL										
BLT 2/2	1,143		1	2	2	-		132		83
BN 2/7(REIN)	1,010		-	-	5	-		107		83
TOTAL TF VERTICAL	2,153		1	2	7	-		239		
TOTAL FORCES LANDING ON D+8	4,861		6	7	9	-		647		346
D+9 LANDING										
BN 3/7(REIN)	1,420		2	3	-	-		224		82
MISC	472		-	-	-	-		167		90
TOTAL FORCES LANDING ON D+9	1,892		2	3	-	-		391		172
FORCES ASHORE D+9										
TOTAL FORCES ASHORE AT END OF D+9	6,753		8	10	9	-		1,038		518

APPENDIX E- LANDING PLAN
TAB A- SERIAL ASSIGNMENT TABLE- SURFACE

SER NO	UNIT	PERS	EQUIP	CRAFT NO/TYPE	SHIP	REMARKS
			BN 1/1(REIN)			
1000						
1110	CO A(REIN) 1/1	240	12 AAAV-P	12 AAAV-P	LPD-18	
1111	3/A/ST TANKS	16	4 M1A1 TANK, MINE BLADE, BMU D-7 DOZ, MTVR, HMMW	2 LCU(R)	LSD-42	PREBOATED
1120	CO G(REIN) 2/2	240	12 AAAV-P	12 AAAV-P	LPD-17	
1121	1/B/2nd TANKS	16	4 M1A1 TANK, MINE BLADE, BMU D-7 DOZ, MTVR, HMMW	2 LCU(R)	LSD-41	PREBOATED
1130	CO C(REIN) 1/1	199		2 LCU(R)/10 MV-22	LSD-42	INITIAL RESERVE LCU OR HELO/V-22
1200	ELEM WPNS CO 1/1(-)	22	4 HMMWV HMG, 4 HMMWV TOW	1 LCAC(PARTIAL)	LHD-2	PREBOATED WITH LAR
1201	ELEM WPNS CO 1/1(-)	24	4 HMMWV HMG, 4 HMMWV TOW, 2 MRC	1 LCAC	LPD-18	
1202	ELEM WPNS CO 1/1(-)	24	4 HMMWV(81MORT)	1 LCAC(PARTIAL)	LPD-18	PREBOATED WITH LAR
1203	ELEM WPNS CO 1/1(-)	24	4 HMMWV(81MORT), 1 HMMWV HMG, 1 HMMWV	1 LCAC(PARTIAL)	LPD-18	
1204	ELEM WPNS CO 1/1(-)	14	1 HMMWV, 2 HMMWV HMG	1 LCAC(PARTIAL)	LPD-18	
1205	ELEM WPNS CO 1/1(-)	15	81MMORT PERS		LPD-18	BOATED W/OTHER/UH-1
1250	ELEM H&S CO 1/1	27	1 AAAV-C, 1 AAAV-P	1 AAAV-C, 1 AAAV-P	LPD-18	
1251	ELEM H&S CO 1/1	27	1 AAAV-C, 1 AAAV-P	1 AAAV-C, 1 AAAV-P	LPD-17	
1252	ELEM H&S CO 1/1	8	2 MRC	1 LCAC(PARTIAL)	LPD-18	PREBOATED WITH LAR
1253	ELEM H&S CO 1/1	6	2 HMMWV	1 LCAC(PARTIAL)	LHD-2	
1254	ELEM H&S CO 1/1	4	2 HMMWV	1 LCAC(PARTIAL)	LHD-2	
1255	ELEM H&S CO 1/1	9	3 MRC, 1 HMMWV AMB	1 LCAC(PARTIAL)	LPD-18	
1256	ELEM H&S CO 1/1	9	2 HMMWV+TRLR, 1 MRC, 1 HMMWV AMB	1 LCAC(PARTIAL)	LPD-18	
1300	ELEM CO A 1LAR	64	8 LAV-25, 1 LAV-M, 1 LAV-C2	3 LCAC	LHD-2	PREBOATED
1301	ELEM CO A 1LAR	34	4 LAV-25, 2 LAV-AT	2 LCAC	LPD-18	PREBOATED
1302	ELEM CO A 1LAR	18	1 LAV-25, 1 LAV-AT, 1 LAV-M, 1 LAV-L	1 LCAC	LHD-2	
1303	ELEM CO A 1LAR	17	1 LAV-25, 1 LAV-AT, 1 LAV-R, 2 LAV-L	1 LCAC	LHD-2	
1350	ELEM EFSS BTRY	24	6 HMMWV, 2 EFSS, 1 MRC	1 LCAC	LHD-2	
1351	ELEM EFSS BTRY	24	6 HMMWV, 2 EFSS	1 LCAC	LHD-2	
1352	ELEM EFSS BTRY	24	6 HMMWV, 2 EFSS, 1 MRC	1 LCAC	LHD-2	
1353	ELEM EFSS BTRY	24	6 HMMWV, 2 EFSS	1 LCAC	LHD-2	
1354	ELEM EFSS BTRY	16	PAX ONLY		LHD-2	BOATED W/OTHER/UH-1
1360	DET, CMBTENGR PLT	30	4 HMMWV+1 TRLR, 2 ACE	1 LCAC	LPD-18	
1500	ELEM, AIRDEF SEC	6	3 AVENGER	1 LCAC(PARTIAL)	LHD-2	LOADED W/ EFSS
1501	ELEM, AIRDEF SEC	6	3 HMMWV	1 LCAC(PARTIAL)	LHD-2	
10	DET, RADBN &	6	2 HMMWV	1 LCAC(PARTIAL)	LHD-2	
	DET, INTELL BN	7			LHD-2	
1800	ELEM DS CSS CO(-)	4	1 MRC	1 LCAC(PARTIAL)	LPD-18	
1801	ELEM DS CSS CO(-)	30	2 MTVR+ 2 TRLR, 1 MRC, 2 HMMWV+1 TRLR 1 MRC, 1 HMMWV AMB, 1 M88 RETRIEVER	1 LCU(R)	LSD-42	
1802	ELEM DS CSS CO(-)	30	3 MTVR(EXT BED), 2 HMMWV, 2 HMMWV AMB, 4 HMMWV HMG	1 LCU(R)	LSD-42	

APPENDIX E- LANDING PLAN
TAB A- SERIAL ASSIGNMENT TABLE- SURFACE

SER NO	UNIT	PERS	EQUIP	CRAFT NO/TYPE	SHIP	REMARKS
			BN 1/7(REIN)			
2110	CO A/1/7	235	12 AAAV(P)	12 AAAV(P)	MPF-1	
2120	CO B/1/7	235	12 AAAV(P)	12 AAAV(P)	MPF-1	
2130	CO C/1/7	235	12 AAAV(P)	12 AAAV(P)	MPF-1	
2200	ELEM WPNS CO 1/7(-)	22	4 HMMWV TOW, 4 HMMWV HMG	2 LCU(R) (PARTIAL)	MPF-1	
2201	ELEM WPNS CO 1/7(-)	22	4 HMMWV TOW, 4 HMMWV HMG	2 LCU(R) (PARTIAL)	MPF-1	
2202	ELEM WPNS CO 1/7(-)	67	6 AAAV-P(81MORT)	6 AAAV-P	MPF-1	
2203	ELEM WPNS CO 1/7(-)	8	4 HMMWV(81MORT)	1 LCAC(PARTIAL)	MPF-1	
2204	ELEM WPNS CO 1/7(-)	12	1 TANK, 1 ABV, 5 HMMWV VARIANTS	1 LCU(R) PARTIAL	MPF-1	
2205	ELEM WPNS CO 1/7(-)	6	2 HMMWV HMG	1 LCAC(PARTIAL)	MPF-1	
2250	ELEM H&S CO 1/7	54		2 AAAV-C, 2 AAAV-P	MPF-1	
2251	ELEM H&S CO 1/7	8	2 MRC	1 LCAC(PARTIAL)	MPF-1	
2252	ELEM H&S CO 1/7	12	2 HMMWV, 2 MRC	1 LCU(R) PARTIAL	MPF-1	
2253	ELEM H&S CO 1/7	15	2 MRC, 1 HMMWV AMB, 2 HMMWV+TRLR	1 LCAC(PARTIAL)	MPF-1	
2254	ELEM H&S CO 1/7	7	1 HMMWV AMB, 2 HMMWV+TRLR	1 LCAC(PARTIAL)	MPF-1	
2300	ELEM, CO C 1LAR	112	12 LAV-25, 4 LAV-AT, 2 LAV-M, 1 LAV-C2, 1 LAV-L	5 LCAC	MPF-1	
2301	ELEM, CO C 1LAR	21	2 LAV-25, 2 LAV-L, 1LAV-R	1 LCU(R)	MPF-1	
2350	ELEM CO B 1TANK	20	5 M1A1 TANK	3 LCU(R)	MPF-1	
2351	ELEM CO B 1TANK	20	5 M1A1 TANK	3 LCU(R)	MPF-1	
2352	ELEM CO B 1TANK	16	4 M1A1 TANK	2 LCU(R)	MPF-1	
2400	ELEM , CMBTENGR PLT	35	2 AAAV-P	2 AAAV-P	MPF-1	
2401	ELEM , CMBTENGR CO	10	1 ABV, 1 ACE, 2 HMMWV	2 LCU(R) PARTIAL	MPF-1	
2402	ELEM , CMBTENGR CO	12	1 ABV, 1 ACE, 2 HMMWV	2 LCU(R) PARTIAL	MPF-1	
2403	ELEM , CMBTENGR CO					
2450	ELEM, BTRY E, 2/11	31	4 MTVR, 4 LW-155, 2 MRC	2 LCAC	MPF-2	
2451	ELEM, BTRY E, 2/11	31	5 MTVR, 2 LW-155, 1 HMMWV, 1 HMMWV-HMG	2 LCAC	MPF-2	
2452	ELEM, BTRY E, 2/11	5	1 HMMWV, 1 HMMWV-HMG	1 LCU(R) PARTIAL	MPF-1	
2453	ELEM, BTRY E, 2/11	40	4 MTVR+ 4 MTVR TRLR, 2 MRC, 2 HMMWV, 1 HMMWV-AMB, 1 HMMWV-HMG	2 LCAC	MPF-2	
2454	ELEM, BTRY E, 2/11	40	2 MTVR+ 2 MTVR TRLR, 1 HMMWV+TRLR 1 FKLIFT, 1 MTVR+1 M149TRLR, 4 HMMWV+Q46TRLR	2 LCAC	MPF-2	
2500	ELEM, AIRDEF SEC	6	2 AVENGER	1 LCAC(PARTIAL)	MPF-1	
2501	ELEM, AIRDEF SEC	6	3 AVENGER, 1 HMMWV	1 LCAC(PARTIAL)	MPF-1	
2800	ELEM DS CSS CO(-)	4	1 MRC	1 LCAC(PARTIAL)	MPF-1	
2801	ELEM DS CSS CO(-)	60	2 MTVR+ 2 TRLR, 1 MRC, 4 HMMWV+1 TRLR 3 HMMWV AMB, 1 M88 RETRIEVER 3 MTVR(EXT BED), 4 HMMWV HMG	2 LCU(R)	MPF-1	
2010	DET, RADBN &	7	1 HMMWV	1 LCAC(PARTIAL)	MPF-1	
	DET, INTELL BN	6			MPF-1	

APPENDIX E- LANDING PLAN
TAB A- SERIAL ASSIGNMENT TABLE- VERTICAL

SER NO	UNIT	PERS	EQUIP	CRAFT NO/TYPE	SHIP	REMARKS
AIR			BN 2/2			
3110	CO E(REIN)(-) 2/2	144		6 MV-22	LHD-1	1ST WAVE
3111	DET, CO E(REIN)	65		3 MV-22	LHD-1	1ST WAVE
3120	CO F(REIN)(-) 2/2	48		2 MV-22	LPD-17	2ND WAVE
3121	DET, CO F(REIN)	48		2 MV-22	LPD-17	2ND WAVE
3122	DET, CO F(REIN)	48		2 MV-22	LPD-17	2ND WAVE
3123	DET, CO F(REIN)	48		2 MV-22	LPD-17	2ND WAVE
3124	DET, CO F(REIN)	17		1 MV-22	LPD-17	2ND WAVE
3130	CO B(REIN)(-) 1/1	144		6 MV-22	LHD-2	1ST WAVE
3131	DET, CO B(REIN)	65		3 MV-22	LHD-2	1ST WAVE
3200	ELEM WPNS CO 2/2(-)	57	8 81MM MORT	3 MV-22	LPD-17	1ST WAVE
3201	ELEM WPNS CO 2/2(-)	11	2 HMMWV HMG, 2 HMMWV TOW	2 CH-53E	LHD-1	1ST WAVE
3202	ELEM WPNS CO 2/2(-)	11	2 HMMWV HMG, 2 HMMWV TOW	2 CH-53E	LPD-17	1ST WAVE
3203	ELEM WPNS CO 2/2(-)	11	2 HMMWV HMG, 2 HMMWV TOW	4 MV-22	LHD-1	
3204	ELEM WPNS CO 2/2(-)	6	1 HMMWV HMG, 1 HMMWV TOW	2 MV-22	LPD-17	
3205	ELEM WPNS CO 2/2(-)	5	1 HMMWV HMG, 1 HMMWV TOW	2 MV-22	LPD-17	
3206	ELEM WPNS CO 2/2(-)	6	1 HMMWV HMG, 1 MRC	1 CH-53E	LPD-17	
3207	ELEM WPNS CO 2/2(-)	4	1 HMMWV HMG, 1HMMWV	1 CH-53E	LPD-17	
3208	ELEM WPNS CO 2/2(-)	4	1 HMMWV HMG	1 CH-53E	LPD-17	
3209	ELEM WPNS CO 2/2(-)	4	4 HMMWV	4 MV-22	LPD-17	
3210	ELEM WPNS CO 2/2(-)	4	2 HMMWV	2 MV-22	LPD-17	
3211	ELEM WPNS CO 2/2(-)		1 HMMWV	1 MV-22	LPD-17	
3212	ELEM WPNS CO 2/2(-)		1 MRC	1 CH-53E	LPD-17	W/ SER 3401
3250	ELEM H&S CO 2/2	32	1 MRC	1 MV-22, 1 CH-53E	LPD-17	1ST WAVE
3251	ELEM H&S CO 2/2	28	1 MRC	2 MV-22	LPD-17	
3252	ELEM H&S CO 2/2	15	3 HMMWV, 3 MRC	4 MV-22, 1 CH-53E	LPD-17	
3253	ELEM H&S CO 2/2	4	1 MRC	1 CH-53E	LPD-17	W/ SER 3800
3254	ELEM H&S CO 2/2	8	2 HMMWV	1 CH-53E	LPD-17	
3255	ELEM H&S CO 2/2	4	1 HMMWV	1 CH-53E/1MV-22	LPD-17	
3300	ELEM, CO B 2LAR	32	5 LAV	5 CH-53E, 1 MV-22	MPF-1	1ST WAVE
3301	ELEM, CO B 2LAR	75	11 LAV	11 CH-53E, 3 MV-22	MPF-1	
3302	ELEM, CO B 2LAR	26	8 LAV	8 CH-53E, 1 MV-22	MPF-1	
3303	ELEM, CO B 2LAR		1 LAV	1 CH-53E	MPF-1	
3400	ELEM , CMBTENGR PLT	4	2 HMMWV	2 MV-22	LPD-17	
3401	ELEM , CMBTENGR PLT	2	1 HMMWV	1 CH-53E	LPD-17	
3450	ELEM EFSS BTRY 1/10	24	2 HMMWV, 2 EFSS	2 MV-22, 1 CH-53E	LHD-1	1ST WAVE
3451	ELEM EFSS BTRY 1/10	36	4 HMMWV, 3 EFSS	7 MV-22	LHD-1	
3452	ELEM EFSS BTRY 1/10	28	6 HMMWV, 3 EFSS	9 MV-22	LHD-1	
3453	ELEM EFSS BTRY 1/10	12	6 HMMWV	6 MV-22	LHD-1	
3454	ELEM EFSS BTRY 1/10	12	6 HMMWV	6 MV-22	LHD-1	
3500	ELEM, AIRDEF SEC	4	2 HMMWV	2 MV-22	LHD-1	
3501	ELEM, AIRDEF SEC	8	4 HMMWV	2 MV-22, 1 CH-53E	LHD-1	
3800	ELEM DS CSS CO(-)	12	1 HMMWV	1 CH-53E	LPD-17	
3801	ELEM DS CSS CO(-)	23	2 HMMWV, 2 MRC	2 CH-53E	LPD-17	
3802	ELEM DS CSS CO(-)		1 HMMWV, 1 HMMWV AMB	1 CH-53E/2 MV-22	LPD-17	
3803	ELEM DS CSS CO(-)	4	2 SEE TRAC	2 CH-53E	LPD-17	

APPENDIX E- LANDING PLAN
TAB A- SERIAL ASSIGNMENT TABLE- VERTICAL

SER NO	UNIT	PERS	EQUIP	CRAFT NO/TYPE	SHIP	REMARKS
AIR			BN 2/7			
4110	CO E(REIN)(-) 2/7	144		6 MV-22	MPF-1	1ST WAVE
4111	DET, CO E(REIN)	65		3 MV-22	MPF-1	1ST WAVE
4120	CO F(REIN)(-) 2/7	144		6 MV-22	MPF-2	2ND WAVE
4121	DET, CO F(REIN)	65		3 MV-22	MPF-2	2ND WAVE
4130	DET, CO G(REIN)	48		2 MV-22	MPF-2	1ST WAVE
4131	CO G(REIN)(-) 2/7	161		7 MV-22	MPF-2	1ST WAVE
4200	ELEM WPNS CO 2/7(-)	57	8 81MM MORT	3 MV-22	MPF-2	1ST WAVE
4201	ELEM WPNS CO 2/7(-)	11	2 HMMWV HMG, 2 HMMWV TOW	2 CH-53E	MPF-1	1ST WAVE
4202	ELEM WPNS CO 2/7(-)	11	2 HMMWV HMG, 2 HMMWV TOW	2 CH-53E	MPF-2	1ST WAVE
4203	ELEM WPNS CO 2/7(-)	11	2 HMMWV HMG, 2 HMMWV TOW	4 MV-22	MPF-1	
4204	ELEM WPNS CO 2/7(-)	11	2 HMMWV HMG, 2 HMMWV TOW	4 MV-22	MPF-2	
4205	ELEM WPNS CO 2/7(-)	4	1 MRC	1 CH-53E	MPF-2	
4206	ELEM WPNS CO 2/7(-)	6	2 HMMWV HMG, 2 HMMWV	2 CH-53E	MPF-2	
4207	ELEM WPNS CO 2/7(-)	4	1 MRC	1 MV-22	MPF-2	
4208	ELEM WPNS CO 2/7(-)	8	1 HMMWV HMG, 6 HMMWV	3 MV-22, 2 CH-53E	MPF-2	
4250	ELEM H&S CO 2/7	32	1 MRC	1 MV-22, 1 CH-53E	MPF-2	1ST WAVE
4251	ELEM H&S CO 2/7	4	1 MRC	1 CH-53E	MPF-2	W/ SER 4205
4252	ELEM H&S CO 2/7	24		1 MV-22	MPF-2	
4253	ELEM H&S CO 2/7	21	3 HMMWV, 4 MRC	7 MV-22	MPF-2	
4254	ELEM H&S CO 2/7	4	1 HMMWV	1 MV-22	MPF-2	
4255	ELEM H&S CO 2/7	6	2 HMMWV	2 MV-22, 1 CH-53E	MPF-2	
4400	ELEM , CMBTENGR PLT	6	3 HMMWV	3 MV-22	MPF-2	
4401	ELEM , CMBTENGR PLT	4		2 CH-53E	MPF-2	
4450	ELEM EFSS BTRY 2/11	24	2 HMMWV, 2 EFSS	2 MV-22, 1 CH-53E	MPF-1	1ST WAVE
4451	ELEM EFSS BTRY 2/11	36	4 HMMWV, 3 EFSS	7 MV-22	MPF-1	
4452	ELEM EFSS BTRY 2/11	28	6 HMMWV, 3 EFSS	9 MV-22	MPF-1	
4453	ELEM EFSS BTRY 2/11	6	3 HMMWV	3 MV-22	MPF-1	
4454	ELEM EFSS BTRY 2/11	12	6 HMMWV	6 MV-22	MPF-1	
4455	ELEM EFSS BTRY 2/11	6	3 HMMWV	3 MV-22	MPF-1	
4500	ELEM, AIRDEF SEC	4	2 HMMWV	2 MV-22	MPF-4	
4501	ELEM, AIRDEF SEC	8	4 HMMWV	2 MV-22, 1 CH-53E	MPF-4	
4800	ELEM DS CSS CO(-)	12	2 HMMWV, 1 MRC	3 MV-22	MPF-3	
4801	ELEM DS CSS CO(-)	23	2 HMMWV, 1 MRC	3 MV-22	MPF-3	
4802	ELEM DS CSS CO(-)		1 HMMWV AMB	1 MV-22	MPF-3	
4810	MED DET, BSSG	27	2 HMMWV, 2 MRC	2 MV-22, 1 CH-53E	MPF-3	

APPENDIX E- LANDING PLAN
TAB B- LANDING CRAFT, ASSAULT VEHICLE AND AIRCRAFT AVAILABILITY TABLE

UNIT	NO CRAFT	AVAIL 1ST TRIP	AVAIL OTHER	TYPE/MODEL	CARRIER	LOAD TROOPS	LOAD CARGO	REMARKS
ACU-1	2	2	2	LCU(R)	LHD-1, LPD-17	200	180 ST	
ACU-1	5	5	5	LCAC SLEP	LSD-41	24	70 ST	
ACU-2	2	2	2	LCU(R)	LHD-1, LPD-17	200	180 ST	
ACU-2	5	5	5	LCAC SLEP	LSD-41	24	70 ST	
ACU-3	10	10	2	LCU(R)	MPSRON-1	200	180 ST	
LCAC TOTAL		14						
LCU (R) TOTAL		10						
1/A/3RD AA BN	13	13		EFV-P	LPD-18	17		
1/A/3RD AA BN	1	1		EFV-C	LPD-18	9		
1/A/2ND AA BN	13	13		EFV-P	LPD-17	17		
1/A/2ND AA BN	1	1		EFV-C	LPD-17	9		
D/3RD AA BN	44	44		EFV-P	MPF(F)-1	17		
D/3RD AA BN	2	2		EFV-C	MPF(F)-1	9		
C/3RD AA BN	44	44		EFV-P	MPF(F)-2	17		
C/3RD AA BN	2	2		EFV-C	MPF(F)-2	9		
DET/H&S/3RD AA BN	10	10		EFV-P	MPF(F)-2	17		
DET/H&S/3RD AA BN	4	4		EFV-C	MPF(F)-2	9		
TOTAL		134						
VMM-1	12	10		MV-22	LHD-1	24	10,000 LB	
VMM-2	12	10		MV-22	LHD-2	24	10,000 LB	
VMM-3	12	10		MV-22	MPSRON-1	24	10,000 LB	
VMM-4	12	10		MV-22	MPSRON-1	24	10,000 LB	
VMM-5	12	9		MV-22	MPSRON-1	24	10,000 LB	
VMM-6	12	0		MV-22	MPSRON-1	24	10,000 LB	
TOTAL		49						
DET, HMH-1	4	3		CH-53E SLEP	LHD-1	36	30,000 LB	
DET, HMH-2	4	3		CH-53E SLEP	LHD-2	36	30,000 LB	
HMH-3(REIN)	20	11		CH-53E SLEP	MPSRON-1	36	30,000 LB	
TOTAL		17						

APPENDIX E- LANDING PLAN
TAB C-LANDING CRAFT, ASSAULT VEHICLE AND AIRCRAFT EMPLOYMENT AND ASSAULT LANDING TABLE

SURFACE STOM

UNIT	CRAFT/ QUANTITY	FROM ORIGIN	TO REPORT LOAD	LOAD TIME	LAUNCH TIME	LOD TIME	LAND TIME	DESTINATION	TROOP UNIT	SERIAL
ACU-1	1 LCU(R)	LSD-41	LSD-41	Preload	H-120	H-80	H+80	LPP 1-1	BN 1/1(REIN): 1/B/2TANK	1121
	1 LCU(R)	LSD-41	LSD-41	Preload	H-120	H-80	H+95	LPP 1-1		
ACU-2	1 LCU(R)	LSD-42	LSD-42	Preload	H-120	H-78	H+80	LPP 1-4	BN 1/1(REIN): 3/1/1TANK	1111
	1 LCU(R)	LSD-42	LSD-42	Preload	H-120	H-78	H+95	LPP 1-4		
ACU-3	1 LCU(R)	MPF(F)-1	MPF(F)-1	Preload	H-180	H-80	H+78	LPP 3-1	BN 1/7(REIN): ELEM B/1TANK	2350, 2401, 2200
	1 LCU(R)	MPF(F)-1	MPF(F)-1	Preload	H-180	H-79	H+94	LPP 3-1	ELEM WPNS, ELEM ENGR	
	1 LCU(R)	MPF(F)-2	MPF(F)-1	Preload	H-180	H-78	H+110	LPP 3-1		
ACU-3	1 LCU(R)	MPF(F)-2	MPF(F)-1	Preload	H-180	H-55	H+103	LPP 3-2	BN 1/7(REIN): ELEM C/1LAR	2301, 2252
									ELEM H&S	
ACU-3	1 LCU(R)	MPF(F)-3	MPF(F)-1	Preload	H-120	H-70	H+88	LPP 3-3	BN 1/7(REIN): ELEM B/1TANK	2351, 2402, 2452, 2204
	1 LCU(R)	MPF(F)-3	MPF(F)-1	Preload	H-120	H-69	H+104	LPP 3-3	ELEM WPNS, ELEM ENGR	
	1 LCU(R)	MPF(F)-4	MPF(F)-1	Preload	H-120	H-68	H+120	LPP 3-3		
	1 LCU(R)	MPF(F)-4	MPF(F)-1	Preload	H-240	H-67	H+136	LPP 3-3	BMU	
ACU-3	1 LCU(R)	MPF(F)-5	MPF(F)-1	Preload	H-120	H-60	H+98	LPP 3-4	BN 1/7(REIN): ELEM B/1TANK	2352, 2201
	1 LCU(R)	MPF(F)-6	MPF(F)-1	Preload	H-120	H-59	H+114	LPP 3-4	ELEM WPNS	
1/A/2d AA Bn	12 EFV-P	LPD-17	LPD-17	Preload	H-5	H-HR	H+70	LPP 1-1	BN 1/1(REIN): G/2/2	1120
	1 EFV-P	LPD-17	LPD-17	Preload	H-5	H-HR	H+75	LPP 1-1	BN CMD B	1250
	1 EFV-C									
1/A/3d AA Bn	12 EFV-P	LPD-18	LPD-18	Preload	H-5	H-HR	H+70	LPP 1-4	BN 1/1(REIN): A/1/1	1110
	1 EFV-P	LPD-18	LPD-18	Preload	H-5	H-HR	H+75	LPP 1-4	BN CMD A	1251
	1 EFV-C									
1/D/3d AA Bn	12 EFV-P	MPF(F)-1	MPF(F)-1	Preload	H-10	H-HR	H+69	LPP 3-1	BN 1/7(REIN): A/1/7	2110
2/D/3d AA Bn	12 EFV-P	MPF(F)-1	MPF(F)-1	Preload	H-5	H+5	H+74	LPP 3-3	BN 1/7(REIN): B/1/7	2120
D(-)/3d AA Bn	10 EFV-P	MPF(F)-1	MPF(F)-1	Preload	H-HR	H+7	H+76	LPP 3-3	BN 1/7(REIN): ELEM WPNS	2202, 2250, 2400
	2 EFV-C	MPF(F)-1	MPF(F)-1						BN CMND, ELEM ENGR	
3/D/3d AA Bn	12 EFV-P	MPF(F)-1	MPF(F)-1	Preload	H+10	H+15	H+84	LPP 3-4	BN 1/7(REIN): C/1/7	2130
ACU-2	3 LCAC	LHD-2	LHD-1	Preload	H-30	H+15	H+80	LPP 1-3	BN 1/1(REIN): ELEM A/1LAR,	1300, 1200
	2 LCAC	LPD-18	LPD-17	Preload	H-30	H+20	H+85	LPP 1-3	ELEM WPNS, ELEM H&S	1301, 1202, 1252
ACU-1	5 LCAC	LPD-17, LHD-1	MPF(F)-1	Preload	H-30	H+20	H+83	LPP 3-2	BN 1/7(REIN): ELEM C/1LAR,	2203, 2205, 2251
									ELEM WPNS, ELEM H&S	2500, 2300

APPENDIX E- LANDING PLAN
TAB C-LANDING CRAFT, ASSAULT VEHICLE AND AIRCRAFT EMPLOYMENT AND ASSAULT LANDING TABLE

SURFACE STOM

UNIT	CRAFT/ QUANTITY	FROM ORIGIN	TO REPORT LOAD	LOAD TIME	LAUNCH TIME	LOD TIME	LAND TIME	DESTINATION	TROOP UNIT	SERIAL
2ND LCAC CYCLE										
ACU-2	1 LCAC		LHD-2	H+138	H+168	H+173	H+212	LPP 1-3	BN 1/1(REIN): ELEM A/1LAR, ELEM WPNS, ELEM H&S	1302, 1253
ACU-2	1 LCAC		LPD-18	H+141	H+171	H+176	H+213	LPP 1-3	ELEM WPNS, ELEM H&S, TOW SECT	1201
ACU-2	1 LCAC		LHD-2	H+169	H+199	H+204	H+243	LPP 1-3	ELEM EFSS/1/11, BN ELEM	1350, 1254
ACU-2	1 LCAC		LPD-18	H+172	H+202	H+207	H+246	LPP 1-3	BN MED, COMM, WPNS	1255, 1203
ACU-2	1 LCAC		LHD-2	H+ 200	H+230	H+235	H+274	LPP 1-3	ELE EFSS 1/11 W/AMMO;	1351, 1500
									ELEM MACD BN, (CLAWS/AVENGER)	
ACU-1	1 LCAC		MPF(F)-1	H+143	H+173	H+178	H+217	LPP 3-2	BN 1/7(REIN): ELEM E/2/11 ELEM H&S, ELEM MACD BN (CLAWS)	2253, 2501
ACU-1	2 LCAC		MPF(F)-2	H+144	H+174	H+179	H+218	LPP 3-2	ELEM LW155MM BTRY	2450
ACU-1	2 LCAC		MPF(F)-2	H+176	H+206	H+211	H+250	LPP 3-2	ELEM LT155MM BTRY	2451
3RD LCAC CYCLE										
ACU-2	1 LCAC		LHD-2	H+271	H+301	H+306	H+348	LPP 1-3	BN 1/1(REIN): ELEM A/1LAR, ELEM WPNS, ELEM H&S	1352, 0010
ACU-2	1 LCAC		LPD-18	H+274	H+304	H+309	H+349	LPP 1-3	ELEM EFSS/1/11, ELEM LAAD	1204, 1256
ACU-2	1 LCAC		LHD-2	H+302	H+332	H+337	H+377	LPP 1-3		1353, 1501
ACU-2	1 LCAC		LPD-18	H+305	H+335	H+340	H+380	LPP 1-3		1360, 1800
ACU-2	1 LCAC		LHD-2	H+333	H+363	H+368	H+408	LPP 1-3		1303
ACU-1	1 LCAC		MPF(F)-1	H+277	H+307	H+312	H+352	LPP 3-2	BN 1/7(REIN): ELEM E/2/11 ELEM H&S	2254, 2010, 2800
ACU-1	2 LCAC		MPF(F)-2	H+278	H+308	H+313	H+353	LPP 3-2	ELEM LW155MM BTRY, AMMO	2453
ACU-1	2 LCAC		MPF(F)-2	H+310	H+340	H+345	H+385	LPP 3-2	ELEM LW155MM BTRY, AMMO	2454
2ND LCU(R) CYCLE										
ACU-2	1 LCU(R)		LSD-42	H+210	H+255	H+260	H+418	LPP 1-3	BN 1/1(REIN): DS CSS CO(-)	1801
ACU-2	1 LCU(R)		LSD-42	H+261	H+306	H+311	H+489	LPP 1-3		1802
ACU-3	2 LCU		MPF(F)-3	H+203	H+243	H+248	H+431	LPP 3-2	BN 1/7(REIN): DS CSS CO(-)	2801

APPENDIX E- LANDING PLAN
TAB C-LANDING CRAFT, ASSAULT VEHICLE AND AIRCRAFT EMPLOYMENT AND ASSAULT LANDING TABLE

SURFACE STOM

UNIT	CRAFT/ QUANTITY	FROM ORIGIN	TO REPORT LOAD	LOAD TIME	LAUNCH TIME	LOD TIME	LAND TIME	DESTINATION	TROOP UNIT	SERIAL

APPENDIX E- LANDING PLAN
TAB C-LANDING CRAFT, ASSAULT VEHICLE AND AIRCRAFT EMPLOYMENT AND ASSAULT LANDING TABLE

VERTICAL STOM

UNIT	CRAFT/ QUANTITY	FROM ORIGIN	TO REPORT LOAD	LOAD TIME	LAUNCH TIME	LOD TIME	LAND TIME	DESTINATION	TROOP UNIT	SERIAL
VERTICAL- INITIAL LIFTS										
DET, HMH-1	2 CH-53E	LHD-1	LHD-1			NA	L+5	LZ 1	BN 2/2(REIN): ELEM CAAT1	3201
DET, HMH-2	1 CH-53E	LHD-2	LPD-17				L+5	LZ 2	BN 2/2(REIN): ELEM CAAT2	3202-1
DET, HMH-2	1 CH-53E	LHD-2	LPD-17				L+5	LZ 2	BN 2/2(REIN): ELEM CAAT2	3202-1
DET, HMH-3	2 CH-53E	MPF	MPF-1				L+5	LZ 1	BN 2/7(REIN): ELEM CAAT1	4201
DET, HMH-3	2 CH-53E	MPF	MPF-2				L+5	LZ 1	BN 2/7(REIN): ELEM CAAT2	4202
DET, HMH-1	1 CH-53E	LHD-1	LPD-17				L+5	LZ 3	BN 2/2(REIN): ELEM HQ	3250-2
DET, HMH-1	1 CH-53E	LHD-1	LHD-1				L+5	LZ 3	BN 2/2(REIN): ELEM EFSS/1/10	3450-1
DET, HMH-3	1 CH-53E		MPF-1				L+5	LZ 3	BN 2/7(REIN): ELEM EFSS/2/11	4450-1
DET, HMH-3	2 CH-53E		MPF-1				L+5	LZ 4	BN 2/2(REIN): ELEM B/2NDLAR	3300-1
DET, HMH-3	2 CH-53E		MPF-1				L+5	LZ 4	BN 2/2(REIN): ELEM B/2NDLAR	3300-2
DET, HMH-3	1 CH-53E		MPF-1				L+5	LZ 4	BN 2/2(REIN): ELEM B/2NDLAR	3300-3
DET, HMH-	1 CH-53E		MPF-2				L+10	LZ 3	BN 2/7(REIN): ELEM HQ	4250-2
VMM-1	6 MV-22	LHD-1	LHD-1				L-HR	LZ 1	BN 2/2(REIN): CO E/2/2	3110
VMM-2	6 MV-22	LHD-2	LHD-2				L-HR	LZ 2	BN 2/2(REIN): CO B/1/1	3130
VMM-3	6 MV-22	MPF	MPF-1				L-HR	LZ 1	BN 2/7(REIN): CO E/2/7	4110
VMM-4	2 MV-22	MPF	MPF-2				L-HR	LZ 2	BN 2/7(REIN): CO G/2/7	4130
DET, VMM-1	3 MV-22	LHD-1	LPD-17				L-HR	LZ 3	BN 2/2(REIN): 81MM MORT	3200
DET, VMM-1	1 MV-22	LHD-1	LPD-17				L-HR	LZ 3	BN 2/2(REIN): ELEM HQ	3250-1
DET, VMM-3	1 MV-22	MPF	MPF-2				L+5	LZ 3	BN 2/7(REIN): ELEM HQ	4250-1
VMM-1	3 MV-22	LHD-1	LHD-1				L+10	LZ 1	BN 2/2(REIN): CO E/2/2	3111
VMM-2	3 MV-22	LHD-2	LHD-2				L+10	LZ 2	BN 2/2(REIN): CO B/1/1	3131
VMM-3	3 MV-22	MPF	MPF-1				L+10	LZ 1	BN 2/7(REIN): CO E/2/7	4111
VMM-4	7 MV-22	MPF	MPF-2				L+10	LZ 2	BN 2/7(REIN): CO G/2/7	4131
VMM-	3 MV-22	MPF	MPF-2				L+10	LZ 3	BN 2/7(REIN): 81MM MORT	4200
DET, VMM-	2 MV-22		LHD-1				L+10	LZ 3	BN 2/2(REIN): ELEM EFSS/1/10	3450-2
DET, VMM-	2 MV-22		MPF-1				L+10	LZ 3	BN 2/7(REIN): ELEM EFSS/2/11	4450-2
DET, VMM-	1 MV-22		MPF-1				L+10	LZ 4	BN 2/2(REIN): ELEM B/2NDLAR	3300-4

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VERTICAL STOM

UNIT	CRAFT/ QUANTITY	FROM ORIGIN	TO REPORT LOAD	LOAD TIME	LAUNCH TIME	LOD TIME	LAND TIME	DESTINATION	TROOP UNIT	SERIAL
VERTICAL- RETURN LIFTS										
	2 MV-22		LPD-17				L+84	LZ 3	BN 2/2(REIN): ELEM CO F/2/2	3120
	6 MV-22		MPF-2				L+84	LZ 1	BN 2/7(REIN): CO F/2/7	4120
	2 MV-22		LHD-1				L+96	LZ 1	BN 2/2(REIN): ELEM CAAT1	3203-1
	2 MV-22		LHD-1				L+96	LZ 1	BN 2/2(REIN): ELEM CAAT1	3203-2
	2 MV-22		LHD-1				L+96	LZ 3	BN 2/2(REIN): ELEM EFSS/1/10	3451-1
	2 MV-22		MPF-1				L+96	LZ 1	BN 2/7(REIN): ELEM CAAT1	4203-1
	2 MV-22		MPF-1				L+96	LZ 1	BN 2/7(REIN): ELEM CAAT1	4203-2
	2 MV-22		MPF-1				L+96	LZ 3	BN 2/7(REIN): ELEM EFSS/2/11	4451-1
	2 MV-22		LHD-1				L+97	LZ 3	BN 2/2(REIN): ELEM EFSS/1/10	3451-3
	1 MV-22		LHD-1				L+97	LZ 3	BN 2/2(REIN): ELEM EFSS/1/10	3451-4
	2 MV-22		MPF-1				L+97	LZ 3	BN 2/7(REIN): ELEM EFSS/2/11	4451-3
	1 MV-22		MPF-1				L+97	LZ 3	BN 2/7(REIN): ELEM EFSS/2/11	4451-4
	2 MV-22		LPD-17				L+104	LZ 3	BN 2/2(REIN): ELEM CO F/2/2	3121
	3 MV-22		MPF-2				L+104	LZ 1	BN 2/7(REIN): CO F/2/7	4121
	2 MV-22		LHD-1				L+109	LZ 3	BN 2/2(REIN): ELEM EFSS/1/10	3451-2
	2 MV-22		MPF-1				L+109	LZ 3	BN 2/7(REIN): ELEM EFSS/2/11	4451-2
36	2 MV-22		MPF-2				L+116	LZ 2	BN 2/7(REIN): ELEM CAAT2	4204-1
	2 CH-53E		MPF-1				L+122	LZ 4	BN 2/2(REIN): ELEM B/2NDLAR	3301-1
	2 CH-53E		MPF-1				L+124	LZ 4	BN 2/2(REIN): ELEM B/2NDLAR	3301-2
	2 MV-22		LPD-17				L+124	LZ 3	BN 2/2(REIN): ELEM CO F/2/2	3122
	2 MV-22		MPF-2				L+129	LZ 2	BN 2/7(REIN): ELEM CAAT2	4204-2
	2 CH-53E		MPF-1				L+131	LZ 4	BN 2/2(REIN): ELEM B/2NDLAR	3301-3
	1 CH-53E		MPF-2				L+131	LZ 3	BN 2/7(REIN): ELEM HQ/WPN	4251, 4205
	2 CH-53E		MPF-1				L+135	LZ 4	BN 2/2(REIN): ELEM B/2NDLAR	3301-4
	2 CH-53E		MPF-1				L+137	LZ 4	BN 2/2(REIN): ELEM B/2NDLAR	3301-5
	2 CH-53E		MPF-2				L+138	LZ 3	BN 2/7(REIN): ELEM WPNS/2/7	4206-1
	2 CH-53E		MPF-2				L+138	LZ 3	BN 2/7(REIN): ELEM WPNS/2/7	4206-2
	1 CH-53E		MPF-1				L+144	LZ 4	BN 2/2(REIN): ELEM B/2NDLAR	3301-6
	2 MV-22		LPD-17				L+144	LZ 3	BN 2/2(REIN): ELEM CO F/2/2	3123
	1 MV-22		LPD-17				L+164	LZ 3	BN 2/2(REIN): ELEM CO F/2/2	3124
	3 MV-22		MPF-1				L+168	LZ 4	BN 2/2(REIN): ELEM B/2NDLAR	3301-7
	1 MV-22		MPF-2				L+168	LZ 3	BN 2/7(REIN): ELEM HQ	4252
	1 MV-22		LPD-17				L+176	LZ 2	BN 2/2(REIN): ELEM CAAT2	3204-1

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VERTICAL STOM

UNIT	CRAFT/ QUANTITY	FROM ORIGIN	TO REPORT LOAD	LOAD TIME	LAUNCH TIME	LOD TIME	LAND TIME	DESTINATION	TROOP UNIT	SERIAL
	3 MV-22		LHD-1				L+180	LZ 3	BN 2/2(REIN): ELEM EFSS/1/10	3452-1
	3 MV-22		LHD-1				L+181	LZ 3	BN 2/2(REIN): ELEM EFSS/1/10	3452-3
	1 MV-22		LPD-17				L+189	LZ 2	BN 2/2(REIN): ELEM CAAT2	3204-2
	3 MV-22		MPF-1				L+192	LZ 3	BN 2/7(REIN): ELEM EFSS/2/11	4452-1
	3 MV-22		LHD-1				L+192	LZ 3	BN 2/2(REIN): ELEM EFSS/1/10	3452-2
	2 MV-22		MPF-2				L+192	LZ 3	BN 2/7(REIN): ELEM HQ	4253-1
	2 MV-22		MPF-2				L+192	LZ 3	BN 2/7(REIN): ELEM HQ	4253-2
	3 MV-22		MPF-3				L+193	LZ 3	BN 2/7(REIN): CSS DET	4800
	3 MV-22		MPF-1				L+193	LZ 3	BN 2/7(REIN): ELEM EFSS/2/11	4452-3
	1 MV-22		LPD-17				L+196	LZ 2	BN 2/2(REIN): ELEM CAAT2	3205-1
	3 MV-22		MPF-1				L+200	LZ 3	BN 2/7(REIN): ELEM EFSS/2/11	4452-2
	2 MV-22		MPF-2				L+200	LZ 3	BN 2/7(REIN): ELEM HQ	4253-3
	2 MV-22		MPF-4				L+200	LZ 3	BN 2/7(REIN): AIRDEF DET	4500
	1 MV-22		LPD-17				L+202	LZ 2	BN 2/2(REIN): ELEM CAAT2	3205-2
	1 MV-22		MPF-2				L+205	LZ 3	BN 2/7(REIN): ELEM HQ	4253-4
	2 MV-22		MPF-1				L+208	LZ 4	BN 2/2(REIN): ELEM B/2NDLAR	3302-6
	1 MV-22		LPD-17				L+209	LZ 3	BN 2/2(REIN): ELEM HQ	3251-1
	1 MV-22		MPF-2				L+212	LZ 3	BN 2/7(REIN): ELEM WPNS/2/7	4207
	2 MV-22		LHD-1				L+212	LZ 3	BN 2/2(REIN): AIRDEF DET	3500
	1 CH-53E		LPD-17				L+217	LZ 3	BN 2/2(REIN): ELEM WPNS/2/2	3206
	1 MV-22		MPF-2				L+225	LZ 3	BN 2/7(REIN): ELEM WPNS/2/7	4208-1
	1 CH-53E		LPD-17				L+230	LZ 3	BN 2/2(REIN): ELEM WPNS/2/2	3207
	1 MV-22		LPD-17				L+236	LZ 3	BN 2/2(REIN): ELEM HQ	3251-2
	1 CH-53E		MPF-1				L+239	LZ 3	BN 2/2(REIN): ENGRSUPT DET	3803-1
	2 MV-22		MPF-2				L+240	LZ 3	BN 2/7(REIN): ELEM WPNS/2/7	4208-2
	1 CH-53E		MPF-1				L+241	LZ 3	BN 2/2(REIN): ENGRSUPT DET	3803-2
	1 CH-53E		MPF-1				L+241	LZ 4	BN 2/2(REIN): ELEM B/2NDLAR	3302-1
	1 CH-53E		LPD-17				L+243	LZ 3	BN 2/2(REIN): ELEM WPNS/2/2	3208
	2 CH-53E		MPF-1				L+248	LZ 4	BN 2/2(REIN): ELEM B/2NDLAR	3302-2
	1 CH-53E		MPF-2				L+248	LZ 3	BN 2/7(REIN): ELEM WPNS/2/7	4208-3
	2 CH-53E		MPF-1				L+252	LZ 4	BN 2/2(REIN): ELEM B/2NDLAR	3302-3
	2 CH-53E		MPF-1				L+254	LZ 4	BN 2/2(REIN): ELEM B/2NDLAR	3302-4

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VERTICAL STOM

UNIT	CRAFT/ QUANTITY	FROM ORIGIN	TO REPORT LOAD	LOAD TIME	LAUNCH TIME	LOD TIME	LAND TIME	DESTINATION	TROOP UNIT	SERIAL
	1 CH-53E		MPF-3				L+255		MED DET, CSS	4810-1
	1 CH-53E		MPF-2				L+255	LZ 3	BN 2/7(REIN): ELEM WPNS/2/7	4208-4
	2 MV-22		MPF-3				L+260		MED DET, CSS	4810-2
	1 CH-53E		LPD-17				L+261	LZ 3	BN 2/2(REIN): ELEM HQ	3252-1
	1 CH-53E		MPF-1				L+261	LZ 4	BN 2/2(REIN): ELEM B/2NDLAR	3302-5
	3 MV-22		MPF-1				L+264	LZ 3	BN 2/7(REIN): ELEM EFSS/2/11	4453
	1 MV-22		LPD-17				L+274	LZ 3	BN 2/2(REIN): ELEM HQ	3252-2
	1 MV-22		LPD-17				L+283	LZ 3	BN 2/2(REIN): ELEM HQ	3252-3
	1 MV-22		LPD-17				L+287	LZ 3	BN 2/2(REIN): ELEM HQ	3252-4
	3 MV-22		LHD-1				L+288	LZ 3	BN 2/2(REIN): ELEM EFSS/1/10	3453-1
	3 MV-22		LHD-1				L+288	LZ 3	BN 2/2(REIN): ELEM EFSS/1/10	3453-2
	3 MV-22		MPF-1				L+288	LZ 3	BN 2/7(REIN): ELEM EFSS/2/11	4454-1
	3 MV-22		MPF-1				L+289	LZ 3	BN 2/7(REIN): ELEM EFSS/2/11	4454-2
	3 MV-22		MPF-2				L+289	LZ 3	BN 2/7(REIN): ELEM CMBTENGR	4400-1
	3 MV-22		MPF-3				L+296	LZ 3	BN 2/7(REIN): ELEM CSS DET	4801
	2 MV-22		MPF-4				L+296	LZ 3	BN 2/7(REIN): AIRDEF DET	4501-1
	2 MV-22		MPF-4				L+296	LZ 3	BN 2/7(REIN): AIRDEF DET	4501-2
	1 MV-22		LPD-17				L+296	LZ 3	BN 2/2(REIN): ELEM HQ	3252-5
	1 MV-22		LPD-17				L+298	LZ 3	BN 2/2(REIN): ELEM WPNS/2/2	3209-1
	1 MV-22		MPF-2				L+298	LZ 3	BN 2/7(REIN): ELEM HQ	4254
	3 MV-22		LHD-1				L+304	LZ 3	BN 2/2(REIN): ELEM EFSS/1/10	3454-1
	1 MV-22		LPD-17				L+307	LZ 3	BN 2/2(REIN): ELEM WPNS/2/2	3209-2
	3 MV-22		LHD-1				L+308	LZ 3	BN 2/2(REIN): ELEM EFSS/1/10	3454-2
	1 MV-22		MPF-1				L+308	LZ 3	BN 2/7(REIN): ELEM EFSS/2/11	4455-1
	1 MV-22		LPD-17				L+311	LZ 3	BN 2/2(REIN): ELEM WPNS/2/2	3209-3
	1 MV-22		MPF-1				L+321	LZ 3	BN 2/7(REIN): ELEM EFSS/2/11	4455-2
	1 MV-22		LPD-17				L+322	LZ 3	BN 2/2(REIN): ELEM WPNS/2/2	3209-4
	1 MV-22		LPD-17				L+326	LZ 3	BN 2/2(REIN): ELEM WPNS/2/2	3210-1
	1 MV-22		MPF-1				L+332	LZ 3	BN 2/7(REIN): ELEM EFSS/2/11	4455-3
	1 CH-53E		MPF-1				L+334	LZ 3	BN 2/7(REIN): ENGRSUPT DET	4401-1
	1 MV-22		LPD-17				L+335	LZ 3	BN 2/2(REIN): ELEM WPNS/2/2	3210-2

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VERTICAL STOM

UNIT	CRAFT/ QUANTITY	FROM ORIGIN	TO REPORT LOAD	LOAD TIME	LAUNCH TIME	LOD TIME	LAND TIME	DESTINATION	TROOP UNIT	SERIAL
	2 MV-22		LHD-1				L+336	LZ 3	BN 2/2(REIN): AIRDEF DET	3501-1
	1 CH-53E		MPF-1				L+347	LZ 3	BN 2/7(REIN): ENGRSUPT DET	4401-2
	1 MV-22		LPD-17				L+356	LZ 3	BN 2/2(REIN): ELEM WPNS/2/2	3211
	1 CH-53E		MPF-1				L+356	LZ 4	BN 2/2(REIN): ELEM B/2NDLAR	3303
	1 CH-53E		LPD-17				L+358	LZ 3	BN 2/2(REIN): ELEM HQ/CSS DET	3253, 3800
	1 CH-53E		LHD-1				L+358	LZ 3	BN 2/2(REIN): AIRDEF DET	3501-2
	1 MV-22		MPF-2				L+360	LZ 3	BN 2/7(REIN): ELEM CSS DET	4802
	1 CH-53E		MPF-2				L+360	LZ 3	BN 2/7(REIN): ELEM HQ	4255
	1 MV-22		LPD-17				L+371	LZ 3	BN 2/2(REIN): ELEM CMBTENGR	3400-1
	1 MV-22		LPD-17				L+382	LZ 3	BN 2/2(REIN): ELEM CMBTENGR	3400-2
	1 CH-53E		LPD-17				L+384	LZ 3	BN 2/2(REIN): ELEM ENGR/WPN	3401, 3212
	1 CH-53E		LPD-17				L+397	LZ 3	BN 2/2(REIN): ELEM CSS DET	3801-1
	1 CH-53E		LPD-17				L+397	LZ 3	BN 2/2(REIN): ELEM CSS DET	3801-2
	1 CH-53E		LPD-17				L+410	LZ 3	BN 2/2(REIN): ELEM CSS DET	3802
	1 CH-53E		LPD-17				L+423	LZ 3	BN 2/2(REIN): ELEM HQ	3254
	1 CH-53E		LPD-17				L+436	LZ 3	BN 2/2(REIN): ELEM HQ	3255, TBD

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TAB D- ASSAULT SCHEDULE- SURFACE

LPS 1

ESTIMATED TIME OF LANDING LEAD CRAFT	**UNIT/CRAFT/VEHICLE** **LPS-1** **LPP-1**	**LPP-2** ALTERNATE	**LPP-3** **CLZ**	**LPP-4**
H+70	BLT-1/1: G/2/2 1/B/2TANK ELEM BN HQ 14 EFV 2 LCU(R)			BLT-1/1: A/1/1 3/A/1TANK ELEM BN HQ 14 EFV 2 LCU(R)
H+80			BLT-1/1: ELEM A/1LAR ELEM WPNS 1/1 ELEM H&S/1/1 5 LCAC	
H+215			BLT-1/1: ELEM WPNS/1/1 ELEM H&S/1/1 ELEM A/1LAR ELEM EFSS/1/11 5 LCAC	
H+350			BLT-1/1: ELEM WPNS/1/1 ELEM H&S/1/1 ELEM A/1LAR ELEM EFSS/1/11 5 LCAC	
H+420			BLT-1/1: DS CSS CO(-) 2 LCU(R)	

LPS 3

ESTIMATED TIME OF LANDING LEAD CRAFT	**UNIT/CRAFT/VEHICLE** **LPS-3** **LPP-1**	**LPP-2** **CLZ**	**LPP-3**	**LPP-4**
H+70	BLT-1/7: A/1/7 12 EFV		BLT-1/7: B/1/7 12 EFV	BLT-1/7: C/1/7 12 EFV
H+80	BLT-1/7: ELEM WPNS 1/7 ELEM B/1TANK ELEM CBTENGR 3 LCU(R)		BLT-1/7: ELEM WPNS 1/7 ELEM B/1TANK ELEM CBTENGR 3 LCU(R)	BLT-1/7: ELEM WPNS 1/7 3/B/1TANK 2 LCU(R)
H+85		BLT-1/7: C/1LAR ELEM WPNS 1/7 ELEM H&S/1/7 ELEM LAAD 5 LCAC 1 LCU(R)	BMU DET 1 LCU(R)	
H+220		BLT-1/7: BTRY E/2/11(-) ELEM H&S/1/7 MACD, CLAWS 5 LCAC		
H+350		BLT-1/7: ELEM BTRY E/2/11 ELEM H&S/1/7 5 LCAC		
H+425		BLT-1/7: DS CSS CO(-) 2 LCU(R)		

Appendix F

MPF(F) Flow-In Echelon (FIE) Lift Allocation

For planning, the airfields at Diego Garcia and the supporting coalition nation (CN) are capable of handling wide-body commercial (747 equivalent with 450 passengers (PAX)) and C-17 aircraft simultaneously to include baggage and cargo pallets. C-17s can transport either 1 CH-53 or 3 AH-1 or 3 UH-1 helicopters or appropriate mix of AH/UH. This page shows the totals of PAX and the commercial aircraft flow, followed by details of force closure into the LPZ.

	PAX
•• MEB Adv. Party to CN (A/P) =	40
•• MEB PAX flying on C-17 =	182
•• ACE self-deploy (SD) =	304
•• Commercial (Ashore) =	827
•• Sea based (SB) on MPF(F) & ESG	7,443
•• SB aboard Aircraft Carriers (CVNs) =	703
• **MPF MEB FIE PAX Total** =	9,498

The movement of personnel required 22 747s, 48 C-17s and zero C-5s

• Total 747 **equiv. (A/P,SB FIE Inc 1,2,3) =**	17
• Total 747 equivalents (ashore PAX) =	4
Total 747 equivalents for SB initial Assault Inc =	21
Last 747, PAX SOA FIE =	1
• **Total Commercial 747 equiv. A/C =**	**22**

• MPF MEB Element PAX Breakdown (categorized by **sea/shore basing** requirements)

•• CE	143/0088	231
•• CSSE	1,043/0167	1,210
•• GCE	4,058/0117	4,175
CE, CSSE, GCE subtotal	**5,244/0372**	**5,616**
•• ACE (R/W, UAV)	1,837/0,000	
(VMGR, AEA,Dets MAG/MALS	0/0,909	2,746
(MAG R/W)	111/0,003	114
(MALS R/W)	100/0,000	100
(MATCS Det)	50/0,050	100
(MACD)	50/0,050	100
MAW (HQ Det)	16/0,004	20
•• ACE F/W ON CVN (JSF [3], Dets MAG/MALS	702/0,000	702
ACE Total	**2,866/1,016**	**3,882**
CE, CSSE, GCE subtotal		**5,616**
• **MPF MEB PAX GRAND TOTAL =**		**9,498**

- ACE Commercial Airlift PAX

•• VMM (4 sqdn x 204) =	816
•• HMH (1 sqdn) =	358
•• HMLA (1 sqdn) =	465
•• VMFA*(2 sqdn x 20 A/C current sqdn [12 A/C] 223 PAX 223/12 = 19 per A/C X 30) =	570
•• VMGR (1 sqdn) =	368
•• AEA (VMAQ) (1 sqdn) =	255
•• VMU (UAV) (1 sqdn) =	198
•• **Total =**	**3,030**

* Based on planning numbers in JSV concept of employment where 16 C17 equivalents are required for 2 squadrons, minus 8 C17 for (760) PAX already considered in the commercial airlift. Planning for maximum PAX on a C17 = 100

- ACE self-deploying PAX

•• MV22 (48 A/C) =	192
•• JSV (30) =	30
•• KC130J (12) =	72
•• AEA (5) =	10
•• **Total self-deploy =**	**304**

Coalition nation A/P = 40

Future MPF A/Ps (#s 1, 2, 3) will fly into Diego Garcia.
Planning factor, 5% of total PAX (7,700 original SB PAX estimate) = 385.

- A/P #1 consists of element liaison personnel to coordinate with the ship and CSS personnel for berthing, messing, ship-board services, etc. Planning factors for all 6 ships (1 commercial wide body w/7 baggage & 2 cargo pals including certain critical low density/high demand [CLD/HD] items):
  - •• Four personnel per element (CE, GCE, ACE, BSSG, NSE) on each ship = 24 PAX

- A/P #2 consists of mostly CSS personnel (50% of total A/P for BSSG = 180 PAX, 30 per ship) who will work with ship to prepare to provide life support services, reconfigure or prepare vehicles, supplies and equipment for offload and ready cargo storage and handling systems. NSE personnel will prepare for cargo discharge operations.

• A/P #3 consists of MEB command and control and aviation support personnel (green & blue [as req'd]), to set-up operations control centers, prepare aviation support equipment and assist in reconfigurations of supplies & equipment in anticipation of A/C maintenance. 76 PAX (MEB C^2)+ 105 PAX (ACE/ATCs); total = 181 PAX

•• A/P #1 = 24 PAX
•• A/P #2 = 180
•• A/P #3 = 181
• Total PAX = 385

- Flow-in Increments	PAX	747 Equiv	C17 Equiv
• **Commercial** MPF A/P PAX =	385	1	
• Commercial #1 =	2,700	6	
• **Commercial** ACE ALPHA =	450	1	
• Commercial #2 =	2,700	6	
• **Commercial** ACE BRAVO =	400	1	
• Commercial #3 =	1,658	4	
• **Commercial** ACE CHARLIE =	400	1	
• **Commercial** ACE DELTA =	251	1	
• **Strategic** #1 PAX =	55		
•• 1 CH-53			1
•• 27 AH-1/UH-1 (3 of each per A/C)			9
•• FIE ACE/AGSE =			2
• Strategic #2 PAX =	55		
•• 10 CH-53			10
•• FIE ACE/AGSE =			3
• Strategic #3 PAX =	42		
•• 9 CH-53			9
•• FIE ACE/AGSE =			4
•• FIE MEB CLD/HD =			1
• Strategic #4 PAX (20 ACE) =	30		
•• FIE ACE/AGSE =			7
•• FIE MEB CLD/HD =			2
• **Total 747 & C17 PAX**: (less SD & CN A/P)	9,126	21	48
• Final 747 (SOA FIE)	372	1	
• **Total MEB PAX**:	**9,498**	**22**	

• Aircraft by (movement) Day:	747 Equiv	C17 Equiv
•• Day 0 =	1	
•• Day 1 =	7	12
•• Day 2 =	7	13
•• Day 3 =	4	14
•• Day 4 =	4	9
•• TBD (CP PAX) =	2	

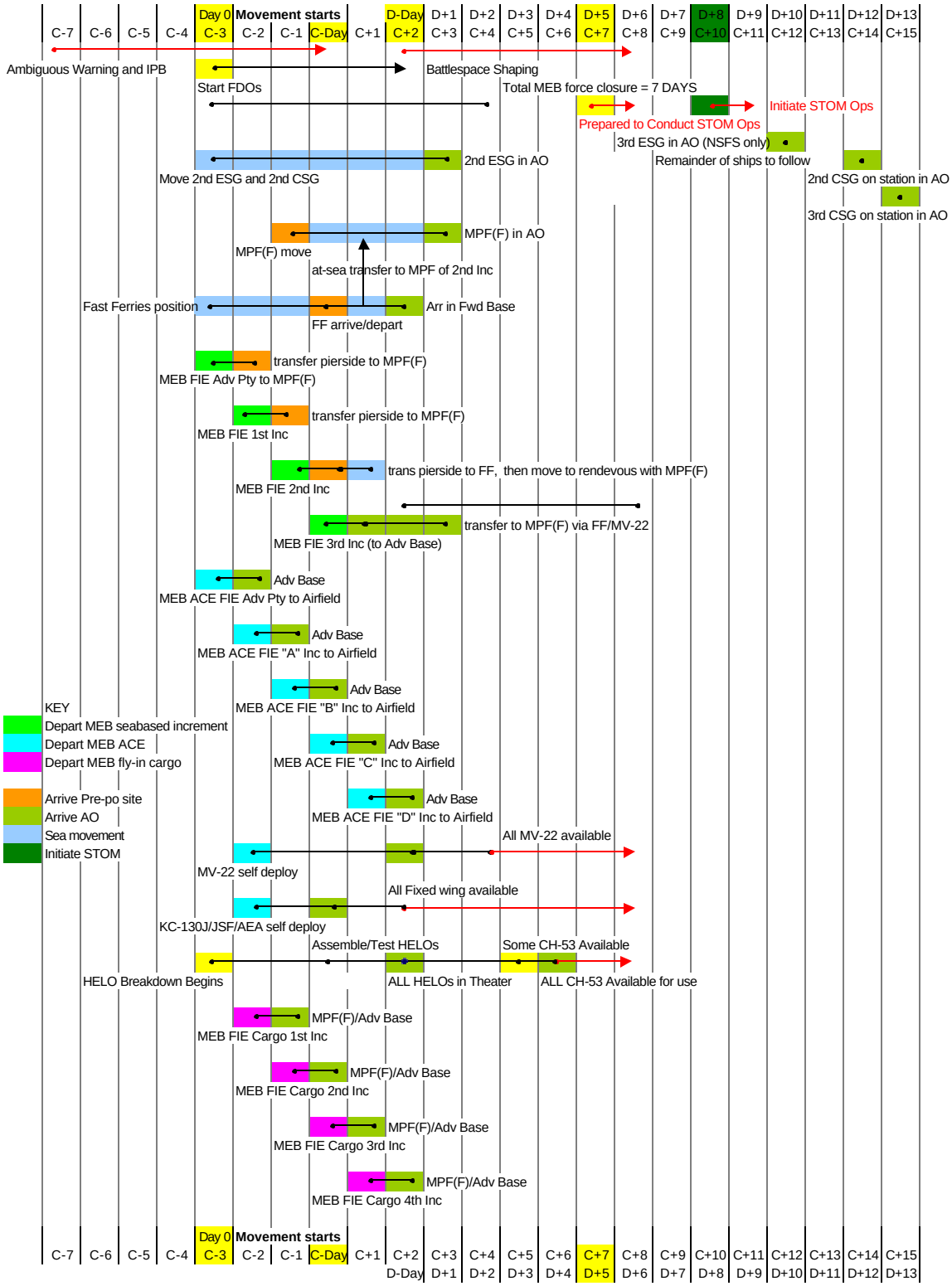
Transit to MPF ships assumes 3 FFs have been positioned in Diego Garcia from Mogadishu and, or Mombassa to transport the 2nd FIE increment and any CLD/HD items to the MPF ships for an at-sea PAX transfer and then complete the leg to the coalition port. An additional FF has been positioned from Djibouti to the coalition port to begin movement of the 3d FIE increment upon its arrival. A combination of the 4 FFs and multiple MV22 lifts will be used to transport the remainder of sea-based personnel and any FIE CLD/HD items required on MPF ships. FFs will remain on station for use as required. FF planning factors and timeline (based on 3 day transit for MPF ships (Diego to AO):

- Craft Availability: 4 available for use
- PAX: 500 – 1,000, cargo 1,200 – 1,500 S/T, 20 – 25,000 sqft stowage area.
- Speed: 40+ KTS
- Operating Radius: 1,000 NM (max payload)
- Timeline from Diego, 3 FFs for FIE increment 2:
  - •• Load PAX/stow bags/minimum equip = 4 hrs
  - •• XSIT = 18 hrs
  - •• offload MPF(F)= 3 hrs
  - •• XSIT to coalition SPOE = 18 hrs

- Timeline from coalition SPOE, 2 FFs:
  - •• Load PAX/stow bags/min equip = 4 hrs
  - •• XSIT = 1 hrs
  - •• offload MPF(F)= 3 hrs

Day 1: TF boards MPF	2,700 PAX
Day 2: 3 FFs (900 PAX ea) =	2,700
Day 3: FFs XSIT to coalition SPOE	
Day 4/5: 2 FFs =	1,558
MV22 (est. 5 lifts)=	100
Total Sea based Personnel for FF:	7,058
Sea based A/P:	385
Total Sea based Personnel on MPF(F)	7,443

FORCE FLOW FOR STOM CONOPS



Appendix H, Tab 2. Flight Planning Data

VERTICAL ASSUALT						
	INGRESS W/OUT EXT	INGRESS W/NET LOAD	INGRESS W/ VEHICLE	INGRESS W/ BLADDER	INGRESS W/ LAV	EGRESS
OBJECTIVE B 110 NM						
MV-22	28+00	44+00	55+00	1+15+00		28+00
CH-53E	51+00	51+00	55+00	1+15+00	51+00	51+00
AH-1Z	47+00					47+00
UH-1Y	47+00					47+00
OBJECTIVE C 35 NM						
MV-22	9+00	14+00		27+00		9+00
CH-53E	14+00	16+00		27+00		14+00
AH-1Z	15+00					15+00
UH-1Y	15+00					15+00
AIRBASE 75 NM						
MV-22	19+00					19+00
CH-53E	34+00					34+00
AH-1Z	32+00					32+00
UH-1Y	32+00					32+00

AIRSPEED CHART					
	INGRESS	W/ NET LOAD	W/ VEHICLE	W/ BLADDER	W/ LAV
MV-22	240KTS	150KTS	120KTS	80KTS	
CH-53E	135KTS	135KTS	120KTS	80KTS	130KTS
AH-1Z	140KTS				
UH-1Y	140KTS	90KTS			

Appendix H, Tab 2. Flight Planning Data

PLANNING FACTORS		
EVENT	**MV-22**	**CH-53E**
SPOT/SPREAD/STARTUP	30+00	30+00
GROUND HANDLING/TAXI	2+00	2+00
LOAD CARGO	15+00	20+00
LOAD MARINES	10+00	15+00
TAKE OFF	5+00	5+00
LOAD HOOKUP	3+00	3+00
UNHOOK	1+00	1+00
UNLOAD	3+00	5+00
REFUEL	10+00	10+00
TRANSIT BETWEEN SHIPS	10+00	10+00
LANDING	2+00	2+00
SHUTDOWN	15+00	15+00

APPENDIX H, TAB 3, ORDER OF LANDING

1ST CYCLE

26 MEU

LHD-1

To LZ 1	
Co E/2/2(REIN)	24
Co E/2/2(REIN)	24
Co E/2/2(REIN)	24
Co E/2/2(REIN)	24
Co E/2/2(REIN)	24
Co E/2/2(REIN)	24
Co E/2/2(REIN)	24
Co E/2/2(REIN)	24
Co E/2/2(REIN)	7
Engr Sqd	9

To LZ 1	
CAAT1	6
HMMWV Ext	
CAAT1	5
HMMWV Ext	

LPD-1

To LZ 3	
81mm Mort Plt	24
81mm Mort Plt	24
81mm Mort Plt	11

To LZ 3	
BLT 2/2 HQ GROUP	24

To LZ 2	
CAAT2	6
HMMWV Ext	
CAAT2	5
HMMWV Ext	
CAAT2	6
HMMWV Ext	
CAAT2	5
HMMWV Ext	

To LZ 3	
BLT 2/2 HQ GROUP	4
MRC Ext	

LSD-1

OPEN

11 MEU

LHD-2

To LZ 2	
Co B/1/1(REIN) (att from 11M	24
Co B/1/1(REIN) (att from 11M	24
Co B/1/1(REIN) (att from 11M	24
Co B/1/1(REIN) (att from 11M	24
Co B/1/1(REIN) (att from 11M	24
Co B/1/1(REIN) (att from 11M	24
Co B/1/1(REIN) (att from 11M	24
Co B/1/1(REIN) (att from 11M	24
Co B/1/1(REIN) (att from 11M	7
Engr Sqd	9

CAAT1	6
HMMWV Ext	
CAAT1	5
HMMWV Ext	

To LZ 3	
EFSS Btry/1/10	5
EFSS System	
EFSS Btry/1/10	5
EFSS System	
EFSS Btry/1/10	
HMMWV Ext	
EFSS Btry/1/10	
HMMWV Ext	

To LZ 4	
Co B/2ndLARBn	24
Co B/2ndLARBn	2
LAV Ext	
Co B/2ndLARBn	2
LAV Ext	
Co B/2ndLARBn	2
LAV Ext	
Co B/2ndLARBn	2
LAV Ext	
Co B/2ndLARBn	2
LAV Ext	

31 MV-22

10 CH53

2ND CYCLE

LHD-1

To LZ 1	
CAAT1	6
HMMWV Ext	
CAAT1	5
HMMWV Ext	
CAAT1	6
HMMWV Ext	
CAAT1	5
HMMWV Ext	

To LZ 3	
EFSS Btry/1/10	5
EFSS System	
EFSS Btry/1/10	5
EFSS System	
EFSS Btry/1/10	5
EFSS System	
EFSS Btry/1/10	
HMMWV Ext	
EFSS Btry/1/10	
HMMWV Ext	
EFSS Btry/1/10	
HMMWV Ext	
EFSS Btry/1/10	
HMMWV Ext	

To LZ 4	
Co B/2ndLARBn	6
LAV Ext	

LPD-1

To LZ 3	
Co F/2/2(REIN)	24
Co F/2/2(REIN)	24
Co F/2/2(REIN)	24
Co F/2/2(REIN)	24
Co F/2/2(REIN)	24
Co F/2/2(REIN)	24
Co F/2/2(REIN)	24
Co F/2/2(REIN)	24
Co F/2/2(REIN)	7
Engr Sqd	9

To LZ 2	
CAAT2	6
HMMWV Ext	
CAAT2	5
HMMWV Ext	
CAAT2	6
HMMWV Ext	
CAAT2	5
HMMWV Ext	

LSD-1

Co B/2ndLARBn	0
LAV Ext	
Co B/2ndLARBn	6
LAV Ext	
Co B/2ndLARBn	0
LAV Ext	
Co B/2ndLARBn	0
LAV Ext	
Co B/2ndLARBn	0
LAV Ext	
Co B/2ndLARBn	0
LAV Ext	
Co B/2ndLARBn	0
LAV Ext	
Co B/2ndLARBn	0
LAV Ext	
Co B/2ndLARBn	0
LAV Ext	
Co B/2ndLARBn	24
Co B/2ndLARBn	24
Co B/2ndLARBn	24

To LZ 3	
BLT 2/2 HQ GROUP	24
BLT 2/2 HQ GROUP	4
MRC Ext	

To LZ 3	
WPNS Co/2/2	4
MRC Ext	
WPNS Co/2/2	2
HMMWV Ext	
WPNS Co/2/2	3
HMMWV Ext	
WPNS Co/2/2	3
HMMWV Ext	
WPNS Co/2/2	5
HMMWV Ext	

To LZ 4	
Co B/2ndLARBn	4
LAV Ext	

3RD CYCLE

LHD-1

To LZ 3	
EFSS Btry/1/10	5
EFSS System	
EFSS Btry/1/10	5
EFSS System	
EFSS Btry/1/10	5
EFSS System	
EFSS Btry/1/10	
HMMWV Ext	
EFSS Btry/1/10	
HMMWV Ext	
EFSS Btry/1/10	
HMMWV Ext	
EFSS Btry/1/10	
HMMWV Ext	
EFSS Btry/1/10	
HMMWV Ext	
EFSS Btry/1/10	
HMMWV Ext	

To LZ 3	
LAAD Det	2
HMMWV Ext	
LAAD Det	2
HMMWV Ext	

LPD-1

To LZ 3	
BLT 2/2 HQ GROUP	4
MRC Ext	
BLT 2/2 HQ GROUP	4
MRC Ext	
BLT 2/2 HQ GROUP	4
MRC Ext	
BLT 2/2 HQ GROUP	4
MRC Ext	
BLT 2/2 HQ GROUP	4
MRC Ext	
WPNS Co/2/2	4
MRC Ext	
BLT 2/2 HQ GROUP	
HMMWV Ext	
BLT 2/2 HQ GROUP	
HMMWV Ext	

To LZ 3	
WPNS Co/2/2	2
HMMWV Ext	
WPNS Co/2/2	2
HMMWV Ext	
WPNS Co/2/2	2
HMMWV Ext	
WPNS Co/2/2	2
HMMWV Ext	
WPNS Co/2/2	2

LSD-1

HMMWV Ext	
WPNS Co/2/2	2
HMMWV Ext	
WPNS Co/2/2	2
HMMWV Ext	

To LZ 3	
CSS Det	4
HMMWV Ext	

To LZ 4	
Co B/2ndLARBn	0
LAV Ext	
Co B/2ndLARBn	6
LAV Ext	
Co B/2ndLARBn	0
LAV Ext	
Co B/2ndLARBn	6
LAV Ext	
Co B/2ndLARBn	0
LAV Ext	
Co B/2ndLARBn	0
LAV Ext	
Co B/2ndLARBn	0
LAV Ext	
Co B/2ndLARBn	0
LAV Ext	
Co B/2ndLARBn	0
LAV Ext	
Co B/2ndLARBn	24
Co B/2ndLARBn	24

To LZ 3	
CSS Det	4
SEE-Trac Ext	
CSS Det	0
SEE-Trac Ext	

4TH CYCLE

LHD-1

To LZ 3	
EFSS Btry/1/10	
HMMWV Ext	
EFSS Btry/1/10	
HMMWV Ext	
EFSS Btry/1/10	
HMMWV Ext	
EFSS Btry/1/10	
HMMWV Ext	
EFSS Btry/1/10	
HMMWV Ext	
EFSS Btry/1/10	
HMMWV Ext	
EFSS Btry/1/10	
HMMWV Ext	
EFSS Btry/1/10	
HMMWV Ext	
EFSS Btry/1/10	
HMMWV Ext	
EFSS Btry/1/10	
HMMWV Ext	
EFSS Btry/1/10	
HMMWV Ext	
EFSS Btry/1/10	
HMMWV Ext	

To LZ 3

LPD-1

To LZ 3	
CbtEngr/2/2	2
HMMWV Ext	
CbtEngr/2/2	2
HMMWV Ext	
CbtEngr/2/2	2
HMMWV Ext	

To LZ 3	
CSS Det	4
HMMWV Ext	
CSS Det	4
HMMWV Ext	
CSS Det	4
HMMWV Ext	

To LZ 3	
BLT 2/2 HQ GROUP	
HMMWV Ext	
BLT 2/2 HQ GROUP	
HMMWV Ext	
BLT 2/2 HQ GROUP	
HMMWV Ext	
BLT 2/2 HQ GROUP	
HMMWV Ext	
BLT 2/2 HQ GROUP	
HMMWV Ext	

LSD-1

LAAD Det	2
HMMWV Ext	
LAAD Det	2
HMMWV Ext	
LAAD Det	2
HMMWV Ext	
LAAD Det	2
HMMWV Ext	

APPENDIX H, TAB 3, ORDER OF LANDING

1ST CYCLE

7th MEB

6 spots	6 spots	4 spots	4 spots
MPF-1	MPF-2	MPF-3	MPF-4

To LZ 1	
Co E/2/7(REIN)	24
Co E/2/7(REIN)	24
Co E/2/7(REIN)	24
Co E/2/7(REIN)	24
Co E/2/7(REIN)	24
Co E/2/7(REIN)	24
Co E/2/7(REIN)	24
Co E/2/7(REIN)	24
Co E/2/7(REIN)	7
Engr Sqd	9

To LZ 2	
Co G/2/7(REIN) (att from 11M	24
Co G/2/7(REIN) (att from 11M	24
Co G/2/7(REIN) (att from 11M	24
Co G/2/7(REIN) (att from 11M	24
Co G/2/7(REIN) (att from 11M	24
Co G/2/7(REIN) (att from 11M	24
Co G/2/7(REIN) (att from 11M	24
Co G/2/7(REIN) (att from 11M	24
Co G/2/7(REIN) (att from 11M	7
Engr Sqd	9

To LZ 1	
CAAT1	6
HMMWV Ext	
CAAT1	5
HMMWV Ext	
CAAT1	6
HMMWV Ext	
CAAT1	5
HMMWV Ext	

To LZ 2	
CAAT2	6
HMMWV Ext	
CAAT2	5
HMMWV Ext	
CAAT2	6
HMMWV Ext	
CAAT2	5
HMMWV Ext	

To LZ 3	
EFSS Btry/2/11	5
EFSS System	
EFSS Btry/2/11	5
EFSS System	
EFSS Btry/2/11	
HMMWV Ext	

To LZ 3	
81mm Mort Plt	24
81mm Mort Plt	24
81mm Mort Plt	11

EFSS Btry/2/11	
HMMWV Ext	

To LZ 3	
BLT 2/7 HQ GROUP	24
BLT 2/7 HQ GROUP	4
MRC Ext	

2ND CYCLE

MPF-1		MPF-2		MPF-3	MPF-4
To LZ 1		**To LZ 3**			
CAAT1	6	Co F/2/7(REIN)	24		
HMMWV Ext					
CAAT1	5	Co F/2/7(REIN)	24		
HMMWV Ext					
CAAT1	6	Co F/2/7(REIN)	24		
HMMWV Ext					
CAAT1	5	Co F/2/7(REIN)	24		
HMMWV Ext					
		Co F/2/7(REIN)	24		
To LZ 3					
EFSS Btry/2/11	5	Co F/2/7(REIN)	24		
EFSS System					
EFSS Btry/2/11	5	Co F/2/7(REIN)	24		
EFSS System					
EFSS Btry/2/11	5	Co F/2/7(REIN)	24		
EFSS System					
EFSS Btry/2/11		Co F/2/7(REIN)	24		
HMMWV Ext					
EFSS Btry/2/11		Co F/2/7(REIN)	7		
HMMWV Ext		Engr Sqd	9		
EFSS Btry/2/11		**To LZ 2**			
HMMWV Ext					
EFSS Btry/2/11		CAAT2	6		
HMMWV Ext		HMMWV Ext			
EFSS Btry/2/11		CAAT2	5		
HMMWV Ext		HMMWV Ext			
		CAAT2	6		
		HMMWV Ext			
		CAAT2	5		
		HMMWV Ext			
		To LZ 3			
		BLT 2/7 HQ GROUP	24		
		BLT 2/7 HQ GROUP	4		
		MRC Ext			
		To LZ 3			
		WPNS Co/2/7	4		
		MRC Ext			
		WPNS Co/2/7	2		

HMMWV Ext	
WPNS Co/2/7	3
HMMWV Ext	
WPNS Co/2/7	3
HMMWV Ext	
WPNS Co/2/7	5
HMMWV Ext	

3RD CYCLE

MPF-1

To LZ 3	
EFSS Btry/2/11	5
EFSS System	
EFSS Btry/2/11	5
EFSS System	
EFSS Btry/2/11	5
EFSS System	
EFSS Btry/2/11	
HMMWV Ext	
EFSS Btry/2/11	
HMMWV Ext	
EFSS Btry/2/11	
HMMWV Ext	
EFSS Btry/2/11	
HMMWV Ext	
EFSS Btry/2/11	
HMMWV Ext	
EFSS Btry/2/11	
HMMWV Ext	

To LZ 3	
CmbtEngr Det	4
SEE-Trac Ext	
CmbtEngr Det	0
SEE-Trac Ext	

MPF-2

To LZ 3	
BLT 2/7 HQ GROUP	4
MRC Ext	
BLT 2/7 HQ GROUP	4
MRC Ext	
BLT 2/7 HQ GROUP	4
MRC Ext	
BLT 2/7 HQ GROUP	4
MRC Ext	
BLT 2/7 HQ GROUP	4
MRC Ext	
WPNS Co/2/7	4
MRC Ext	
BLT 2/7 HQ GROUP	
HMMWV Ext	
BLT 2/7 HQ GROUP	
HMMWV Ext	

To LZ 3	
WPNS Co/2/7	2
HMMWV Ext	
WPNS Co/2/7	2
HMMWV Ext	
WPNS Co/2/7	2
HMMWV Ext	
WPNS Co/2/7	2
HMMWV Ext	
WPNS Co/2/7	2
HMMWV Ext	
WPNS Co/2/7	2
HMMWV Ext	
WPNS Co/2/7	2
HMMWV Ext	

MPF-3

To LZ 3	
CSS Det	4
HMMWV Ext	
CSS Det	4
HMMWV Ext	
CSS Det	4
HMMWV Ext	

To LZ-1	
CSS Det MEDICAL	8
MRC Ext	
CSS Det MEDICAL	8
MRC Ext	
CSS Det MEDICAL	3
HMMWV Ext	
CSS Det MEDICAL	8
HMMWV Ext	

MPF-4

To LZ 3	
LAAD Det	2
HMMWV Ext	
LAAD Det	2
HMMWV Ext	

4TH CYCLE

MPF-1

To LZ 3	
EFSS Btry/2/11	
HMMWV Ext	
EFSS Btry/2/11	
HMMWV Ext	
EFSS Btry/2/11	
HMMWV Ext	
EFSS Btry/2/11	
HMMWV Ext	
EFSS Btry/2/11	
HMMWV Ext	
EFSS Btry/2/11	
HMMWV Ext	
EFSS Btry/2/11	
HMMWV Ext	
EFSS Btry/2/11	
HMMWV Ext	
EFSS Btry/2/11	
HMMWV Ext	
EFSS Btry/2/11	
HMMWV Ext	
EFSS Btry/2/11	
HMMWV Ext	
EFSS Btry/2/11	
HMMWV Ext	

MPF-2

To LZ 3	
CbtEngr/2/7	2
HMMWV Ext	
CbtEngr/2/7	2
HMMWV Ext	
CbtEngr/2/7	2
HMMWV Ext	

To LZ 3	
BLT 2/7 HQ GROUP	
HMMWV Ext	
BLT 2/7 HQ GROUP	
HMMWV Ext	
BLT 2/7 HQ GROUP	
HMMWV Ext	
BLT 2/7 HQ GROUP	
HMMWV Ext	
BLT 2/7 HQ GROUP	
HMMWV Ext	

MPF-3

To LZ 3	
CSS Det	4
HMMWV Ext	
CSS Det	4
HMMWV Ext	
CSS Det	4
HMMWV Ext	

MPF-4

To LZ 3	
LAAD Det	2
HMMWV Ext	
LAAD Det	2
HMMWV Ext	
LAAD Det	2
HMMWV Ext	
LAAD Det	2
HMMWV Ext	

UNITED STATES MARINE CORPS
MARINE CORPS COMBAT DEVELOPMENT COMMAND
QUANTICO, VIRGINIA 22134-5001

IN REPLY REFER TO:
3900
C428

From: Deputy Commandant for Warfighting Requirements, 3300 Russell Road, Quantico, VA 22134-5001
To: Chief of Naval Operations (N7), The Pentagon, Washington, DC 20350-2000

Subj: NAVAL SURFACE FIRE SUPPORT REQUIREMENTS FOR EXPEDITIONARY MANEUVER WARFARE

Ref: (a) CG, MCCDC ltr 3900 C44 of 3 Dec 96
(b) CG, MCCDC ltr 3900 C443 of 16 Jun 99
(c) SecNavInst 5000.2b

Encl: (1) Naval Surface Fire Support Requirements for Expeditionary Maneuver Warfare
(2) Requirements Summary Matrix

1. Over the past 6 years, this Command produced references (a) and (b), outlining the Marine Corps' requirements for Naval Surface Fire Support (NSFS). As we progress in this critical area of force protection and expeditionary littoral warfare, we find it necessary to emphasize and further clarify our NSFS requirements. This letter recommends the development of a Capstone Requirements Document and a Mission Capability Package for Expeditionary Fires. This letter specifically addresses the NSFS part of expeditionary fires. These documents are necessary to establish naval expeditionary power projection requirements, and to establish requirements for NSFS separate and distinct from strike operations and related programs.

2. The requirements articulated via reference (b) remain valid. Based on recent Defense Planning Guidance and the Quadrennial Defense Review, metrics have been modified to meet transformational objectives using spiral development methods, such as the Surface Combatant Family of Ships Spiral Design Review process, through the near-(04 and 05), mid-(06 to 09) and far-terms (10 to 19). To that end, enclosure (1) is provided per reference (c), and is summarized in enclosure (2).

3. I look forward to continuing the teamwork we have shared and encourage your feedback to this letter. Together we will continue the commitment towards fielding a credible NSFS capability.

EDWARD HANLON, JR.

Copy to:
CMC (PP&O)
CNO (N6, N7, N75, N76, N78, N8, N81)
CINCLANTFLT
CINCPACFLT
COMMARFORLANT
COMMARFORPAC
CO MARDET, FT SILL

NAVAL SURFACE FIRE SUPPORT REQUIREMENTS FOR EXPEDITIONARY MANEUVER WARFARE

Ref: (a) CG, MCCDC ltr 3900 C44 of 3 Dec 96
(b) CG, MCCDC ltr 3900 C443 of 16 Jun 99
(c) Marine Corps Concept Paper: Expeditionary Maneuver Warfare
(d) Marine Corps Concept Paper: Operational Maneuver from the Sea
(e) MCDP-1, Warfighting
(f) Marine Corps Concept Paper: Expeditionary Fire Support - The System After Next
(g) MCWP 3-31.1, NWP 3-09.11M, Supporting Arms in Amphibious Operations
(h) MCRP 5-12A, Operational Terms and Graphics
(i) Joint Pub 1-02, Department of Defense Dictionary of Military and Associated Terms
(j) MCWP 3-16, Techniques and Procedures for Fire Support Coordination
(k) MCO 3501.6B, Marine Corps Combat Readiness Evaluation System; Volume V, Artillery Units
(l) Operational Requirements Document for Land Attack Destroyer (DD-21) dtd 3 Nov 97
(m) MCO 8010.1E, Class V(W) Planning Factors for Fleet Marine Force Combat Operations

1. Purpose. This letter supercedes references (a) and (b) and is intended to provide a “roll-up” of previously stated requirements into a single source document. Per the 1993 Naval Surface Fire Support Cost and Operational Effectiveness Analysis (NSFS COEA), the naval service’s requirements for a mix of naval guns and land attack missiles for NSFS have not changed. This document re-emphasizes the Marine Corps’ requirements for NSFS stated by Lt Gen’s Van Riper and Rhodes within the context of an evolutionary approach to meeting transformational objectives. Furthermore, we intend to enhance the readers understanding of NSFS requirements by articulating a combined arms philosophy for the generation of combat power “from the sea” in a littoral, non-linear battlespace.

Enclosure (1)

2. Combined Arms and Maneuver Warfare. The Marine Corps concepts of Expeditionary Maneuver Warfare and Operational Maneuver From the Sea (OMFTS) as described in references (c) and (d) are the application of maneuver warfare principles to operations in the littorals. An excellent explanation in the role fire support has to play is given in the following quotes from reference (e).

"Maneuver Warfare is a warfighting philosophy that seeks to shatter the enemy's cohesion through a variety of rapid, focused, and unexpected actions which create a turbulent and rapidly deteriorating situation with which the enemy cannot cope… The aim is to render the enemy incapable of resisting effectively by shattering his moral, mental, and physical cohesion – his ability to fight as a coordinated whole, rather than to destroy him physically through the incremental attrition of each of his components, which is generally more costly and time consuming."

"This is not to imply that firepower is unimportant…We will concentrate fires and forces at decisive points to destroy enemy elements when the opportunity presents itself and when it fits our larger purposes…In fact, maneuver warfare often involves extremely high attrition of selected enemy forces where we have focused combat power against critical (vulnerabilities). Nonetheless, the aim of such attrition is not merely to reduce incrementally the enemy's physical strength. Rather it is to contribute to the enemy's systemic disruption. The greatest effect of firepower is generally not physical destruction- the cumulative effects of which are felt only slowly- but the disruption it causes."

Combined arms is the full integration of arms in such a way that to counteract one, the enemy must become more vulnerable to another. It pairs firepower with mobility to produce a desired effect upon the enemy. Marine Corps fire support doctrine is based upon this philosophy, whereby target destruction is frequently not the primary benefit of indirect fires.

Combined arms does not focus on specific percentages normally associated with damage criteria (e.g., 30% damage for destruction) but must concentrate on what fires can do to the enemy to shape the battlespace, set conditions for decisive action, and support maneuver. Fires can be used to create both some degree of hazard and the perception that the hazard is severe enough to merit deviation from a desired course of

action. For example, if the enemy assumes a posture with the intent to protect himself from incoming fires he may sustain no physical damage but his cost of survival is the inability to perform his assigned mission.

In this context, indirect fires may not be the primary means of achieving the desired endstate. Indirect fires must, however, provide enough of a real or perceived hazard to prevent the enemy force from successfully targeting and engaging an approaching friendly maneuver force, enabling it to either successfully attack or bypass the enemy position.

We do not envision NSFS replacing a robust expeditionary artillery capability once it is ashore, but rather augmenting the organic fires of the Marine Air Ground Task Force with complimentary, all weather fires that support the deep, close, and rear battle to include an all weather target acquisition capability that can produce target data for first round fire for effect. Further, a robust NSFS capability, to include counterfire detection/engagement, is critical to support expeditionary operations during all stages of ship-to-objective maneuver.

3. Expeditionary Fire Support. Fire support is the product of a system consisting of three parts – target acquisition, command and control, and attack resources. Successful fire support depends on the detailed coordination of these sub-systems. Integrating the processes and procedures of all three sub-systems binds fire support resources together so the contributions of each asset are synchronized to support the maneuver commander’s intent and concept of operations. The goal of target acquisition is to provide timely and accurate information to enhance the attack of specified targets. Target acquisition systems and equipment perform the key tasks of target detection, location, tracking, identification and battle damage assessment for fire support operations. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities and procedures employed by a commander in planning, directing, coordinating and controlling forces and operations in the accomplishment of the mission. Employing C4I systems with unity of effort is key to effective coordination of fire support. Fire support attack resources include field artillery, mortars, air support, naval surface fires and offensive information operations. As stated in reference (f), our operational concepts drive fire support

requirements that can be met only by complementary, overlapping, and redundant fire support systems.

Fires involve more than the mere delivery of ordnance on target. The psychological impact on an adversary of volume and seemingly random fires cannot be underestimated. Marines applying the tenets of maneuver warfare will continue to exploit integrated fires and maneuver to shatter the cohesion of an adversary. Volume and precision fires are equally important in achieving the desired effects on an enemy.

4. Mission Execution

a. Operational Use of NSFS. The following subparagraphs present and define common fire support terminology which will prove useful in understanding Marine Corps requirements for NSFS.

(1) Terminal Effects of Fires. Operational Maneuver from the Sea requires fires in the following categories which are defined as per references (g), (h), and (i).

Destruction. Fires delivered for the sole purpose of destroying the target's combat effectiveness. A unit or weapon system may be considered destroyed when it is incapable of accomplishing its combat mission until reorganized, regrouped, or replaced.

Neutralization. Fires delivered to render a target ineffective or unusable, although temporarily. A unit or weapon system may be considered neutralized when its ability to accomplish its combat mission is degraded for a period of time.

Harassing. Fires designed to disturb the rest of enemy personnel, to curtail movement, and, by threat of losses, to lower morale.

Interdiction. Fires placed on an area or point to prevent the enemy from using the area or point.

Suppression. Fires on or about a weapons system (a combination of one or more weapons with all related equipment, materials, services, personnel and means of delivery and deployment required for self-sufficiency) to degrade its performance below the level needed to fulfill its mission objectives, during the conduct of the fire mission.

(2) NSFS Roles. Naval Surface Fire Support provides responsive, lethal and non-lethal fires integrated and synchronized to achieve the supported commander's intent. The following are four broad classifications which should provide the baseline from which landing force NSFS requirements are defined in references (g), (h), and (i).

Close Supporting Fires. Fires placed on enemy personnel, weapons, or positions, which, because of their proximity, present the most immediate and serious threat to the supported unit. They require detailed coordination with the movement of the supported unit and are expected to suppress, neutralize and destroy enemy forces well beyond direct fire ranges.

Interdiction Fires. Fires delivered to divert, disrupt, delay, or destroy the enemy's military potential before it can be used effectively against friendly forces

Counterfires. Fires intended to destroy or neutralize enemy weapons. This includes counterbattery, counterbombardment, and countermortar fire.

Suppression of Enemy Air Defense (SEAD). That activity that neutralizes, destroys, or temporarily degrades surface-based enemy air defenses by destructive and/or disruptive means.

(3) Other Uses. Other specific tactical uses of fires can include the following.

Preparation Fires. An intense volume of fire delivered in accordance with a time schedule to support an assault.

Reconnaissance by Fire. Fires placed on a suspected enemy position to cause the enemy to disclose his presence by movement or return fire.

Protective Fire. Fires delivered by support ships during the period of reorganization after the capture of a position.

Obscuration Fire. Fires used to suppress the enemy by obscuring his view of the battlefield. These fires are normally placed on or about the enemy's position.

Screening Fires. Fires used to mask friendly maneuver elements and to conceal the nature of the operations. These fires are normally placed between the enemy's position and the friendly activity to be concealed.

(4) Target Categories. Per reference (j), the Marine Corps doctrinally organizes targets into 13 categories for purposes of fire support planning and coordination. [The listing order does not reflect priority.]

Target Categories	
C4I	Command, control, and communications centers.
FIRE SPT	Fire support targets. Subsets include fire support command and control, weapons, target acquisition, and ammunition logistics.
MANEUVER	Maneuver tactical subunits in various postures (e.g., motorized rifle and tank companies, assembly areas, march columns, and advance guard units, etc.).
ADA	Air defense system targets (e.g., missile unit headquarters, radar sites, etc.)
ENGR	Engineer-type targets (e.g., bridging, ferry units, crossing sites, etc.).
RSTA	Reconnaissance, surveillance, and target acquisition assets (e.g., ground surveillance radars, reconnaissance patrols, airborne sensor systems, etc.).
REC	Radio-electronic combat (e.g., jammers, direction-finding systems, etc.).
NUC-CHEM	Nuclear and chemical support elements and major weapon-firing positions.
POL	Petroleum, oil, and lubricant support.
AMMO	Ammunition support targets (e.g., ammunition storage sites, depots, and distribution points, etc.).
MAINT	Maintenance and repair capability (e.g., maintenance units, vehicle collection points, repair facilities, etc.).
LIFT	General transport units (including heliborne transport, etc.).
LOC	Lines of communications for which no specific target types are designated (e.g. chokepoints, bridges, airfields, railheads, etc.).

b. Expeditionary Operations. The following provides a breakdown of the phases of an expeditionary operation to facilitate placing NSFS requirements into context.

(1) Shaping the Battlespace. The emphasis in this phase will be on destruction, harassment, interdiction, and neutralization fires to degrade enemy capabilities within the battlespace. Naval fires are required for advance force and

supporting operations in an uncertain or hostile environment. They will be primarily used for providing deep fires based on intelligence and target acquisition sensors against critical fixed and relocatable targets. Engaging moving targets with ordnance that is not equipped with terminal seekers is accomplished by establishing an estimate of the rate of movement of the target, calculating a point on the ground that the target will reach at a particular time, and targeting that estimated point on the ground vice the moving target itself.

Fires must also be immediately responsive to special operations and reconnaissance teams ashore. It is important to remember that, due to the fluid nature of warfare, shaping or deep fires are continuous throughout all phases of an operation. Commanders must constantly plan hours to days in advance. The application of deep fires will shape the battlespace in a way that will enable decisive operations and support future operations.

(2) Forcible Entry. In this phase, emphasis shifts from shaping operations to establishing the Marine Air-Ground Task Force (MAGTF) ashore. This is the most demanding phase for NSFS. Deep fires provided by naval aviation and NSFS continue to shape the battlespace while simultaneously providing close supporting fires and counterfire to forces ashore. Of primary importance will be the close supporting fires (destruction, neutralization and suppression) in direct support of the MAGTF. As we move towards Ship-To-Objective Maneuver (STOM), fire support must provide immediate and responsive high volume fires in support of highly mobile forces embarked in current and future maneuver systems.

(3) Sustained/Subsequent Operations Ashore. Once the MAGTF is ashore and forces rapidly maneuver inland, organic ground-based fire support systems will provide the bulk of highly responsive, close supporting fires. NSFS will continue to provide deep and close supporting fires, augmenting organic ground-based systems.

5. Command and Control

a. Expeditionary Fire Support. As stated in reference (f), Command and Control (C2) for expeditionary fire support demands a single system compatible with on-scene or arriving joint forces. Throughout the entire planning and execution process, all components of the expeditionary fire support system must be

interoperable and collaborative. Given the joint nature of future operations, a re-examination of traditional command relationships is required to make these relationships more responsive and flexible. Central to an effective naval fire support system is that the commander responsible for the mission or for a phase of an operation, has the ability to plan, allocate, control, and coordinate fires from all available systems. Since that responsibility may shift between the Navy and landing force commander during operations, the transition must be seamless and effective. This means that information must be shared, and air and surface fires coordinated, not only between the Navy and the landing force, but with higher and adjacent units as well, whether they are Naval or joint.

Commanders exercise authority within the four dimensional limits of boundaries established by a higher headquarters. The commander has complete targeting and organic weapons release authority and is responsible for the effects of all fires delivered into or within these boundaries. Once these boundaries have been established, the command and control of fires is a function of the fire support coordinator within whose boundaries the effects of the fires will be realized. This includes coordination with adjacent units whose battlespace is affected by the flight path or terminal effects of the weapons system/munition. This means that any adverse effects of NSFS delivered on a requested target are the responsibility of the requesting agency, not the commander of the ship who provided the fires.

b. Shipboard Systems. Navy and Marine Corps command and control systems must be interoperable with the Global Command and Control System (GCCS), compliant with the Joint Technical Architecture and Defense Information Infrastructure Common Operating Environment (DII-COE) and, capable of rapid and full joint service integration. The supporting arms planning and coordination capability afloat must fully replicate the capability resident in the Marine Corps. Navy command and control systems aboard NSFS platforms must be fully functional and interoperable with Marine Corps and Joint command and control systems. It is essential that all NSFS platforms and amphibious shipping, supported by their communications and networking hub capabilities, have the ability to access, input, receive, process, and disseminate information into and from AFATDS and other identified systems in support of NSFS objectives. Navy shipboard communications suites facilitating Marine Corps command and control must consist of beyond line of

sight and line of sight wideband transmission systems, both ship-to-shore and strategic. Network routing and protocols must be compatible and interoperable. These highlighted capabilities will allow Naval forces to communicate from ship to shore, intra-ship, intra-amphibious force, and reach back to CONUS while conducting operations worldwide in the 21st Century.

6. Target Acquisition

a. Ground forces require assistance in locating hostile fire support platforms in both the initial phases of amphibious operations and during subsequent operations ashore. A flexible and robust counterfire detection and location capability "from the sea" is a required component of the fire support system. The system should be responsive enough to achieve the first round away within 2.5 minutes of acquiring the counterfire target (see paragraph 6). The system must be fully interoperable and integrated with joint, automated, fire support C2 systems.

b. Many ships employ radars, which are technically very similar to the successful Firefinder family of ground radar systems used in locating hostile rocket, artillery, and mortar systems. Although Naval radars are optimized for use over water and experience "ground clutter" when they close the beach, we would like to explore modifications to shipboard systems to enable them to perform counterfire detection and location in the same manner as the Firefinder ground radar system. We view "leveraging" existing shipboard radars as a potentially cost effective method to contribute to this capability.

c. To be a complete system that effectively supports the land forces, all target acquisition elements of the fire support system, including the counterbattery detection and location system "from the sea," must be directly tied into the fire support C2 network. Given that a Naval platform can independently acquire a target, this vital sensor-to-shooter link will provide situational awareness of the ground battle to speed prosecution of the fire mission.

d. The Marine Corps threshold range requirement for target acquisition in the near-term is 50nm with an objective range of 63nm. This counterfire target acquisition range assumes an over-the-horizon standoff for NSFS platforms. In addition, it reflects the preponderance of threat fire support system ranges with respect to the operational ranges of current and future

maneuver and combat support platforms. The mid-term and far-term (transformational) objectives are reflected in the table below. We do not expect that target acquisition will be conducted from a single system onboard a surface combatant, but rather from a combination of sensors netted together to provide the required area coverage.

Target Acquisition Requirements			
Near-term	Target Acquisition Sensor Range	Threshold	50nm
		Objective	63nm
Mid-term		Threshold	63nm
		Objective	97nm
Far-term		Threshold	97nm
		Objective	Limits of Technology
	System Response (See Par. 6)	Threshold	2.5 Minutes
		Objective	Limits of Technology

7. System Response. Naval Surface Fire Support must be responsive to the needs of maneuver commanders and capable of quickly attacking targets of opportunity. Most often, responsiveness is expressed in terms of the time lapsed from the moment the fire direction center receives the call for fire until ordnance is fired or launched. An additional factor in responsiveness is the time of flight of the ordnance in question. This is literally the time lapsed from the moment the munition is launched until it impacts the target. While time of flight is not accounted for in this requirement, it is viewed as a critical issue. At extended ranges, time of flight can add minutes to the overall mission response time. Several studies have indicated that a total mission time (call for fire to rounds on target) greater than 10 minutes significantly increases the probability of missing a relocatable target. Minimizing time of flight, as well as the total mission processing time is of vital importance when providing close supporting fires to maneuver forces in contact with the enemy.

Any technology that can reduce time of flight should be pursued. Note: while time of flight is the traditional parameter, it should not be read as restricting technological approaches that speed the achievement of the desired effect. For example, the shortest “time of flight” weapon available to respond to a call for fire may be a loitering munition that is already in the target area.

Per reference (k), the required system response times for all NSFS systems are drawn from the call for fire mission processing times specified for Marine Corps field artillery. Considering all mission types and all artillery munitions, the Marine Corps threshold requirement for NSFS execution responsiveness is 2.5 minutes. The objective requirement is to reduce response time to the limits of technology. The following diagram provides a breakdown of the fire support process with regard to responsiveness.

Target Identified	Tactical Fire Direction and Coordination	+	Technical Fire Direction	+	Weapon System Preparation	=	Ordnance Fired/Launched/Released Total Time: 2.5 Minutes

In combat, the specific requirement for responsiveness will vary with the nature of the target, its proximity and activity in relation to friendly troops, and the specific phase of the amphibious operation. In combat, even as little as 2.5 minutes can be the difference between life and death.

8. Killing Power

a. Range. The near-term threshold range requirement for naval guns is 41 nautical miles, measured from the shooter to the target. The objective range requirement is 63nm. Future assault support systems will make STOM in excess of 200 nautical miles inland a reality. In support of such operations, the Marine Corps has a threshold range requirement of 200nm for missile or rocket systems, and an objective range of 222nm. The mid- and far-term range requirements are reflected in the table below.

Naval Weapon System Range Requirements				
	Weapons System	***Ammunition***	***Range (nautical miles)***	
Near-term			Threshold	41
			Objective	63
Mid-term			Threshold	63
			Objective	97
Far-term			Threshold	97
			Objective	Limits of Technology
Near- and mid-terms	Missiles/ Rockets/ Other (e.g. EML)	All	Threshold	200
			Objective	222
Far-term			Threshold	262
			Objective	Limits of Technology

Efforts are currently underway at the Marine Corps Combat Development Command to transition current expeditionary maneuver warfare concepts into doctrine. Naval weapons system range requirements have been generated to support the operational reach of both current and future maneuver and combat support systems resident in the MAGTF, taking into account the preponderance of threat fire support system ranges. The mid-term objective range requirement for naval guns was calculated by adding the operational radius of the current medium-lift assault support system to the maximum range of the most commonly fielded threat fire support system. Likewise, the far-term threshold requirement for missiles/rockets was calculated by adding the operational radius of the medium-lift assault support replacement system to the maximum range of the most commonly

fielded threat fire support system. The data used in the calculations is:

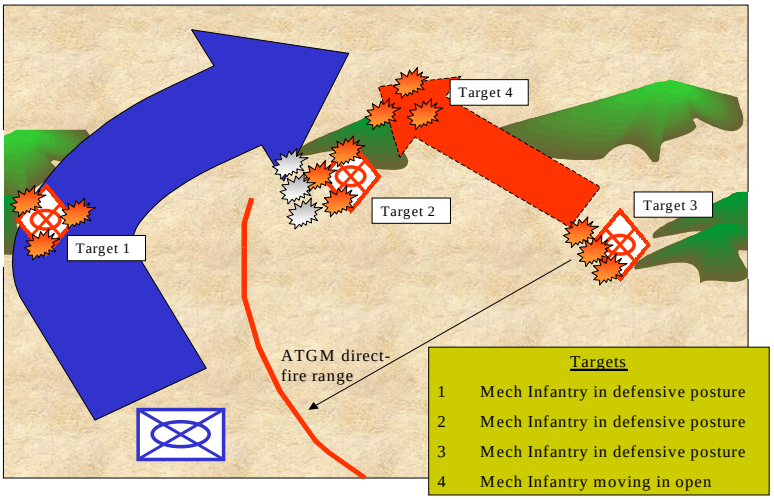
System	Payload	Range	Threat Range	
CH-46E	14 Combat Troops	75nm	21.6nm (40km)	= 96.6nm
MV-22	24 Combat Troops	240nm	21.6nm (40km)	= 261.6nm

b. Volume. “Volume of fire” is defined as a large quantity of supporting fire, direct or indirect, delivered simultaneously or over a length of time, to suppress, neutralize, or destroy a target. Typically volume of fire, with regard to suppression and neutralization missions, refers to the effects of a large quantity of fire delivered on a target over a period of time, for example a volley of artillery every 30 seconds for 10 minutes. In destruction missions, volume of fire can mean a large quantity of ordnance delivered simultaneously and with as much accuracy as possible. Volume of fire is often tied to the firing rate of a weapon system, but there are other factors to be considered.

To avoid the enemy's main forces during the initial stages of forcible entry, the landing force requires supporting fires that fix the enemy, denying him freedom of maneuver and action. High-volume suppressive and neutralizing fires will be necessary to support both surface and vertical assaults. These high-volume fires will include scheduled and on-call fires as well as fires against targets of opportunity. The following scenario will illustrate the employment of such fires in the context of combined arms maneuver warfare.

In this scenario, a friendly mechanized infantry unit encounters an enemy mechanized infantry unit arrayed in a defensive position that is tied in with the terrain. The defensive position lies between the friendly unit and its assigned objective, and bypassing the position is impossible. The unit commander decides to attack through the left flank and into the enemy’s rear in an attempt to turn the position and pry the enemy out of his prepared defenses. Fire support available for this operation will be a battalion of artillery (three batteries of six 155mm howitzers each), a platoon of eight 81mm mortars, two sections of two attack helicopters, and a section of two STOVL fixed-wing attack aircraft. Assuming an average rate of movement of 15 kilometers per hour, the attack will take a total of approximately thirty-six minutes. This rate of movement assumes that no counter-mobility obstacles will need to

be breached, and that enemy indirect fire assets have been sufficiently suppressed to prevent any significant impact by these systems on the friendly force.



A schedule of fires to support this daylight attack is included below. Fires have been planned to accomplish the following:

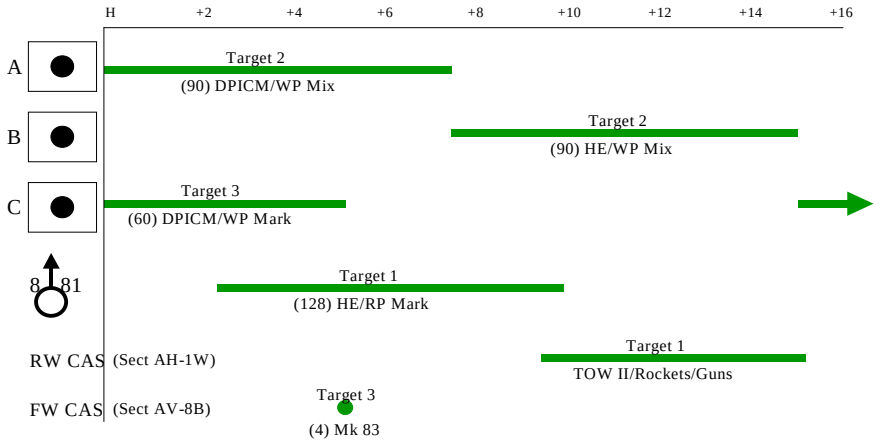
(1) Suppress Target 1 to facilitate its attack by direct-fire ground systems and rotary-wing close air support (RW CAS).

(2) Suppress and obscure Target 2 to prevent enemy force located there from effectively engaging friendly maneuver force with direct-fire weapon systems, and to facilitate its follow-on attack by friendly ground forces and RW CAS.

(3) Suppress, neutralize or destroy enemy at Target 3 to prevent it from maneuvering against the flank of the attacking friendly force, and to prevent it from counter-attacking (Target 4) as the friendly force continues to maneuver to its objective.

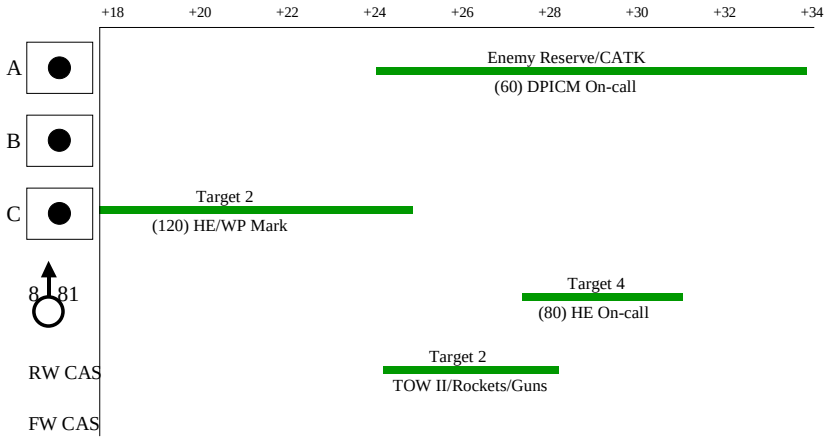
(4) Disrupt an enemy counter-attack from beyond the intermediate objective in the vicinity of Target 4 (on-call fire missions).

Schedule of Fires (Part 1)



It should be noted that friendly indirect fire assets subject themselves to enemy counterfire when firing for extended periods of time without moving to alternate firing positions. Therefore, these schedules of fires can be executed as planned only if the enemy's counterbattery/counterfire capability has been neutralized or destroyed prior to or at h-hour.

Schedule of Fires (Part 2)



The total ordnance that is planned to support this maneuver is:

155mm HE	165 rounds
155mm DPICM	165 rounds
155mm WP	91 rounds
81mm HE	208 rounds
81mm RP	1
total rounds	*630*

The number of rounds that has been planned is not as important as achieving the desired effects in support of the maneuver force commander. Depending on the morale, training, etc. of the enemy force, the number of rounds required may either increase or decrease. Based on the actions/inactions of the enemy, only the supported commander can determine whether the fires have achieved the desired effects. Naval surface fires must be capable of substituting for any fire support asset cited in the above example.

Few targets are of such small dimensions that a single precise weapon can adequately achieve the desired effects. Further, fire support targets more often than not are units occupying an area vice single pieces of equipment. Strike targets are the exception to this rule. For accurate coverage of an area target, one artillery battery volley of fire (six 155mm howitzers firing one round each, high explosive) covers a standard 200 meter circular sheaf. It is easy to see that a single volley from an artillery battery, six guns delivering six rounds, will have greater coverage and effect on target than a single volley, one gun delivering one round, from current naval gun systems.

To illustrate this, compare a six-gun artillery battery to current and future naval guns, each with the maximum and sustained rates of fire indicated in the table below.

Weapon	***Maximum Rate of Fire***	***Sustained Rate of Fire***
M198 155mm Howitzer Battery (six guns)	24 rds per min	12 rds per min
Mk45 5-in/54 Naval Gun	20 rds per min	8-12 rds per min
Mk45 Mod 4 5-in/62 Naval Gun (firing ERGM)	10 rds per min	4-5 rds per min
Advanced Gun System 155mm Naval Gun (DD21)	12 rds per min	12 rds per min

In one minute, the 5-in/54 and 5-in/62 naval guns can deliver 20 rounds of conventional ordnance on target. In the same minute, an artillery battery would deliver a total of 24 rounds, achieving slightly greater volume in numbers than the naval guns.

This difference may seem minor. However, when considering the sequential posturing of the target, it becomes critical. Assume that the target is an infantry battalion command post which we want neutralized. The first volley produces the greatest number of casualties since the command post personnel will be surprised and unable to take cover. After the first volley, the personnel will have at least assumed a prone position, thereby reducing the effect of the next volley, though some casualties will no doubt still be produced. As volleys continue, most or all of the personnel will have taken cover in slit trenches, fighting holes, or bunkers, thus significantly reducing the casualty producing effects of subsequent volleys, barring direct hits. Given this sequential posturing, the greatest effect will normally be achieved on the first volley. Therefore, the greater the volume on the first volley, the better casualty producing effect it will have.

The Marine Corps threshold and objective requirements for battery equivalency of an NSFS ship mirror the requirements stated in reference (l). One of the keys to successful fire support is the principle of massed fires. The Marine Corps and Army accomplish this through multiple firing batteries engaging the same target simultaneously. The standard organization is three firing batteries per artillery battalion. Artillery doctrine recognizes the need to engage high payoff targets with three or, at a minimum, two firing batteries engaged simultaneously with massed fires on the same target. In order to achieve the same massed fires effects, multiple NSFS platforms may be required to simultaneously engage a target. The following table is provided as a comparison of artillery organizations to current and planned naval guns.

	Sustained Rate of Fire	***One Volley***
Artillery Battery	12 RPM	6 Rd
Artillery Battalion	36 RPM	18 Rd
5-in/62 Gun	4-5 RPM (ERGM)	1 Rd
155mm AGS (DD(X))	12 RPM (LRLAP)	3-4 (MRSI at ¾ max range or less)
RPM: Rounds Per Minute *MRSI: Multiple Rounds, Simultaneous Impact*		

c. Accuracy, Precision, Guided, and Non-Guided. Accuracy is an inherent requirement for all fire support systems used to execute point and area fire missions. To gain a better understanding of these terms, refer to the following definitions and diagram.

Accuracy. The term accuracy is defined as the linear distance from the Mean Point of Impact (MPI) of a given number of rounds to the aimpoint used in firing those rounds. Minimizing this distance and thus increasing the accuracy of any fire support system is critical to the success of any fire support mission.

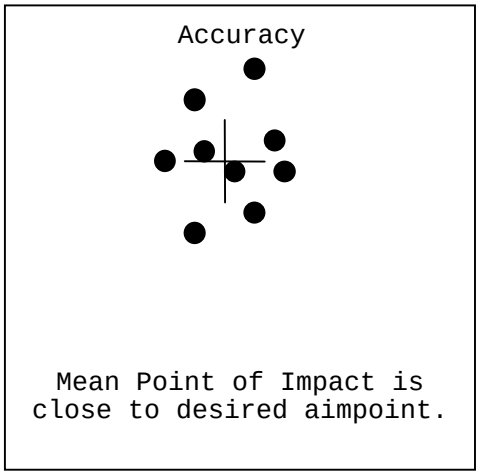
Precision. Precision is required for effective engagement of point targets. The term precision is used here to indicate a terminally-guided or home-on-target type capability which imparts the ability to place ordnance on or very close to the mean point of impact, achieving a small Circular Error Probable.

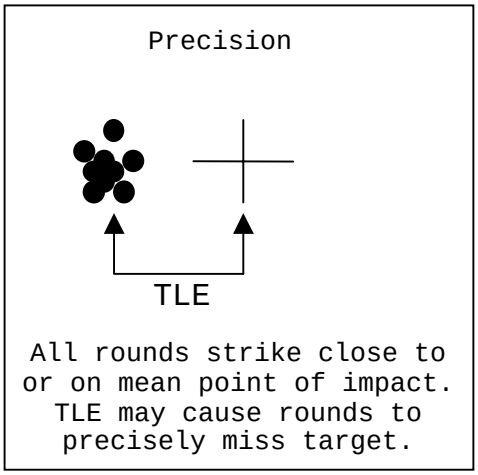
Guided. The term guided refers to ordnance that requires some form of guidance system such as GPS/IMU to meet the CEP requirements for the ordnance.

Non-Guided. The term non-guided refers to ordnance that can meet CEP requirements without reliance on onboard guidance systems.

Circular Error Probable (CEP). The error in range, deflection, or in radius, which ordnance may be expected to exceed as often as not. In other words, it is the radius of a circle within which half of a number of projectiles fired or missiles launched are expected to fall.

Target Location Error (TLE). The difference in total linear distance between the estimated location of a target and its precise location in space and time.





The CEP for precision-guided munitions should be as small as technology will permit, within cost constraints. Significant technological advances will support development of more accurate weapons systems. Such systems will contribute to the successful outcome of operations by allowing more efficient engagement of critical high-payoff targets. Munitions that minimize collateral damage will be required, particularly for combat in built-up areas.

Precision fires represent the high end of the accuracy requirement. Provisions for ammunition procurement must include inexpensive munitions that are capable of satisfying requirements for high-volume fire. Such fires will be accurate enough that commanders can count on first-round fires for effect, reducing the need for preliminary adjusting rounds, which waste time, warn the enemy, and create collateral damage.

The Marine Corps CEP requirements are drawn from existing artillery ammunition CEPs. The threshold CEP is 50 meters at all ranges, which is similar to current artillery capabilities. Based on estimates of what technology will be able to provide, the objective CEP is 20 meters at all ranges.

d. Ammunition. High explosive ammunition currently provides fire support from the 5"/54 but at a range of only 13nm. The Extended Range Guided Munition (ERGM) will potentially provide up to 63 nautical miles of range for selected targets, but as currently planned cannot provide a large volume of high explosive fires. Landing forces require ammunition with capabilities similar to that available for ground based artillery systems. Precision guided munitions are needed, but not to the exclusion of inexpensive, volume fire

munitions. Accurately delivered, non-guided munitions are required to provide the ground commander a volume of close supporting fires within that critical "window of vulnerability" during the early stages of an amphibious assault before organic artillery has landed. To ensure maximum tactical flexibility, the Marine Corps has a threshold requirement for all naval gun ammunition to be capable of achieving at least 41 nautical miles in the near-term. The Marine Corps needs a family of NSFS munitions with *capabilities* similar to our field artillery to achieve required *effects* against a wide array of target sets.

Precision munitions will be necessary for use against high-payoff or particularly dangerous point targets, especially those that are hardened and difficult to destroy with area fires. Similar consideration will be given to the engagement of targets in close proximity to noncombatants or in culturally and politically sensitive areas. Commanders understand that situations will exist on the future battlefield in which the employment of indirect fire may be severely restricted due to the possibility of unacceptable collateral damage. In less restrictive environments, the need for rapid response and effect on target will require reliable first-round fires for effect. The Marine Corps understands that continuing development of new technologies particularly in the area of Electro-Magnetic Launch provide the opportunity to gain truly transformational advances in Naval Surface Fire Support and views further development in these areas as critical. Additionally, the Marine Corps encourages any investment in munition development that reduces time of flight, provides loitering/on-call capability and improves lethality.

Naval Ordnance Desired Effects				
Missiles	***Guns***	***Other***	***Precision (p) Vs. Guided (g) Vs. Non-guided (n)[1]***	***Effect***
X	**X**	**X**	**(g),(n)**	Destroy/neutralize/suppress area surface targets (personnel/material). Destroy/neutralize/suppress moving targets[2].

[1] The term “precision (p)” is used here to indicate a terminally-guided or home-on-target type capability. The term “guided (g)” refers to ordnance that requires some form of guidance system such as GPS/IMU to meet the CEP requirements for the ordnance. The term “non-guided (n)” refers to ordnance that can meet CEP requirements without reliance on onboard guidance systems.

Naval Ordnance Desired Effects				
Missiles	***Guns***	***Other***	***Precision (p) Vs. Guided (g) Vs. Non-guided (n)***[1]	***Effect***
X	**X**	**X**	**(p),(g),(n)**	Destroy point targets. Destroy hardened targets. Neutralize/suppress area targets.
X	**X**	**X**	**(p)**	Destroy high-payoff, point targets. Destroy moving targets.
	X	**X**	**(g),(n)**	Mark targets for battlefield observation by friendly forces. Prevent enemy observation of friendly forces. Prevent enemy observation of own forces in a given area. Set fires to enemy material and facilities.
	X	**X**	**(g),(n)**	Illuminate battlefield at night. Mark targets for battlefield observation by friendly forces during periods of reduced visibility.

The Marine Corps views the development of low-cost guided munitions as highly desirable. The key factors in warhead development and procurement are that the warhead achieves the desired effects, and that sufficient quantities are maintained to sustain these effects over time. The desired effects would consist of those described per the table above.

9. Sustainment. The Marine Corps requires that all NSFS weapons systems be easily sustainable. Per the Surface Combatant Land Attack Warfare Guidance Document signed by Rear Admiral Mullen on 11 Sept, 2000, "Replenishment at sea is sustainment." The availability of friendly ports to conduct such difficult operations as reloading VLS launchers cannot be counted upon in a highly uncertain future. The limitations of a shrinking surface fleet and the numerous taskings given to multi-mission capable ships will require that those ships assigned to NSFS roles possess greater staying power to continue support of forces ashore. Innovative ways to conduct ammunition resupply to maintain continuous fire support, whether while the ship is on station firing or to minimize the time off station, must be studied. An increasingly important sustainment issue is

[2] Engaging moving targets with ordnance that is not equipped with terminal seekers is accomplished by establishing an estimate of the rate of movement of the target, calculating a point on the ground that the target will reach at a particular time, and targeting that estimated point on the ground vice the moving target itself.

cost. Modern combat will be merciless to the unprepared, and the affordability of future NSFS weapon systems and ordnance will be a critical factor in ensuring that Naval forces enter the fight with sufficient munitions to meet operational needs.

Numerous studies have been conducted that may be useful in determining the quantity of munitions that will be required to support a single mid- to high-intensity Major Theater War (MTW) and a near simultaneous Small Scale Contingency (SSC). The extrapolated results from four of these studies are displayed in the table below.

	OMFTS 2015 MAA	**Volume of Fire Study**	**NSFS Requirements & Capabilities Study**	**21st Century SCFLS–Assessing the Impact of Evolving Missions on the Surface Combatant Force**
Source	MCCDC	NSWC, Dahlgren	JHU-APL	NSWC, Dahlgren
Scenario	SWA	NEA	NEA	NEA
Basis	6814 rds/6 days	5394 rds/19 hours	18000 rds/17 hours	314300 rds/65 days
Daily Assault Rate	1136	2697	9000	N/A
Daily Sustained Rate	251	596	1988	N/A
30-day assault	34080	80910	270000	N/A
60-day sustained	15060	35760	119280	N/A
10-day SSC (sustained rate)	2510	5960	19880	N/A
totals	51650	122630	409160	314300

In each of these case studies, all naval gun rounds fired were long-range guided projectiles. Extrapolation to determine daily sustained replenishment rate is based on Artillery Class V Combat Planning Factors for a composite threat per reference (m). Extrapolation was not required in the far right column since the figures were derived from a campaign analysis (note 65 vice 90 days). From the three Northeast Asia scenarios and the Southwest Asia scenario, the average number of rounds required, or Combat Requirement (CR), is 224,435. Neither a Strategic Readiness Requirement (SSR) nor a Residual Readiness Requirement (RRR) quantity are represented in the table.

10. Proximity to Marines (Danger Close). Danger Close is a term used when fires are within close proximity to friendly troops. Currently danger close is assessed as 750 meters for NSFS and 600 meters for artillery. Danger close is simply a

caution, not a restriction. Fires should be closely coordinated with the friendly unit when these distances are reached. Projectiles that dispense munitions (i.e., Dual Purpose Improved Conventional Munitions) are inherently more dangerous in the danger close role than a high explosive type warhead. We must aggressively seek ways to increase the safety of maneuvering troops while firing munitions in their immediate vicinity.

Appendix J
CSS Unit Capability Packages

APPENDIX J TAB 1
D+8 LOG SUPPORT PACKAGES

- TWO CSS PACKAGES TO FLY IN AT APPROX H+3:30, AFTER 2D SURFACE ATTACK CYCLE, ONE TO SUPPORT SURFACE ATTACK ONE TO SUPPORT AIR ATTACK

	PERS/VEH/EQUIP	QTY	PAX
- Casevac Unit, Helo TM			
CSS CO(-) Light	MPs (in HMMWVs)		8
(Est 4 CH-53/MV22 Lifts Ea)	HST (in HMMWVs)		8
	HMMWV, MRC	2	
	HMMWV, AMB	1	3
	HMMWV, CGO	1	
	Totals	4	19

MSNs: Casevac, CSS throughput
POW control, Combat equip
(replace, recover, evac)

- CSS TO FLOW AFTER SURFACE ATTACK INCREMENTS COMPLETED=

	PERS/VEH/EQUIP	QTY	PAX
- Mech TM 1			
CSS CO (-)	HMMWV, MRC	1	4
(Est 6 LCAC Loads Ea)	HMMWV, ARM,HMG	4	16
	HMMWV, AMB	3	9
	HMMWV, CGO (1 TRL)	4	16
	MTVR, EFS	3	9
	MTVR, W/TRL (MAINT)	2	6
	M88	1	3
	Totals	18	63

MSNs: POW control, Casevac
CSS throughput, combat
equip recovery, Maint
(limited repair, evac,
replace), bulk liquids

APPENDIX J TAB 2

EXAMPLES OF CSS Packages (Formed From CSSE/BSSG Company/Battalion CSS Personnel, Supplies and Equipment

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	PERS/VEH/EQUIP	QTY	PAX
- Shock Trauma Plt, Helo TM (Fwd Resuscitative Surgical Suite [FRSS]), CSS CO(-) Light	MPs (in HMMWVs)		8
	HST (in HMMWVs)		8
	HMMWV, MRC	2	8
	HMMWV, AMB	5	15
	HMMWV, MED	2	10
	HMMWV, CGO	1	8
	Totals	10	57

MSNs: Casualty Stabilization, Casevac, POW control

	PERS/VEH/EQUIP	QTY	PAX
- Mechanized TM 3 CSS CO (-) Light	EFV(L)	4	
	MPs		8
	HST		12
	MED		3
	Bulk Fuel		8
	Ordnance		2
	Maint		4
	Total	4	37

MSNs: POW control, HST heavy, Casevac, Bulk liquids, Other CL Supply, Maint (very limited, evaluate)

APPENDIX J TAB 3

EXAMPLES OF CSS Companies (Formed From CSSE/BSSG Company/Battalion CSS Personnel, Supplies and Equipment)

- Mech TM 1
  CSS CO (-) Heavy

PERS/VEH/EQUIP	QTY	PAX
HMMWV, MRC	2	8
HMMWV, ARM,HMG	4	16
HMMWV, AMB	2	6
HMMWV, CGO	4	16
MTVR, EFS	3	9
MTVR, W/TRL (MAINT)	2	6
M88	1	3
Totals	18	64

MSNs: POW control, Casevac CSS throughput, combat equip recovery, Maint (limited repair, evac, replace), bulk liquids

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- Mech TM 2
  CSS CO (-) Light

PERS/VEH/EQUIP	QTY	PAX
HMMWV, MRC	2	8
HMMWV,	2	8
HMMWV, AMB	2	6
HMMWV, CGO	2	8
MTVR, EFS	2	6
MTVR, W/TRL (MAINT)	1	3
M88	1	3
Totals	12	42

MSN: Same functions as TM 1

Appendix K

Logistic Estimator

A PDF file is unavailable at this time.

Contact Doctrine Division,
Marine Corps Combat Development Command,
Quantico, VA, for this information.

Appendix L
MPF (F) Requirements Metrics Table

Appendix L
MPF (F) Capabilities Matrix

Note

Appendix L is subject to change to reflect refinements in ongoing studies to include the 2015 MEB structure, the MPF(F) AOA and associated scenarios, and the Navy/Marine Corps sea basing CONOPS.

MPF(F) Capabilities Matrix

		Current MPF	MPF (F) / Future MPF[1]
GENERAL MPF MEB CHARACTERISTICS			
MEB	**Personnel**	**MPF MEB** Command Element: 763 Ground Combat Element: 6,082 Aviation Combat Element: 5,243 Combat Service Support Element: 2,315 NMCB: 820[2] Total: 15,223 NSE: 1,193 NCW Det: As required Fleet Hospital: As required	**Baseline MEB (2015)[3]** Command Element: 728 Ground Combat Element: 5,513 Aviation Combat Element: 5,735 Combat Service Support Element: 2,400 Total: 14,376 NMCB: TBD NSE: TBD NCW Det: TBD Fleet Hospital: TBD MCM: TBD
	Echelons	Prepositioned Equipment and Supplies • Contract Personnel Fly-In-Echelon • Offshore Preparation Party (OPP) • Surveillance, Liaison and Reconnaissance Party (SLRP) • Main Body	Prepositioned Equipment and Supplies • Military Detachment Flow-In-Echelon • Advanced Party • Main Body • Sustained Operations Ashore (SOA) Increment

[1] The term MPF(F) is per the Mission Needs Statement approved by the JROC. It represents a program. Since MNS approval, the Navy and Marine Corps have evolved new command relationships embodied in the term "Expeditionary Strike Force (ESF)." MPF(F) represents a transformation in operational capabilities that will require more than just a new platform. Accordingly, in order to synchronize the MPF with other elements of ESF, the second column also includes the term Future Maritime Prepositioning Force (Future MPF). A Future MPF is a capability set comprised of the MPF(F) platforms, the MPF(F) MEB, and the Navy Support Element (NSE) necessary to support Future MPF operations. A Future MPF is an element of a Maritime Prepositioning Group (MPG), which also includes CLF ships and High Speed Vessels (HSV).
[2] Navy Mobile Construction Battalion considered by Navy as part of MEB.
[3] 2015 MEB is an ongoing effort. Effects of Logistics migration, new equipment, etc. will affect personnel numbers.

		Current MPF	MPF (F) / Future MPF[1]
	Task Organization	**MPF MEB (2002)** Command Element (CE) Det MHG Det Intel Bn Det Comm Bn Det Radio Bn Ground Combat Element (GCE) Regt HQ 3 Inf Bns 5 155mm Btry (Towed) 1 Tank Bn 1 AAV Bn 1 LAR Co 1 Combat Eng Co Aviation Combat Element (ACE) 1 Sqdn VMA 2 Sqdn VMFA Det VMAQ (based ashore) 1 VMGR (based ashore) 1 VMU MWSS(FW) 1 Sqdn HMH 1 Sqdn HMLA 2 Sqdn HMM MWSS(RW) MALS Det MACG Brigade Service Support Group Det HQ Bn Det Trans Spt Bn Det Supply Bn Det Maint Bn Det Eng Spt Bn Det Det Med Bn Det Den Bn	**Baseline MEB (2015)** Command Element (CE) Det MHG Det Intel Bn Det Comm Bn Det Radio Bn Ground Combat Element (GCE) Reg HQ 3 Inf Bns 3 155mm Btry (Towed) 1 HIMARS Btry 1 EFSS Btry 2 Tank Co 2 EFV Co 2 LAR Co 1 Combat Eng Co Aviation Combat Element (ACE) 3 Sqdn VMFA (JSF) (PAA 10)[4] 1 VMAQ (based ashore) (PAA 5) 1 VMGR (based ashore) (PAA 10) 1 MWSS(FW) 1 Sqdn HMH (Rein) (20 CH-53E) 1 Sqdn HMLA (PAA 18/9) 4 Sqdn VMM (PAA 10) 1 VMU (PAA 6) MWSS(RW) MALS Det MACG Brigade Service Support Group BSSG HQ CSS Bn (DS GCE) CSS Bn (DS ACE) CSS Bn (GS)

[4] Note that PAAs are tentative (applies throughout this table).

		Current MPF	MPF(F) / Future MPF
Based aboard MPSRON Platforms during Seabased Operations	**Personnel**	None	**Seabased Element** CE: 231 GCE: 4,175 ACE: 2,071 CSSE: 1,210 NSE: TBD Total: 7,687+NSE
	Combat Units	None	3 Inf Bns 1 155mm Btry (Towed)[5] 1 HIMARS Btry 1 EFSS Btry 2 Tank Co 2 EFV Co 2 LAR Co 1 CEB Co 1 Sqdn HMH (Rein) (20 CH-53E) 1 Sqdn HMLA (PAA 18/9) 4 Sqdn VMM (PAA 10) 1 VMU (PAA 6)
Aircraft	**Based Aboard MPSRON**	None	1 Sqdn HMH (Rein) 20 CH-53E 1 Sqdn HMLA (PAA 18/9) 4 Sqdn VMM (PAA 10) 1 VMU (PAA 6) Total Aircraft: 87
	Based Elsewhere in Joint Operating Area[6]	1 Sqdn VMA 2 Sqdn VMFA 1 Sqdn HMH 1 Sqdn HMLA 2 Sqdn HMM 1 Sqdn VMAQ 1 Sqdn VMGR VMU	3 Sqdn VMFA (JSF) (PAA 10) 1 Sqdn VMAQ (PAA 5) 1 Sqdn VMGR (PAA 12) Total Aircraft: 47
	Total Aircraft	Total Aircraft: 133	Total Aircraft: 133

[5] 2nd LW155 Btry positioned as contingency package (personnel not included in Seabased Echelon)
[6] Ashore, aboard CVBG, aboard amphibious ships, etc.

		Current MPF	MPF(F) / Future MPF
Operational Tempo	**Offload Sequence**	Sequential	Selective Offload of mission critical equipment and supplies
	Offload Flow	Operational Pause	In-stride
MPF Platform Defensive Capabilities (Threats)	**Air**	None	• Platform: Active/passive ECM, crew served weapons, • MAGTF: Defensive weapons, MANPAD, AH-1, EDMPF[7]
	Surface	Minimal (MSC contract security)	• Platform: Small arms, crew served weapons, security craft, sensors • MAGTF: AH-1, EDMPF
	Subsurface	None	None
	Damage Control	Minimal	Minimal (Collateral Duty of Military Detachment)
Spread Loading		• Policy: no more than one third of end items aboard a single ship. • Hospital, MEU Slice, Capability Sets, and Class IX on two ships (varies by MPSRON). • EAF on four ships. On two ships.	All capabilities spread across at least two platforms so, should one ship be unavailable (through enemy action or maintenance the MPF(F) MEB will have sufficient capability to continue its mission. Avoid single point of failure
Platform Performance	**Ability to Operate Afloat**	Offload up to Sea-State 2	Conduct all offload operations afloat in up to Sea-State 3. Perform essential ship functions in Sea-State 5.
	Physical Limitations		Draft, length, beam sufficient to enter Blount Island Command fully loaded (without water).
Navy Support Element		Consists of a Naval Beach Group staff and subordinate unit personnel, detachment Navy Cargo Handling Force, detachment of Amphibious Construction Battalion, and other units	Consists of Navy detachments configured to support Future MPF and Sea Base operations including (but not limited to): • Operation of ship cargo systems • Management of offload operations up to high water mark • Operation and maintenance of surface craft and lighterage • Flight operations

[7] EDMPF (Emergency Defense of the MPF).

	Current MPF	MPF(F) / Future MPF
Other Navy Capabilities	• Navy Mobile Construction Battalion (NMCB) • Fleet Hospital • Mine Countermeasures	To be determined based on more detailed assessment of operational requirements and duties to be performed aboard Sea Base. See Medical section below.

		Current MPF	MPF (F) / Future MPF
Force Closure			
Ship Closure		7 days from prepositioning location.	Maximum of 7 days from prepositioning location
MPF MEB Maneuver Elements Ready for Employment and Support Units Ready to Support From Seabase	**From Start of Movement (Ideal)**[8]	In as little as 17 Days (ship movement plus arrival and assembly)	Maximum of 7 days from beginning of first unit movement, with forces completing Arrival and Assembly en route, and some units being ready earlier.
	Arrival and Assembly	• 10 days (beginning when offload starts) • Closure of MPSRON required before arrival and assembly	• Arrival and assembly possible en route • Each unit ready for employment within 24 hours of arrival
Strategic Lift Requirement		249 Sorties for Fly-In-Echelon (FIE)	Flow-in-Echelon (FIE)[9] by air, sea or combination (will have significantly smaller strategic lift requirements)
Port/Airfield Access required for arrival in theater		• Airfield Required for arrival of FIE in theater, assembly of helicopters. • Port or Beach required for offload (near APOD)	• Airfield required for arrival of FIE in theater, assembly of helicopters (if necessary). • Can ferry Seabased Increment personnel (intratheater air/surface) to ships for operations • Port/Beach required for offload of equipment/supplies for sustained operations ashore (SOA)
Arrival and Assembly (combining personnel, equipment and supplies into combat-ready units)		Conducted at port/Arrival and Assembly Area (AAA)	Conducted afloat (Note: requires spaces for arrival and assembly operations)
Prepare forces afloat for projection ashore		None	Fuel and arm vehicles and weapons systems, and calibrate weapons systems in preparation for debarkation

[8] Assumes Combatant Commander gives priority for strategic lift.
[9] Personnel, high value/low density items and helicopters (if cannot flight ferry to seabase)

			Current MPF	MPF (F) / Future MPF
Arrival and Assembly				
Berthing Spaces	**Routine Ops**		5-10 contract personnel per ship	Military Detachment spread across platform(s) by function - Admin: 5 - Equipment Support: 15-35 per platform - NSE: Up to 15 per platform - Total: 25-55 per platform
	Sea-based Opera-tions	**During Deploy-ment**	5-10 contract personnel 90 OPP per ship	• Military Detachment (Up to 55) per platform • MEB Advanced Party ○ Command Element ○ Admin ○ Equipment Support ○ Aviation ○ Base Support ○ Unit Representatives ○ NSE • Total: 300-400 personnel spread across appropriate platforms
		Operating Aboard or Projected from Seabase (Maximum Capacity)	None	**Seabased Element** Portion of MEB that will operate on or from platforms aftloat : Total: 7,700+NSE Note : MEB Advanced Party included in this total. Operating Aboard MPF(F) Platform: CE, GCE, ACE, CSSE: 3,500 + NSE(TBD) Projected Ashore from Platform: GCE, CSSE: 4,200 NSE : TBD • MPF(F) must accommodate all Seabased Echelon forces to facilitate reconstitution afloat • Minimize need for cross-decking between platforms by, to the maximum extent possible berthing personnel on platform on which they will work or from which they will deploy for operations ashore

		Current MPF	MPF (F) / Future MPF
Berthing Spaces (Continued)	**Sustained Operations Ashore**	None	6,700 personnel on call at home station deploy as required directly to location ashore, to location en route, or through seabase without exceeding maximum billeting capacity.
	Joint Berthing	None	Can berth joint personnel by offsetting Future MPF personnel
Habitability	**Military Detachment**	None	Accommodations suitable for extended deployment aboard ship (3-6 months), including appropriate messing, berthing, storage, work spaces.
	Seabased Forces (Including Advanced Party)	None	Adequate accommodations with appropriate messing, berthing, storage, work spaces.
Strike Up / Staging for Movement	**To Flight Deck**	None	Able to move reinforced Bn-sized maneuver element configured for vertical lift aboard seabase to flight deck in a manner which does not delay or impede air operations (assume organic MPF(F) vertical lift cycling over 25 nm distance, with onload, offload, and appropriate cycle time). (164 light vehicles, 32 light trailers 1,015 personnel).
	To Surface Interface	Minimal	Able to move reinforced Bn-sized maneuver element configured for suface lift aboard seabase to point of surface inteface in a manner that does not delay or impede surfacer operations (assume organic MPSRON surface lift cycling over 5 nm distance, with onload, offload, and appropriate cycle time). min (263 light vehicles, 61 light trailers, 26 heavy vehicles, 42 heavy trailers, 9 LVS combinations, 41 armored vehicles, 48 EFVs, 1,542 personnel).
Generate ship-to-shore sorties	**Vertical Lift**	None	Able to generate XX sorties per hour in 9 hours using organic airlift
	Surface Lift	Employ organic lighterage	Able to generate YY sorties per hour in 9 hours hours using organic surface craft

		Current MPF	MPF (F) / Future MPF
Move forces ashore	**From Seabase Afloat**	None	• Able to load and move 1 reinforced Bn-sized maneuver element configured for vertical lift from flight deck by air 220[10] nm to LZ within 10[11] hours (164 light vehicles, 32 light trailers 1,015 personnel). • Able to load and move 1 reinforced Bn-sized mechanized maneuver element configured for surface lift from surface interface by surface craft/EFV 25 nm to shore within 10[12] hours (263 light vehicles, 61 light trailers, 26 heavy vehicles, 42 heavy trailers, 9 LVS combinations, 41 armored vehicles, 48 EFVs, 1,542 personnel).
	From Ashore	Units move from Arrival and Assembly Area (AAA) ashore	See general offload.
Ship-to-Shore Surface Craft		Organic lighterage	• Organic surface craft • Interface for High Speed Vessel, LCAC, and other surface craft (e.g. LCU(R))

[10] Based on MV-22 operational radius.
[11] Based on flight operations constraints.
[12] Aligned with air movement. Cross-check with LHA(R).

		Current MPF	MPF (F) / Future MPF
Selective Offload	**Equipment And Supplies**	None	Ability to access and move mission critical equipment and supplies (Less SOA) without significant repositioning of other equipment/supplies
	Capability Sets	Specific containers on weather deck	Contingency packages (e.g. medical, HADR, power, habitability, cold weather, water, fuel…) readily accessible (can be moved aboard seabase to flight deck or point of interface with surface movement without significant repositioning of other equipment/supplies)
General Offload in support of SOA (Equipment and supplies for SOA only)[13]		• At port: within 5 days. Assumes all ships can berth simultaneously. • Over beach: 0-3 nm within 10 days (weather permitting) • Precedes Arrival and Assembly	• After Arrival and Assembly afloat and seabased operations • At port within 24 hours (SOA items only). Assumes all ships requiring general offload can berth simultaneously • Over beach: 0-3 nm within 3 days (weather permitting) simultaneous with ongoing air operations.

[13] Assumes that HNS and dock space for all ships that require it.

		Current MPF	MPF(F) / Future MPF
AMPHIBIOUS TASK FORCE INTEROPERABILITY			
Interoperability		Minimal	Able to integrate command and control with all elements of ESF, seabase and joint forces in all functional areas
C2 on MPF(F) Platform	**General**		• Support an integrated naval command and control system with a shared tactical picture of maritime and land operations that is compatible and interoperable with naval, joint, and combined agencies and able to reach back to CONUS and reach forward to operating forces afloat and ashore. • Minimal dedicated (built-in) C2 systems. Flexible C2 infrastructure (LAN/WAN, plug-and-play) • Scalable • Interoperable with planned MAGTF/Joint systems • Over-the-Horizon(OTH)/and Beyond Line-of-Sight (BLOS) • Reconfigurable command spaces for each MEB MSC
	Operations	Minimal	• Provide MPF(F) MEB intelligence, planning and operations command and control functions based afloat (with reach-back as appropriate). • Each MSC provides “jump CP” ashore as required.
	Aviation	Minimal	Control all air operations in Joint Operating Area (JOA), interoperable with MACCS or successor family of joint systems.

		Current MPF	MPF(F) / Future MPF
C2 on MPF(F) Platform (Continued)	**Logistics**	Minimal	Support automated systems to Manage logistics activities aboard the seabase (including material management for ground and aviation logistics), integrated into the overall Naval Common Operating Picture (COP)

		Current MPF	MPF(F) / Future MPF
SUSTAINMENT			
General		All capabilities must be offloaded for use	• Maneuver elements and supporting CSS units carry 1-2 DOS • Sustainment provided from selective access to materiel and capabilities at seabase • Able to sustain seabase and projected forces from seabase • Supports SOA from seabase
Aviation Maintenance Support[14]	**Based aboard MPF(F)**	None	• RW/TR: Full O and Partial I Level, including support to ESF • STOVL: Partial O and I to support ESF • Support includes aviation supply, aviation maintenance, calibration)
	Based Elsewhere in Theater	Full O, Partial I Level for RW, TR, STOVL, CTOL	Full O, other as required
	T-AVB Required	Yes	Essential capabilities of TAVB incorporated into MPF(F) platform
	Space Requirements	None	High hat area with 12K crane for a/c based aboard
Ordnance	**Aviation**	Containerized. Not accessible aboard ship	Up to 20 days (5 surge/15 sustained) for all MEB a/c (50% PGM, 30% accurate, 20% Unguided). 10 days of ordnance on platforms where a/c are based. Able to access and palletize all ordnance on board, and receive, strike and stow incoming.
	Ground	Containerized. Not accessible aboard ship	Up to 20 days of MEB combat operations supported by continuous resupply

[14] Although aviation and ground maintenance and logistics are presented separately here, the Marine Corps reserves the possibility of converging ground and aviations logistics in order to simplify and streamline logistics operations.

		Current MPF	MPF(F) / Future MPF
Fuel	**Storage: Aviation**	Up to 30 days	Up to 20 days of flight operations supported by continuous resupply
	Storage: Ground	Up to 30 days	Up to 20 days of MEB combat operations supported by continuous resupply
	Ship to Shore Discharge	Floating hose	Ability to discharge bulk fuel from ship to shore in support of SOA
Water Production and Distribution	**Ship to Shore**	Only pier-side	Ability to discharge water from ship to shore in support of SOA
	Habitability	Minimal	Sufficient to support all seabased operations and forces billeted afloat
Airfield Ops	**Based aboard Future MPF**	None	• Air traffic control, Airspace Control, • Air Department (CFR, refueling, deck spotting, launch/recovery, weather, ordnance, etc.) • Possible split manning (USN/USMC)
	Ashore	• Full airfield operations • Full MACCS operations	• Full airfield operations • Full MACCS operations
	Expeditionary Airfield	4000 ft runway and accessories with parking for 75-105 aircraft	"Right-sized" EAF configured in contingency sets to support JSF and RW/STOVL operations ashore.
Flight Ops on Platform	**Deck Operation Cycle**	Daylight, clear weather	Adverse weather, night, 12 hrs sustained ops/24
	Arm/Dearm	None	Able to arm/dearm RW/TR
	STOVL/JSF	None	Emergency divert only (temperature-resistant deck)
Ground Equipment Maintenance	**Aboard MPF**	None	Intermediate maintenance on all organic MEB equipment. Requires High hat area with 10-12K crane for ground equipment based aboard supported by SECREPS
	Ashore	3rd Echelon and Limited 4th Echelon on all organic equipment	As required for SOA
Sustainment Supplies	**Ground**	30 days	20 days sustained by continuous resupply
	Aviation	30 days of O level support	20 days surge operations sustained by continuous resupply
Sustainment of Maneuver elements Ashore	**Ground**	From BSSG Ashore	Able to deliver daily resupply (up to two DOS every 2 days) to maneuver elements from seabase by ground or air as appropriate.

		Current MPF	MPF(F) / Future MPF
Medical	**Support Maneuver elements Projected from Seabase**	• No capability afloat • Establish organic MEB (USMC Medical) and Fleet Hospital Level III (Navy Medical) capabilities ashore	Project Level II (USMC Medical) (Forward Resuscitative Surgery (FRSS)) capability ashore with maneuver elements as required.
			Assume Navy provides medical capability afloat. Provide Level III (Navy medical) capability afloat: XX operating tables, YY Critical Care beds, ZZ ward beds and appropriate medical services to support Future MPF (entire MEB).[15] Note: does not attain capability of TAH (hospital ship) or Fleet Hospital. Capability expected to be somewhere between CRTS (Casualty Reception and Treatment Ship) and TAH.
	Support SOA		Establish additional Level II (USMC Medical) and III (Navy Medical) capability ashore as appropriate: XX operating tables, YY Critical Care beds, ZZ ward beds and appropriate medical services
Medical Evacuation		Organic MEB aircraft and vehicles	Provide surface and air casualty evacuation with enroute care from medical capability ashore to seabased medical facility
Theater Aeromedical Evacuation		None associated with MPS Ships	Provide connectivity with Theater medical system
Interoperable with CLF and Commercial Shipping		No	Yes
Resupply of MPSRON from External Sources	**Afloat**	None	Receive fuel, palletized cargo and intermodal TEUs normally equal to consumption since last resupply.
	In Port	Receive fuel, TEUs, break bulk and end items	Receive fuel, palletized cargo and TEUs equal to consumption since last resupply
Resupply to Units Ashore		General Discharge in stream/in port, surface only.	Ship to unit, air and surface

[15] Note: Navy expeditionary medical requirements are currently under review. Accordingly, Navy will refine specific numbers of operating tables, critical care beds, ward beds and other medical capabilities aboard Sea Base by the end of CY 2003.

		Current MPF	MPF(F) / Future MPF
Support to other Naval Forces from MPSRON	**Afloat**	None	• MPF(F) platforms may reconstitute stocks aboard ships in ESG to replace what was issued during the initial assault. • May serve as a Station Ship to elements of the ESF. May act as a Shuttle Ship to reinforce the CLF when MPF Operations are not being conducted. Pass through, store, and reconfigure cargo for delivery. Pass up to XX gals fuel (CONREP), YY tons (intermodal/pallet) cargo (VERTREP) per day.[16] Minimum capability is 5 days of supply for all elements of ESG or CSG.
	Ashore	None	Transfer fuel, prepalletized cargo, water
Support for Sustained Operations Ashore		No specific capability other than employing MEB	Support provided from afloat. Can project selected support capabilities ashore.

[16] Requires coordination with Navy to finalize specific amounts.

		Current MPF	MPF (F) / Future MPF
Reconstitution Afloat			
Recover forces afloat from operations ashore	**By air**	None	Able to recover by air 1 reinforced Bn-sized maneuver element configured for air movement, and restow and secure equipment and supplies within 12 hours of beginning movement.
	By surface	None	Able to recover by surface 1 reinforced Bn-sized maneuver element configured for surface movement, and restow and secure equipment and supplies within 12 hours of beginning movement.
Receive forces afloat from operations ashore		None	Decontaminate, perform fresh water agricultural washdown, defuel, dearm vehicles, weapons systems and aircraft
Reconstitute[17] Maneuver elements aboard MPF platforms for Further Operations		None	Able to reconstitute Future MPF maneuver elements and ready for future operations within 48 hours of closure on MPF(F) platforms.

[17] Reconstitution: those actions that commanders plan and implement to restore units to a desired level of combat effectiveness commensurate with mission requirements and available resources. Reconstitution operations incude regeneration and reorganization.

		Current MPF	MPF (F) / Future MPF
Reconstitute[18] MPF capability (IROAN[19], stow all ground items, restock supplies)	**Afloat**	None	• Able to reconstitute Future MPF maneuver unit equipment and supplies aboard MPSRON within up to 30 days. • If SOA equipment and supplies are used, reconstitute SOA capability in up to 45 days. SOA regeneration will normally occur before regeneration of maneuver elements.
	Ashore	In port/ ashore. No specified time limit	When possible, equipment reconstitution will be conducted ashore due to space and time requirements. Afloat reconstitution for major end items is also achievable, but more time consuming. Through naval logistics, consumables are constantly replenished before reconstitution occurs. This includes support to amphibious ships (ESG) needing to be re-stocked which is more time-consuming due to limited strike-up/strike-down capabilities than the MPF(F).

[18] Regeneration: restoring the total original capability of the MPF(F) in preparation for possible new employment, including repairing and restowing equipment, replenishing and restocking supplies, and restoring ship spaces to a dormant state.
[19] Inspect and Repair Only As Necessary

Appendix M
Glossary

Section I. Acronyms

AAAV ..... advanced amphibious assault vehicle
ABV ..... assault breaching vehicle
A/C ..... aircraft
ACA ..... airspace coordination area
ACE ..... aviation combat element
AEA ..... advanced electronic attack
AF ..... amphibious force
AFATDS ..... advanced field artillery tactical data system
AGS ..... advanced gun system
AGSE ..... aircraft ground support equipment
AIS ..... automated information system
AMCM ..... airborne mine countermeasures
ANSR ..... autonomous naval support round
AO ..... area of operations
AOA ..... amphibious objective area
APOBS ..... anti-personnel obstacle breaching system
A/P ..... advance party
APDE ..... aerial port of debarkation
APOD ..... aerial port of embarkation
ARG ..... amphibious ready group
ATARS ..... advanced tactical airborne reconnaissance system
ATF ..... amphibious task force
ATO ..... air tasking order

BA ..... basic allowance
BDA ..... battle damage assessment
BEZ ..... beach exit zone
BSSG ..... brigade service support group

C2 ..... command and control
C2PC ..... command and control personal computer
C4 ..... command, control, communications and computers
C4I ..... command, control communications, computers, and intelligence
CAS ..... close air support
CASEVAC ..... casualty evacuation
CATF ..... commander, amphibious task force
CE ..... command element
CENTCOM ..... central command

CG ..... cruise missile
CJTF ..... combined-joint task force
CLAWS ..... complementary low altitude weapon system
CLD/HD ..... critical low density/high demand
CLF ..... combat logistics force
CLS ..... craft landing site
CLZ ..... craft landing zone
CMCO ..... countermine/counterobstacle
CN ..... coalition nation
COC ..... combat operations center
CONOPS ..... concept of operations
CONUS ..... continental United States
COP ..... common operational picture
CRTS ..... casualty receiving and treatment ship
CRW ..... continuous rod warhead
CSG ..... carrier strike group
CSS ..... combat service support
CSSD ..... combat service support detachment
CSSE ..... combat service support element
CTP ..... common tactical picture
CVBG ..... carrier battle group

DACT ..... data automated communications terminal
DASC ..... direct air support center
DASC(A) ..... direct air support center (airborne)
DDG ..... guided missile destroyer
DD(X) ..... advanced class of Navy destroyer
DOA ..... day of ammunition
DON ..... Department of the Navy
DOS ..... day of supply
DOTMLPF ..... doctrine, organization, training, materiel, leadership and education, personnel, and facilities
DP ..... decision point
DZ ..... drop zone

EA ..... electronic attack
EFSS ..... expeditionary fire support system
EFV ..... expeditionary fighting vehicle
ELINT ..... electronic intelligence
EMW ..... expeditionary maneuver warfare
ENS ..... enhanced network seabasing
EOD ..... explosive ordnance disposal
EO-IR ..... electro-optical-infrared
ERGM ..... extended range guided munition
ERP ..... en route rendezvous point
ESF ..... expeditionary strike force

ESG ..... expeditionary strike group
EW ..... electronic warfare

FAC ..... forward air controller
FAC(A) ..... forward air controller (airborne)
FARP ..... forward arming and refueling point
FDO ..... flexible deterrent option
FF ..... fast ferry
FIE ..... flow-in echelon
FOB ..... forward operating base
FSCC ..... fire support coordination center

GCE ..... ground combat element
GCS ..... ground control station
GPS ..... global positioning system
GSBN ..... ground support battalion

HIMARS ..... high mobility artillery rocket system
HLZ ..... helicopter landing zone
HMMWV ..... high mobility multipurpose wheeled vehicle
HNS ..... host nation support
HST ..... helicopter support team
HSV ..... high-speed vessel
HUMINT ..... human intelligence

IADS ..... integrated air defense system
INMARSAT ..... international maritime satellite
IP ..... initial point
IPB ..... intelligence preparation of the battlespace
IR ..... infrared
ISB ..... intermediate staging base
ISR ..... intelligence, surveillance, and reconnaissance
ITO ..... integrated tasking order

JFACC ..... joint force air component commander
JFLCC ..... joint force land component commander
JOA ..... joint operations area
JSF ..... joint strike fighter
JTRS ..... joint tactical radio system

LAAD ..... low-altitude air defense
LAN ..... local area network
LAV ..... light armored vehicle
LCAC ..... landing craft air cushion
LCU ..... landing craft utility
LCU(R) ..... landing craft utility (replacement)

LF ..... landing force
LOC ..... line of communications
LOD ..... line of departure
LOS ..... line of sight
LPA ..... littoral penetration area
LPP ..... littoral penetration point
LPS ..... littoral penetration site
LPZ ..... littoral penetration zone
LRLAP ..... long range land attack projectile
LVS ..... logistics vehicle system
LW-155 ..... lightweight 155mm howitzer
LZ ..... landing zone

MAA ..... mission area analysis
MAG ..... Marine aircraft group
MAGTF ..... Marine air-ground task force
MALS ..... Marine aviation logistics squadron
MCIA ..... Marine Corps Intelligence Activity
MCM ..... mine countermeasures
MEB ..... Marine Expeditionary Brigade
MEF ..... Marine Expeditionary Force
MEFFV ..... MAGTF expeditionary family of fighting vehicles
METT-T ..... mission, enemy, terrain and weather, troops and support available-time available
MEU ..... Marine Expeditionary Unit
MMP ..... modular mission payloads
MP ..... military police
MPF ..... maritime prepositioning force
MPF(F) ..... maritime prepositioning force (future)
MPG ..... maritime prepositioning group
MPSRON ..... maritime prepositioning ships squadron
MSE ..... major subordinate element
MTW ..... major theater war
MTVR ..... medium tactical vehicle replacement

NAI ..... named area of interest
NEO ..... noncombatant evacuation operation
NIPRNET ..... Non-Secure Internet Protocol Router Network
NSFS ..... naval surface fire support

OCONUS ..... outside the continental United States
OMFTS ..... operational maneuver from the sea
OPLAN ..... operation plan
OSA ..... operational support aircraft
OTH ..... over the horizon

P3I ..... preplanned product improvement

PCO ..... primary control officer
PCS ..... primary control ship
PL ..... phase line
POL ..... petroleum, oils and lubricants

REIN ..... reinforced
RF ..... radio frequency
RFI ..... request for information
RGR ..... rapid ground refueling
RLT ..... regimental landing team
ROE ..... rules of engagement
RSTA ..... reconnaissance, surveillance, and target acquisition

SACC ..... supporting arms coordination center
SCAR ..... strike coordination and reconnaissance
SE ..... supporting establishment
SIGINT ..... signals intelligence
SIPERNET ..... SECRET Internet Protocol Router Network
SLEP ..... service life extension program
SLOC ..... sea line of communications
SMCM ..... surface mine countermeasures
SPOE ..... seaport of embarkation
SSGN ..... nuclear powered cruise missile submarine
SSM ..... surface-to-surface missile
SSN ..... attack submarine, nuclear
STODS ..... standoff delivery system
STOM ..... ship-to-objective maneuver
SW ..... shallow water
SZ ..... surf zone

TAC(A) ..... tactical air coordinator (airborne)
TACAIR ..... tactical air
TACC ..... tactical air command center
TACON ..... tactical control
TAD ..... towed artillery digitization
TAI ..... targeted areas of interest
TAV ..... total asset visibility
TCS ..... tactical control system
T/E ..... table of equipment
TF ..... task force
T/O ..... table of organization
TRAP ..... tactical recovery of aircraft and personnel

UAV ..... unmanned aerial vehicle
UCAV ..... unmanned combat aerial vehicle
UGV ..... unmanned ground vehicle

UNAAF.....Unified Action Armed Forces
UUV..... unmanned underwater vehicle

V/STOL.....vertical and/or short takeoff and landing aircraft
VSW..... very shallow water

WAN.....wide area network
WLAN.....wireless local area network
WMD ..... weapons of mass destruction
WME..... weapons of mass effect

Section II. Definitions

advanced base---A base located in or near an operational area whose primary mission is to support military operations

amphibious assault—The principal type of amphibious operation that involves establishing a force on a hostile or potentially hostile shore. (JP 1-02)

amphibious force—An amphibious task force and a landing force together with other forces that are trained, organized, and equipped for amphibious operations. Also called AF. (JP 1-02)

amphibious objective area---A geographical area (delineated for command and control purposes in the order initiating the amphibious operation) within which is located the objective(s) to be secured by the amphibious force. This area must be of sufficient size to ensure accomplishment of the amphibious force's mission and must provide sufficient area for conducting necessary sea, air, and land operation. Also called AOA. (JP 1-02)

amphibious task force—A Navy task organization formed to conduct amphibious operations. (JP 3-02)

aviation combat element—The core element of a Marine air-ground task force (MAGTF) that is task-organized to conduct aviation operations. The aviation combat element (ACE) provides all or a portion of the six functions of Marine aviation necessary to accomplish the MAGTF's mission. These functions are antiair warfare, offensive air support, assault support, electronic warfare, air reconnaissance, and control of aircraft and missiles. The ACE is usually composed of an aviation unit headquarters and various other aviation units or their detachments. It can vary in size from a small aviation detachment of specifically required aircraft to one or more Marine aircraft wings. The ACE itself is not a formal command. Also called ACE. (JP 1-02)

barrier—A coordinated series of obstacles designed or employed to channel, direct, restrict, delay, or stop the movement of an opposing force and to impose additional losses in personnel, time, and equipment on the opposing force. Barriers can exist naturally, be manmade, or a combination of both. (JP 1-02)

battalion landing team—In an amphibious operation, an infantry battalion normally reinforced by necessary combat and service elements; the basic unit for planning an assault landing. Also called BLT.

beachhead---A designated area on a hostile or potentially hostile shore that, when seized and held, ensures the continuous landing of troops and materiel, and provides maneuver space requisite for subsequent projected operations ashore. (Joint Pub 1-02)

breach—The employment of any means available to break through or secure a passage through an obstacle. (MCRP 5-12C)

centers of gravity—Those characteristics, capabilities, or sources of power from which a military force derives its freedom of action, physical strength, or will to fight. Also called COGs. (JP 1-02)

close air support---Air action by fixed- and rotary-wing aircraft against hostile targets that are in close proximity to friendly forces and that require detailed integration of each air mission with the fire and movement of those forces. Also called CAS. (JP 1-02)

combat service support element—The core element of a Marine air-ground task force (MAGTF) that is task-organized to provide the combat service support necessary to accomplish the MAGTF mission. The combat service support element varies in size from a small detachment to one or more force service support groups. It provides supply, maintenance, transportation, general engineering, health services, and a variety of other services to the MAGTF. The combat service support element itself is not a formal command. Also called CSSE. (JP 1-02)

command and control—The exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission. Also called C2. (JP 1-02)

command element—The core element of a Marine air-ground task force (MAGTF) that is the headquarters. The command element is composed of the commander, general or executive and special staff sections, headquarters section, and requisite communications support, intelligence, and reconnaissance forces necessary to accomplish the MAGTF mission. The command element provides command and control, intelligence, and other support essential for effective planning and execution of operations by the other elements of the MAGTF. The command element varies in size and composition. Also called CE. (JP 1-02)

commander, amphibious task force---The Navy officer designated in the order initiating the amphibious operation as the commander of the amphibious task force. Also called CATF. (JP 1-02)

common tactical picture---At a minimum, the common tactical picture (CTP) consists of friendly position location information (PLI), known and suspected enemy locations, and graphical map overlays depicting information such as fire support coordination and tactical control measures.

day of supply---Also "one day's supply." A unit or quantity of supplies adopted as a standard of measurement, used in estimating the average daily expenditure under stated conditions. It may also be expressed in terms of a factor, e.g., rounds of ammunition per weapon per day. (JP 1-02)

deliberate breaching—The creation of a lane through a minefield or a clear route through a barrier or fortification, which is systematically planned and carried out. (JP 1-02)

en route rendezvous point---The ERP is a location somewhere between the departure point of the MPF(F) shipping and the AOA where troops will embark aboard the MPF(F) for further movement to the theater. It is not intended to be an Intermediate Staging Base (ISB), nor is it a Forward Operating Base (FOB) and it may only be used for this one embarkation operation. It must, however, be a port and airfield complex capable of handling the draft of the MPF(F) vessels and receiving transcontinental flights. (Working Definition)

family of future lighterage---A comprehensive collection of vessels for transporting men and materiel between ships and from ships to the shore. This family should cover the missions of the existing LCM, LCU and LCAC as well as the offload requirements of the MPF(F).

flow-in echelon---The maritime prepositioning force (future) MPF(F) flow-in echelon (FIE) consists of personnel and materiel that flow to the MPF(F) platforms to constitute a required MAGTF and Navy support capability in theater. The FIE may deploy in two major parts: sea-based (SB) or sustained operations ashore (SOA) FIE. The SB FIE is tailored to minimize strategic and operational lift requirements while providing the personnel and equipment needed to initiate operations from the sea base. It includes flight ferry and air transported aircraft and mission unique supplies and equipment which could not be prepositioned. The SB FIE flows by strategic air or sealift from CONUS or other overseas locations and rendezvous with MPF(F) platforms enroute to or in the AO. The SB FIE completes arrival and assembly actions afloat. The SOA FIE consists of the additional personnel and material required for the MPF(F) MAGTF to transition to SOA. It remains in OCONUS or CONUS locations until requested by the Combatant Commander, deploying at a time and by modes appropriate for the situation. The SOA FIE normally completes its arrival and assembly actions ashore. (Working Definition)

forcible entry—Seizing and holding of a military lodgment in the face of armed opposition. (JP 1-02)

forward arming and refueling point---A temporary facility—organized, equipped, and deployed by an aviation commander, and normally located in the main battle area closer to the area where operations are being conducted than the aviation unit's combat service area—to provide fuel and ammunition necessary for the employment of aviation maneuver units in combat. The forward arming and refueling point permits combat aircraft to rapidly refuel and rearm simultaneously. Also called FARP. (JP 1-02)

forward operating base---An airfield used to support tactical operations without establishing full support facilities. The base may be used for an extended time period. Support by a main operating base will be required to provide backup support for a forward operating base. Also called FOB. (JP 1-02)

ground combat element—The core element of a Marine air-ground task force (MAGTF) that is task-organized to conduct ground operations. It is usually constructed around an infantry organization but can vary in size from a small ground unit of any type, to one or more Marine divisions that can be independently maneuvered under the direction of the MAGTF commander. The ground combat element itself is not a formal command. Also called GCE. (JP 1-02)

human intelligence---A category of intelligence derived from information collected and provided by human sources. Also called HUMINT. (Joint Pub 1-02)

intelligence preparation of the battlespace---An analytical methodology employed to reduce uncertainties concerning the enemy, environment, and terrain for all types of operations. Intelligence preparation of the battlespace builds an extensive database for each potential area in which a unit may be required to operate. The database is then analyzed in detail to determine the impact of the enemy, environment, and terrain on operations and presents it in graphic form. Intelligence preparation of the battlespace is a continuing process. Also called IPB. (JP 1-02)

intermediate staging base---A temporary location used to stage forces prior to inserting the forces into the host nation. (JP 1-02)

joint force commander—A general term applied to a combatant commander, subunified commander, or joint task force commander authorized to exercise combatant command (command authority) or operational control over a joint force. Also called JFC. (JP 1-02)

joint operations area—An area of land, sea, and airspace, defined by a geographic combatant commander or subordinate unified commander, in which a joint force commander (normally a joint task force commander) conducts military operations to accomplish a specific mission. Joint operations areas are particularly useful when operations are limited in scope and geographic area or when operations are to be conducted on the boundaries between theaters. Also called JOA. (JP 1-02)

landing force—A Marine Corps or Army task organization formed to conduct amphibious operations. The landing force, together with the amphibious task force and other forces, constitutes the amphibious force. Also called LF. (JP 3-02)

littoral---A zone of military operations along a coastline, consisting of the seaward approaches from the open ocean to the shore which must be controlled to support operations ashore, as well as the landward approaches to the shore that can be supported and defended directly from the sea. (Working definition)

line of communications—A route, either land, water, and/or air, that connects an operating military force with a base of operations and along which supplies and military forces move. Also called LOC. (JP 1-02)

line of departure---In land warfare, a line designated to coordinate the departure of attack elements. In amphibious warfare, a suitably marked offshore coordinating line to assist assault craft to land on designated beaches at scheduled times. (JP 1-02)

Note

The acronym LOD is only used for amphibious operations. For land operations the acronym is LD.

littoral penetration area---A geographic area designated for purposes of command and control, through which naval forces conduct littoral penetration operations. This area must be of sufficient size to permit the unrestricted conduct of sea, air and land operations. (Working Definition)

littoral penetration point---A point in an LPS where the actual transition from waterborne to land borne movement occurs ("feet wet" to "feet dry" for flying elements). Capitalizing on the precision location and navigation capabilities of the landing force, the LPP need only be large enough to support the passage of a single craft, but it may be used by a maneuver element or a series of maneuver elements passing in column. An LPP is normally associated with a platoon or company. (Working Definition)

littoral penetration site---A continuous segment of coastline within an LPZ, through which landing forces cross, by surface or vertical means. An LPS is normally associated with a battalion-size unit. (Working Definition)

littoral penetration zone---A geographic subdivision of an LPA. An LPZ is created to enhance command and control or facilitate coordination of maneuver and fires. An LPZ may contain several alternative axes for use by vertical or surface assault forces. An LPZ is normally associated with a regimental-sized unit as part of a larger force. (Working Definition)

maneuver warfare—A warfighting philosophy that seeks to shatter the enemy's cohesion through a variety of rapid, focused, and unexpected actions which create a turbulent and rapidly deteriorating situation with which the enemy cannot cope. (MCRP 5-12C)

Marine air-ground task force—The Marine Corps principal organization for all missions across the range of military operations, composed of forces task-organized under a single commander capable of responding rapidly to a contingency anywhere in the world. The types of forces in the Marine air-ground task force (MAGTF) are functionally grouped into four core elements: a command element, an aviation combat element, a ground combat element, and a combat service support element. The four core elements are categories of forces, not formal commands. The basic structure of the MAGTF never varies, though the number, size, and type of Marine Corps units comprising each of its four elements will always be mission dependent. The

flexibility of the organizational structure allows for one or more subordinate MAGTFs to be assigned. Also called MAGTF. (JP 1-02)

Marine Expeditionary Brigade—A Marine air-ground task force that is constructed around a reinforced infantry regiment, a composite Marine aircraft group, and a brigade service support group. The Marine expeditionary brigade (MEB), commanded by a general officer, is task-organized to meet the requirements of a specific situation. It can function as part of a joint task force, as the lead echelon of the Marine expeditionary force (MEF), or alone. It varies in size and composition, and is larger than a Marine expeditionary unit but smaller than a MEF. The MEB is capable of conducting missions across the full range of military operations. It may contain other Service or foreign military forces assigned or attached. Also called MEB.

Marine Expeditionary Unit—A Marine air-ground task force (MAGTF) that is constructed around an infantry battalion reinforced, a helicopter squadron reinforced, and a task-organized combat service support element. It normally fulfills Marine Corps forward sea-based deployment requirements. The Marine expeditionary unit provides an immediate reaction capability for crisis response and is capable of limited combat operations. Also called MEU. (JP 1-02)

Marine Expeditionary Unit (special operations capable)—The Marine Corps standard, forward-deployed, sea-based expeditionary organization. The Marine expeditionary unit (special operations capable) (MEU[SOC]) is a Marine expeditionary unit, augmented with selected personnel and equipment, that is trained and equipped with an enhanced capability to conduct amphibious operations and a variety of specialized missions of limited scope and duration. These capabilities include specialized demolition, clandestine reconnaissance and surveillance, raids, in-extremis hostage recovery, and enabling operations for follow-on forces. The MEU(SOC) is not a special operations force but, when directed by the President and/or Secretary of Defense, the combatant commander, and/or other operational commander, may conduct limited special operations in extremis, when other forces are inappropriate or unavailable. Also called MEU(SOC). (JP 1-02)

maritime prepositioning force—A task organization of units under one commander formed for the purpose of introducing a MAGTF and its associated equipment and supplies into a secure area. The maritime prepositioning force is composed of a command element, a maritime prepositioning ships squadron, a MAGTF, and a Navy support element. Also called MPF. (MCRP 5-12C)

maritime prepositioning ships—Civilian-crewed, Military Sealift Command-chartered ships that are organized into three squadrons and are usually forward deployed. These ships are loaded with pre-positioned equipment and 30 days of supplies to support three Marine expeditionary brigades. Also called MPS. (JP 1-02)

mission—1. The task, together with the purpose, that clearly indicates the action to be taken and the reason therefore. 2. In common usage, especially when applied to lower military units, a duty assigned to an individual or unit; a task. (JP 1-02)

mission statement—A short paragraph or sentence describing the task and purpose that clearly indicate the action to be taken and the reason therefore. It usually contains the elements of who, what, when, and where, and the reason therefore, but seldom specifies how. (MCRP 5-12A)

reconstitution—Those actions that commanders plan and implement to restore units to a desired level of combat effectiveness commensurate with mission requirements and available resources. Reconstitution operations include regeneration and reorganization. (MCRP 5-12A)

regimental landing team—A task organization for landing comprised of an infantry regiment reinforced by those elements that are required for initiation of its combat function ashore. Also called RLT. (JP 1-02)

strategic mobility—The capability to deploy and sustain military forces worldwide in support of national strategy. (JP 1-02)

sustained operations ashore—The employment of Marine Corps forces on land for an extended duration. It can occur with or without sustainment from the sea. Also called SOA. (MCRP 5-12C)

tactical recovery of aircraft and personnel—A mission performed by an assigned and briefed aircrew for the specific purpose of the recovery of personnel, equipment, and/or aircraft when the tactical situation precludes search and rescue assets from responding and when survivors and their location have been confirmed. Also called TRAP. (MCRP 5-12C)

tempo—The relative speed and rhythm of military operations over time. (MCRP 5-12C)

warfighting functions—The six mutually supporting military activities integrated in the conduct of all military operations are:1. command and control-The means by which a commander recognizes what needs to be done and sees to it that appropriate actions are taken. 2. maneuver-The movement of forces for the purpose of gaining an advantage over the enemy. 3. fires-Those means used to delay, disrupt, degrade, or destroy enemy capabilities, forces, or facilities as well as affect the enemy's will to fight. 4. intelligence-Knowledge about the enemy or the surrounding environment needed to support decisionmaking. 5. logistics-All activities required to move and sustain military forces. 6. force protection-Actions or efforts used to safeguard own centers of gravity while protecting, concealing, reducing, or eliminating friendly critical vulnerabilities. Also called WF. (MCRP 5-12C)