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MCTP 3-40B

Tactical Logistics

U.S. Marine Corps

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PCN 147 000011 01

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UNITED STATES MARINE CORPS

8 April 2025

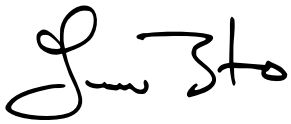
FOREWORD

Marine Corps Tactical Publication (MCTP) 3-40B, *Tactical Logistics*, provides the doctrinal basis for the planning and execution of tactical ground and aviation logistics support provided by the Marine Corps installations and logistics enterprise. Marine Corps Tactical Publication 3-40B expands upon Marine Corps Warfighting Publication 3-40, *Marine Corps Logistics,* and provides detailed guidance to Marine Corps logisticians for the conduct of logistics at the tactical level, and it establishes standard terms of reference for tactical logistics and combat service support operations.

This publication is primarily intended for commanders and their staffs who are responsible for planning and conducting logistics operations at the tactical level of warfare. The secondary audience is commanders and staff officers who require logistics support or who will benefit from a greater understanding of this support at the tactical level.

This publication supersedes MCTP 3-40B, *Tactical-Level Logistics*, dated, 6 May 2016 and Change 1, dated, 4 April 2018.

Reviewed and approved this date.



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Publication Control Number: 147 000011 01

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CHAPTER 1.
FUNDAMENTALS

Logistics is defined as, "Planning and executing the movement and support of forces" (*DoD Dictionary of Military and Associated Terms*, hereafter referred to as *DoD Dictionary*).

Logistics, as one of the Marine Corps' seven warfighting functions, directly supports Fleet Marine Forces (FMF) and Marine air-ground task force (MAGTF) expeditionary operations. The Marine Corps has historically provided initial self-contained and self-sustained expeditionary forces designed to independently accomplish missions. These forces are task-organized to meet a range of missions and have the logistics capabilities to both initiate an operation and to sustain and reconstitute the forces for follow-on missions. The Marine Corps installations and logistics enterprise (MCILE) consists of the installations and logistics organizations and capabilities that enable the Marine Corps to amass, employ, equip and sustain forces. The MCILE generates, employs, supports, and sustains all warfighting functions across the competition and conflict continuum (see Figure 1-1). The MCILE is a critical component of Marine Corps capabilities and is guided and managed against the biennially published Installations and Logistics Campaign Plan.

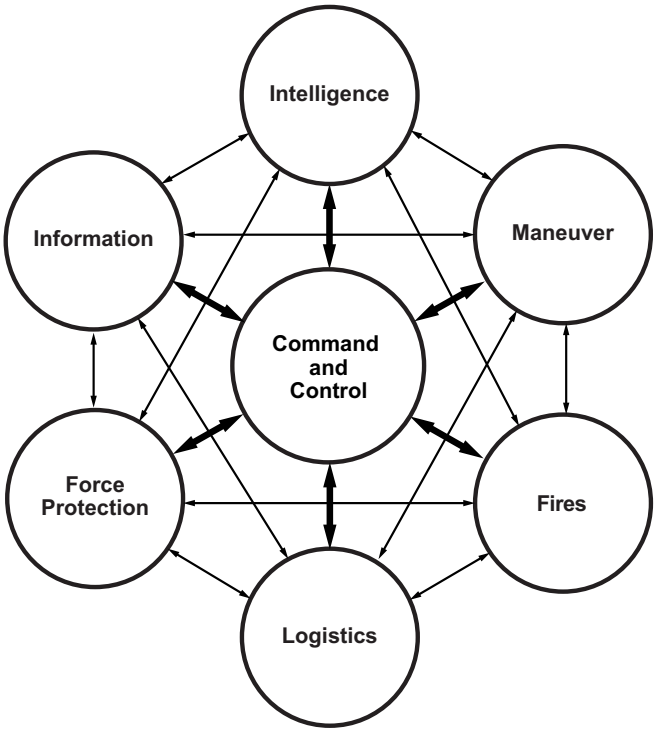

Figure 1-1. Warfighting Functions.

This publication considers logistics, as a warfighting function, from the perspectives of supported (e.g., ground combat element [GCE]) and supporting (e.g., logistics combat element [LCE]) organizations across the MAGTF, to include the aviation combat element (ACE). Effective logistics emphasizes detailed planning and close integration of the logistics capabilities and capacities of the supported units, supporting units, and the joint logistics enterprise (JLEnt).

A common application of logistics is termed combat service support (CSS). Combat service support is, "the essential capabilities, functions, activities, and tasks necessary to sustain all elements of forces in theater at all levels of warfare" (*DoD Dictionary*). Because many CSS activities are conducted within the tactical level of logistics, the two terms (CSS and logistics) are commonly used interchangeably.

LEVELS OF WARFARE

Military operations require specific logistics support, which is organized based on the strategic, operational, or tactical levels of warfare. At the strategic level of warfare, the national or multinational (alliance or coalition) strategic security objectives and guidance is outlined; then planners develop and use national resources to achieve those objectives. At the operational level of warfare, campaigns and major operations are planned, conducted, and sustained to achieve strategic objectives within theaters or other operational areas. The operational level links the tactical employment of forces to national and military strategic objectives. At the tactical level of warfare, battles and engagements are planned and executed to achieve military objectives assigned to tactical units or task forces.

THE LOGISTICS CONTINUUM

Strategic, operational, and tactical logistics parallel and complement the levels of warfare. Strategic logistics supports organizing, training, and equipping forces to further national interests. Operational logistics links tactical requirements and strategic capabilities to accomplish operational goals and objectives. Tactical logistics includes organic-unit capabilities and CSS activities required to support military operations.

Effective tactical logistics support planning produces efficient organic logistics capabilities within the MAGTF to support the concept of operations and sustain scheme of maneuver execution. Commanders and logisticians should carefully integrate logistics considerations into operations planning and execution. Tactical-level logistics capabilities are a primary element of an initial, self-sufficient MAGTF, which is supported externally through logistics activity at the strategic and operational levels. Figure 1-2 depicts the continuum of logistics support throughout the levels of warfare. Although it depicts a linear process, implementation is not always linear (e.g., could move from strategic to tactical, bypassing the operational level).

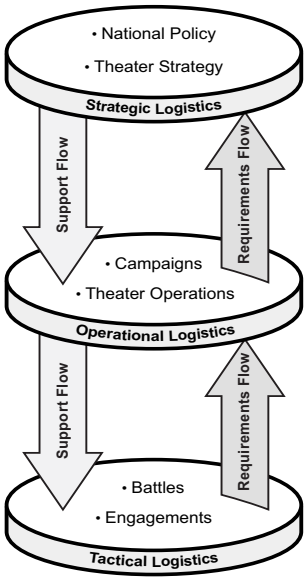

Figure 1-2. Logistics Continuum.

STRATEGIC LOGISTICS

Strategic logistics capabilities are generated based on guidance from the national command authorities and logistics requirements identified by the Services. The combatant command plans and oversees logistics from a theater-strategic perspective. The joint staff and combatant commanders (CCDRs) generate and move forces and materiel into theater and areas of operations where operational logistics concepts are employed (i.e., directive authority for logistics). See Figure 1-3. See Marine Corps Warfighting Publication (MCWP) 3-40, *Marine Corps Logistics,* for more information on strategic logistics.

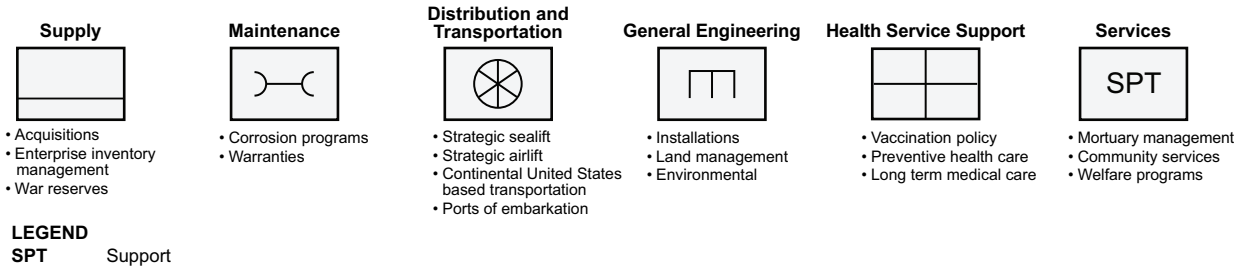

Figure 1-3. Strategic Logistics Examples.

OPERATIONAL LOGISTICS

Operational logistics connects the logistical activities of the strategic level with those of the tactical level. The Marine Corps is responsible for operational logistics support systems and platforms, and their execution, including life cycle readiness. Within a theater of operations, the Marine Corps component commander is responsible for conducting operational logistics and

coordinating operational logistics support with tactical logistics operations. The Marine Corps component commander can be augmented or can task elements of an LCE to perform operational-level functions. Integration with strategic-level support is coordinated through the Marine Corps component commander (see Figure 1-4). For more information on operational logistics see Marine Corps Tactical Publication (MCTP) 3-40C, *Operational-Level Logistics.*

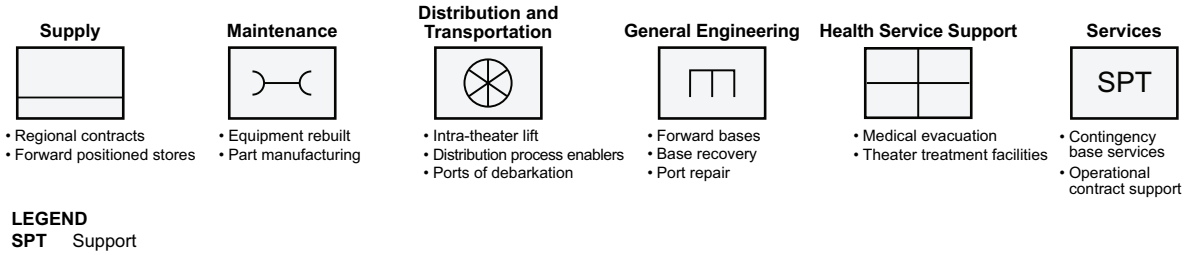

Figure 1-4. Operational Logistics Examples.

TACTICAL LOGISTICS

Tactical logistics is concerned with sustaining forces directly involved in deterrence and assurance, crisis response, or war. The goal of tactical logistics is to support a concept of operations while preventing the force from reaching a premature culminating point. Tactical logistics is executing the logistics functions to sustain combat forces with resources immediately or imminently available.

The MAGTF or FMF element commander plans and executes tactical logistics while coordinating with higher headquarters (HHQ) for operational-level logistics support to sustain operations. Subordinate element commanders within the MAGTF are responsible for the efficient employment of organic logistics capabilities, while the LCE commander is typically responsible for executing CSS operations in general support of the MAGTF or FMF elements.

The initial source of logistical support available to any unit comes from its own organic capabilities. The LCE has capabilities beyond those found in the other MAGTF elements and provides additional logistical support the other elements require. The MAGTF commander determines the lead for operational logistics interface beyond the organic capabilities (i.e., either the G-4/S-4 or the combat logistics regiment [CLR]/combat logistics battalion [CLB]/littoral logistics battalion [LLB] commander). See Figure 1-5.

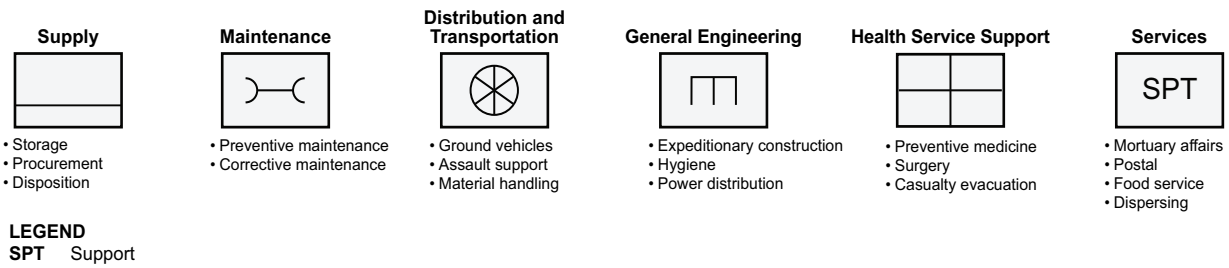

Figure 1-5. Tactical Logistics Examples.

LOGISTICS AND COMBAT SERVICE SUPPORT

Logistics encompasses all actions required to move and maintain forces. This includes acquiring and positioning resources and delivering those resources to deployed forces. Combat service support, on the other hand, is the activity that provides services and supplies to the combat forces.

MARINE CORPS ORGANIZATIONS AND LOGISTICS STAFF RESPONSIBILITIES

Commanders, staff officers, and logisticians at all levels should understand the logistics and CSS capabilities of the MAGTF to plan for the tactical phases of expeditionary operations (see Figure 1-6). Marine Corps Reference Publication (MCRP) 1-10.1, *Organization of the United States Marine Corps,* provides an in-depth view and guide to defining structure, command relationships, and missions of Marine Corps units.

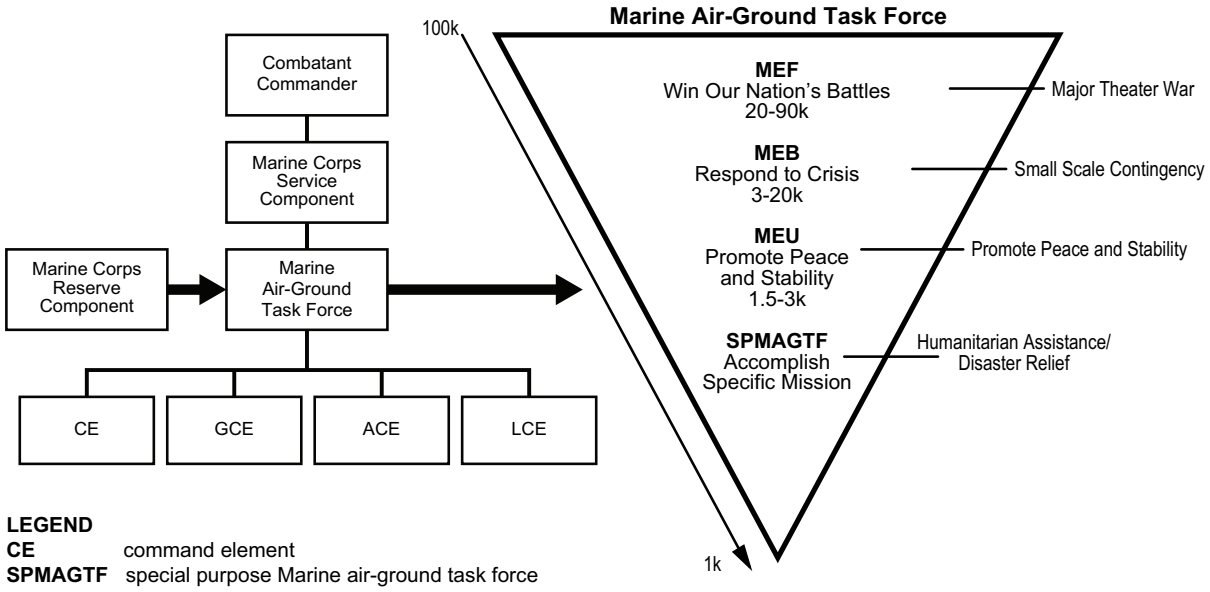

Figure 1-6. Marine Air-Ground Task Force.

The logistics staff is the commander's principal assistant and the focal point for policy formation, overall sustainment coordination within the organization, and support relationships. This staff initiates and maintains continuous liaison with other external elements. See Table 1-1 for logistics officer responsibilities.

Table 1-1. Officers Responsible for Command Element, ACE, GCE, and LCE Logistics.

General Staff	Chief of Staff	Manpower or Personnel Staff Officer	Operations Staff Officer	Logistics Staff Officer	Aviation Logistics Officer	Comptroller
• Special staff officer (logistics)	• Provost marshal • Staff judge advocate	• Adjutant • Personnel officer • Morale, welfare, and recreation officer • Postal officer • Legal officer	• Civil affairs officer • LCE • Ground supply support coordinator • Ground maintenance support coordinator • Transportation support coordinator • Engineer officer • Medical support officer • Dental support officer • Support officers for services functions • Explosives ordnance disposal planner	• Distribution management officer • Ground supply officer • Aviation supply officer • Fiscal officer • Disbursing officer • Maintenance officer • Maintenance management (ground equipment) officer • Ordnance officer • Ground electronics maintenance officer • Ordnance maintenance officer • Utilities maintenance officer • Aviation ordnance officer • Engineer support coordinator • Airfield services officer • Motor transport officer • Strategic mobility officer • Embarkation officer • Surgeon (medical) • Dental officer • Food services officer • Contracting officer	• Aviation supply officer • Aviation maintenance officer • Aviation ordnance officer • Avionics officer	• Financial management officer • Financial management resource officer

In addition to the responsibilities in Table 1-1, logistics officers should consider the following:

- Individual commands can vary based on the commander's preference and personnel availability.
- Staff structure at lower levels typically parallels staff structure at the element level.
- Aviation logistics, supply, maintenance, ordnance, and avionics officers are unique to the ACE headquarters. In ACEs based on a single aircraft group or composite squadron, these posts are usually assumed as additional duties by the commanding officer of the assigned host Marine aviation logistics squadron and the squadron or detachment staff.
- The staff judge advocate and the legal officer coordinate legal functions within the command and between the command and the LCE legal services support section.
- If the command does not have a comptroller, the supply officer and/or funds manager assumes the budget execution duties.
- In the LCE, the G-3/S-3, through functional-area support officers, is responsible for ground CSS operations in support of the MAGTF. The LCE G-3/S-3 does not usually supersede the cognizant staff officers (e.g., G-1/S-1, G-4/S-4) for internal support of the LCE.
- The aviation ordnance officer and strategic mobility officer are assigned to MEF common-equipment facilities.

- The supply officer, under the cognizance of the G-4/S-4, may also be designated as the fiscal officer.
- The Marine Corps and Navy budget and accounting officers are unique to the ACE.
- Contracting officers are only available in the command element and in the LCE.

Joint Task Force

A MAGTF typically operates as part of a joint, naval, or combined task force. A Marine expeditionary force (MEF) or Marine expeditionary brigade (MEB) may serve as the nucleus for such a task force, especially when a Marine expeditionary unit (MEU) is already in theater. In such cases, the Marine Corps component commander may be tasked to provide the joint task force (JTF) headquarters nucleus; the MEU may become the initial logistics capability on site. The JTF commander requires direct connectivity with the CCDR. A JTF might interface with non-Department of Defense (DoD), international and local agencies and requires enhanced command and control (C2), liaison, and support for logistics. A MAGTF G-4 could become the J-4 and perform the following functions in addition to their usual tasks:

- Formulate logistics plans and policies.
- Leverage JLEnt resources.
- Coordinate and supervise tactical- or operational-level activities.
- Coordinate joint operations area (JOA) mortuary affairs.
- Understand the established policies of the other military Services operating as part of the JTF.
- Coordinate joint petroleum activities.

Marine Corps Component Commands

Marine Corps component commands are under the authority, direction, and control of the combatant command with allocated forces categorized into geographic (i.e., Marine Forces Command [MARFORCOM]; Marine Forces Pacific [MARFORPAC]; Marine Forces Central Command; Marine Corps Forces Europe; Marine Corps Forces Africa; Marine Forces Southern Command; Marine Forces Northern Command; and Marine Forces Korea) and functional (i.e., Marine Forces Special Operations Command; Marine Forces Cyberspace Command; and Marine Forces Space Command) components.

Marine Corps component commands give direction over all aspects of military operations, training, and logistics. Marine Corps logistics is specific to areas of activities that support operations and field maintenance. This includes organizational and intermediate-level repair; subsistence and individual equipment requirements; petroleum, oils, and lubricants (POL); and other consumables. These component forces are responsible for carrying out the CCDR's orders and coordinating with their staff in support of mission objectives. For more information on Marine Corps component commands, see MCRP 1-10.1. The Marine Corps component command G-4 is responsible for—

- Advising the commander and operations staff officer (G-3) on the support required to sustain campaigns and major operations.
- Identifying requirements and coordinating resource within the strategic infrastructure.
- Anticipating tactical logistics requirements.
- Maximizing the overall effect of support so that the deployment and employment of the force are balanced.

- Planning and supervising the establishment and operation of intermediate and forward support bases. Supervising the reception, staging, on-ward movement, and integration of Marines reaching the theater.
- Coordinating with joint, other Service, and host-nation agencies for logistics support.
- Planning and supervising the reconstitution and redeployment of the MAGTF for follow-on missions.
- Contract planning, integration, and synchronization of all operational contract support (OCS) matters.

Marine Air-Ground Task Force or Fleet Marine Forces Element

The MAGTF commander can serve as commander, Marine forces under the JTF and must comply with operational direction from the joint force commander or the functional component commander. They must be capable of coordinating combat, combat support and CSS activities with adjacent units from other Services and allied nations as well as exercising operational control (OPCON) over assigned forces. Consequently, the MAGTF G-4 must be prepared to execute operational logistical functions. In addition to their usual tasks, the MAGTF or FMF element G-4/S-4 is responsible for—

- Advising the commanding general or commander and G-3/S-3 on the readiness status of major equipment and weapons systems.
- Developing policies and identifying requirements, priorities, and allocations for logistical support.
- Integrating organic logistics operations with logistical support from external commands.
- Coordinating and preparing logistics plans and orders (see Chapter 4).
- Supervising the execution of the commander's orders regarding logistics and CSS.
- Ensuring the logistics support concept supports the scheme of maneuver by leveraging the JLEnt to identify and resolve support deficiencies.
- Collating support requirements of subordinate organizations by identifying support requirements that can be satisfied with organic resources and passing unsatisfied requirements to appropriate higher or external command.
- Supervising some command services, such as messing and (as directed) billeting and financial management functions.
- Coordinating with naval or maritime task force N-4 (if applicable) and the ACE G-4/S-4 for aviation-specific requirements.
- Planning, integrating, synchronizing, and providing oversight of contract support.

Combat Service Support Organization

The ground-common or aviation-specific logistics support CSS organization G-3/S-3 coordinates with supported organizations for their support requirements. The G-3/S-3 is responsible for—

- Coordinating with both the G-3/S-3 and G-4/S-4 of the supported organizations to identify support requirements and to develop estimates of supportability for their concepts of operations.
- Recommending the task organization of supporting LCEs based on guidance from HHQ, the concept of operation, and supported organizations' schemes of maneuver.

- Coordinating and supervising execution of the command's logistical support operations and reviewing liaison requirements with supported commands (e.g., air officer, fires officer, direct air support center direct air support center officer).

  NOTE: The LCE is the primary agency for non-aviation peculiar logistical support operations in the MAGTF and the ACE is responsible for aviation peculiar support.

- Coordinating with the G-3/S-3 of the supported organizations during the development of their concepts of operations and schemes of maneuver to ensure that they are supportable.

FUNCTIONS AND SUBFUNCTIONS OF TACTICAL LOGISTICS

Marine Corps tactical logistics has six functional areas: supply, maintenance, distribution and transportation, general engineering, health service support, and services (see Table 1-2).

Table 1-2. Functions and Subfunctions of Tactical Logistics.

Supply	Maintenance	Distribution and Transportation
• Determination of Requirements • Storage • Procurement • Distribution • Salvage • Disposal	• Inspection and Classification • Servicing and Tuning • Testing and Calibration • Repair • Modification • Rebuilding and Overhaul • Reclamation • Recovery and Evacuation	• Embarkation and Landing Support • Port and Terminal Operations • Motor Transport • Aerial Delivery • Materials Handling Operations • Distribution Management
General Engineering	**Health Service Support**	**Services**
• Horizontal/Vertical Construction • Facilities Maintenance • Demolition • Explosive Hazard/Obstacle Clearance • Water: Produce, Store, Distribute • Bulk Fuel: Receive, Store, and Dispense • Power: Generate and Distribute • Hygiene Services: Showers, Laundry, and Field Sanitation	• Casualty Management • Force Health Protection and Prevention • Medical Logistics • Medical Command and Control • Medical Stabilization Activities	• Operational Contract Support • Food Service Support • Mortuary Affairs • Disbursing • Legal Services • Postal • MCCS Exchange Services

Supply

Supply involves the requisition authority, distribution, care of supplies while in storage, disposal, and salvage of supplies, including the determination of kind and quantity of supplies (see Table 1-3). Logisticians typically calculate requirements for each class and sub-class of supply. For additional guidance governing the principles of concepts of supply, as well as the organization, integration, planning, and execution of MAGTF expeditionary supply support, see MCTP 3-40H, *MAGTF Supply Operations*.

Table 1-3. Classes of Supply.

Class	Description	Subclass	
I	Subsistence, which includes rations and gratuitous health and welfare items.	A: Nonperishable, dehydrated subsistence that requires organized dining facilities C: Combat rations (e.g., meals, ready to eat) that require no organized dining facility used in combat and in-flight environments and gratuitous health and welfare items	R: Refrigerated subsistence S: Non-refrigerated subsistence (unless other subclasses) W: Water
II	Clothing, individual equipment, tools, administrative supplies; which include tentage, organizational tool sets and tool kits, hand tools, maps, administrative and housekeeping supplies, and small arms.	A: Air B: Ground support materiel E: General supplies F: Clothing and textiles G: Electronics	M: Weapons T: Industrial supplies (e.g., bearings, block and tackle, cable, chain, wire, rope, screws, bolts, studs, steel rods, plates, and bars)
III	POLs, which include petroleum fuels, lubricants, hydraulic and insulating oils, preservatives, liquid and compressed gases, bulk chemical products, coolants, de-icing and antifreeze compounds, and the components and additives of such products, and coal.	A: Air W: Ground (surface) P: Packaged POL	
IV	Construction materials, which includes construction materiel, installed equipment, and all fortification or barrier materiel.	A: Construction B: Barrier materials	
V	Ammunition of all types, which includes chemical, biological, radiological, and special weapons; bombs; explosives; mines; fuses; detonators; pyrotechnics; missiles; rockets; propellants; and other associated items.	A: Air W: Ground	
VI	Personal demand items and nonmilitary sales items.	A: Personal demand items not packaged as ration supplement sundry packs	M: Personal and official letters and packaged mail. P: Ration supplement sundry packs
VII	Major end items, which includes the final combination of end products assembled and configured in their intended form and ready for use (e.g., launchers, tanks, mobile machine shops, vehicles).	A: Air B: Ground support materiel (includes power generators, firefighting, and mapping equipment) D: Administrative and general-purpose vehicles (commercial vehicles used in administrative motor pools) G: Electronics	J: Tanks, racks, adapters, and pylons (Air Force only) K: Tactical and special purpose vehicles (includes trucks, truck tractors, trailers, semi-trailers, etc.) L: Missiles M: Weapons N: Special weapons X: Aircraft engines
VIII	Medical materiel, which includes supplies to support HSS, force health protection, and medical-unique repair parts.	A: Medical materiel (including repair parts special to medical items) B: Blood and blood products	
IX	Repair parts, which include components and kits, assemblies, and sub-assemblies (reparable and non-reparable) required for maintenance support of all equipment.	A: Air B: Ground support materiel; power generators; firefighting, and mapping equipment D: Administrative and general-purpose vehicles (commercial vehicles used in administrative motor pools) G: Electronics	K: Tactical and special-purpose vehicles (including trucks, truck-tractors, trailers, semitrailers, etc.) L: Missiles M: Weapons N: Special weapons X: Aircraft engines
X	Nonmilitary programs, which includes materiel to support nonmilitary/civic augmentation programs (e.g., agriculture, economic development) that is not included in Classes I-IX.	None	

Maintenance

Maintenance involves those actions taken to keep materiel in serviceable condition (preventive maintenance) and actions required to return materiel to serviceable condition (corrective maintenance). Maintenance tasks are grouped by levels of support that determine assignment of maintenance responsibilities. Tables 1-4 and 1-5 depict the levels of support as they are defined for ground equipment and aviation equipment, respectively; tactical logistics maintenance levels are highlighted. See MCTP 3-40E, *Maintenance Operations*, for additional information.

Table 1-4. Levels of Maintenance.

Levels of Maintenance	Categories of Maintenance
Field. Field maintenance is performed by crew, operators, and maintainers within Marine Corps organizations and activities, and by approved commercial and contract sources. Maintenance tasks performed within the field levels of maintenance are categorized as organizational and intermediate. A unit may perform any field maintenance tasks for which it is manned, trained, and equipped.	**Organizational**—Tasks that are the responsibility of and performed by owning unit on its assigned equipment. These can consist of inspecting, servicing, lubricating, and adjusting as well as replacing parts, sub assemblies, and minor assemblies. **Intermediate**—Tasks that require a higher level of technical training and specialized tools or facilities. These can include modification; replacement; fabrication; overhaul; component, subcomponent, assembly, subassembly repair; calibration and repair of TMDE, software maintenance; precision machining; welding; evacuation; disposal; salvage; demilitarization of material; and advanced manufacturing.
Depot. The depot-level of maintenance are actions taken on materiel or software that are beyond field-level capabilities or authorized by the Deputy Commandant for Installations and Logistics. Coordinated with Marine Corps Systems Command and relevant program executive officers.	**Depot maintenance**—An essential part of supporting or extending equipment lifecycle in total lifecycle management but may also be leveraged to contribute to field maintenance efforts by providing overflow, on-site maintenance services, and technical assistance as appropriate to maintain enterprise materiel availability. Depot maintenance is not defined by location.
LEGEND TMDE test, measurement, and diagnostic equipment	

Table 1-5. Levels of Aviation Equipment Maintenance Activities.

Levels of Maintenance	Maintenance Activities
Organizational	Tactical and training squadrons and Marine Corps air stations with aircraft assigned.
Intermediate	MALS.
Depot	Naval aviation depots and contract maintenance depot activities. Each MALS has limited depot-level capability.

Distribution and Transportation

Distribution is the process of synchronizing all elements of the logistics system to deliver the right things to the right place at the right time. Transportation is the movement of cargo and passengers from one node in the distribution network to the next node or point of employment using railways, highways, waterways, pipelines, oceans, and airways. Throughput is the average amount of cargo, vehicles, equipment, and personnel passed through a single node, multiple nodes, or the entire distribution and transportation network over a specific period of time. The

distribution and transportation subfunctions are generally applicable to all levels of support, although the means, methods, control, and management procedures employed at each level will vary. For more information see MCTP 3-40F, *Distribution and Transportation Operations*.

General Engineering

General engineering are those engineering capabilities and activities, other than combat engineering, that provide infrastructure and modify, maintain, or protect the physical environment. In the Marine Corps it is considered a tactical logistics function; combat engineering is considered a combat support function. The MAGTF may receive augmentation from the naval construction force (NCF) based on mission, enemy, terrain and weather, troops and support available–time available and the size and scope of general engineering effort required. The NCF can range in size and capability from a naval construction regiment (NCR) with a naval mobile construction battalion (NMCB), a naval construction battalion (NCB), an underwater construction team (UCT), or task organized detachments of these units. Engineer support battalion (ESB) assets at the tactical level may be used to reinforce or augment the combat engineer battalion (CEB) or Marine wing support squadron (MWSS) with engineering-specific capabilities for mobility, countermobility, or survivability tasks. These assets are typically in general support of the MAGTF for a wide range of tasks. These tasks often involve more detailed planning and preparation and higher standards of design and construction than typical combat engineer tasks. For more information on the engineering organizations, functions, and capabilities, see MCWP 3-34, *Engineering Operations*; MCTP 3-40D, *General Engineering*; and MCTP 3-34D, *Seabee Operations in the MAGTF.*

Health Service Support

Health service support (HSS) refers to activities and organizations that minimize the effects of wounds, injuries, and disease on unit effectiveness, readiness, and morale. The mission is accomplished through aggressive and proactive preventative medicine program that safeguards personnel against potential health risks and by establishing a system that provides appropriate care from the point of injury or illness to the suitable taxonomy of care. For more information on HSS organizations, functions, and capabilities, see MCTP 3-40A, *Health Service Support Operations*.

Services

Within the Marine Corps, services are considered to be one of the six functional areas of tactical logistics. Within the MAGTF, services are primarily provided by the LCE and the ACE. Marine air-ground task force operations require the LCE to be able to provide logistical support services to both mobile and stationary organizations (such as logistics support bases and base camps). In the ACE, the MWSS provides limited services to address ACE requirements.

AVIATION LOGISTICS DIVISIONS AND MARINE AVIATION LOGISTICS SQUADRONS

There are two combatant command-level Marine Corps component commands with standing aviation logistics divisions (ALDs): MARFORCOM and MARFORPAC. All other combatant command-level Marine Corps component commands can be augmented from MARFORCOM, MARFORPAC, and Marine aircraft wing (MAW) ALD staffs to provide ALD staff functionality as required. The assistant chief of staff ALD, as a primary staff branch of a Marine Corps component command headquarters, is responsible for strategic and operational aspects of aviation

logistics for forces assigned under their cognizance. The assistant chief of staff ALD is responsible for—

- Advising Marine component commanders on readiness, policies, deliberate planning, organization, functions, and operations.
- Reviewing and assisting in preparation or revision of weapon systems planning documents, program planning documents, and other long-range aviation logistics planning tools.
- Managing, distributing, and maintaining accountability of mobile facilities and ancillary equipment.
- Providing aviation logistics assistance as required to bases and stations.
- Managing the special functional areas of the ALD: aircraft maintenance, aviation supply, avionics, ordnance, aviation logistics information management and support, and future operations.

The Marine aircraft wing ALD assists subordinate Marine aircraft groups (MAGs) in matters related to aviation material readiness and internal material management of weapon systems and advises the commander on all aviation logistics matters. The ALD's goals are to maintain high aircraft and system readiness, minimize costs associated with maintaining aircraft, and improve aviation logistics efficiency. This is accomplished through close coordination with HHQ, supporting naval and commercial organizations, and subordinate commands. The ALD organization consists of six core functional branches:

- Aircraft maintenance.
- Aviation supply.
- Avionics.
- Aviation ordnance.
- Aviation logistics plans.
- Aviation logistics information management and support.

At the MEF level, the MAGTF is staffed with an aviation ordnance subject matter expertise capability only; all other functions of aviation logistics are managed by the ACE. However, the aviation logistics function on a MEB is coordinated by the subordinate Marine aviation logistics squadron staff. The aviation logistics function on a MEU is absorbed between the ACE commander and subordinate staff, and the supporting intermediate-level support facility.

AVIATION GROUND SUPPORT

Aviation ground support (AGS) is the component that gives Marine aviation its expeditionary capability. Aviation ground support is the ACE's primary aviation expeditionary maneuver enabler and it provides forward aviation combat engineering, to include landing zone survey and construction, contingency airfield support, airfield assessment and repair, aircraft salvage and recovery, and forward arming and refueling points (FARPs). These AGS capabilities directly support the employment of Marine aviation and consist of tailored engineering and logistics

capabilities (except aircraft supply, maintenance, and aviation ordnance) required for sustaining air operations at airfields in austere environments. The MWSS provides the MAGTF, MAWs, MAGs, or other naval forces with the following AGS activities:

- Forward aviation combat engineering operations.
- Airfield operations.
- Base recovery after attack.
- Airfield damage repair operations.
- FARP operations.
- Aircraft salvage and recovery operations.

TACTICAL LOGISTICS SUPPORT EXTERNAL TO THE MARINE AIR-GROUND TASK FORCE

The four primary sources of external support are US military forces, multinational forces, host-nation support (HNS), and commercial capabilities. Commanders and staff will estimate required support based on organic shortfalls and mission factors (i.e., reducing strategic lift requirements by procuring supplies at the operating location from the host nation). Coalition, bilateral, and HNS agreements authorize specified support across national lines. Requests for cross-Service or cross-national logistics support are typically coordinated via the Marine component commander. See MCRP 3-40B.4, *Coalition Logistics Handbook*, for details on multinational logistics.

United States Military Forces

The JLEnt provides cross-servicing support when there are standing DoD procedures for common-user logistics (e.g., for materiel managed by the Defense Logistics Agency) or when there are existing inter-Service support agreements (e.g., for the US Army to provide line-haul transportation to Marine Corps forces in certain theaters). The CCDRs have direct authority for logistics, by which they can authorize cross-servicing support within their theater. Cross-servicing support is appropriate when there are standing DoD procedures for common-user logistics common item support (e.g., for materiel managed by the Defense Logistics Agency) or there are existing inter-Service support agreements. Coalition, bilateral, and HNS agreements authorize specified support across national lines. Requests for cross-servicing or cross-national logistics support are coordinated by the Marine Corps component commander.

Joint Logistics Enterprise. The JLEnt is a cooperative coalition of key global logistics providers within and beyond DoD. Key DoD organizations in the JLEnt include the Services' logistics elements, US Transportation Command, Defense Logistics Agency, the J-4, logistics directorates of a joint staff of the combatant commands, and the office of the Under Secretary of Defense for Acquisition and Sustainment. It also includes US Government departments and agencies, nongovernmental organizations, commercial partners, and may include multinational partners and international organizations. The JLEnt is interconnected among global logistics providers, supporting and supported organizations and units, and other entities.

Knowing the roles, responsibilities, relationships, and authorities of JLEnt partners is essential to planning, executing, controlling, and assessing logistics activities and operations. By collaborating, JLEnt partners ensure the coordinated employment and sharing of capabilities and resources. Global logistics providers manage end-to-end processes that provide capabilities to the supported CCDR to fulfill requirements. Commands that link to strategic and joint interfaces will enable US forces to maintain combat power as well as enable operational reach, freedom of action, and prolonged endurance. Effective interfaces between the national strategic, operational, and tactical levels of warfare are essential to providing responsive support throughout the theater.

Naval Logistics Integration. The implementation and utilization of Naval Logistics Integration (NLI) provides a naval logistics capability that operates afloat or ashore and with a similar footprint to and improved responsiveness over separate logistics chains maintained by each Service. The Secretary of the Navy Instruction (SECNAVINST) 4000.37B, *Naval Logistics Integration*, directs that all levels of command pursue integrating Service logistical capabilities across the Navy and Marine Corps. See MCTP 13-10K, *Naval Logistics*, and the Navy/Marine Corps Departmental Publication (NAVMC) 4000.4B, *Naval Logistics Integration (NLI) Playbook*, for additional information about operational and tactical-level mission areas, enabling functions, and the organization and support for the conduct of logistics operations for naval Services.

The multi-tiered NLI organization encompasses Navy and Marine Corps organizations across the spectrum of logistics planning and execution. The NLI strategic plan provides the NLI roadmap (goals and objectives), while SECNAVINST 4000.37B codifies the strategic plan and assigns Service responsibilities for implementing NLI. The NLI Playbook establishes a common set of tactics, techniques, and procedures for leveraging NLI sanctioned initiatives in support of naval expeditionary forces.

Multinational Forces

The MAGTF and FMF elements can execute operations as part of a coalition force. By necessity, each coalition is distinct and developed by policy and political leaders at the national strategic level based on many factors. Each nation contributing troops to a coalition sets terms and conditions for the use of their forces. When those forces rely on commercial capabilities for logistics or other support in an operational area, the US command involved establishes a cross-functional organization to ensure coordinated use of the local or regional market in a way that supports overall mission objectives and avoids market competition between contributing forces. Logisticians at the tactical level should be aware of these potential relationships and understand that policies set at the strategic level can have downstream effects at the tactical level (i.e., restrictions on procuring supplies from specific vendors or locations).

Host-Nation Support

Host-nation support is the civil and military assistance rendered in peace, crisis, and conflict by a host nation to allied forces and organizations located on, operating in, or transiting through the host nation's territory. Arrangements concluded between appropriate authorities of host nations and sending nations form the basis of such assistance. The HNS can come from military or civilian government resources in the host nation or by the host nation contracting with their own commercial sector for support to the sending nation.

Bilateral (between the United States and a single country) and multilateral (among members of a coalition, such as the North Atlantic Treaty Organization [NATO]) HNS agreements can be an integral part of sustainment planning. Usually, HNS agreements are prepared at the operational level through the JTF or the CCDR. Implementation of existing agreements and preparation of new agreements must be coordinated between the MAGTF command element and the appropriate higher authority in the US chain of command.

Acquisitions and Cross Service Agreements. In accordance with Department of Defense Directive (DoDD) 2010.09, *Acquisition and Cross-Servicing Agreements (ACSA)*, ACSAs are the typical means for accessing HNS, which gives MAGTF and FMF element commanders the authority to acquire or provide logistical support, supplies, and services (LSSS) directly from and to eligible countries and international organizations. The availability of LSSS depends on the specific agreement between the United States and the partnering nation. Individual ACSA transactions between US and partner-nation militaries are not contracts, but rather military-to-military exchanges of LSSS during exercises, training, or emergency situations. Each Marine Corps component commander has specific policies and procedures regarding ACSA. Listings of countries with ACSAs area available through the program of record for all transactions, the ACSA Global Automated Tracking and Reporting System (also referred to as AGATRS).

Status of Forces Agreements. A status of forces agreement (SOFA) is an agreement between a host country and a foreign nation stationing forces in that country. The SOFA is intended to clarify the terms under which the foreign military is allowed to operate. Items addressed by SOFAs may include issues like entry and exit into the country, tax liabilities, postal services, and employment terms for host-country nationals.

Host-Nation Support Agreements and Visiting Forces Agreements. Host-nation agreements, HNS agreements, and visiting forces agreements are other types of agreements that are possible. These agreements can be established with nations in which a SOFA does not exist because there are no foreign forces stationed in the host country, but in which there is sufficient presence to warrant a basic agreement delineating the rights and responsibilities of the host nation and foreign military that is visiting.

Commercial Capabilities

Commercial capabilities include nonorganic supplies and services that can be procured by using the Government-Wide Commercial Purchase Card (GCPC) program, government contracting authority or the field ordering officer (FOO) program. The expeditionary contracting platoons at the Marine logistics groups and Marine Forces Special Operations Command have delegated authority to execute contracting support. The MAGTF and FMF planners should always review available after-action reports for commercial capability trends from previous exercises and operations to better understand and plan for commercial support. Pre-deployment site surveys and other market research tools such as the phone application, “Business Intelligence,” should also be employed to learn about the capabilities and capacity of commercial vendors in the operating area. Commercial support should always be considered as a means of substituting organic capability and reducing the size of the time-phased force deployment data (also referred to as TPFDD); however, reliance on commercial support is not without risk as there is no assurance commercial vendors will have the capacity or willingness to provide support, particularly in a contested environment. For more

information on external contracting resources, see MCTP 3-40B.3, *Contingency Contracting*; Marine Corps Order (MCO) 4200.34, *Contingency Contracting Force (CCF) Program*; and DoDD 2010.9, *Acquisition and Cross-Servicing Agreements*.

CIVIL AUGMENTATION PROGRAM

The Marine Corps does not have its own civilian augmentation program, nor is it reliant on CAP support when conducting standard Marine Corps doctrinal missions less than 60 days in length. In cases where the deployed MAGTF requires CAP support, it is leveraged through one of the other Service CAPs (e.g., Navy Worldwide Expeditionary Multiple Award Contract [WEXMAC] or the Army's LOGCAP). Initial planning and coordination of CAP support is accomplished through the OCS advisors at the MEF or MARFOR levels.

COMBAT SERVICE SUPPORT NODES

Elements of the MAGTF in general, and the LCE specifically, can establish CSS nodes to build up capabilities and support logistics operations. Combat service support nodes are physical locations, either aboard ship or ashore, that support MAGTF operations as part of a sustainment network. Joint Publication 3-0, *Joint Operations*, defines a node as an element of a network that represents a person, place, or physical object. The number, location, and specific capabilities of CSS nodes are dictated by the concept of logistics support (COLS), which is based on the MAGTF mission, concept of operation, and threat condition. The MAGTF concept of operation should address the requirement to defend and protect CSS nodes, as required.

Combat Service Support Area

The LCEs operate combat service support areas (CSSAs) in accordance with the MAGTF COLS and the LCE OPORD. The CSSAs are often designated as primary targets by enemy forces, which directly affects the MAGTF's ability to sustain operational tempo. The landing force (also referred to as LF) must ensure their survivability by integrating CSSAs into ground defense, force protection, anti-access aerial denial, and fire support plans and by employing camouflage, cover, decoys, and dispersion. The beach support area (BSA) or landing zone support areas are often developed into CSSAs when the LCE establishes the necessary CSS capabilities to support sustained operations ashore.

Beach Support Area

In amphibious operations, the BSA is the area to the rear of a landing force that contains the facilities for unloading troops and materiel to support forces ashore.

The BSA is one of the first CSS nodes established ashore during an amphibious operation and maritime prepositioning force (MPF) operations involving in-stream offload. It is established by the shore party group or team, but the LCE commander could eventually disestablish it or consolidate it as part of the CSSA. In some situations, the BSA could be the only CSS node ashore; in other situations, it may be one of several CSS nodes.

Landing Zone Support Area

The landing zone support area is a CSS node that provides minimum essential support to the MAGTF air assault forces. This CSS node can expand into a combat service support area, but it is most often a short-term node with limited capabilities (e.g., containing dumps for rations, fuel, ammunition, and water only); maintenance is generally limited to contact teams and support teams. These areas can also serve as casualty collection points.

This CSS node is established to support assault support elements. It is established by the LCE when a buildup of supplies or other CSS capabilities is anticipated. When a logistics buildup is not planned, the supported unit is responsible for coordinating helicopter/tiltrotor support team (HST) operations associated with support of the air assault force.

Repair and Replenishment Point

A repair and replenishment point is a CSS node, typically placed in forward areas near the supported unit. This CSS node is established to support a motorized or other rapidly moving force. It can be a prearranged point or a hastily selected point to rearm, refuel, or provide repair services to the supported force. Depending on the size of the supported force, the LCE may establish multiple points.

Although the main body of the LCE typically follows in trace of the advancing motorized force, repair and replenishment points are typically in forward areas near the supported unit. This presents some unique command and control problems because CSS assets can become scattered over a wide area. The LCE can also select repair and replenishment points farther to the rear of the motorized force. Optimally, however, the CSS unit minimizes handling of supplies by having vehicles from the rear make deliveries directly to the users at repair and replenishment points.

Forward Arming and Refueling Point

A FARP is a temporary facility organized, equipped, and deployed to provide fuel and ammunition for aviation maneuver units in combat. “The objective at the FARP is to minimize response time and decrease turnaround time, and increase aircraft loiter time in support of combat operations” (MCTP 3-20B, *Aviation Ground Support)*. The ACE commander can establish a FARP to support the force’s scheme of maneuver, and it can be conducted with AGS tactical systems, aviation delivered fuel systems, or a combination of both.

The FARP locations are selected where natural camouflage and terrain features can provide cover and concealment for equipment and aircraft. Having good drainage and room for tactical dispersion (helicopter servicing, fueling, arming) are of primary importance. The ideal locations for FARPs are free of obstacles and hazards, provide hard ground for easy movement of aircraft and wheeled vehicles, are easily defendable, and are accessible by ground vehicles. To reduce transit time, the FARP should be located as close to the objective area or forward line of troops as the tactical situation allows.

After selection of the site, preloaded supplies (e.g., refueling equipment, bladders, and ammunition) can be transported to the site by ground vehicles or aircraft along with materials handling equipment (MHE) and personnel. Assault support may be used for rapid, initial emplacement of the FARP. Resupply may be accomplished by air or surface transportation. Under certain situations, a combination of aviation and ground-established FARPs may be operationally desirable. The FARPs

are usually established in or near the forward assembly areas. Locations and routes to and from FARPs should be masked from enemy visual, optical, and electronic detection capabilities. Because of the volume of air traffic and its importance to assault support operations, FARPs should be kept beyond medium artillery range. To minimize the threat of long-range precision fires and medium-range artillery when located further forward, FARPs must be low signature and displaced frequently to reduce targetability and include force protection and anti-access aerial denial considerations. See MCTP 3-20B for more information about FARPs.

Airfields and Air Facilities

The MAGTF ACE operates from either existing airfields or air facilities within or close to the MAGTF objective. The ACE fixed-wing aircraft may require runway surfaces as long as 10,000 feet.

Fixed-wing aircraft can operate from runways as short as 4,000 feet by reducing fuel and ordnance loads and by using arresting gear. Helicopter, tiltrotor, V/STOL [vertical/short takeoff and landing aircraft], and aircraft runway requirements are considerably less than traditional fixed-wing assets.

When conducting shore-based operations, the ACE should use existing facilities when available. The MWSS can employ organic, limited general engineering, and expeditionary airfield (EAF) equipment to improve a facility's suitability or expand its capacity if an existing airfield is inadequate. Rapid establishment of an airfield ashore significantly improves the ACE's operational reach and responsiveness. When the tactical situation requires an airfield be established ashore, planners should consider the time and effort required for the establishment, logistical effort, and the duration that the airfield will need to be occupied. In most cases, improvement or expansion of an existing airfield or similar infrastructure is preferred over the construction of a new EAF.

An EAF is, "a prefabricated and fully portable airfield. The effort (e.g., materiel, engineer support, operational guidance, and security) required for the installation and operation of an expeditionary airfield might require the support of all MAGTF elements" (*Marine Corps Supplement to the DoD Dictionary of Military and Associated Terms*, hereafter referred to as the *USMC Dictionary*). For additional information on contingency airfields, see MCTP 3-20B.

Seaports

Seaports of embarkation (SPOEs) and seaports of debarkation (SPODs) are critical transportation nodes within the tactical logistics effort. They serve to connect the MAGTF to external sources of supply (greater supply chain management and distribution) and support the force's deployment and redeployment. The availability of ports suitable for amphibious ships, commercial ships, and MPSs is another key planning consideration. Ports with well-developed waterfront infrastructure can significantly increase the buildup and throughput of MAGTF personnel, supplies, and equipment ashore. When sustained operations ashore are anticipated, ports often become CSSAs.

Afloat Combat Service Support

Navy amphibious ships can represent sea-based CSS nodes as they serve as commander, landing force command centers and logistics hubs for landing forces that coordinate and deliver CSS support from afloat to the shore. Additionally, the Navy's Military Sealift Command (MSC) provides common-user and exclusive use sealift transportation services to deploy, sustain, and

redeploy US forces globally. The MSC provides lift from the sea with a fleet of USG-owned and chartered US flagged ships that include fast sealift ships and afloat prepositioning ships which are referred to as MSC's combat logistics fleet.

Landing force operational reserve material (also known as LFORM), provides CSS sustainment contingency packages afloat aboard amphibious ready groups for landing forces. When utilizing a combat loading method, it gives primary consideration to providing the ability to debark troops and cargo ready for combat rather than for economy of space while afloat. For additional information, see MCTP 13-10B, *Combat Cargo Operations*, and MCWP 13-10, *Seabasing*.

CHAPTER 2.
LOGISTICS FUNCTIONAL AREA SUPPORT

To support tactical operations, logisticians commonly discuss support requirements in terms of functional areas, processes, and plans for each area. Although logisticians develop separate systems and plans for each functional area, all functions must be integrated into the overall logistics support effort.

SECTION I. SUPPLY

Supply consists of procurement, requisitioning, distribution, and maintenance while in storage, disposal, and salvage of supplies, including the determination of kind and quantity of supplies. Providing materials to equip, support, and maintain a military force is part of the supply cycle.

LOGISTICS COMBAT ELEMENT SUPPLY SUPPORT

An LCE commander is primarily concerned with providing a MAGTF commander a supply capability and timely resupply when required.

Sustainment

Sustainment involves additional supplies provided to the landing force from outside agencies, to include leveraging the JLEnt.

Landing Force Supplies

Landing force supplies are the supplies and equipment in the assault echelon and the assault follow-on echelon of the amphibious task force (ATF). They sustain the landing force until a distribution pipeline is established from the supporting establishment to the theater of operations. Predeployment planning determines the type and quantity of landing force supplies. The categories of landing force supplies are the basic load, prepositioned emergency supplies, and remaining supplies.

Basic Load. A basic load consists of the types and quantities of supplies that assault forces carry to a specific mission, including the supplies carried by individuals. Usually, basic loads are expressed either as days of supply (also referred to as DOS) or days of ammunition (also referred to as DOA). The basic load may change as the tactical situation dictates. There may be a basic load for landing and a different basic load for operations ashore. The basic loads for surface and assault support forces may be different. The basic load should not exceed the capabilities of a unit's organic transportation or the commander's estimate of supply requirements for combat.

Prepositioned Emergency Supplies. The commander prepositions supplies on ships for emergent replenishment during ship-to-shore (STS) movement. These on-call supplies are available for immediate delivery to units ashore via surface or aerial delivery. Emergent replenishment is categorized as either floating dumps or pre-staged airlifted supplies.

The commander pre-stages airlift supplies to support units that were delivered via vertical assault, and, if required, the supplies can be used to support surface assault units. Pre-staged airlift supplies are pre-packaged, high-priority supplies. Like floating staging areas, these supplies are available on-call for units ashore. Requests for this category of supplies are made by the unit to the tactical-logistical (TACLOG) group. After the initial stages of the assault, remaining supplies are used to expand supply staging areas ashore. Both pre-staged airlift supplies and floating staging areas can be assigned landing serial numbers to help identify and deliver specific materiel. See MCTP 3-40H, *MAGTF Supply Operations*, for more information.

Remaining Supplies. Supplies that are not part of the basic load or prepositioned emergency supplies are used in general support to the MAGTF. They constitute the major portion of the supplies transported to the operational area in the assault echelon and the assault follow-on echelon. When transitioning from operational maneuver from the sea to sustained operations ashore, the commander uses these supplies to build stockage ashore. The LCE unloads the bulk of remaining supplies during general unloading using a combination of surface and vertical lift platforms.

Ground Supply During the Amphibious Assault

Landing Force Support Party. The landing force support party (LFSP) mission is to perform specified CSS operations for the landing force during the amphibious assault. It also provides initial landing support and CSS to the landing force during the amphibious operation. It is a temporary task organization composed of Navy and Marine Corps elements tasked to provide initial CSS during the STS movement. The LFSP's strength and composition are determined during the amphibious operation's initial planning phase. The LFSP may include units or detachments from the GCE, ACE, LCE, and the Navy. The MAGTF's organization and mission, the number of landing beaches and zones through which the MAGTF will land, and the mission and size of the units assigned to the beaches and zones will determine the LFSP's configuration. The LFSP is under the OPCON of the commander, landing forces. See MCTP 13-10E, *Ship-to-Shore Movement*, for further discussion.

Tactical-Logistical Group. The TACLOG group is a temporary landing force organization established at each level of the Navy STS control organization. The TACLOG group advises the Navy control groups of landing force requirements for supporting the surface and air assault forces during STS movement. The TACLOG group, which is typically co-located afloat with Navy STS control elements, monitors STS movement and helps the Navy control the movements of scheduled waves, on-call waves, and nonscheduled serials.

Supply During the Assault. Initial assault units will request supplies directly from the TACLOG group until a shore party or HST is established ashore. At that point, assault units submit CSS requests for supplies to either the shore party or HSTs. The teams either fill or relay requests to the TACLOG group. In an emergency or when communications fail, the assault element may pass requests directly to the TACLOG group (see Figure 2-1).

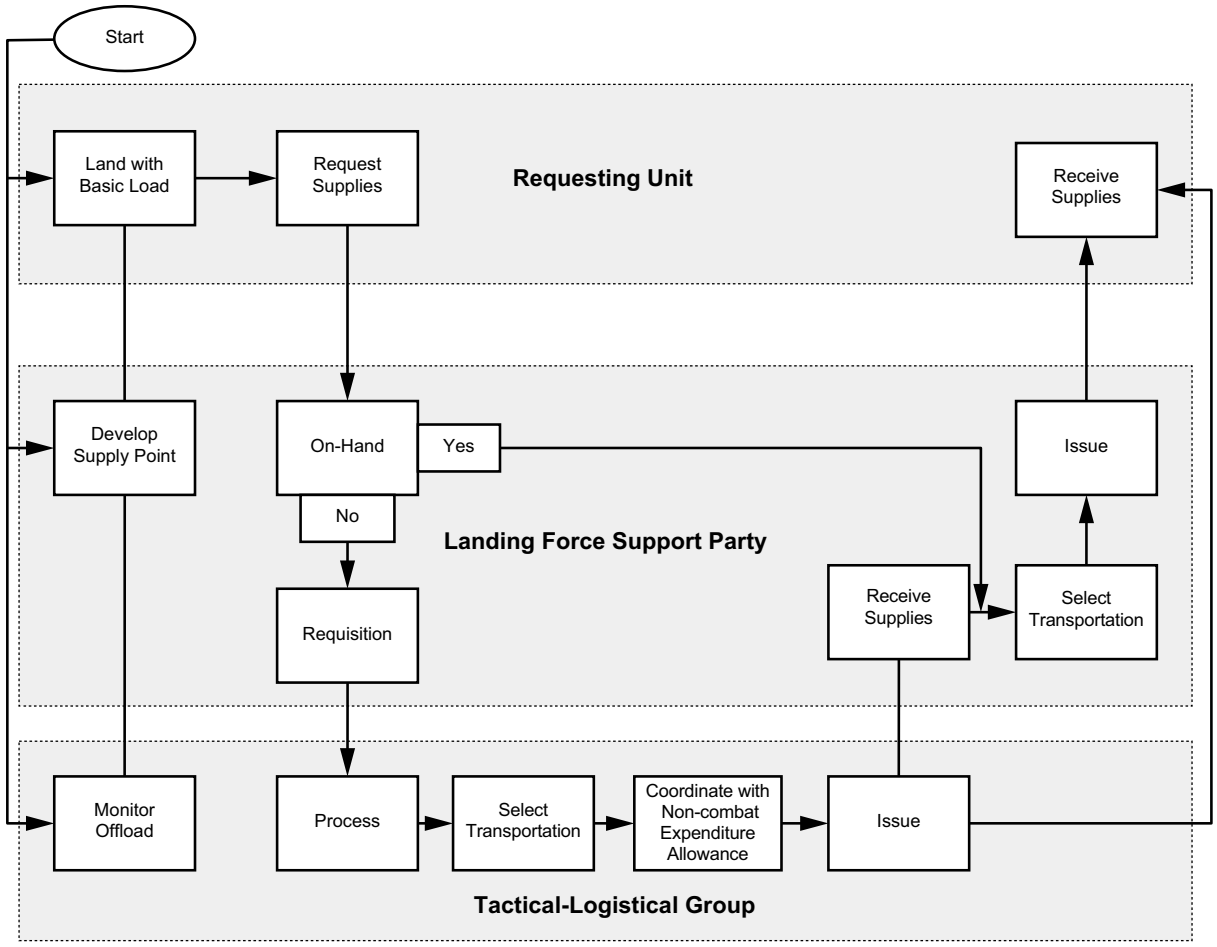

Figure 2-1. Supply Support During an Amphibious Landing.

Shore Party Supply. After the shore party group lands, it establishes inland supply staging sites and controls the receipt of supplies. Shore party group and HST supply personnel unload, sort, store, safeguard, and issue supplies. Shore party teams and HSTs distribute supplies directly to the consumer by using the fastest available means.

Critical Items. If a critical item is not on-hand, the shore party or HST notifies the TACLOG group. The TACLOG group then locates the item and coordinates transportation from the Navy control organization.

Prioritization. Before the Navy assigns transportation to move unscheduled supplies ashore, the TACLOG group must determine the impact on the tactical situation. It must assess the priority against the priority for landing scheduled and on-call serials.

Helicopter, Unmanned Aerial System, and VTOL Delivery. The shore party or HST receives supplies and distributes them to the requester. Delivery can be directly from the ship by aircraft to the end user.

Ground Supply During Subsequent Operations Ashore

Battalions and aircraft groups have organic supply capability. Marine Corps and Navy directives and local operating procedures dictate the procedures that units with organic supply capabilities use to request replenishment in combat. Figure 2-2 depicts management and execution of ground supply operations during subsequent operations ashore.

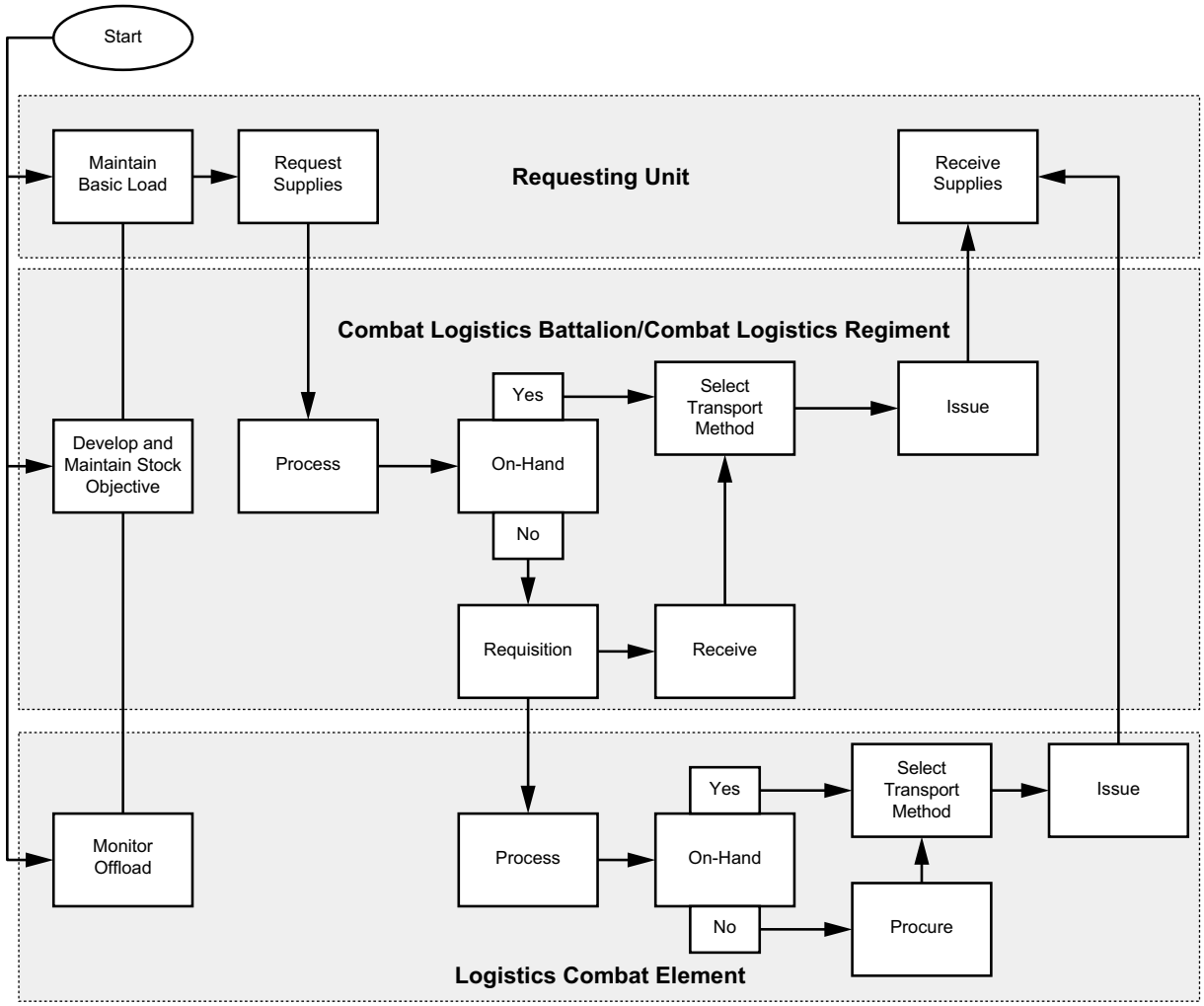

Figure 2-2. Supply Support During Subsequent Operations Ashore.

User Request Support. Locally established manual procedures are the norm for initial requests from consumers. On receipt of a user request, the supporting LCE's intermediate supply activity determines whether the item is on hand. If item is available, the LCE transports it to users via unit distribution. Consumers on supply point distribution are notified where and when they can pick up the item. If the item is not on hand, the LCE passes the requisition to the next higher level. The LCE will keep the requesting unit informed about the status of the pending requisition until the item is distributed to the consumer.

Logistics Combat Element Support. The LCE receives requisitions from subordinate LCE units or directly from the users. The LCE uses formal procedures for both stock replenishment and passing unfilled user requests to other logistics support organizations. Where possible, LCEs use automated systems to pass and track both requisitions and reports. During the early stages of an operation before automated systems are established, the LCE uses manual requisition procedures.

Unfilled Requisitions Support. Unfilled requisitions are submitted to the LCE. The LCE will use the pre-established sourcing logic to fulfill the request.

Mode of Transportation. Although the LCE recommends the mode of transportation, the consumer may influence the decision by providing viable information to the LCE to accommodate a more suitable mode of transport based on priority, available resources, and the tactical situation. Future considerations could include unmanned aerial resupply, locally procured transportation, rail options, and surface and subsurface considerations. For example, a request for a rapid ammunition resupply from a unit preparing to repel an imminent attack would probably justify the use of aerial delivery.

Delivery Method. Direct shipment to the consumer is the best method of delivery. Bypassing intermediate CSS nodes reduces the number of times that equipment or supplies are handled (reducing the potential of shipping damage) and achieves more-responsive delivery to the supported unit. Sometimes, direct shipment is not an option, and supplies must be delivered to the supporting CLB. This method economizes transportation assets when moving large bulk quantities by taking advantage of opportunity lift. Rather than hauling a partial load, trucks can carry noncritical supplies to the LCE for later movement to the consumer. Aerial delivery can be accomplished via parachute delivery, external (sling load), or internal (airdrop) transport, to include the use of unmanned aircraft systems. An additional option is to use cache sites to deliver supplies for the using unit to access at a later time. Aerial delivery and cache operations require additional planning and coordination among supported and supporting units. Examples of delivery methods include the following:

- Ground: truck, rail, contracted, pack animal (human or beast).
- Aerial delivery: airdrop, airland, and, sling load.
- Surface connector or subsurface.
- Cache.

Distribution Method. The two distribution methods are supply-point distribution and unit distribution. The supply-point distribution method is used when the receiving unit is issued supplies at a supply point (e.g., depot, navigation head, railhead, combat train site, distribution point) and then moves the supplies in organic transportation. The unit distribution method is used when the receiving unit is issued supplies in its own area and the transportation is furnished by the issuing agency. The receiving unit is then responsible for its organic distribution. Supported units usually prefer the unit's distribution method. However, the MAGTF seldom has enough transportation assets to permit unit distribution to all supported organizations.

GROUND COMBAT ELEMENT SUPPLY SUPPORT

When an LCE unit (CLB) is in direct support of a GCE unit (infantry regiment), requests from the supported battalions go directly to the direct support CLB, which issues supplies based on the supported commander's priorities and allocations.

Commander's Flexibility

Supported commanders can organize their units in various ways to accomplish their mission. For example, a commander may divide the headquarters into A and B command groups or position the organic logistics differently than previously planned. The commander could position organic logistics forward of the supporting CSS nodes. The supported unit's organic supply train is a means of internally task-organizing and employing the logistics assets of tactical units.

When employing combat trains, some of the GCE unit's organic logistics capabilities are forward. Maintenance contact team repairmen, ammunition technicians, and supply personnel are with the supply trains to provide front-line support. Routinely, the unit establishes a main command post with essential elements that support tactical operations. The commander locates most of the unit's logistics capability with the unit or field train. Often the commander locates these trains with the supporting LCE.

All units have administrative elements located behind the GCE rear boundary. In the above example, administrative rear, supply and warehousing personnel distribute individual equipment and care for tentage, personal effects, and other equipment not required for the sustainment of combat operations are located further back in the rear. Table 2-1 shows a generic example of a typical GCE battalion echelon.

Table 2-1. GCE Battalion Task-Organization Example.

Rear	Main Command Post	Forward Command Post
S-1/adjutant Supply chief Administrative supply clerks Casualty replacements	Executive officer Headquarters commandant S-4 chief Motor transport officer Ordnance officer Supply officer Maintenance/Maintenance management officer Organic logistics	Commanding officer S-2 S-3 S-4 Fire support coordinator Communications officer Organic logistics

Supply Trains

Supply trains serve as the link between forward tactical elements and the supporting LCE. The use of trains enables logistics activities as far forward as the tactical situation permits. Depending on the situation, trains could provide logistics to the battalion's organic and attached units. Trains might be fully mobile; however, trains are usually movable rather than mobile. In the Marine Corps, this concept applies to unit, battalion, and regimental trains. See MCTP 3-40H for more information regarding logistic trains.

Unit Trains. Unit trains centralize the unit's organic logistics assets. These trains are most appropriate in defensive, slow-moving, or static situations. The commander uses this option when a tactical situation dictates self-contained train operations for centralization and control. For example, during the early phases of an amphibious operation, the battalion must locate its logistics capability in the BSA or landing zone. The use of unit trains in this situation provides simplicity, economy, and survivability against ground attack.

Battalion Trains. Typically, to improve responsiveness, flexibility, and survivability against air attack, trains supporting battalion-sized units are echeloned into combat trains and field trains.

Combat Trains. Combat trains are organic elements that provide critical logistics in forward areas. Mobility is the key for combat trains, which are kept as small as possible to move with the supported forces. A combat train's survivability depends on its small size and its own firepower. Usually, a combat train—

- Transports some battalion supplies with limited medical supplies.
- Carries maintenance contact teams (MCTs).
- Hauls rations, fuel, ammunition, and critical spare parts.

Field Trains. Field trains consist of the battalion's remaining logistics assets and are located closer to the rear than the combat trains. Field trains might carry the battalion aid station, the mess section, and the supply section.

Regimental Train. The regimental train consists of the logistics assets required to sustain the regimental headquarters and attached units under the direct control of the regiment. Logistics needed by combat units should be allocated to battalion trains and logistics that are not time-critical can be consolidated in the regimental train.

Positioning Considerations. Logistics principles of responsiveness and survivability should be the main considerations when selecting a train site. In general, trains should be located—

- On defensible terrain to allow the best use of limited personnel assets.
- In an area with enough space to permit dispersion.
- In an area that provides concealment.
- On firm ground to support heavy vehicle traffic.
- Near a suitable landing zone.
- Close to main supply routes (MSRs).
- In an area that allows good communication.

Positioning Responsibility. The supported S-4 coordinates with the executive officer, headquarters commandant, and S-3 in selecting train locations. When the train collocates with another element, such as the supporting LCE, the supported S-4 must also coordinate with that element. This option improves coordination and security. Turnaround time, communications requirements, or other mission-related considerations may necessitate locating the trains elsewhere.

Train Displacement. Proper positioning of trains minimizes displacements and increases the quantity and quality of support. When displacing trains, the S-4 selects the technique that best complements the battalion's tactical operations. Trains can be displaced concurrently with the displacement of the tactical elements or by echelon. Echeloned displacement enhances continuity of logistics support.

Logistics Combat Element Trains. Trains are employed in numerous ways by LCE units in the resupply process. The LCE trains can move forward to resupply unit trains, which resupply the using units. The LCE trains are positioned where most responsive, yet survivable.

Replenishment Methods. The service station and tailgate issue methods are the two most common methods used to replenish unit trains.

Service Station. The service station method involves vehicles leaving their tactical positions and entering an established resupply area. The number of vehicles being resupplied at one time is determined during planning and is dependent upon the enemy situation. The resupply area is designed as a series of resupply points for vehicles when they need resupply service. Traffic flow through the resupply area is one-way to enhance efficiency. Once all vehicles have completed resupply, the vehicles move to the holding area where a precombat inspection is conducted (time and situation dependent).

Tailgate Issue. The tailgate issue method is usually conducted in an assembly area only. This method places the resupply vehicles at greater risk, but it maintains tactical positioning and reduces traffic flow. If the tailgate issue method is used in forward positions, then resupply must be masked by the terrain. This method involves resupply while combat forces remain in their positions. Vehicles stocked with POL and ammunition stop at each individual vehicle position to conduct resupply services. Other general supplies and services such as enemy prisoner of war retention and maintenance are centrally located at fixed sites.

AVIATION SUPPLY SUPPORT

The Naval Aviation Enterprise (NAE) provides supply support for all Naval aviation assets and support equipment in the ACE. Aviation ordnance is also provided by the NAE. The ACE relies on internal and external logistics support and within the ACE, the MALS provides aviation peculiar logistics requirements. This includes aviation supply and maintenance support for aircraft, aviation support equipment, and aviation armament, and ordnance equipment. refer to MCWP 3-20, *Aviation Operations*, and MCTP 3-20A, *Aviation Logistics*, for additional information on the role of a MALS in support of Marine aviation. The LCE provides CSS to the ACE that can encompass the following functional areas: ground supply, health services, maintenance, services, general engineering, and transportation. For example, the LCE may distribute aircraft fuel to the MWSS operating the fuel dispensing system at an air facility or FARP while it distributes Class V (A) to the MALS, which operates the aviation ammunition supply point (ASP) at an air facility or FARP.

Marine Aviation Logistics Squadron

When a MAGTF deploys, a MALS or composite squadron is the focal point for aviation supply and maintenance. A MALS supply and maintenance department manages aircraft consumable and repairable materiel, hazardous material, and supplies. The MALS element supply department receives and processes requisitions for all units. For items not on hand, requisitions are passed to the Naval Supply Systems Command theater support, which fulfills the requisition or seeks alternate sourcing.

Elements of the MALS can be embarked aboard ship as part of an existing naval aircraft intermediate maintenance department (also referred to as AIMD) or embarked aboard a special-purpose strategic sealift vessel. This vessel, an aviation logistics support ship (T-AVB), can be employed in one of three operational configurations depending on the operational needs of the ACE commander. For further detail, see MCTP 3-20A.

Replacement Aircraft

The squadron requests replacement aircraft and depot-level repair of aircraft. It passes the request for replacement aircraft to the aircraft group, which passes it to the MAW. The ACE passes the request to the type-commanders (MARFORCOM and MARFORPAC ALD and commander, naval air forces). The MALS, Marine aircraft group (MAG), MAW, and type-commander coordinate placement of aircraft into depot maintenance. The transferring activity is responsible for flying replacement aircraft directly to the receiving squadron or to an airfield near the receiving squadron. The receiving squadron accepts the aircraft and reports the aircraft's status to the MAW.

Aircraft Fuel and Ammunition

The LCE can establish a bulk fuel area ashore to deliver fuel to the MWSS and dispense fuel to aircraft. Similarly, the LCE typically establishes one or more centralized ASPs for the purpose of receiving, accounting, storing, and issuing Class V materiel. Centralized ASPs are generally supported by ammunition technicians provided by the LCE and aviation ordnance technicians who direct throughput of Class V (A) to outlying satellite ACE ASPs. Figure 2-3 shows the relationship between aviation units and the LCE for ground supply support and for aircraft fuel and ammunition support. Satellite ASPs are generally established for both air and ground units in an effort to minimize the effects of time and distance on the efficient delivery of munitions to the end user.

Satellite ASPs used to support the ACE should be collocated at the ACE's operational air facility (or facilities). The ACE (MALS) aviation ordnance department is staffed for and fully capable of carrying out all functions like those performed by a centralized ASP. The MALS aviation ordnance department is responsible for establishing, operating, and maintaining satellite ASPs for Class V (A). All Class V (A) materiel arriving at the airfield is received and stored under the direction of the ACE aviation ordnance department unless accompanying documentation specifies further transportation to either a centralized ASP or another satellite ASP.

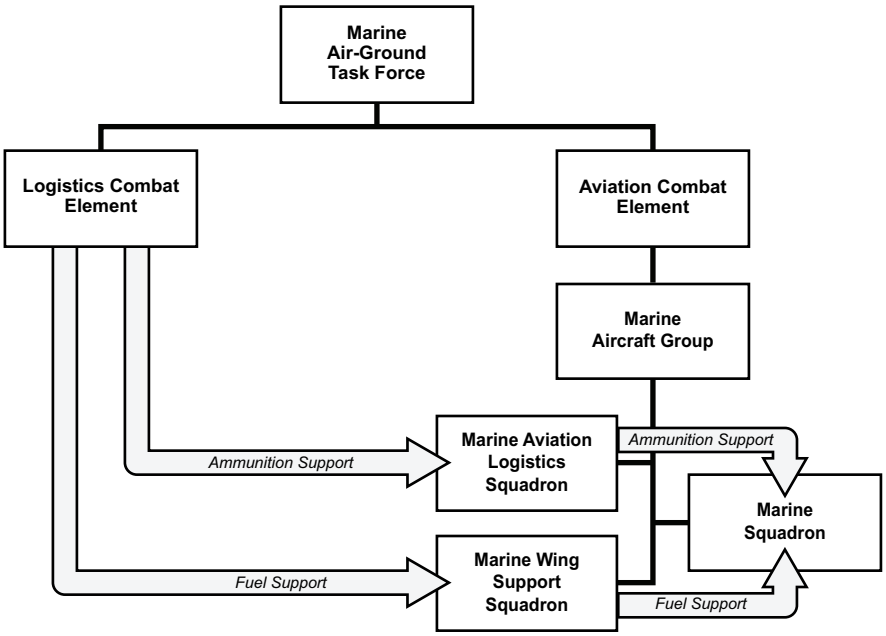

Figure 2-3. Ground Supply for Aircraft Fuel and Ammunition Support.

Aviation ordnance personnel from a MALS can augment an LCE ammunition company on a contingency basis. These augments should be knowledgeable of aviation ordnance peculiarities and different inventory reporting requirements that exist for Navy-owned ammunition. These personnel are assigned to the ASP nearest the SPODs responsible for storing and distributing Class V (A) and (W) arriving in theater. They assist in the receipt, segregation, storage, and distribution of Class V (A) within the theater of operations.

SECTION II. MAINTENANCE

Maintenance involves those actions taken to repair or restore equipment to serviceable condition. While the purpose and functions of equipment maintenance are universal, the Marine Corps has developed applications for the support of ground-common and aviation-specific equipment. For additional information see MCTP 3-40E, *Maintenance Operations*.

GROUND MAINTENANCE SUPPORT

Levels of Maintenance

Marine Corps maintenance capability is defined within two levels of maintenance: field and depot. The distinction between field and depot levels of maintenance is based on the maintenance tasks performed within each.

Field Maintenance. Field maintenance is any maintenance that does not require depot maintenance capability and is performed by crew, operators, and maintainers within Marine Corps organizations and activities, or by approved commercial or contract sources. Maintenance tasks performed within the field maintenance level are categorized as organizational and intermediate.

Aligning tasks within the field maintenance level is based on supporting/supported relationships and respective capabilities among units. Units are not authorized to conduct maintenance tasks outside of their assigned capabilities.

Organizational Maintenance. Organizational maintenance tasks are the responsibility of and performed by the owning organization on its assigned equipment. It typically consists of inspecting, servicing, lubricating, and adjusting, as well as the replacing of parts, minor assemblies, and subassemblies. It is accomplished not only by maintenance personnel, but also by equipment operators.

Intermediate Maintenance. Intermediate maintenance tasks could require a higher level of technical training and specialized tools and facilities. This type of maintenance encompasses a range of capabilities including—

- Modification.
- Replacement.
- Fabrication.
- Overhaul.
- Component, subcomponent, assembly, and subassembly repair.
- Calibration and repair of test, measurement, and diagnostic equipment (also referred to as TMDE).
- Software maintenance.
- Precision machining and advanced manufacturing.
- Welding.
- Evacuation.
- Disposal.
- Salvage.
- Demilitarization of equipment or materiel.

Depot Maintenance. Depot maintenance is required when materiel or software is beyond field-level capabilities or authorized by the Deputy Commandant for Installations and Logistics. Coordinated with Marine Corps Systems Command and relevant program executive officers, depot maintenance is not defined by location. The Marine Corps' organic depots, other service depots, commercial industrial facilities, original equipment manufacturer, or a combination thereof, can perform depot maintenance-related activities throughout the logistics chain framework.

Organizational Maintenance

Units owning equipment have organizational maintenance responsibilities. Proper maintenance is essential to sustain combat operations.

Maintenance Contact Team Capabilities. The MCT consists of organizational maintainers with tools, test equipment, and relevant repair parts. These maintainers are task-organized and inspect, diagnose, classify, and repair equipment at forward sites. In addition, the MCT may include communications, engineer, motor transport, or ordnance repair personnel. The maintenance

officer or chief determines the number of personnel and mix of skills for each MCT. If traveling as part of a train, their position will be determined by the logistics officer. In general, when using combat trains, MCTs are positioned forward, where they can be more responsive to the tactical unit. If deployed with a unit train, MCTs are positioned farther to the rear.

Maintenance Contact Team Operations. The MCT conducts testing, evaluation, recovery, evacuation, and repair tasks. The MCT begins with an assessment of the situation and executes the most relevant maintenance actions to include repair, replacement, part requisition, or removal of faulty assemblies for future replacement.

Intermediate Maintenance

The three elements of intermediate maintenance are the MST, the LCE forward maintenance detachment, and the Marine logistics group (MLG) intermediate maintenance activity (IMA).

Maintenance Support Team. The MST is an intermediate-maintenance version of the MCT. While the MST is a reactive, task organized force that is compiled or disbanded based on need, the MCT is a standing force, compiled in advance with well-balanced capabilities and kept together in perpetuity. The MST has intermediate-maintenance sustainers with tools, test equipment, repair parts, and likely a wrecker or maintenance vehicle. These technicians inspect, diagnose, classify, and repair equipment at forward sites. The maintenance officer or chief determines the number of Marines and mix of skills needed per team.

Logistics Combat Element Forward Maintenance Detachment. The LCE forward maintenance detachment is the element of an LCE that operates the maintenance facilities and collection points far forward. The forward support maintenance detachment—

- Evacuates inoperable equipment from supported units' collection points.
- Performs intermediate maintenance within its capabilities.
- Provides maintainers, tools, and test equipment to MSTs.

Marine Logistics Group Intermediate Maintenance Activity. The MLG IMA, which is primarily composed of an MLG's maintenance battalion, provides robust principal end-item repair and component rebuild support to the MAGTF. The MLG commander establishes a centralized IMA in a CSSA to perform complex, time-consuming maintenance activities during sustained operations ashore. The LCE commander forms multiple on-call MSTs and, during surge periods, sends them forward either to assist MCTs or to augment the LCE forward maintenance detachments.

Maintenance During the Amphibious Assault

Assault force elements land with few organizational maintenance personnel. Most of the organizational maintenance capability lands in nonscheduled waves. Once the first assault waves are ashore, the LFSP provides the only significant maintenance capability.

Although the LFSP has limited recovery, evacuation, and repair capabilities, it carries a small block of critical repair parts tailored to match the quantity and type of equipment in the assault waves. The LFSP replaces components and assemblies rather than repairing them. It uses selective interchange to offset the limited depth and breadth of repair parts. One of the first tasks of the LFSP maintenance detachment is to establish maintenance and salvage collection points.

The LFSP must develop an aggressive recovery and evacuation plan because extensively damaged items can provide repair parts for other essential items. Damaged equipment should be placed on resupply vehicles returning to the LFSP. Assault elements should abandon equipment only when the tactical situation prevents recovery. When unable to recover equipment, units should report the location of the item to the LFSP for later recovery and evacuation.

Maintenance During Transition Periods

When the tactical situation ashore stabilizes, the MAGTF commander lands nonscheduled units such as unit trains with the organizational maintenance elements. As the assault units' organizational maintenance capability expands, the LFSP shifts its efforts to intermediate maintenance. Assault units typically position their trains near the LFSP to permit mutual support, to avoid duplication of facilities, and to reduce the transportation burden.

Maintenance During Subsequent Operations

When appropriate, the MAGTF commander lands the additional LCE units. Once the LCE is established ashore, the MAGTF commander disestablishes the LFSP. After the AFOE arrives, the LCE commander reaches full maintenance capability. When the maintenance unit cannot repair an item, it evacuates the item to the next higher level.

Recovery, Evacuation, and Repair Cycle

These capabilities differ along the competition continuum and increase as more of the MAGTF lands. Thus, standard maintenance processes must be established to return combat assets to the battlefield as soon as possible. For additional information see MCRP 3-40E.1, *Ground Equipment Battle Damage Assessment, Repair, and Recovery*.

Recovery Responsibility. As much as capability and the tactical situation allows, the owning units are responsible for retrieving immobile, inoperative, or abandoned materiel. They move recovered equipment to a maintenance collection point or an MSR.

Evacuation. If neither the owning unit nor the LCE can repair a recovered item, the LCE evacuates it. If the battalion or squadron commander authorizes selective interchange, the LCE can remove and use serviceable parts so long as they are replaced with non-serviceable parts prior to item evacuation. If Marine Corps Logistics Command authorizes this interchange, the LCE may remove and use parts prior to equipment evacuation without a requirement to replace them. The LCE evacuates recovered equipment directly to a designated repair or disposal agency.

Recovery Considerations. Commanders should closely monitor and control recovery and evacuation operations. Logistics officers must establish recovery and evacuation priorities and carefully allocate personnel and equipment to these operations. For example, combat vehicles, weapons, and weapons' platforms often have a higher recovery priority than other items. Also, the extent of damage affects recovery priority. When the unit must recover two or more of the same item, the item requiring the least extensive repairs should be recovered first. If materiel is in danger of capture, the owning unit should recover all salvageable parts and components and destroy the remaining equipment. The following is a suggested recovery priorities list from most to least pragmatic:

- Items immobilized by terrain.
- Items with failed or damaged components that require little repair.

- Damaged items that require significant expenditure of recovery and repair effort to return them to operation.
- Contaminated items that require significant recovery, repair, and decontamination effort.
- Salvageable items.
- Enemy materiel.

Positioning. Combat and combat support unit commanders should position their recovery capability forward. As a rule, the recovery capability consists of personnel and equipment organized in MCTs. The LCE commanders distribute maintenance assets to achieve a balance between economy and responsiveness.

Advanced Manufacturing

Across the Marine Corps, organizations face common operational problems such as equipment obsolescence, diminishing manufacturing sources and material shortages, supply chain gapped items such as long lead times for parts replacement, non-existent parts suppliers, and difficulty in rapidly developing capabilities to defeat new and emerging threats. In an environment where the Marine Corps must fight and win against near-peer competitors in hostile environments, advanced manufacturing in general, and additive manufacturing (explained below) in particular, creates the opportunity to close supply chain gaps.

Included in advanced manufacturing is additive, subtractive, and digital manufacturing.

Additive Manufacturing. Additive manufacturing is the process of joining materials to make objects from 3D model data, usually layer upon layer. Synonyms include additive fabrication, additive processes, additive techniques, additive layer manufacturing, layer manufacturing, and freeform fabrication. Additive manufacturing provides Marines the autonomy to solve problems at the forward edge of battle. As additive manufacturing evolves to produce end-use components, there is significant potential to resolve obsolescence and supply chain gaps like long lead time issues. Producing "on demand" components at the point of need further supports a scalable supply chain.

Subtractive Manufacturing. Subtractive Manufacturing is the process of making objects by removing material (e.g., milling, drilling, grinding, carving) from a bulk solid to leave a desired shape (the process of removing material from a workpiece using power-driven machine tools to shape it into an intended design).

Digital Manufacturing. Digital manufacturing is the use of an integrated, computer-based system comprised of simulation, 3D visualization, analytics, and collaboration tools to create products and manufacturing process definitions simultaneously.

Marine Corps Order 4700.4A, *Advanced Manufacturing Policy*, provides policies and procedures for advanced manufacturing and details the implementation of the advanced manufacturing digital repository where additive manufacturing files, technical data packages, best practices, and associated information is stored (ground and aviation have separate digital repositories). The order identifies advanced manufacturing as the use of innovative technologies to create new products and recreate existing products. Advanced manufacturing can include production activities that depend on information, automation, computation, software, sensing, and networking.

AVIATION MAINTENANCE SUPPORT

The MALS is the Marine Corps' tactical aviation logistics organization. It is responsible for providing intermediate-level (I-level) maintenance, avionics, supply, ordnance, and information technology systems support for aircraft and aeronautical equipment. A typical MALS is tasked organized to provide aviation logistics support to fixed-wing, rotary-wing, or tiltrotor aircraft and units. The Marine aviation logistics support program (MALSP) modernization construct provides responsive, agile, flexible and sustainable solutions through properly sized, forward-operation footprints synchronized across a demand-pull, nodal logistics chain. The MALSP modernization and the MPF program (including aviation logistics support ships) provide aircraft support personnel with the ability to sustain all aircraft types that comprise a MAGTF ACE.

Deployment Materiel Support

The MALS is tasked to manage and employ aviation logistical support that can be phased into an operating area. A key feature of the MALSP modernization construct is that it allows the MALS to rapidly task-organize and deploy with its supported ACE. This is primarily accomplished using a series of standardized, predetermined logistical support packages containing all elements (excluding Class V[A] munitions) required to support the ACE during the execution of MAGTF tasks. Contingency support packages (CSPs), the primary MALSP building blocks, contain negotiated allowances of spare parts, support equipment, mobile facilities, accompanied with the personnel needed to sustain Marine aviation in combat. The MALSP, together with the MPF program, provides aviation logisticians the ability to identify and integrate people, support equipment, mobile facilities, and the spare parts needed to support all aircraft types that could comprise a MAGTF ACE. This integration permits the ACE to generate sorties necessary to conduct combat or non-combat missions. For CSP specifics and planning considerations, see MCTP 3-20A. The CSPs of MALSP modernization contain—

- Fly-in support allowance.
- MAG support allowance.
- Intermediate-level contingency allowance.
- Support equipment peculiar package allowance.
- Support equipment common package allowance.
- Supplemental aviation spares support allowance.
- Strategic support allowance.
- Integrated demand-based items.
- Remote expeditionary support package.
- Training squadron allowance.

Aviation Logistics Support Ships

Aviation logistics support ships are designated T-AVB class ships. The mission of the T-AVB—a combination container, roll on/roll off and lift on/lift off vessel—is to provide a rapid and dedicated sealift for employment of a tailored aviation intermediate maintenance activity to support deployment of Marine Corps aircraft. Equipment and supplies required to

sustain forward deployed aircraft are delivered by the T-AVB in either operational, transport, or combination mode. Although the concept of operations for the T-AVB is primarily to support MAGTF operations, the T-AVB may be tasked to support other amphibious operations. The T-AVB requires a port of debarkation for offloading aviation logistics support assets once the threat condition is permissive. If the embarked MALS' intermediate-maintenance support is phased ashore, the T-AVB may be reassigned as a common use transport vessel in the strategic sealift fleet.

Maritime Aviation Logistics Enterprise Information Technology

Maritime aviation logistics enterprise information technology is the solution set that enables MALSP modernization, which includes MALS allowancing, and provides the capability to support supply management, buffer management, decision support, and logistics planning. Maritime aviation logistics enterprise information technology comprises the Expeditionary Pack-Up Kit, next-generation buffer management system, and logistics planning tool (also referred to as the LPT), which provides logistics professionals the ability to tailor and deploy smaller support footprints that readily sustain the force through increased efficiencies and stabilized effectiveness.

SECTION III. DISTRIBUTION AND TRANSPORTATION

Distribution management is the coordination and control of resource movement, ensuring timely delivery of personnel, equipment, and supplies while optimizing logistics functions. It includes managing performance metrics like throughput and capacity, along with ensuring the efficient use of transportation funds, to meet operational and mission requirements.

Transportation includes movement from one location to another by using highways, railroads, waterways, pipelines, oceans, and air. Transportation is needed to distribute initial sustainment materiel and personnel in the correct locations at the proper times to start and maintain operations. Any major disruption of transportation support can adversely affect a MAGTF's capability to support and execute the assigned mission. For more information see MCTP 3-40F, *Distribution and Transportation Operations*.

MOTOR TRANSPORT

Motor transport activities can be either combat support or CSS. The commander may attach motor transport units to supported units. The commander may also control allocated motor transport resources by assigning an appropriate mission. Successful motor transport requires careful management.

Economical transportation requires matching the number and type of vehicles to the task and reducing the turnaround time. Factors that affect turnaround time are distance, rate of march, and the time it takes to load and unload. The turnaround time can be delayed if shippers and receivers responsible for loading and unloading vehicles are slow or fail to release the vehicles after unloading.

Operational Techniques

The commander can increase the tonnage moved with a fixed number of trucks by adopting some or all of the following techniques:

- Loading each vehicle to its maximum allowable capacity.
- Increasing the authorized speed of the vehicles (existing traffic and weather conditions dictate a safe operating speed).
- Maximizing MHE support.
- Synchronizing delivery and pickup schedules to various units.
- Reducing turnaround time.

Types of Haul

Local (Short) Hauls. Trucks running local hauls make several trips per day.

Line (Long) Hauls. Trucks running line hauls make only one trip or portion of a trip per operating shift.

Zonal (Ring Routes) Hauls. Truck activity confined within the territorial boundaries of one command are intrazonal. Trucks crossing boundaries and operating under the area control of more than one command are interzonal. The MAGTF commander makes policies and maintains control over interzonal operations, unless the MAGTF is part of a larger effort. Zonal hauls could be a subset of local and line hauls.

Hauling Methods

Direct Haul. A direct haul completes a single transport mission in one trip. No transfer of supplies or exchange of equipment occurs. The commander uses direct haul to speed forward movements before establishing transfer or exchange points. This method is most common for local hauls because long-distance direct hauls are hard on both the driver and equipment.

Shuttle (Round Robin). A shuttle involves the same vehicles making repeated trips between two points. This method is most common for local hauls.

Relay. Relay hauling is the continuous movement of supplies or troops over successive segments of a route without transferring the load. The motor transport unit conducts a relay by changing drivers, transportation equipment, or both for each segment. This method is most common for line hauls. The relay system using transportation equipment is the most-efficient method of line-haul operations. This technique is best used when there is a well-developed road network that is not subject to interdiction. Relay is the best method to use when the unit cannot complete a one-way haul in one day. Marines use containers to increase the effectiveness of this system by making better use of the truck's tonnage capability. This system provides rapid throughput of cargo and guarantees adequate supervision and support along each segment of the route.

Cargo Throughput

Clearing cargo from a beach, port, railhead, and airfield permits ships, trains, or aircraft to continually unload. Terminal operation units are responsible for clearing cargo. The availability and proper use of organic motor transport, contracted support, and MHE are essential. The

transportation support unit plans and sets up the circulation network and regulates the flow of vehicles throughout the terminal area. Beach clearance is particularly difficult as a result of the generally poor road conditions and the temporary nature of the available support facilities. Clearing air terminals is easier because roads and facilities are often in better condition; however, in an effort to rapidly unload the aircraft and clear the terminal, Marines might not load vehicles to maximum capacity.

Convoys

Convoys are task-organized to meet the requirements of the assigned mission. A convoy can include a transport element, escort or security element, command element, and various support elements. Units plan and execute their own convoy missions. The convoy commander is the direct representative of the commander initiating the operation and is responsible for the conduct, safety, security, and accomplishment of the convoy's mission. Higher headquarters often establish control measures and regulations governing convoy missions on MSRs and alternate supply routes (also referred to as ASRs). Commanders publish control measures and regulations in local standing operating procedures (SOPs) and in their OPORDs. These control measures include start points, checkpoints, halts, and release points. Area commanders classify routes in their areas of operation. For more information on convoy control measures, see MCRP 3-40F.7, *Multi-Service Tactics, Techniques, and Procedures for Tactical Convoy Operations*, and MSTP Pamphlet 4-0.1, *Movement Control*. See MCRP 3-10A.3, *Marine Infantry Platoon*, and MCRP 3-1-A.4, *Marine Rifle Squad*, for information on mounted patrols.

Types of Routes

Open Route. This is the least-restrictive control measure. Any unit can use the route without a convoy clearance or request. Minimum control is exercised.

Supervised Route. The MAGTF movement control center (MMCC) or unit movement control center (UMCC) specifies the size of convoys, the type of traffic, or characteristics of vehicles that require a convoy clearance to use the route. Limited control is exercised.

Dispatch Route. A ground transportation request is required to use this route regardless of the number or types of vehicles. A dispatch route designates when traffic volume is expected to exceed capacity or when the route is critical to operations and priority of use is strictly enforced. Full control is exercised.

Reserved Route. This route is reserved for the exclusive use of a particular unit or type of traffic, and no other units or traffic can use the route. Reserved routes may be identified for large unit movements. Examples include battle handovers, passage of lines, and commitment of the reserve or withdrawals.

Prohibited Route. This route is closed and no unit or traffic may use it. Prohibited routes result from washouts, destroyed bridges, threat considerations, construction work, or the intent to not interfere with local peak traffic congestion. Renewed availability varies with the nature of the closure (e.g., to make repairs from battle damage).

PORTS AND TERMINALS

Ship-to-Shore Movement

This type of movement is conducted in the assault phase of the amphibious operation, which includes the deployment of the landing force from the ships to designated landing areas. See MCTP 13-10E for further discussion.

Shore-to-Shore Operations

This assault operation moves personnel and materiel directly from a shore staging area to the objective. It does not involve further transfers between types of craft or ships incident to the assault movement. Usually a single-Service operation, a shore-to-shore operation involves water crossings in assault craft and aircraft. The purpose of this operation is to establish a force on, or withdraw from it from the far shore.

Logistics Over-the-Shore

Logistics over-the-shore (LOTS) encompasses the loading and unloading of ships without the benefit of deep draft-capable, fixed port facilities, or as a means of moving forces closer to tactical assembly areas dependent on threat force capabilities. A LOTS mission could be conducted over unimproved shorelines, through partially destroyed ports, shallow-draft ports, and inadequately equipped ports that require LOTS capabilities.

Logistics over-the-shore operations are used to load and unload—

- Break bulk ships.
- Roll-on and roll-off ships.
- Container ships.
- Bulk petroleum, oils, and lubricants ships.
- Water ships.
- Barges.

Joint Logistics Over-the-Shore

Joint logistics over-the-shore operations involve units and equipment from the Army, Navy, and Marine Corps and could follow amphibious assault operations. The transition from amphibious to these specific operations entails passing command of shore facilities to the Army once the amphibious mission ends. The JTF or unified commander directs such transitions. Amphibious operations and MPF operations use some of the same equipment and procedures as joint logistics over-the-shore operations. See Joint Publication (JP) 4-18, *Joint Terminal and Joint Logistics Over-The-Shore Operations*, for a more information on these types of activities.

Inland Waterways

An inland waterway typically operates as a complete system. It involves rivers, lakes, canals, intra-coastal waterways, and two or more water terminals. Inland waterways can relieve pressure on other modes of transportation. They are particularly useful for moving a large volume of bulk supplies and heavy-outsize items that are not easily transported by other means. Although economical, inland waterways are relatively slow compared to other means of transportation. They are particularly vulnerable to enemy action and climatic changes.

Inland Terminals

Inland terminals serve air, rail, and motor transport. They provide cargo transfer facilities at interchange points. They form connecting links when terrain and operational requirements cause a change in carrier.

Staging Areas

Staging area activity conducted during amphibious and other types of movements are—

- Providing staging areas for amphibious or airborne movements between the mounting area and the objective of an amphibious or airborne expedition, through which the expedition or parts thereof pass after mounting, for refueling, regrouping of ships, exercise, inspection, and redistribution of troops.
- Providing staging areas for other movements for the concentration of troop units and transient personnel between movements over the lines of communications (also referred to as LOC).

AERIAL DELIVERY

Aerial delivery offers the MAGTF and FMF elements options for supplying operations that present potential economies in terms of responsiveness, assets, and security. Aerial delivery lends itself to supply support missions in vertical-borne and subsequent missions ashore, particularly for bulk items (e.g., Classes I, III, and V). As the initial resupply effort in support of vertical-borne operations, coordinated aerial delivery can reduce ground transportation requirements while enhancing the sustainability and combat power of the supported force. As a means of sustainment for subsequent operations ashore, aerial delivery can reduce the vulnerability of resupply convoys to enemy interdiction in a permissive air environment. In this case, economy of effort is achieved through the compensatory reduction of security requirements associated with aerial delivery. For more information see MCTP 3-40F, *Distribution and Transportation Operations*.

DEPLOYMENT

All organizations, bases, stations, and depots, except Marine Corps Recruiting Command, could become involved with FMF and MAGTF deployments. All MAGTFs deploy from their permanent installations for forward deployments and operations throughout the competition continuum. Regardless of the type of deploying force, designated transportation operating agencies control and coordinate the marshaling, embarkation, and movement of the forces.

External Transportation Agencies

The following commands external to the Marine Corps could be involved with FMF and MAGTF deployments:

- CCDRs.
- Other Services.
- Fleet commander(s).
- Defense Logistics Agency (including remote storage activities).

- United States Transportation Command (USTRANSCOM) and its subordinate commands:
  - MSC.
  - AMC.
  - Military Surface Deployment and Distribution Command.

Modes of Transportation

Transportation modes vary depending on the type of MAGTF and FMF elements, the purpose and duration of the deployment, and the anticipated employment. Deployments of larger MAGTFs require use of several transportation modes.

Amphibious. Amphibious deployments can employ the following modes of transportation:

- Military or commercial trucks, buses, and rail from origins to ports of embarkation, and ports of debarkation to final destination, for all personnel, supplies, and equipment.
- Amphibious ships from SPOE to the operating area.
- Air Mobility Command or commercial charter airlift for fly-in echelon (FIE), follow-on echelon, and replacement personnel who cannot deploy by ship.
- Flight ferry of ACE aircraft.
- Commercial ships from SPOEs for the FIE.

Maritime Prepositioning Force. A MPF deployment can consist of the following modes of transportation:

- Military or commercial trucks, buses, and rail from origins to ports of embarkation for personnel, supplies, and equipment.
- Military or commercial air from origins to aerial ports of embarkation for personnel, supplies, and equipment (i.e., FIE).
- Flight ferry of self-deploying ACE aircraft.

Marine Expeditionary Force. The MEF deployments are the most complex deployments from a transportation perspective. The MEF elements deploy from different bases and stations that can be in widely separated geographic areas. A forward-deployed MAGTF could be present and serve as an enabling force as additional MEF forces deploy.

Forward-Deployed Marine Air-Ground Task Forces. Forward-deployed MAGTFs deploy aboard amphibious ships or a combination of air and MPS ships for MPF operations. Transportation support planning frequently requires coordination with HNS or military detachments at foreign ports and airfields to arrange augmentation by foreign civilian transport and US common-user land-transportation agencies.

EMPLOYMENT

Transportation available for employment in-theater includes the organic assets of the MAGTF. It could include transportation belonging to the joint force commander, host nation, or contracted support. Specific capabilities depend on the situation. Transportation assets may include airlift, rail, trucks, MHE, ships, boats, barges, and pipelines.

The MAGTF commander is responsible for movement control in the MAGTF operating area. Normally, the commander delegates this responsibility to subordinate commanders within whose zones of action or areas the movement takes place.

When operating as part of a joint, allied, or coalition force, the MAGTF commander follows the traffic management and movement control regulations of that command. Normally, the higher commander establishes a movement control agency to provide movement management services and highway traffic regulation. This agency coordinates with allied and host-nation movement control agencies. See Army Techniques Publication (ATP) 4-16, *Movement Control*, for a discussion of movement control in a theater of operations.

The MAGTF should use host-nation transportation support to augment its organic transportation capabilities. Upon arrival in-theater, MAGTF logistics planners should investigate the ability of such support. When operating in NATO or other allied countries, the MAGTF is obligated to abide by certain agreements among the participating nations. These agreements are called STANAGs [standardization agreements] in the NATO arena and QSTAGs [quadripartite standardization agreements] in the American, British, Canadian, Australian, and New Zealand (also referred to as ABCANZ) Armies Program arena.

SECTION IV. GENERAL ENGINEERING

The term general engineering describes those engineering capabilities and activities, other than combat engineering, that modify, maintain, or protect the physical environment. General engineering is applicable to all MAGTFs and FMF elements conducting missions across the competition continuum. It encompasses a spectrum of activities, including horizontal and vertical construction; hygiene services (e.g., field showers and laundry); power generation and distribution; bulk water production, storage, and distribution; and bulk fuel storage. For more information regarding general engineering, see MCTP 3-40D.

Considering its relative importance to support sustained operations, each element of the MAGTF has an organic capability to perform general engineering tasks. For example, within the GCE, the CEB can provide mobile electric power to meet the needs of the Marine division (MARDIV) headquarters. Within the ACE, the MWSS can provide limited general engineering support to meet the direct needs of a MAG or ACE. Multiple MWSSs can be deployed to support the deployment of multiple MAGs. For more information see MCTP 3-20B.

Within the LCE, the ESB can provide general support and general engineering across the MEF. Under certain operational conditions, the MAGTF can be augmented by the NCF to address a shortfall of organic general engineering capacity or to provide a unique capability (e.g., water well

drilling) that does not organically reside within the MAGTF. The NCF augmentation can include an NCR with a single or multiple NMCBs, NCBs, UCTs or task organized detachments of these units. See MCTP 3-34D, and MCWP 3-34 for a more comprehensive description of the command relationships regarding NCF units.

General engineering activities are resource intensive and require transportation, supply, maintenance, and funding support. The MAGTF engineer staff conducts detailed planning, coordination, and prioritization in conjunction with the engineer staff of each element (i.e., GCE, ACE, and LCE) to ensure sufficient ground transportation is allocated to move construction equipment, personnel, and supplies to project sites. Due to the size and cost per item, the MAGTF has limited numbers of specialized general engineering equipment. As a result, the readiness of this equipment is critical to maintain the MAGTF's organic general engineering capacity. Staff coordination is also provided to ensure that the large quantities of bulk materials (e.g., gravel, sand, lumber) are procured and delivered as needed at each construction site.

ENGINEERING TASKS

Engineering tasks range from support provided by MAGTF engineer organizations to external support provided by assigned forces such as the NCF, multinational engineer units, and civilian or host nation resources. The sub-functions of general engineering encompass several tasks, many of which might be described as combat support tasks.

MARINE AIR-GROUND TASK FORCE ENGINEERING UNIT MISSIONS

Combat Engineer Battalion

The CEB mission is to enhance the mobility, countermobility, and survivability of the Marine division. The battalion consists of a headquarters and service (H&S) company, three to five combat engineer companies, and an engineer support company. The battalion can provide task-organized platoon-based detachments to battalion landing teams and reinforced combat engineer companies to regimental landing teams. The remainder of the battalion can provide general-support combat engineering to meet the requirements of the Marine division. See MCWP 3-34 for further description of the capabilities and organization of the CEB.

Engineer Support Battalion

The ESB mission is to provide general engineering to the MEF to enable the tactical agility and mobility of the MAGTF maneuver elements by enhancing survivability, mobility, and counter-mobility, as well as tactical utilities support and handling, storing, and dispensing bulk water and bulk fuel. Additionally, the ESB provides explosive ordnance disposal (EOD) support to the MEF to mitigate hazards associated with unexploded explosive ordnance, improvised explosive devices, and weapons of mass destruction. The battalion consists of an H&S company, one to four engineer companies, an engineer support company, a bulk fuel company, and an EOD company. The battalion can provide task-organized detachments to MEUs and CLBs, and direct support to the H&S battalion. The remainder of the battalion can provide general engineering

support to meet the requirements of a MEF. For further discussion, see MCTP 3-40D and MCWP 3-34 for the capabilities and organization of the ESB, and MCTP 10-10D, *MAGTF Explosive Ordnance Disposal*, for EOD information.

Marine Wing Support Squadron

The MWSS mission is to conduct task organized aviation ground support for a MAG or other designated aviation forces to enable expeditionary aviation operations. The squadron consists of an H&S company, airfield operations company, engineer company, and motor transport company. The engineer company consists of a combat engineer platoon, utilities platoon, and a heavy-equipment platoon. A bulk-fuel platoon and the EOD section are located within the airfield operations company. For further discussion, see MCTP 3-20B for the capabilities and organization of the MWSS.

NAVAL CONSTRUCTION FORCE

Naval Construction Force

The NCF, or Seabees, provide a wide range of general engineering support to the MAGTF, numbered fleets, and the joint force. Operational elements of the NCF include NCRs, NMCBs, NCBs, and UCT. Collectively, the NCF is staffed, structured, and equipped to perform limited combat engineering, heavy general engineering, and heavy construction support at locations subjected to permissive, uncertain, or hostile threat conditions. Seabees perform general engineering tasks at the initial, temporary, semi-permanent, and permanent construction standard. They focus on large-scale construction, maintenance, and repair projects to include roads, bridges, airfields, seaports, base camps, advanced naval bases, and logistics sites. They provide power generation and distribution, water well drilling, quarry operation, pavement production, batch plant operation and base camp operations and maintenance. For further information see MCTP 3-34D or MCWP 3-34.

Naval Construction Regiment

The NCR is an independent command element that conducts construction and engineer project management. It provides command and control over assigned subordinate engineer units and other Navy expeditionary units. When employed with subordinate units, an NCR is a flexible organization structured to accomplish the full range of general engineering tasks and limited combat engineering tasks in a mid- to high-level intensity conflict. It can provide general engineering command and control at the MEF level and provide a range of engineering expertise from contingency planning through force projection to a fully developed MEF area of operations.

The NCR contains specialized engineer units, construction equipment, professional expertise, and C2 assets required to support MEF operations. The mix and type of units attached to the NCR are determined by the supported command's organization and mission. The NCR consists of a command element, multiple task-organized Seabee units, and may have other Service or host-nation engineer units under its control. Subordinate units may include NMCB, NCB, and UCT.

Naval Mobile Construction Battalion

The NMCB is the primary Active Component Seabee unit for conducting construction and engineer operations. The NMCB consists of two airfield construction companies, two waterfront construction companies, an advanced base construction company, and an advanced base construction company (expeditionary medical facility capable). Its personnel and equipment are a modular task organization of air-transportable, ground, and sea logistics elements. The NMCB is the NCF's basic operating organization and can rapidly deploy as part of expeditionary ready forces, MPFs, and air contingency forces. In wartime, the NMCB builds and repairs advanced naval base and expeditionary advanced operating base facilities in support of Navy, Marine Corps, and other joint or combined forces within threat areas to refuel, rearm, reload, resupply, repair, rebuild, recover, and revive the fleet and joint combined force. Focus areas for the NMCB are waterfront construction and port damage repair; airfield construction and damage repair; base construction including advanced naval bases, expeditionary advanced operating bases, intermediate support bases, and expeditionary medical facilities to enable fleet maneuver. In peacetime, the NMCB is employed in emergency response, such as defense support of civil authorities, foreign humanitarian assistance, disaster relief, or in deliberate construction operations supporting fleet readiness, security cooperation, and humanitarian civic action missions. The NMCB can execute construction across the range of contingency operations, while constructing organic, initial or expedient, temporary, semi-permanent, and permanent facilities.

Naval Construction Battalion

The NCB is a Reserve Component Seabee unit that conducts infrastructure repair and maintenance, ground line of communications construction, and mineral production to support Navy, Marine Corps, and joint force commanders engaged throughout the competition continuum. The NCB consists of two general construction companies, a ground line of communications company, and a mineral products company. The focus areas for the NCB are wood frame and relocatable structures; water-well drilling; bulk water provision; utilities; bridging and gap crossing; pile driving; rock crushing, mineral production; batch plant operation, and pit and quarry operation. The wartime and peacetime missions of the NCB are the same as the NMCB.

Underwater Construction Team

The UCT provides underwater engineering, construction, repair, and inspection support. It conducts expeditionary, temporary or permanent pier damage inspection and repair, as well as underwater deep ocean facility construction, inspection, repair, and maintenance. It provides underwater aspect support to a waterfront construction company and NMCB crane section during port damage repair. Repairs can include, but are not limited to piers, quay walls, wharves, fleet moorings, aids to navigation, channels, harbor entrances, submarine cables, and utilities. The UCT conducts amphibious landing support of joint logistics over-the-shore operations, including defense support of civil authorities, foreign humanitarian assistance, disaster relief, consequence management, and underwater recovery operations.

OTHER SERVICE ENGINEERING

United States Army Engineering

Army tactical-level engineer units range from those organic to brigade combat teams to units at echelons above brigade combat teams that support division or corps-sized formations. The engineer battalion of the brigade combat team conducts tactical tasks including assault bridging, breaching, route clearance, explosive hazard identification, horizontal construction, emplacing obstacles, engineer reconnaissance, and constructing or enhancing survivability positions. They are uniquely organized and equipped based on the type of parent brigade combat team they are in (e.g., armored, infantry, Stryker). Engineer units at echelons above brigade combat team are attached or allocated to an engineer brigade or a maneuver enhancement brigade to support tactical operations by a division or corps. Elements of echelon above brigade engineer units can be assigned to augment the organic engineer battalion of the brigade combat team during complex activities, such as combined arms breaching or gap crossing. See JP 3-34, *Joint Engineer Operations*, or Field Manual 3-34, *Engineer Operations*, for information about Army operational level or theater engineer units. See MCTP 3-40D, for information on Army-unique general and civil engineering capabilities.

United States Air Force Civil Engineering

Air Force civil engineers are in the prime base engineer emergency force and rapid engineer deployable heavy operational repair squadron engineer units. Air Force civil engineering provides a full spectrum of engineering support to establish, operate, and maintain garrison and contingency airbases. Air Force civil engineers provide fire protection services; expedient construction; chemical, biological, radiological, and nuclear protection; and explosive ordnance demolition. They also establish bed-down facilities; sustain airfield operations; conduct airfield damage repair and perform water-well drilling, airfield pavement evaluations, quarry operation, materiel testing, expedient facility erection, and concrete and asphalt paving. See JP 3-34 and Air Force Doctrine Publication 3-34, *Engineer Operations,* for more information about the organization and capabilities of Air Force civil engineer units.

SECTION V. HEALTH SERVICE SUPPORT

Health service support is a process that delivers a healthy, fit, and medically ready force; counters the health threat to the deployed force; and provides critical care and management for combat casualties. Health service support emphasizes the provision of far-forward deployed, mobile medical, and surgical support provisions; with an assigned mission to triage, treat, evacuate, and return to duty US tactical forces. For further guidance, see MCTP 3-40A and JP 4-02, *Joint Health Services.*

CONTINUUM OF CARE

The HSS system provides a continuum of care that begins at the point of injury, where medical care becomes necessary, and ends at the appropriate treatment facility. Casualties are evacuated through the HSS system until they arrive at a facility with the capability, time, and bed capacity to begin definitive intervention to return them to duty or prepare them for further evacuation. At the tactical level, medical support will be provided via Role 1 and Role 2.

The tactical levels of medical care are—

- Role 1 – unit-level medical care:
  - First responder.
  - Combat lifesaver.
  - Unit hospital corpsman.
  - Unit aid station.
- Role 2 – forward trauma management and emergency medical treatment:
  - Forward resuscitative care.
  - Forward resuscitative surgery system.
  - Surgical platoon.
  - Surgical company.
  - Casualty receiving and treatment ship (CRTS).

Tactical-level medical personnel consistently coordinate with higher echelons of care concerning other functions of health service support (e.g., reports submission, patient movement, and Class VIII resupply).

MARINE AIR-GROUND TASK FORCE CAPABILITIES

Tactical-level MAGTF forces are deployed as a MEF, MEB, MEU, Special purpose MAGTF, or Marine littoral regiment. Depending on the size, mission, and physical characteristics of the area of operations, each of the attached commands and combat elements of the deployed force will deploy with an appropriate medical capability. Tactical logistics includes organic unit capabilities and the CSS activities conducted in support of military operations. The goal of tactical-level HSS support is to support maneuver forces in the battlespace.

Command Element

The MAGTF command element is capable of coordinating routine and emergency treatment and preparation for evacuation by using its organic medical section. These HSS functions are typically performed by a subordinate battalion or regimental aid station.

Ground Combat Element

The GCE is the most forward fighting force and has a higher exposure to combat wounds and casualties. Injured and sick personnel requiring hospitalization are readied or evacuated along the continuum of care as their needs dictate and as the tactical situation allows. Typically, a regimental or battalion aid station serves as the hub for medical support. See MCTP 3-40A for a detailed discussion.

The medical staff of the division headquarters and regimental and battalion infantry unit medical platoon or section provides—

- Preventive medicine.
- Treatment for minor illnesses and injuries.
- Emergency lifesaving for battle and non-battle casualties.
- Emergency treatment and preparation for evacuation of all casualties.
- Disease prevention and control measures supervision.

Aviation Combat Element

Health services personnel are assigned to the primary subordinate organizations in the MAW. At the EAF the MWSS provides aid station capability and personnel. Squadron unit medical platoon or section provides—

- Preventive medicine.
- Treatment for minor illnesses and injuries.
- Emergency lifesaving for battle and non-battle casualties.
- Emergency treatment and preparation for evacuation of all casualties.

Logistics Combat Element

The MLG provides direct and general medical support to supported units in excess of their assigned or organic capabilities. The MLG serves as the hub for the combatant surgeon and patient regulation services.

Medical Battalion

The medical battalion's primary mission is to perform emergency medical and surgical procedures to preserve life, limb, or eyesight. The medical battalion is made up of an H&S company and two or three surgical companies, according to parent MEF force structure. The H&S company and the surgical companies contain a varying number of surgical platoons, which are comprised of shock-trauma platoons, forward resuscitative surgical systems, en route care systems, patient holding wards, and ancillary services. For additional guidance on patient evacuation see MCRP 3-40A.7, *Patient Movement*.

The battalion's surgical companies provide the following support:

- Initial trauma resuscitation and surgical intervention.
- Temporary casualty holding.
- Ancillary services (laboratory, radiology, pharmacy, and combat stress).
- Medical regulating.
- Ground evacuation support to forward medical elements.

- Limited and task organized enroute care evacuation support from forward surgical or treatment elements to shore or sea-based medical treatment facilities for critically ill or injured patients by opportune ground, air, or sealift.
- Preventive medical support.

Medical Logistics Company

Medical supplies and equipment (Class VIII) for the MEF are managed through the medical logistics company, which issues the authorized medical allowance list and authorized dental allowance list and handles resupply issues. The company is directly responsible to the combat readiness regiment commanding officer supporting the medical battalion. Medical Logistics Company conducts the following functions:

- Maintains medical equipment.
- Maintains centralized acquisitions, storing, and stock rotation.
- Constructs medical supply blocks.

Dental Battalion

The dental battalion task-organizes dental sections and detachments to HSS elements of the MAGTF. In an operational environment, the dental battalion's primary mission is to provide dental health maintenance with a focus on emergency care. In addition to medical support determined appropriate by medical battalion and surgical company commanders, dental detachment personnel can provide the following support:

- Casualty collection and clearing casualty triage.
- Mass casualty evacuation.
- Postoperative care.
- Holding ward care.
- Central sterilization.
- Supply room.

CAPABILITIES EXTERNAL TO THE MARINE AIR-GROUND TASK FORCE

In a purely expeditionary theater, the Marine Corps-Navy team does not have all the organic capabilities to meet the full spectrum of HSS requirements; therefore, there is always the need for joint/inter-Service relationships. The medical capabilities external to tactical logistics include Role 3 and Role 4 care. Role 3 assets and capabilities include—

- Expeditionary Medical Facilities. Medical systems that are deployable to an area involved in tactical operations. Expeditionary medical facilities provide Role 3 capabilities to include an increased bed count (up to 150 beds) and evacuation capabilities.
- Hospital Ships. The hospital ship is a Role 3, 1,000-bed floating surgical hospital. Its mission is to provide acute medical care in support of combat operations at sea and ashore. See JP 4-02 for more information.
- Casualty Receiving and Treatment Ships. The CRTSs are a Role 2 facility of amphibious ships in the ATF that provide expanded capability and capacity compared to most ashore Role 2. For medical support capabilities of these vessels and their potential roles as CRTSs review JP 4-02.

Role 4 care is found in US base hospitals and robust overseas facilities. Large-scale combat may require the expansion of military hospital capacities and the inclusion of Department of Veterans Affairs and civilian hospital beds in the National Disaster Medical System to meet the increased demands created by the evacuation of patients. The base hospitals represent the most definitive medical care available within the medical care system.

PATIENT MOVEMENT

When possible, the prompt movement of casualties through the evacuation system to treatment facilities is essential to decrease morbidity and mortality of battlefield casualties. A sound patient movement process ensures that patients move along the continuum of care as their needs dictate. This process also ensures the efficient and effective use of limited HSS assets. See MCRP 3-40A.7, for more information regarding the HSS systems and specific tactics, techniques, and procedures for patient movement. For patient movement in joint operations, refer to JP 4-02. Patient movement involves three distinct components:

- Evacuation. During evacuation, patients are moved between point of injury or onset of disease to a facility that can provide the necessary treatment capability.
- Medical Regulating. Medical regulating involves the actions and coordination necessary to arrange for the movement and tracking of patients through the levels of care. This process matches patients with a medical treatment facility that has the necessary HSS capabilities and capacity throughout different theaters of geographic combatant commands. Medical regulating is responsible for patient movement and tracking through successive echelons of medical and dental care. For information on medical regulating procedures see MCTP 3-40A and JP 4-02.
- Enroute Care. Enroute care is the continuation of the provision of care during movement (evacuation) between HSS capabilities in the roles of care, without clinically compromising the patient's condition.

SECTION VI. SERVICES

Services that are provided by the LCE are the below identified functions that are normally not available in or organic to all elements of the MAGTF.

CONTRACTING SUPPORT SERVICES

Operational contract support is "the process of planning for and obtaining supplies, services, and construction from commercial sources in support of combatant commander-directed operations (*DoD Dictionary*). As the Marine Corps places greater emphasis on expeditionary concepts, Marines at all echelons should understand the capabilities and legal limitations of OCS during the planning and conduct of operations. The OCS process consists of three subfunctions: contract support integration, contracting support, and contractor management (see Table 2-2). Because of the small number of and high demand for Marines in the contingency contracting force (CCF) to

support the operational environment, the Marine Corps must optimize their OCS planning, execution, and management. Because OCS is a multi-faceted and cross-functional staff activity, all primary and special staff members serve roles in OCS matters. The commander retains overall responsibility for planning, execution, and mission accomplishment—not the supporting contracting activity. For additional information regarding contracting planning considerations see MCO 4200.34 and MCRP 3-40B.3.

Table 2-2. Operational Contract Support Functions.

Contract Support Integration	Contracting Support	Contractor Management
The planning, coordination, and synchronization of contracted support in military operations. **"PLAN"**	The planning, coordination, and execution of contracting authority to legally bind contractors in support of military operations. **"PROCURE"**	The oversight and integration of contractor personnel and associated equipment in support of military operations. **"MANAGE"**
• Plan and integrate contract support: ◆ Collaborate in OPTs, boards, centers, cells and working groups. ◆ Conduct assessments and provide recommendations. • Manage requirements: ◆ Develop requirements. ◆ Approve requirements (anticipate, derive, verify). • Information management and reporting. • Conduct market research and analysis of the operating environment.	• Plan and organize for contracting support. • Coordinate and deconflict in-theater contracting. • Provide contracting support advice and assistance. • Translate requirements into contract documents. • Develop contracts. • Award and administer contracts. • Close out contracts.	• Plan contractor management. • Prepare for contractor deployment. • Deploy/redeploy contractors. • Manage contractors. • Sustain contractors. • Post-contract award oversight.

Contracting Authority

Contracting authority is the legal authority to enter into, administer, or terminate contracts, and make related determinations and findings. This authority is unique in that it is not inherent to a command or commander, but originates from the head of the contracting activity. Contracting authority is separate and distinct from command authority in that contracting officers (a contracting officer is regularly referred to as a KO) must be placed within the organization where they can maintain functional independence (see Figure 2-4). Department of Defense Instruction 5000.66, *Defense Acquisition Workforce Education*, *Training, Experience, and Career Development Program*, establishes that the first-level evaluation (reporting senior) of contracting officers will be performed within the individual's contracting chain of command.

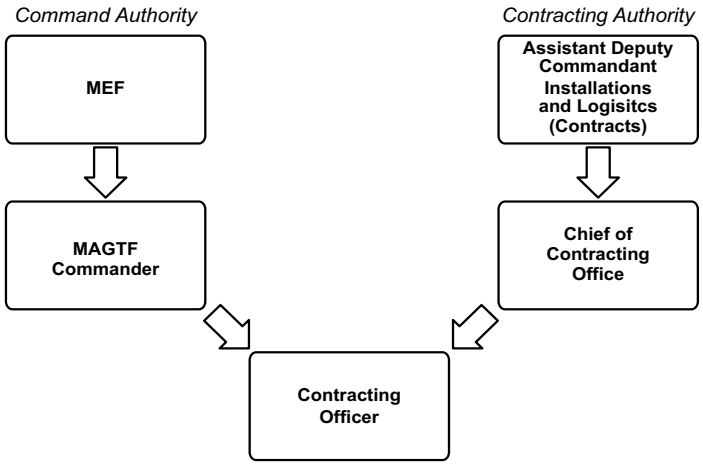

Figure 2-4. Operational Contract Support Approach to Planning and Integration.

Operational and Contingency Contract Support of MAGTF Operations

The Marine Corps aligns its OCS at the Marine Corps component commands and at the MEFs to assist in planning and advising for commercial support. Marines from the CCF at the MLG deploy to execute contracts to support operations.

Operational Contract Support Advisors. The MEF command elements are assigned OCS advisors, located within the G-4. Operational contract support advisors are not appointed as contracting officers and do not have contracting authority. These Marines assist MAGTF and FMF echelons with planning, coordinating, validating, and synchronizing deploying units' requirements for contracting support. Additional duties include providing contracting expertise and advice to commanders; educating units on contracting requirements; serving as a conduit to joint capabilities; and ensuring contracting support meets mission and operational requirements.

Expeditionary Contracting Platoon. The expeditionary contracting platoon is a MEF asset within each MLG. The MLG is task-organized to support the various sized MAGTFs and contracting support can be requested through the respective MEF.

Contract Support Execution

Proper execution of contract support by the contracting officer and MAGTF staff is critical to ensure mission success. While there are several steps in the acquisition process and processes can vary based on the environment, the diagram in Figure 2-5 illustrates the basic execution cycle for the identification and procurement of a requirement. Effective contract support typically requires OCS Marines to deploy before and redeploy after the main body to properly establish and close-out contracts.

Figure 2-5. Basic Process Diagram for Executing Contract Support.

Fiscal Support

The MAGTF must ensure disbursing and fiscal support is available to support contracts. Contracting officers are the only individuals who can legally obligate appropriated dollars. Fiscal personnel are the only individuals who can approve the expenditure of appropriations. Lastly, disbursing personnel execute the payments.

Micro Purchase Authority

A micro purchase is an acquisition of supplies or services using simplified acquisition procedures; it has an aggregate amount that does not exceed the micro purchase thresholds as established in the Federal Acquisition Regulation (FAR) Part 2. The thresholds may be increased to support contingency operations and other emergent events, as determined by the head of the agency. Micro purchases are used solely for on-site purchases and services.

Government-Wide Commercial Purchase Card. The GCPC is the preferred method to purchase and to pay for micro-purchases. A GCPC is issued only to authorized US government civilian and military employees for use to acquire and to pay for commercial off-the-shelf supplies and services to meet the minimal needs of the Government. These cards are typically limited to the same thresholds established as the micro purchase rules but can be increased to support operations outside the continental United States. See Naval Supply Instruction (NAVSUPINST) 4200.99 (Series) for more information.

Field Ordering Officer. A FOO has the authority to execute micro purchases in support of field operations. The MAGTF commander cannot appoint or delegate the duties of a FOO as they must formally nominate FOO candidates, by name, to the contracting officers for appointment. Employing a FOO requires a pay agent to make payments to vendors and maintain separation of duties. A FOO's authority is limited to the specific functions and responsibilities delineated in the appointment letter.

MORTUARY AFFAIRS

Human remains of all members of the Armed Forces of the United States are returned for permanent disposition in accordance with the decedent's will or the laws of the state (territory, possession, or country) of the decedent's legal residence as directed by the person authorized to direct disposition of human remains.

Responsibility of the Commander

The expedient and respectful repatriation of deceased personnel to the person authorized to direct disposition of human remains is the top priority of the mortuary affairs program. Inherently, every small-unit leader and commander bears some responsibility for providing mortuary affairs services. As such, the process begins at the point at which a Marine or Sailor dies. Thus, formal chains of evacuation and accountability begin at the unit level, with the commander establishing a Mortuary Affairs SOP and identifying unit fatality management teams trained to ensure the deceased service members are handled with care, dignity, and respect. Unit-level mortuary affairs operations consist of the initial search, recovery, and evacuation of unit deceased personnel to the nearest mortuary affairs collection point. Refer to MCRP 3-40G.3, *Multi-Service Tactics, Techniques, and Procedures for Mortuary Affairs in Theaters of Operations*, for detailed guidance on mortuary affairs and

a Marine Corps commander's checklist of mortuary affairs responsibilities. Mortuary affairs capabilities from other services, particularly the Army, are also globally positioned to support mortuary affairs operations.

Personnel Retrieval and Processing Company

The Marine Corps has one personnel retrieval and processing (PRP) company, resident within the Reserve Component, that provides mortuary affairs services for the MAGTF in support of combat or contingency operations in order to expedite the recovery, processing, and evacuation of human remains to designated facilities. The PRP company can task-organize to form scalable units as required and is capable of deploying in support of combat maneuver units. The PRP company's capabilities include the following functions:

- Search and recovery.
- Mortuary affairs collection points.
- Interment and disinterment.
- Mass fatality and casualty incident support.
- Theater-level mortuary affairs support.
- Mortuary affairs support to disaster relief efforts.

MARINE CORPS COMMUNITY SERVICES

Marine Corps Community Services (MCCS) must be included in the initial planning process to ensure the proper logistics and manning support are identified. Staffing requirements are based on one officer or staff noncommissioned officer and three enlisted Marines to serve 1,000 customers. Two enlisted Marines are added per each additional 1,000 customers or portion thereof. This manning is based on operating a tactical field exchange for nine hours per day, plus an additional three hours per day for restocking and administrative requirements. Additional MCCS Marines would be needed for clubs, food operations, recreation, fitness centers, and morale satellite.

Tactical Field Exchange

A tactical field exchange is established when no other source of Class VI support is available. The MAGTF commander determines when to establish a tactical field exchange, but the LCE commander designates the site for the exchange. When needed, mobile tactical field exchanges are sent to MAGTF maneuver elements. See MCO P1700.27B w/ch 1, *Marine Corps Community Services Policy Manual*, for more information.

A field exchange is established based on three broad categories of deployment and their retail requirements as follows:

- Category I deployments are exercises with little opportunity for Marines to access MCCS assets. Limited Marine Corps Exchange (MCX) and services operations exist (e.g., one-day access to retail or exchange facility).
- Category II deployments or exercises up to 90 days in duration, with some opportunities for Marines to access MCCS assets. The MCX and services operations are expanded to include repeated access to the base MCCS or host-nation facilities. Units can request a tactical field exchange be established.
- Category III deployments or exercises in excess of 90 days in duration, and Marines have the opportunity to access MCCS assets. The MCX and services operations are greatly expanded to include access to base MCCS or host-nation service facilities.

Logistics Command Element Support

The LCE provides the supported tactical field exchange units with critical logistics and administrative support and services, including the following:

- Facilities to house the tactical field exchange (tents or other structures).
- Class IV supplies.
- Tactical field exchange disbursing.
- Security.
- Transportation and MHE.
- Utilities and communications.
- Services to tactical field exchange personnel (i.e., billeting, subsistence, disbursing, postal, legal).

The LCE coordinates logistics support for mobile tactical field exchanges, which deliver health and comfort items to troops that otherwise would be unable to access a tactical field exchange due to their mission and geographic location.

Tactical Field Exchange. A deployed tactical field exchange activity is operated as a branch of the parent Marine Corps exchange from which the unit is deployed. All internal supplies, resale goods, and any resupply items are provided from that parent exchange or through a memorandum of understanding with another Service. In the event of an extended deployment, employment, or an extensive mobilization, exchange services will be provided by using MCCS non-appropriated funds.

Concept of Organization. Support is provided in the form of a direct operational tactical exchange from a mobile tactical field exchange capability by the LCE. Only Class VI supplies required to stock the field exchange are provided by the MCX.

Resupply. The LCE exchange officer initiates resupply of Class VI supplies for short-term support. Class VI supply items are coordinated and shipped in the same manner as other supply blocks for deploying units.

LEGAL SERVICES

In support of a MAGTF, legal services support tasks are performed through one or more legal services support teams. For more information see MCWP 11-10, *Marine Corps Legal Support*.

Legal Services Support Teams

Teams are employed at appropriate times and places in support of major MAGTF personnel concentrations in the area of operations. Legal services support teams vary in number, size, and composition depending on the—

- Mission, size, and composition of the MAGTF.
- Expected duration of the operation.
- Scheme of maneuver and operational environment.

MAGTF Support

Most legal services work in support of MAGTF operations involves—

- Injury, death, claims, and supply investigations.
- Legal review of operation plans (OPLANs) and OPORDs.
- Law of war training.
- Rules of engagement.
- Legal assistance (not including contracting support).
- Non-judicial punishment. engagement.
- Summary and special courts-martial.

Marine Expeditionary Force Support

The MEF operations may involve the deployment of all available legal services personnel. Each major subordinate command has an organic staff judge advocate section to ensure the coordination of legal services support for the command and its subordinate organizations. The staff judge advocate provides legal advice to the commander.

Contract Legal Counsel

Staff judge advocates typically do not have the experience or expertise to weigh in on contracting and procurement issues. Fiscal law attorneys specialize in procurement and are necessary to support contracting actions. Contract legal counsel support is advisory in nature and that the final deciding authority for any contract action is the contracting officer. A contract legal counsel is an integral part of the procurement team from acquisition planning to solicitation review, evaluation oversight to debriefing of unsuccessful offerors, addressing potential disputes and protests to reviewing correspondence with contractors.

FOOD SERVICE SUPPORT

Food service is a function of command. Commanders with a food service table of organization (T/O) and table of equipment (T/E) provide food service support designated by the unit mission statement. Additional information is provided in MCRP 3-40G.1, *Marine Corps Field Feeding Program*.

Organizational food service responsibilities include—

- Accounting for all subsistence received.
- Properly storing all semi-perishable and perishable supplies.
- Adhering to sanitation practices.
- Preparing quality packaged operational rations (PORs), unitized group rations (UGRs), and A-ration enhancements.
- Accounting for the number of personnel fed.
- Filing reports.

The LCE is responsible for—

- Providing support to the MEF beyond organic capability.
- Supplying and sustaining Class I (subsistence).
- Requisitioning Class I (subsistence).

Coordination of Resources

Detailed food service resources planning is conducted at the G-4/S-4 level in close coordination with food service officers, commanders, unit mess chiefs, and the LCE.

Personnel Requirements

Food service personnel requirements are based on the feed plan, equipment, location, and numbers of static or remote feeding sites.

Food Service Personnel. The number of food service specialists to support mission-specific taskings should be determined by a subject matter expert (food service officer or food technician). The actual number of personnel will depend on the feed plan, equipment, location, and numbers of static or remote feeding sites.

Messmen Support. Field mess attendants support is developed in coordination with the types of equipment and rations being used to sustain the operation. Specific requirements will be commensurate with the level of food service expected from the command. A traditional ratio of one mess attendant per 25 Marines being supported has been used for large scale field feeding operations. Trained food service specialists will not be assigned meal verification, cash collections, or mess attendant duties.

A messman (food service attendant) ratio of 1:18 (one messman for every 18 troops embarked) is used to compensate for the reduction of total food service specialists. The number of messmen furnished for the chief petty officer or staff noncommissioned officers mess is provided at a ratio of 1:15, and the number of wardroom messmen assigned is equal to 12 percent of the embarked officer population.

Shipboard feeding includes the following guidelines:

- Ratio of food service specialists enlisted or staff noncommissioned officers is one per 72 embarked personnel, and for messmen the ratio is one per 18 embarked personnel.
- At least one food service specialist must be a staff noncommissioned officer. Sergeants or corporals can be substituted for the remainder.
- For 1,000 embarked troops, one food service specialist must be a sergeant.

Operational Rations

Safety, sanitation, and security protocols dictate utilizing approved sources of supply, help eliminate the risk of food tampering, and ensure that food vendors have security measures in place to protect the integrity of the supply chain down to the using unit. The following operational rations are used to feed Marines in the field:

- Individual Rations
  - Meal, ready-to-eat (MRE) is a self-contained, individual field ration in lightweight packaging bought by the United States military for its service members for use in combat or other field conditions where organized food facilities are not available.
  - Meal, cold weather (also referred to as MCW) is intended for cold-weather feeding; it will not freeze and supplies extra drink mixes for countering dehydration during cold-weather activities.
  - First-strike ration (FSR) is a compact, eat-on-the-move assault ration designed for short durations of highly mobile, high-intensity combat operations. The intended purpose of the FSR is for usage during the first 72 hours of a conflict in lieu of using MREs.
  - Meal, religious, kosher for Passover are rations that feed those individuals in the military service who maintain a kosher diet for Passover by providing three meals per day for not more than eight days during their observance of Passover.
  - Meal, religious, kosher and halal are rations that are utilized to feed those individuals in the military service who maintain a strict religious diet. Each meal consists of one kosher- or halal-certified entree and religiously certified and accepted complementary items sufficient to provide the recommended daily nutritional requirements.
- Group Rations
  - Unitized Group Ration (UGR)-Heat and Serve is used to sustain military personnel during worldwide operations while at organized food service facilities. The UGR-Heat and Serve module is characterized by tray-pack entrees and starches or desserts.
  - UGR-A is used to sustain military personnel during worldwide operations while at organized food service facilities. The UGR-A includes perishable or frozen type entrees (A-Rations), along with commercial-type components. Headquarters, Marine Corps approval is required prior to requisitioning.
  - UGR-B and UGR-M are used primarily by the Marine Corps. They are designed to meet requirements for providing Marines with high-quality group rations that do not require refrigeration and are quick and easy to prepare.
  - UGR–Express is a compact, self-contained module that provides a complete, hot meal. In austere environments the logistics system may not provide food service equipment and

cooks to achieve a hot meal. The capability afforded by the UGR-E offers an alternative to individual meals as the sole source of subsistence in austere, remote locations.

- Ultra-high temperature milk is used by the Armed Forces as a mandatory supplement or enhancement for operational ration feeding during operations that do not have refrigeration capability or very limited capability.
- Modular operational ration enhancement (MORE) components are calorie dense and carry a balance of carbohydrates, caffeine, electrolytes, vitamins, antioxidants, and amino acids. All components can be eaten on the move without preparation and are easy to consume and digest. The MORE is not intended to replace any individual ration under any circumstances. Rather, it is intended to be used by the warfighter in addition to their daily operational ration to provide the extra calories they need in high-stress, extreme environmental scenarios.

Nutritional Guidelines and Consumption Parameters. The Nutritional Standards for Operational Rations (NSOR) consist of UGRs and individual rations (including individual restricted rations). These rations are designed for military personnel in varied operations and climates. The NSORs are based on the military dietary reference intakes and are designed to support the special nutritional requirements for varied expeditionary feeding situations.

The UGR menus are designed to be used sequentially (i.e., Day 1, Day 2, and Day 3) in order to meet the NSOR. The calculated or assayed nutrient content of edible portions of food as offered for consumption is compared to the NSOR. Total calories from fat does not exceed 35 percent of calories for these rations.

Individual rations are consumed as the sole operational ration for more than 21 days and FSRs should not be the sole diet beyond three consecutive days. After 21 days, UGRs are included in the daily mix of rations. This policy is based on extensive biochemical evaluations of individuals consuming MREs for 30 days during field training. When individual rations are the sole ration, units request supplements and enhancements (for example, bread, milk, and fresh fruit and vegetables) when the logistical and tactical situation permits.

The NSOR for individual rations do not apply to restricted rations. Restricted rations are nutritionally incomplete rations used in certain operational scenarios, such as the long-range patrol and reconnaissance, when troops are required to subsist for short periods carrying minimal weight. Restricted rations are not intended to be consumed for more than 10 consecutive days.

Operational Planning

Operational planning is based on the following ration mix:

- Days 1 to 21 consist of PORs (FSR or MRE).
- Days 22 to 90 consist of the following computation of the total personnel to be fed:
  - 20%—PORs, three meals per day.
  - 30%—UGR—heat-and-serve, two meals per day; and POR, one meal per day.
  - 50%—UGR-B (or by exception UGR-A), two meals per day; and POR, one meal per day.

Unitized ration meals are introduced into the feed plan as soon as the tactical, operational, and logistical situation permits; furthermore, A-Ration enhancements (fresh fruits, vegetables, bread, dairy, etc.) are also implemented as soon as the situation permits in order to provide a more nutritionally balanced meal. The feed plan is a standard form supplied by the food service officer to plan for the introduction of standard ration mixes. Cultural and dietary considerations for any external feeding plan need to be assessed.

Field Feeding

In combat operations, expeditionary field messes are usually established at the battalion or squadron level in accordance with the Marine Corps field feeding program. The MEF, GCE, LCE, and ACE food service officers provide recommended sites, determine sizes of the facilities, designate which units to support and determine Class I support and sustainment for—

- Tactical feeding.
- Forward unit feeding:
  - Tray Ration Heater System (up to 250 personnel).
  - Enhanced Tray Ration Heater System (up to 350 personnel).
  - Expeditionary Field Kitchen (up to 700 personnel).
- Base camp feeding:
  - Expeditionary field kitchen (500-700 personnel).
  - HNS (requires HHQ Installations and Logistics approval and minimum vendor safety standards).
  - Contract feeding (requires HHQ Installations and Logistics approval and minimum vendor safety standards).

DISBURSING

Typically, the MAGTF's disbursing support is located in the LCE. Geographical separation of the ACE, GCE, and LCE units necessitates collocating disbursing offices that are capable of providing the required disbursing services to both the ACE and the GCE. These offices respond to the taskings of their respective commanders but receive procedural direction from the MAGTF disbursing officer, who is solely responsible for all disbursing operations. For more information see MCO 7300.21B, *Marine Corps Financial Management Standard Operating Procedures Manual*.

Deployment Capability

Disbursing assets of the LCE can be deployed to provide full-service disbursing support for all MAGTF organizations. Services for a MEF in-theater are provided by the MLG disbursing sections. This flexibility allows for the task-organizing of disbursing assets to meet the needs of the MAGTF commander.

Disbursing Support

Disbursing support meets two primary missions in-theater: the payment of MAGTF obligations and pay-related support for deployed Marines and Sailors. Disbursing support is dictated by the area of operations and requirements. Early in the planning, the disbursing officer must coordinate with the MAGTF commander and advise what disbursing services will need to be provided to meet mission requirements. Use of a disbursing team or a disbursing agent can deliver support to MAGTF elements and other mission requirements.

Disbursing services can include—

- On-call pay support, as needed.
- Advise to the MAGTF commander on disbursing matters and finance policy.
- Payment of public vouchers for contracts, micro purchases, and condolence payments.
- Cash depository for the MCX, postal service, and clubs.
- Personal and US Treasury check cashing.
- Foreign currency exchange support.
- Cross-servicing support, as required.
- Pay agent training, funding, and reconciliation.
- Retain and transfer seized currency.
- Manage stored value card programs.
- Collect personal funds of service members missing or killed in action.
- Recording financial transactions into disbursing systems, maintaining accountability, generating financial reports, and submitting for Treasury reporting.

POSTAL

Postal assets are task-organized to provide postal support and capabilities for the MAGTF and attachments. These assets include a rear area military mail terminal (MMT) or main military post office (MPO) capable of rapid relocation and additional smaller mobile tactical MPOs capable of operating in forward environments. The MMT or main MPO coordinates all postal functions and mail movements throughout the area of operations. Each tactical MPO is capable of providing full postal services (stamps, postage. mailing services, etc.) and support to a forward deployed element. Smaller detachments can be task-organized to support various-sized MAGTFs. For more information see MCO 5110.4B, *Marine Corps Postal Affairs and Official Mail Program*, and *The Military Postal Service Procedures Manual*.

Postal Support: Ashore MAGTF

Postal services and support are located throughout the MAGTF area of operations. Tactical MPOs provide postal services and support to various CSSAs. Rear MMTs and main area MPOs are located at the CSSAs to support forward deployed units. On request from the CE, GCE, or ACE, mobile tactical MPOs can be dispatched and temporarily located in their area of operations. These mobile MPOs can provide full or partial postal services as requested or needed by the supported elements. If postal services are not requested by the GCE or ACE, postal services and

mail delivery for GCE and ACE personnel is accomplished through resupply channels or Warrior Express Service Team missions coordinated through the MMT or main area MPO. All postal units respond to the taskings of their respective LCE commanders but receive procedural direction from the MAGTF postal officer, who is solely responsible for all MAGTF postal operations throughout the area of operations.

Postal Support: Afloat MAGTF

Initial postal support for an embarked MAGTF will be coordinated and provided via the established Marine expeditionary unit amphibious ready group supply channels. Upon ship-to-shore movement, postal services are task-organized to provide sustained tactical MPO operation for the respective phase. During initial ship-to-shore movement, postal services are generally not available until the rear area is established and they are often initially established in the BSA. This operation will most likely develop into the rear main area MPO as the BSA is developed into the CSSA or a CSS node. As operations develop, postal services expand to include an MMT and mobile tactical MPOs with WEST capabilities designed to support forward forces.

Postal Support: Joint Task Force

When the MAGTF is part of a JTF, it is the responsibility of the MAGTF postal officer to coordinate with regional major Marine Corps commands and other Service postal commands to establish joint postal operations and ensure unity of effort. Should the MEF be designated as the JTF, it is the responsibility of the MAGTF Postal Officer to coordinate with the J-1/G-1 to ensure proper postal services and support throughout the designated area of operations.

Postal Functions

Postal assets perform the following functions:

- Advise the MAGTF or JTF commander on postal matters.
- Coordinate with the military postal service agency and the joint military postal activity to ensure carrier generated routes capable of supporting MAGTF postal operations are established and used.
- Coordinate the mobile routing of mail to and from the battle area.
- Provide the Warrior Express Service Team mission support operations.
- Implement digital signature management tools capable of connecting forward littoral forces throughout the supported theater.
- Ensure intra-theater and casualty mail services are established.
- Coordinate cross-service support, as required.
- Deliver and dispatch official and personal mail.
- Accept letters and packages for mailing.
- Sell stamps, postage, and money orders.
- Coordinate the resupply of unit postal offices operating throughout the area (unit post offices are stocked with the supplies and equipment to support regimental-sized organizations for a period of 60 days without resupply).

CHAPTER 3.
COMMAND AND CONTROL

"Command and control is the means by which a commander recognizes what needs to be done and sees that appropriate actions are taken" (Marine Corps Doctrinal Publication [MCDP] 6, *Command and Control*). Through effective tactical logistics command and control, commanders recognize and prioritize critical logistics requirements and direct the appropriate logistical and CSS response. Command and control processes assist commanders in dealing with the following influences on warfare:

- Uncertainty. Commanders seek to clearly identify support requirements for tactical-level logistics and CSS operations. Absolute certainty can never be achieved in the dynamic situation's characteristic of warfare. Commanders reduce uncertainty by employing a fully integrated planning process, prioritizing requirements, and ensuring redundancy and flexibility in their plans, as well as maintaining situational awareness.
- Time. There is rarely enough time available to complete all desired planning and preparation for logistics operations, particularly at the tactical level. Therefore, the assessment, planning, and execution cycle must be used to function effectively in the time available. This cycle is facilitated by a continuous exchange of information among all command echelons, functional activities, and liaison officers. As Figure 3-1 illustrates, because of time constraints, the assessment, planning, and execution process can be modified under the assessment process by omitting the planning phase. For more information see MCRP 5-10.1, *Multi-Service Tactics, Techniques, and Procedures for Operation Assessment*.

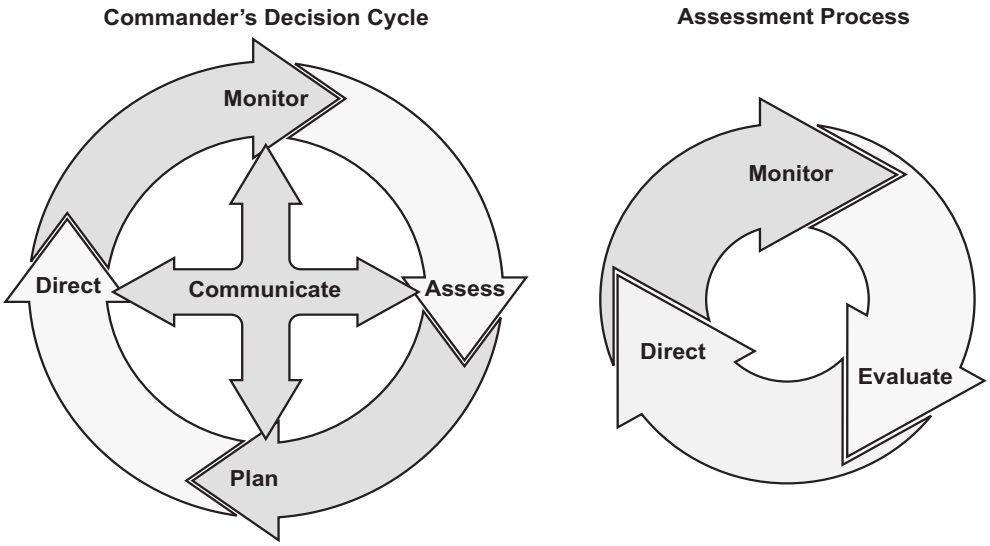

Figure 3-1. Assessment Planning and Execution Process.

- Tempo. It is essential to maintain a constant, uninterrupted operational rhythm that leaves insufficient time for the enemy to react. To assist in maintaining a command's operational tempo, logisticians must anticipate support required and balance this with other battlespace activities. For example, attacks should not be interrupted or delayed because units need resupply or because LCE convoys are using critical MSRs. To maximize operational tempo in this way, logisticians must participate fully in the operations planning process, stay updated on the status of battlespace activities, and prepare to conduct support operations.

The command and control for tactical logistics is focused on monitoring, directing, and executing logistics operations in support of tactical operations. Tactical logisticians establish and maintain communications links to higher, adjacent, and supporting and supported commands to ensure MAGTF elements can pass logistics information (see Figure 3-2).

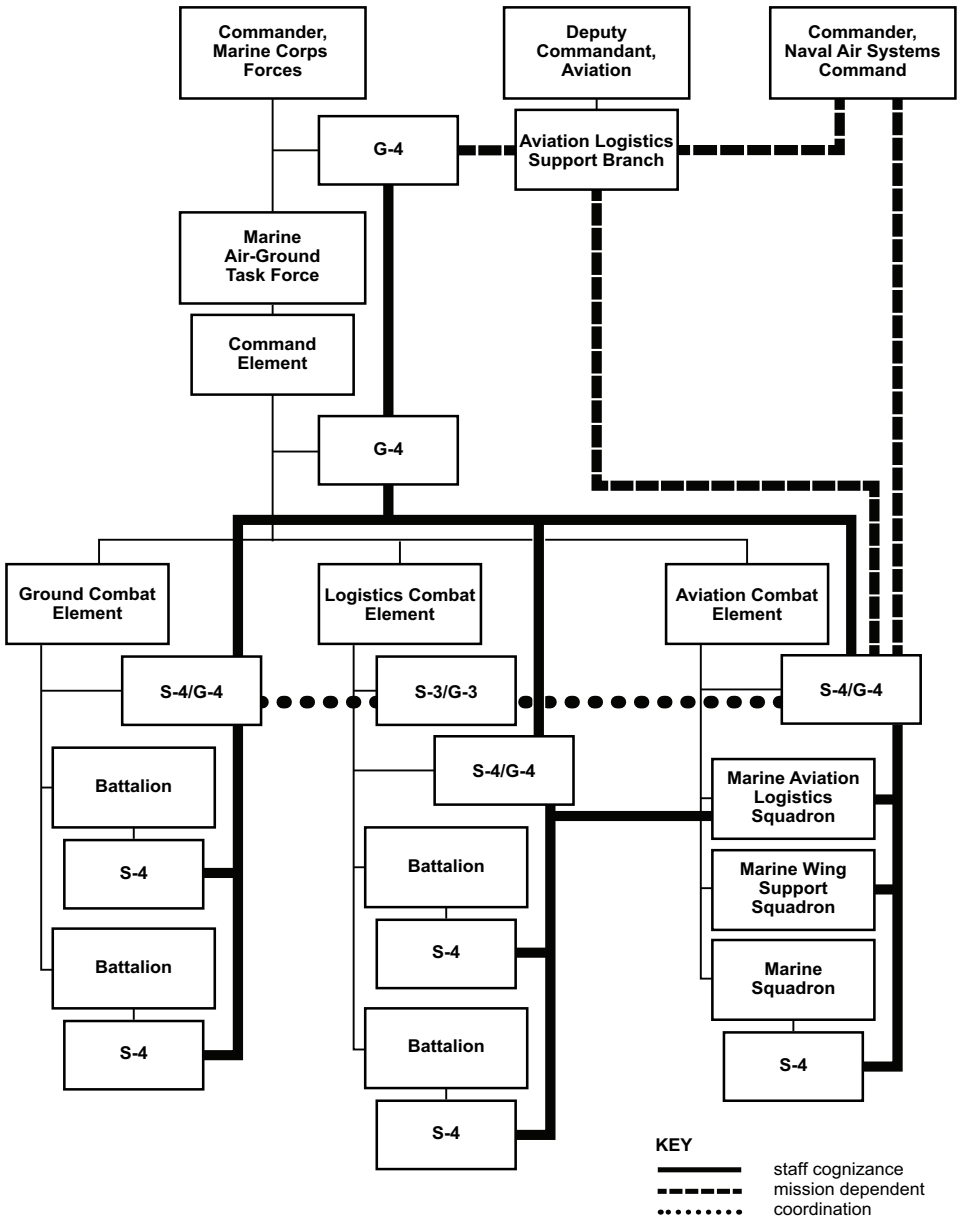

Figure 3-2. Staff Cognizance of Tactical Logistics.

ESTABLISHING COMMAND AND CONTROL

The MAGTF commander exercises command and control over MAGTF logistics. The commander evaluates logistics requirements based on subordinate organizations' capabilities, mission, and concept of operations. Based on this logistics evaluation, the MAGTF commander provides guidance to subordinate commanders. Typically, the guidance addresses three primary areas: requirements, priorities, and allocations. The subordinate commanders employ organic logistics resources to support their respective elements and then identify requirements beyond their organic capabilities to the LCE.

The LCE commander assigns support missions to subordinate elements based on the tactical situation, the supported unit's needs, and LCE capabilities. The LCE commander coordinates mission assignments with the MAGTF commander and supported unit commanders.

Command and Support Relationships

Inherent in command and support relationships is an understanding of the roles of each commander. The establishing commander, typically a MAGTF commander, defines supporting-to-supported relationships, degree of authority the supported commander has, and overall priorities. In general, the supported commander identifies support requirements in terms of priority, location, timing, and duration. The supporting commander determines forces, methods, and procedures to be employed in providing support. If the supporting commander, subject to existing capabilities and other assigned tasks, cannot fulfill the supported commander's requirements, then the establishing commander is responsible for determining a solution (e.g., a change in overall priorities or allocation of resources). The MAGTF G-3 develops and submits MAGTF command and support relationships for approval by the MAGTF commander. The MAGTF commander should provide a vision for support relationships while articulating the operational approach during problem framing of the Marine Corps Planning Process (MCPP).

Command Relationships

Command relationships define higher and subordinate relationships between unit commanders. By specifying a chain of command, command relationships unify effort and enable commanders to use subordinate forces with maximum flexibility. Command relationships identify the degree of control for a gaining commander. The type of command relationship often relates to expected longevity of the relationship between headquarters involved and quickly identifies the degree of support that the gaining and losing commanders provide. Marine Corps command relationships at the tactical level include—

- Organic. Assigned to and forming an essential part of a unit as listed on its T/O.
- Attached. Bound temporarily to a command other than its organic command. When attached, the unit is under command of the unit to which it is attached. Unless otherwise stated, this encompasses all command responsibilities. Once the mission or function is completed, the attached unit returns to its parent unit.

When operating or participating in a joint environment, joint command relationships will be established by the commander of the joint forces. Command relationships used within the joint environment include: Combatant Command (command authority) [known as COCOM], OPCON,

tactical control (TACON), and support (see Table 3-1). Other joint authorities include administrative control (known as ADCON), coordinating authority, and direct liaison authority (known as DIRLAUTH). For further information regarding command relationships refer to MCWP 3-30, *MAGTF Command and Control,* and MCTP 3-30A, *Command and Staff Action*.

Table 3-1. Joint Command Relationships and Authorities.

Command Relationships	
COCOM	The authority provides nontransferable command authority with no possibility of delegation, of a CCDR to perform those functions of command over assigned forces.
OPCON	The authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission.
TACON	The authority over forces that is limited to the detailed direction and control of movements or maneuvers within the operational area necessary to accomplish missions or tasks assigned.
Support	Support is a command authority; a supporting relationship is established by a superior commander between subordinate commanders when one organization should aid, protect, complement, or sustain another force. The four categories of Joint support are general, direct, mutual and close.
Other Authorities*	
Coordinating Authority	A commander or individual exercising the authority to require consultation between the specific functions or activities involving forces of two or more services, joint force components, or forces of the same Service or agencies, but without the authority to compel agreement. Coordinating authority represents a consultation relationship, not a command authority.
ADCON	Direction or exercise of authority over subordinate or other organizations in respect to administration and support. The order directing assignment to such status specifies the specific degree of ADCON.
DIRLAUTH	That authority granted by a commander (any level) to a subordinate to directly consult or coordinate an action with a command or agency within or outside of the granting command. It is a coordination relationship, not a command authority.
NOTE Joint support is separate from the Marine Corps support relations described under other authorities.	

As noted in MCTP 3-30A, the following are MAGTF command relationship considerations:

- Use command or support to describe relationships for Marine units within a MAGTF.
- Use COCOM, OPCON, TACON to describe relationships within a joint force construct.
- Use TACON to describe the relationship between a Marine unit and a JFC or other Service to prevent JFCs or other Services from reorganizing Marine units.
- Forward deployed forces may have either an OPCON or ADCON relationship to the Marine Corps component command.
- Use TACON to describe the relationship between other countries or Services to a MAGTF.

Marine Corps Support Relationships

Support relationships develop when one element or unit of the MAGTF provides a required capability to another element. Joint doctrine defines four categories of support: direct, general, mutual, and close. Marine Corps forces typically only employ direct and general support although joint and Marine Corps forces define and use the terms direct support and general support in a like manner. The senior Marine Corps commander tailors each support relationship to fit the situation at hand. A support relationship allows required support provided by one MAGTF element to another without the need to change existing command relationships. The commander should issue an order that includes the purpose of the support relationship, desired outcome, and the scope of expected action. At a minimum, the senior Marine Corps commander specifies the time, place, level, and duration of the supporting effort. These relationships do not imply tactical missions or techniques of employment. Support relationships are not command authorities and are more specific than joint support relationships. Commanders establish support relationships when subordination of one unit to another is inappropriate. Commanders assign a support relationship when one of the following occurs:

- Support is more effective if a commander, with the requisite technical and tactical expertise, controls the supporting unit rather than the supported commander. Additionally, it is best if the echelon of the supporting unit is the same as or higher than that of the supported unit. For example, the supporting unit might be a regiment, and the supported unit might be a battalion. It would be inappropriate for a regiment to be subordinated to a battalion; hence, the echelon uses a support relationship.
- Often a supporting unit simultaneously supports several units. A requirement to set support priorities and allocate resources to supported units exists. Assigning support relationships is one aspect of command.
- Support relationships allow supporting commanders to employ their units' capabilities and achieve results required by supported commanders. Support relationships are proceeded from an exclusive supported and supporting relationship between two units—as in direct support—to a broad level of support extended to all units under control of the HHQ—as in general support. Support relationships do not alter ADCON. Commanders specify and change support relationships through task organization.

See Table 3-2 for a support relationship matrix.

Direct Support. Direct support is a support relationship requiring a unit to support another specific unit and authorizing it to answer directly to the supported unit's request for assistance (joint doctrine considers direct support as a mission rather than a support relationship). A unit assigned a direct support relationship retains its command relationship with its parent unit, but is positioned by and has priorities of support established by the supported unit. A direct-support mission requires a supporting unit to furnish close and continuous support to a single supported unit. Units assigned a direct-support tactical mission are not attached or under the command of the supported unit. An LCE unit that is in direct support of another unit is immediately responsive to the needs of the supported unit.

General Support. General support is that support which is given to the supported unit as a whole and not to any particular subdivision thereof. Units assigned a general support relationship are positioned and have priorities established by their parent unit. Parent commander retains complete authority over, and responsibility for the operation of the supporting unit. A LCE unit typically is in general support to the MAGTF under the direction of the LCE commander.

While not specifically mentioned in MCWP 3-30 or MCTP 3-30A, GCE units use the Army support relationships of reinforcing and general support-reinforcing.

Reinforcing. Reinforcing is a support relationship requiring a unit or force to support another supporting unit. Only like units can be given a reinforcing mission. A unit assigned a reinforcing support relationship retains its command relationship with its parent unit, but is positioned by the reinforced unit. A unit that is reinforcing has priorities of support established by the reinforced unit, then the parent unit.

General Support-Reinforcing. General support-reinforcing is a support relationship assigned to a unit to support the force as a whole and to reinforce another similar-type unit. A unit assigned a general support-reinforcing support relationship is positioned and has priorities established by its parent unit and secondly by the reinforced unit.

Table 3-2. Support Relationship Matrix.

	Inherent Responsibilities							
Relationship	**Have command relationship with**	**Task organized by**	**Receives sustainment from**	**Assigned position or AO by**	**Provide liaison to**	**Establish and maintain communications with**	**Have priorities established by**	**Can impose gaining unit further command or support relationships by**
DS	Parent unit	Parent unit	Parent unit	Supported unit	Supported unit	Supported unit	Supported unit	See note
R	Parent unit	Parent unit	Parent unit	Reinforced unit	Reinforced unit	Reinforced unit; parent unit	Reinforced unit; then parent unit	Not applicable
GS-R	Parent unit	Parent unit	Parent unit	Parent unit	Reinforced unit and as required by parent unit	Reinforced unit and as required by parent unit	Parent unit; then reinforced unit	Not applicable
GS	Parent unit	Parent unit	Parent unit	Parent unit	As required by parent unit	As required by parent unit	Parent unit	Not applicable

NOTE
Commanders of units receiving direct support may direct a support relationship between their subordinate units and elements of the supporting unit after coordination with the supporting unit commander.

LEGEND
AO area of operations
DS direct support
GS general support
GS-R general support-reinforcing
R reinforcing

Logistics Combat Element Command Relationships

Units of an LCE provide support to the other elements of the MAGTF, via either a general- or direct-support relationship. In a support relationship, the LCE unit, while responsive to the needs of the supported unit, remains under the command of its parent organization. The LCE commander retains control over subordinate units, which enhances centralized command and control and decentralized execution. While this is the typical method, it is not the only method. Both permanent and task-organized LCE units can be attached to other organizations. The MAGTF commander

may direct the LCE commander to attach subordinate units to GCE or ACE units. The LCE commander retains responsibility for supporting subordinate units attached to other units but cannot assign or change their mission.

Mission Assignments

A formalized mission structure provides a primary means of maintaining command and control over logistics units, particularly when LCE units function in a support relationship. The formalized mission structure helps by standardizing the responsibilities associated with each mission and allows the commander to tailor logistics to the tactical situation.

Marine Expeditionary Force Information Group Relationships

Units of the Marine expeditionary force information group (MIG) provide direct support to the MEF and MEB. The MIG commander retains control over subordinate units; detachments are employed to support MEF-level C2 nodes. Units of the MIG rely on LCE general-support capability to sustain operational capacity throughout tactical execution. Elements of the MIG can be detached to support specific functional requirements across the MAGTF.

LOGISTICS AND COMBAT SERVICE SUPPORT MISSIONS

Formal missions can be either standard or non-standard. Standard missions are direct and general support. A nonstandard mission is any remaining mission. Formal missions dictate relationships, responsibilities, and C2 procedures. They facilitate planning for future operations by providing for on-order tasks. They also simplify the planning and execution of MAGTF operations.

Inherent Responsibilities

Formal missions dictate specific responsibilities for both the supporting unit and the supported unit. Mission assignments establish the LCE unit's relationship to the supported unit, as well as to other subordinate units.

An LCE unit or organization with a direct-support mission responds to LCE request in priority from—

- Supported unit.
- LCE HHQ.
- Organic subordinate units.
- Liaison personnel between supporting and supported units (as required).

An LCE unit or organization with a general-support mission responds to the LCE request in priority from—

- CSS HHQ.
- Supported unit.
- Organic subordinate units.
- Liaison personnel between supporting and supported units (as required).

Priority of Response. For each mission, the priority of response tells the supporting commander precisely who has priority of services. Support priorities are the primary distinction between standard missions.

Liaison. Liaison is established to maintain contact or intercommunication between elements of military forces or other agencies to ensure mutual understanding and unity of purpose and action. The supporting commander decides what types of liaison to use. For additional information on liaison functions and guidelines, see MCTP 3-30A, *Command and Staff Action*.

Communications. Communications between the supporting and supported units is essential. The supporting commander, in conjunction with the parent headquarters, decides what type of communications to use.

Positioning. Positioning is not simply locating facilities on the ground. It includes the authority to displace facilities to new locations. The LCE commander has the responsibility and authority for determining the general location and the displacement time of ground-common subordinate units and facilities to ensure continued support to the MAGTF. The subordinate LCE commander recommends the time for displacements and selects exact locations for new facilities when given their general locale. The LCE units are often in areas that are under the control of other MAGTF elements, and, as such, the LCE commander must coordinate with those elements and the MAGTF commander before establishing or moving units and facilities.

Mission Statement Elements

Every LCE mission statement has four elements—three mandatory elements and one optional. The mandatory elements are to identify the supporting unit, designate the standard mission assigned, and identify the supported unit. An example of a simplified mission statement containing only the three mandatory elements is: CLB-1 conducts operations in direct support of 1st Marines.

The fourth element is optional and can be used to provide additional information and guidance. If the commander anticipates a change in mission, a fourth element can be added to the mission statement to facilitate operations.

An example of an optional mission statement would be: 7th ESB (-) conducts operations in general support to I MEF. Attach one reinforced platoon to CLB 1, and one platoon in direct support of MWSS-372.

Notice the LCE commander does not select the specific subordinate elements for alternative missions. Selecting specific platoons is the prerogative of the battalion and company commanders. It is, however, within the LCE commander's authority to direct different missions or command relationships for subordinate elements of the LCE and to task-organize subordinate elements. The LCE commander does so in coordination with the MAGTF commander, the supported unit commander, and the LCE subordinate commanders.

Standard Missions

An LCE unit assigned a direct-support mission is immediately responsive to the needs of the supported unit. It furnishes continuous support to that unit and coordinates its operations. To complement the concept of operations of the supported unit. The direct-support mission creates a

one-to-one relationship between supporting and supported units. The HHQ of the supporting and supported units becomes involved only on a by exception basis. The supported unit sends requests directly to the supporting unit.

A direct-support mission may be assigned to either a functional or task-organized LCE unit. A functional unit or a task-organized unit may be either a single function unit or a multifunction unit (provides support in two or more LCE functional areas). The following are examples of direct-support missions assigned to functional and task-organized units:

- Functional Units. The LCE commander can assign the direct-support mission to any functional subordinate organization (e.g., engineer or motor transport organizations).
- Task-Organized Units. The LCE commander can assign the direct-support mission to a task-organized unit, such as a CLB, which is most often direct support. The commander must ensure that the task-organized unit has enough assets to accomplish the mission. Of particular concern is the ability to establish and maintain communications with the supported unit.
- General Support. A LCE unit assigned a general-support mission supports the MAGTF or several units within the MAGTF under the direction of the LCE commander.

The general-support mission is the most centralized mission. LCE commanders retain full control over their subordinate units, including establishing the priority of the units' efforts. This does not prevent supported units from dealing directly with various logistics agencies. For example, they submit requisitions directly to the supply source. However, the LCE commander may control how and when requisitions are filled. The LCE commander follows the priorities and allocations of the MAGTF commander. In certain cases, the MAGTF commander may stop the issue of supplies or items of equipment without prior approval of the LCE commander. In other cases, the MAGTF commander might specify a priority of issue for certain items or may assign a specific quantity to each unit.

The MAGTF LCE always has a general-support mission. However, the LCE commander can assign different missions to subordinate units consistent with the requirements of the tactical situation. The COLS, found in Annex D (Logistics) and Annex W (Aviation Operations) of the MAGTF OPORD, specifically addresses this topic and tells precisely how to satisfy the requirements of a particular tactical situation. The following are examples of general-support missions assigned to functional and task-organized units:

- Functional Units. The LCE commander may assign the general-support mission to any subordinate functional organizations. For example, the MLG commander could give the ESB the mission of general support of the MAGTF. The battalion would provide support based on the priorities of the MAGTF commander. The LCE commander would not assign this mission without prior coordination and approval from the MAGTF commander.
- Multi-Functional Units. The LCE commander may assign the general-support mission to a task-organized unit such as a CLB or LFSP. Multi-functional logistics units may have sufficient assets to perform the functions associated with the mission. Of particular concern is the ability to establish and maintain communications and liaison with the supported unit and parent organization.

Non-Standard Missions

The LCE commander usually uses the direct- or general-support standard missions to meet the needs of the supported force. However, unique situations could dictate the selection of a non-standard mission. The nonstandard mission must satisfy the requirements of the specific situation and requires detailed planning and coordination.

The optional fourth element of the mission statement is the operative element in the nonstandard mission. The optional element amplifies the basic mission statement and addresses unique responsibilities and relationships.

The mission statement for a non-standard mission must contain the three mandatory elements. For example, CLB-1 conducts operations in general support of assigned US and multinational forces. The optional fourth element, which gives advance information on subsequent missions, may also be used, as appropriate.

The mission statement above is adequate for a non-standard mission. For the CLB-1 commander, however, it does not provide enough information in this particular case. With standard missions, the CLB commander immediately knows the associated responsibilities. When assigning a nonstandard mission, the LCE commander must also give detailed coordinating instructions to amplify the mission statement. The LCE OPORD should include priority of response to support requests, liaison requirements, and communication requirements.

Liaison requirements are to—

- Maintain liaison with supported Marine Corps units on a full-time basis.
- Maintain liaison with other supported units, as required.

Communications responsibilities are to—

- Establish and maintain communications with MAGTF units on a full-time basis.
- Establish and maintain communications with other elements, as required (general- and direct-support defined).

SUPPORT PROCEDURES IN TACTICAL LOGISTICS FUNCTIONAL AREAS

The functional areas of tactical logistics are managed with procedures tailored to support particular functions. These need to be coordinated and allocated through the LCE operations center.

Supply

The MAGTF commander delegates to LCE commanders the responsibility of managing the flow of support from source to consumer. The following sections discuss the three management techniques and procedures that are critical to supply support.

Control. Supplies should flow by the most direct route from the source to the consumer. The LCE units should handle supplies as infrequently as possible.

Records. Records should include only information that is essential to control supply activities and to ensure sustainability.

Stockage Objective. The stockage objective is the projected maximum quantity of materiel that the LCE must have on-hand to sustain current operations. It consists of the sum of stocks represented by the operating level and the safety level. The operating level is the level required to sustain operations between submissions of requisitions or between the arrival of successive shipments. These quantities are based on the established replenishment period (daily, monthly, or quarterly). In combat, the replenishment period is usually shorter than during peacetime operations. The safety level is the quantity required to continue operations if there are minor delays in resupply or unpredictable changes in demand. In combat, the safety level is more critical than during peacetime.

The MAGTF commander prescribes the stockage objective for CSS nodes depending on the LCE commander's recommendations. Selection of the proper stockage objective is critical for proper management of transportation and continued support of combat operations. If the stockage objective is too high, it can place an excessive burden on handling and management systems. If the stockage objective is too low, it can delay or even prevent combat operations.

Reorder Point. The reorder point is that point at which the CSS unit must submit a requisition to maintain the stockage objective. The supply representative requisitions the stockage objective when the sum of the requisition processing time, shipping time, and safety days of supply equals the remaining days of supply based on daily consumption rates. For example:

Days of Supply		
Safety level	=	5
Reorder time	=	2
Shipping time	=	15
Reorder point	=	22

Distribution Methods. The two normal methods of distribution are supply point distribution and unit distribution, but the commander typically uses a combination of the two methods.

Supply Point Distribution. In supply point distribution, the supported unit picks up the supplies from a central point established by the supporting unit similar to getting fuel from a filling station or food from a store.

Unit Distribution. In unit distribution, the supporting unit (e.g., LCE) delivers supplies to the supported unit. The supported unit will, in turn, distribute the supplies to subordinate elements.

Combination. Typically, the commander uses a combination of unit and supply point distribution. The commander assigns top priority for unit distribution to those units that are in contact with the enemy and that have limited organic transportation. The commander gives a lower priority to engaged units with more organic transportation. The lowest priority is assigned to units not in contact with the enemy. When the available transport has been allocated to unit distribution, the remaining support requirements must be satisfied through supply point distribution.

Replenishment Systems. Replenishment systems are either pull systems, push systems, or a combination of both. Selecting a replenishment system is generally based on the availability of supplies and distribution capabilities.

Pull Systems. A pull system requires the consumer to submit a support request. This system provides only what the supported unit requests. Pull systems generally do not anticipate a unit's needs, which make them less responsive, but more efficient than push systems.

Push Systems. Push systems use reports as the requesting document or anticipate demand based on consumption rates. For example, on-hand and usage reports submitted by the supported unit serve as the basis for resupply. The LCE delivers sustainment based on consumption rates and the desired basic load of the unit without waiting for a requisition. Use of this method could burden the unit with more supplies than it can handle, which makes them more responsive but less efficient.

Combination. The MAGTF commander should specify the most appropriate replenishment system, which is often a combination of the two methods. The decision should be based on the tactical situation, available resources, and the recommendations of the LCE commander.

Maintenance

The goal of maintenance support operations is to keep the using-unit equipment operational. Supporting commanders achieve this goal by balancing centralization of control with decentralization of execution. Maintenance support procedures need to be flexible and adaptable to changing situations. For example, during the amphibious assault, both the LFSP and supported organizations have limited maintenance capabilities. As a general rule, the goal in combat should be centralized control with decentralized execution to maximize responsiveness. Organizational contact teams, from the owning organizations and intermediate MSTs from the LCE go forward and repair equipment whenever possible.

Distribution and Transportation

The MAGTF commander generally centralizes control of movement at the highest level. Movements should be regulated and coordinated to prevent congestion and conflicting movements over transportation routes. The transportation system must be highly adaptable to use the MAGTF's limited transportation capabilities effectively. This adaptability enables the commander to maintain continuous movement of personnel, supplies, and equipment. Commanders must maximize the efficient and effective use of transportation assets. The commander must keep equipment loaded and moving, while allowing for adequate maintenance and personnel rest.

General Engineering

The LCE engineer staff officer coordinates execution of general engineering projects with the ESB, NCF commander (as necessary) and the MAGTF engineer staff officer. Within the ACE, the MWSS provides limited general engineer support to meet ACE unique flight line and FARP requirements. Critical to the coordination of tactical-level, general-engineer support is the prioritization and allocation of transportation and material resources required for construction projects (base camps, airfields, roads, obstacles/barriers, bridging). The MAGTF can request augmentation from Army, Navy or Air Force units. Additional information pertaining to general engineering capabilities is contained in MCTP 3-40D and MCTP 3-20B. These provide description of MWSS capabilities and techniques, tactics, and procedures. See MCTP 3-34D for additional information pertaining to NCF capabilities to support general engineering requests of the MAGTF.

Health Service Support

The medical regulating system is activated as necessary for monitoring and controlling the movement of patients through the casualty evacuation and HSS system. The medical regulating system is responsible for patient movement and tracking through successive levels of medical and dental care to provide the appropriate level of care. For information on medical regulating procedures see MCTP 3-40A and JP 4-02.

Services

The services function provides for the effective administration, management, and employment of military organizations, as previously discussed.

COMMAND GROUPS AND CONTROL AGENCIES

Each MAGTF element establishes sections to direct operations and control employment of their organic, ground-common and aviation-peculiar logistics capabilities. Additionally, they coordinate CSS requirements with the LCE.

Aviation Ground Support Operations Center

The MWSS establishes an aviation ground support operations center to control aviation ground support tasks at the ACE airfields. The center coordinates the activities of the airfield operations, motor transport operations, engineer operations, medical, and other services sections.

Ground Combat Element Logistics Operations Center

The GCE establishes a logistics operations center that controls and coordinates day-to-day operations within the GCE organization. The logistics operations center focuses on meeting the needs of the supported units. The GCE G-4/S-4 logistics officer supervises the functioning of the logistics operations center. Optionally, there are GCE units that combine their administration section with the logistics section to form an administration and logistics operation center (also referred to as an ALOC).

Logistics Combat Element Combat Operations Center

The LCE establishes a LCE combat operations center (COC) that controls and coordinates the day-to-day operations of the LCE and focuses on meeting the needs of supported units. The LCE operations officer supervises the day-to-day functioning of the LCE COC.

The LCE commander establishes the LCE COC in the LCE command post. The LCE COC continually monitors and records the status of logistics operations and its personnel coordinate and control CSS operations according to the established policies, SOPs, and operational decisions of the commander.

The LCE COC monitors the CSS request communication network. The LCE COC has direct lines to subordinates, supported units, and HHQ, and it may have data links. Typical LCE COC functions include the following:

- Receiving and recording operational reports from subordinate units.
- Maintaining current plots of the friendly and enemy situation and displaying the information in the LCE COC.

- Preparing and submitting operational reports to HHQ.
- Providing dedicated communications channels for control of logistics operations.
- Transmitting orders and decisions.
- Monitoring the progress of ground-common logistics operations and reporting significant events and incidents to the commander.
- Monitoring and de-conflicting route allocations for logistics convoy operations.
- Advising interested staff sections of events or information of immediate concern to them.
- Serving as the principal point of contact for liaison personnel from senior, supported, or adjacent units.
- Coordinating security of CSS nodes and MSRs with higher and adjacent MAGTF elements.

The LCE COC is not a separate organization. The LCE unit's operations and communications personnel staff the LCE COC. Local SOPs govern the size and composition of the LCE COC. The following sections detail the commander's options for configuring the LCE COC.

Centralized Logistics Combat Element Combat Operations Center. Figure 3-3 depicts an example of a centralized LCE COC arrangement. An advantage to placing functional representatives for supply, maintenance, transportation, engineering, health services, and services within the LCE COC is that the watch officer has immediate access to technical advice. This option is appropriate when tactical considerations do not require dispersal. A disadvantage can be the high activity level generated by large numbers of personnel and communications in a confined facility. Higher-level LCE organizations and those farther to the rear use a centralized LCE COC more frequently than do smaller units.

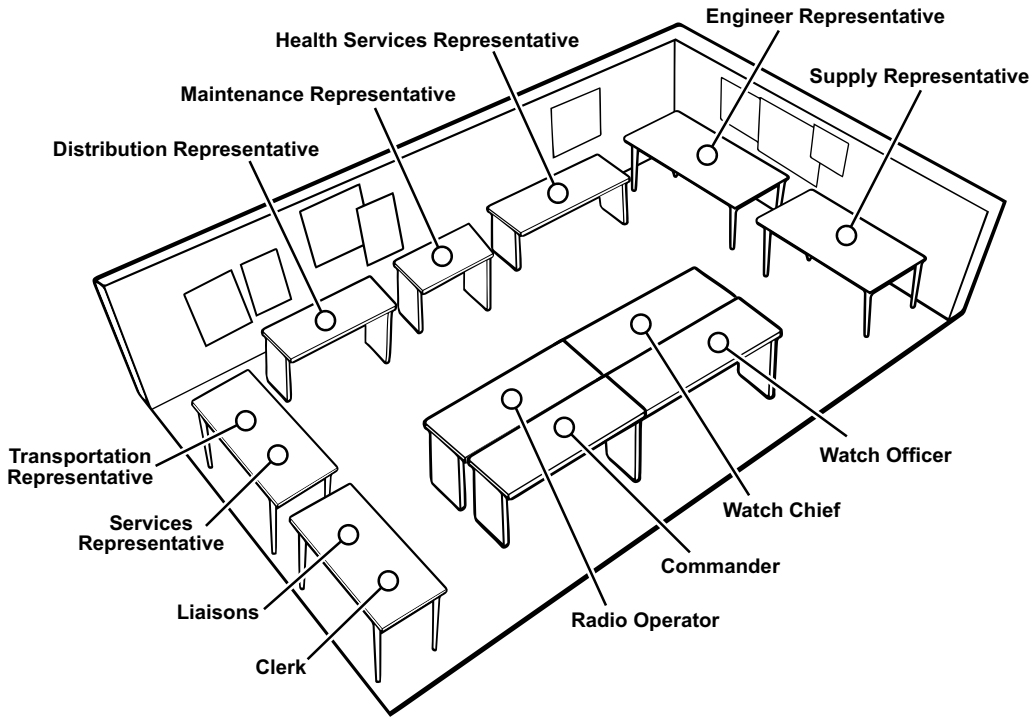

Figure 3-3. Notional Centralized LCE COC Arrangement.

Decentralized Logistics Combat Element Combat Operations Center. Figure 3-4 depicts an example of a decentralized LCE COC arrangement with functional representatives placed outside the LCE COC. Smaller LCE organizations and those further forward most often select this option. In some situations, the LCE unit will not have enough personnel or skills to operate a centralized LCE COC. In other cases, dispersion is a tactical necessity that weighs against centralization.

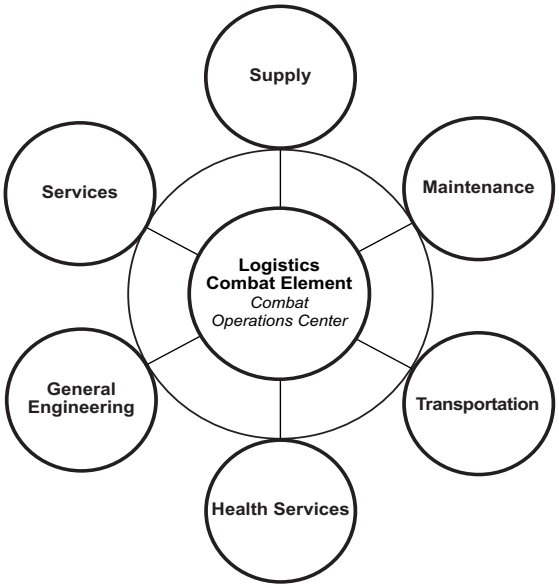

Figure 3-4. Notional Decentralized LCE COC Arrangement.

MOVEMENT CONTROL ORGANIZATIONS

Movement control combines the planning, routing, scheduling, and control of personnel and cargo movements over lines of communication to support the deployment of forces. This section discusses movement control techniques and management agencies. When operating as part of a joint, allied, or coalition force, the MAGTF commander follows the distribution management and movement control regulations of that command. Typically, the higher commander establishes a movement control agency to provide movement management services and highway traffic regulation. This agency coordinates with allied and host nation movement control agencies.

Movement Control Centers

Movement control centers are agencies that plan, route, and schedule personnel, supplies, and equipment movements over lines of communication (point of origin to ports of embarkation, ports of debarkation to final destination, or movements within the area of operations). In some cases, the agencies are permanent. For example, every MAGTF should have a full-time distribution and transportation section. For smaller MAGTFs, this may be no more than one or two Marines in the CSS operations center. In other cases, movement control agencies are temporary. Battalions, squadrons, regiments, and groups establish temporary movement control centers when their organizations are moving. Local SOPs establish the composition and procedures for movement control centers. Figure 3-5 depicts the relationships between various commands, their movement control agencies, and supporting organizations during deployment and sustainment distribution of a MAGTF.

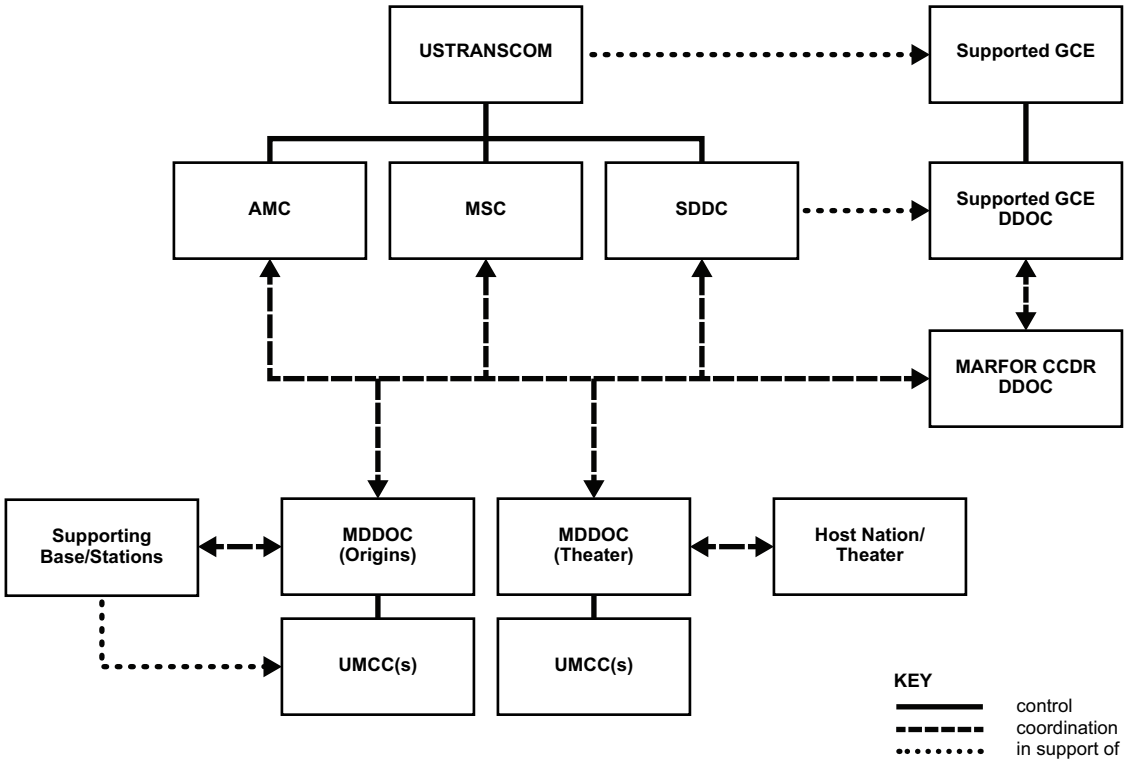

Figure 3-5. Movement Control Relationships during Deployment.

MAGTF Deployment and Distribution Operation Center

The MAGTF deployment and distribution operations center (MDDOC) is the MAGTF commander's agency responsible for the control and coordination of all deployment support activities. It is also the agency that coordinates with appropriate joint deployment and distribution operations center, and USTRANSCOM's transportation component commands. When the MAGTF operates as part of a joint force under a JFC, the MDDOC coordinates with USTRANSCOM via the appropriate joint deployment distribution operations center, which coordinates requirements for all CCDR's Service components. The MDDOC (or tailored capability), located within the MAGTF command element, conducts integrated planning, provides guidance and direction, and coordinates and monitors transportation resources in its role as the manager of the MAGTF's theater and tactical distribution processes. The MDDOC might operate under either the G-3 or G-4 but requires integration with each counterpart staff. For more information refer to MCO 4470.1B, *United States Marine Corps (USMC) Marine Air-Ground Task Force (MAGTF) Deployment and Distribution Policy (MDDP)*.

MAGTF Materiel Distribution Center

The MAGTF materiel distribution center is the MAGTF's distribution element. Its mission is to provide general shipping and receiving services, consolidated distribution services and to maintain asset visibility to enhance throughput velocity and sustain operational tempo. The distribution center establishes and operates the distribution network in a deployed environment. For more information refer to MCO 4470.1B.

Distribution Liaison Cells

Distribution liaison cells (also referred to as DLCs) are distribution elements that are manned by the LCE. Distribution liaison cells are task-organized and structured to perform various tasks at ports of embarkation and debarkation, aboard MEUs, or forward operating areas to include but not limited to providing support for deploying MAGTFs.

Terminal Operations Organizations

Terminal operations organizations are integral to the deployment and distribution system by providing support at strategic, operational, and tactical nodes. Established OPCON of the MMCC and the MDDOC, examples include the airfield and departure-area control group (also referred to as A/DACG), port and beach operations groups, rear operations group, and the LFSP's movement control agency. Terminal operations organizations will be task organized, manned and augmented by MSCs, as required, to perform these tasks.

MAGTF Movement Control Center

The MMCC is a standing organization and the subordinate element of the MDDOC that allocates, schedules, and coordinates internal transportation requirements based on the MAGTF commander's priorities. The MMCC supports the planning and execution of MAGTF movements. The MMCC coordinates all MAGTF ground movement scheduling, equipment augmentation, transportation requirements, MHE, and other movement support. In a theater of operation, the MMCC coordinates and de-conflicts ground movements on theater-controlled routes, and register requirements to the joint movement center for support. In addition, the MMCC coordinates activities with installation operations, supporting commands, and MSC UMCCs.

Major Subordinate Command: Unit Movement Control Center

Division, Wing, and MLG commanders deploy forces to support operational MAGTFs. Both deploying and employing MSC commanders manage transportation and communications assets needed to execute deployments. Each command at the MSC-level and below activates its UMCC to support marshaling and movement of assigned subordinate units. Major subordinate commands establish UMCCs down to the battalion, squadron, or independent company, as required to serve as the unit transportation capacity manager.

Base Operations Support Group

Bases from which FMF units deploy establish base operations support groups to coordinate their efforts with those of the deploying units. Bases operations support groups coordinate and manage transportation, communications, and other functional support requirements beyond organic capabilities to supported units during deployment similar to Marine forces component commands.

Station Operations Support Group

Air stations from which FMF units deploy establish station operations support groups to coordinate their efforts with those of the deploying units. Like major Marine Corps commands, air stations have transportation, communications, and other assets useful tall commands during deployment.

Flight Ferry Control Center

In addition to its movement control center, the aircraft wing establishes a flight ferry control center to control the movement of self-deploying aircraft. The flight ferry control center operates under the MAW G-3.

MARITIME PREPOSITIONING FORCE ORGANIZATIONS

The arrival of the MPF and its assembly into a fighting force are critical operational concerns of the MEF in general and the MLG in particular. The MEF forms temporary organizations whose purpose is to transform the cargo and personnel of an MPF into a viable combat force. Refer to MCTP 13-10D, *Maritime Prepositioning Force Operations*, for more information.

Survey, Liaison, and Reconnaissance Party

The survey, liaison, and reconnaissance party is a self-sustaining task organization formed from the MAGTF and Navy support element. It conducts reconnaissance, establishes liaison with in-theater authorities, and initiates preparations for the arrival of the main body of the FIE and the maritime prepositioning ships squadron. The survey, liaison, and reconnaissance party usually deploys to the arrival and assembly area under MAGTF cognizance.

Offload Preparation Party

The offload preparation party is a temporary task organization that consists of maintenance technicians, embarkation specialists, and equipment operators drawn from all elements of the MAGTF and the Navy support element. It prepares equipment on board the MPSs for debarkation into the arrival and assembly area. The offload preparation party can join the MPS before sailing, during transit, or on arrival into the arrival and assembly area. Ideally, the offload preparation party boards the MPS 96 hours before arrival into the arrival and assembly area.

Arrival and Assembly Operations Group

The arrival and assembly operations group (AAOG) is a temporary task organization that controls and coordinates the arrival and assembly operations of MPFs. Typically, the AAOG deploys as an element of the advance party and initiates operations at the arrival airfield. The AAOG is formed from elements of the MAGTF by the MEF G-3 and liaison personnel from the Navy support element during an MPF operation. The AAOG controls the following four subordinate throughput organizations:

- The port operations group is responsible for preparing the port prior to arrival of the MPS and for the throughput of equipment and supplies as they are offloaded from the ships.
- The beach operations group organizes and develops the beach area as necessary to support the offload and throughput of equipment and supplies.
- The arrival airfield control group is responsible for the control and coordination of the offload of airlifted units and equipment at the airfield.
- The movement control center plans, schedules, routes, and controls the movement of personnel, equipment, and supplies from the port, beach, or airfields to the unit assembly areas.

AMPHIBIOUS SHIP-TO-SHORE MOVEMENT ORGANIZATIONS

The Navy control organization provides positive centralized control of STS movement. Close coordination among the waterborne and helicopterborne movements, and supporting, pre-landing, and in-stride operations with the flexibility to change the landing plan is required.

This coordination ensures maximum tactical effectiveness during the landing and subsequent buildup of infrastructure or combat power ashore. The LFSP lands with surfaceborne units to facilitate the flow of personnel, equipment, and supplies across the beach and beyond, and to establish a BSA to provide CSS to these units. Requests for on-call waves, prepositioned emergency supplies, nonscheduled units, and adjustments to the landing plan are made by tactical commanders through the LFSP to the TACLOG group detachment for the required liaison with primary control officers to provide the tactical units, CSS, or adjust the landing plan. To facilitate required liaison between landing force units ashore and the Navy control organization, the TACLOG detachments supporting each landing force echelon are embarked on the same ship as the Navy control organization exercising OPCON over the STS movement of that landing force echelon.

Navy Control Organization

The Navy is responsible for control of the STS movement of both waterborne and assault support forces. The structure of the Navy control organization varies with the scope of the operation and number and type of beaches and landing zones. The TACLOG group is the Marine agency for advising and assisting the Navy control organization regarding landing force requirements during the STS movement.

Control for Waterborne Movement. The following officers are responsible for controlling waterborne STS movements:

- Central Control Officer. Typically aboard the ATF flagship, the central control officer directs the movement of all scheduled waves. After scheduled waves have landed, the central control officer continues to coordinate movement to and from the beach until unloading is complete. The central control ship is usually some distance seaward of the line of departure.
- Primary Control Officer. The senior Navy commander appoints a primary control officer for each transport organization that lands a regimental landing team across a colored-designated beach or a geographically separated beach. From aboard the primary control ship, this officer directs movement to and from a colored-designated beach. The primary control ship is usually near the line of departure.

Control for Assault Support Operations. The senior Navy commander, through the tactical air officer, controls helicopters during the STS movement. Control agencies include the Navy tactical air control center (also referred to as Navy TACC) and amphibious air traffic control center (also referred to as AATCC). These agencies control helicopters to meet both tactical and logistics requirements. They also coordinate the movement of helicopters with other aircraft movement. The helicopter control system must be flexible and responsive to the requirements of the tactical situation. See MCTP 13-10E for more information.

Landing Force Control Organization

The landing force control organization interfaces with the Navy control organization to keep it apprised of landing force requirements and priorities as well as to advise on transportation methods and phasing of serials. Although the exact structure of the landing force control organization varies, it is usually composed of the landing force operations center (LFOC), LFSP, and TACLOG group.

Landing Force Operations Center. During the initial phases of the amphibious operation, the LFOC is the MAGTF commander's command post afloat. Typically, the LFOC is located in the vicinity of ATF's combat information center. The LFOC maintains communications with the LFSP elements and with the landing force TACLOG group, which functions as the landing force liaison with the Navy control organization through the central control officer. From the LFOC, the MAGTF commander—

- Monitors the progress of the STS movement and operations ashore.
- Controls assigned assault units.
- Communicates with subordinate commanders.

Landing Force Support Party. The STS movement is a complex evolution that generates intensive activity under combat conditions. The LFSP is a temporary landing force organization composed of Navy and landing force elements tasked to provide initial combat support and CSS to the landing force during the STS movement. Its mission is to support the landing and movement of troops, equipment, and supplies across the beaches and into landing zones. The LFSP facilitates the smooth execution of the landing plan. It is specifically task-organized to facilitate a rapid buildup of combat power ashore by ensuring an organized and uniform flow of personnel, equipment, and supplies over the beach.

Tactical-Logistical Group. At the landing force level, the TACLOG group is composed of representatives from the MAGTF G-3/S-3 and G-4/S-4. The TACLOG group advises the Navy control organization of the STS movement requirements to meet the tactical requirements ashore and to assist in identifying support resources. to provide this advice, the TACLOG group—

- Keeps abreast of which serials have landed.
- Monitors the command, tactics, and logistical nets to anticipate requirements ashore for serials.
- Provides the central control officer with advice on the priority of landing additional serials.
- Recommends modes of transportation for serials, when appropriate.

The TACLOG group is subordinate to the landing force TACLOG group established by the force's subordinate commander. A subordinate TACLOG group may also be established aboard the helicopter transport group commander's ship to provide liaison for the helicopterborne force. These subordinate TACLOG groups coordinate duties between the Navy control organization, the landing force, and the landing force TACLOG group.

Naval Beach Group

The naval beach group (NBG) is defined in the *DoD Dictionary* as: "A permanently organized naval command within an amphibious force, composed of a commander and staff, a beachmaster unit, an amphibious construction battalion, and assault craft units, designed to provide an administrative group from which required naval tactical components may be made available to the amphibious task force commander and to the amphibious landing force commander." This group task-organizes beach party teams and groups for specific tasks. It can make limited beach improvements to help in the landing and the evacuation of casualties and enemy prisoners of war.

For additional information on the NBG, refer to MCTP 13-10E and JP 3-02.1, *Amphibious Operations*. The NBG is an administrative organization that provides—

- A beach party.
- Pontoon causeway teams.
- Self-propelled pontoon barges.
- Elements for lighterage or transfer line operations.
- Warping tug teams for tending causeways and salvage.
- STS bulk fuel elements.
- Underwater wire communications from the primary control ship to the beach.

Other Navy Landing Support Assets

Navy Cargo-Handling Battalion. A mobile logistics support unit that is organized, trained, and equipped to load and off-load Navy and Marine Corps cargo carried in maritime pre-positioning ships and merchant break bulk or container ships in all environments. Navy cargo handling battalion also loads and off-loads Navy and Marine Corps cargo carried in military-controlled aircraft. Additionally, it operates an associated expeditionary air cargo terminal.

The Navy's Fleet Survey Team. Navy's fleet survey team may conduct quick response hydrographic surveys and produce chart products in the field to support maritime requirements. They provide high resolution hydrographic surveys for use in nautical or tactical charting, support amphibious landings, mine warfare, or naval special warfare with bathymetry and other collected hydrographic information. Deployable detachments from this team can conduct navigation quality surveys or clearance surveys to provide access to ports and waterways in support of amphibious operations. In forward-deployed amphibious readiness group/MEU operations in which access to the above teams may be more difficult, commanders should use organic or supporting reconnaissance and surveillance assets to provide hydrographic information.

COMMUNICATIONS

Commanders must establish communications with higher, adjacent, and subordinate commands to promote situational awareness and to direct and coordinate military operations. Following the MAGTF and FMF communications plan, commanders establish single-purpose and general-purpose nets and frequencies for the control of MAGTF and element operations, logistics and CSS operations, and general administrative support.

The communications plan must specify the means for requesting and coordinating ground-common and aviation-peculiar logistics support. In addition, the plan must designate the primary and alternate means for logistics communications.

The logistics request communication network is the most important communication network for day-to-day ground-common logistics operations. The request network is a direct link between the CSS unit and the supported organizations. Each LCE organization establishes a logistics request communication network. Supported organizations enter the network to pass routine or emergency

support requests. The LCE establishes a CSS request network between itself and its subordinate LCE organizations and uses these communication networks to pass reports, requests, and orders. Supported unit logistics officers should monitor the logistics request network to assess the status of LCE units and to facilitate anticipation of requirements.

LOGISTICS INFORMATION MANAGEMENT

Logistics command and control manages the process of providing resources to support the warfighter; information management is a principal tool in this process. Tactical logistics information management ranges from manual methods to employment of logistics information technology systems.

Organic Capabilities

Most Marine Corps organizations, down to company levels, have organic information systems capabilities to manage their personnel, logistics, and training responsibilities.

The G-6/S-6 supervises the command's communications and information systems support operations. The G/S-6 is responsible for the technical direction, control and coordination of communications and information systems support tasks. The G-6/S-6 section works closely with the functional users of the information technology systems to ensure their efficacy.

Information Technology Systems Functional User Responsibilities

Functional users of information operate the information systems supporting their functional area. Functional users include every staff section that is supported by communications and information systems. Consequently, all staff principals have functional user responsibilities for the functional area over which they have staff cognizance. For example, the logistics staff officer has functional user responsibilities for the Global Combat Support System-Marine Corps (also referred to as GCSS-MC).

Functional user responsibilities include—

- Serving as the primary point of contact for issues affecting information systems supporting the functional area.
- Conducting the following routine information system administration:
  - Assigning user identification, passwords, and privileges.
  - Performing data and file storage and management.
  - Conducting system backups.
  - Coordinating with the G-6/S-6 to ensure that adequate hardware, software, trained personnel, and procedures are in place before implementing a new system or system modification.
  - Coordinating with the G-6/S-6 to develop and maintain user training programs for communications and information systems.
  - Identifying to the G-6/S-6 information system support requirements. Identifying to the G-6/S-6 specific communications requirements, including requirements to interface with other information systems and potential interface problems.

- Complying with applicable communications and information systems security measures. Reporting malfunctions and outages and coordinating with the G-6/S-6 to restore service.
- Designating an information management officer for the staff section.

Information Technology Systems

Each MAGTF element has computers and required software to support data input for standard logistics information systems, as well as to operate related command and control systems. These logistics information technology systems include manpower, supply, maintenance, transportation, embarkation, disbursing, contracting and aviation-peculiar systems.

Data Communications. The MAGTF G-6 establishes a data communications network because intratheater data communications are essential to support high-volume logistics system information exchange requirements. Users not served by the data communications network must use non-electronic methods to transfer large volumes of logistics data (e.g., external hard drive, compact disc coupled with physical courier). When electronic data communication means are available, non-electronic backup methods should still be planned.

Information Technology Systems Support Planning. Planning for information systems support must include identification of requirements, establishment of priorities, and allocation of resources. The G-6/S-6 in conjunction with the functional manager must identify the communications and information systems requirements for each major functional system. The information systems management officer then identifies processing priorities and allocates communication and system resources. The MAGTF OPORD must document the requirements, priorities, and allocations. Also, the OPORD must show the data flow within the MAGTF and between the MAGTF and the defense information systems network data entry point. In addition, the OPORD must depict information systems equipment distribution and maintenance procedures. Ideally, the OPORD references the MAGTF communications and information systems SOP and gives only that supplemental information needed for the specific operation.

INTELLIGENCE

Intelligence is chiefly concerned with enabling decision making. Timely and accurate intelligence is crucial for effective planning and execution of logistical activities. The commander must understand the operating environment to make informed decisions. Some key points include—

- Threat Assessments. Intelligence helps in assessing the threat environment. This includes understanding potential threats to supply lines, logistics facilities, and personnel.
- Route Reconnaissance. Intelligence is used to identify routes for the movement of supplies and personnel. This involves assessing road conditions, potential obstacles, and enemy activity.
- Logistics Planning. Intelligence informs the planning of logistics operations by providing information about the enemy's capabilities, intentions, and likely courses of action. This helps in making informed decisions regarding logistics support.
- Force Protection. Intelligence is used to make risk assessments and enable the commander to make informed decisions regarding threats to the force. Intelligence can assist in building in

resiliency by comparing adversary threats against friendly capabilities to inform force protection efforts.

- Situational Awareness. Intelligence contributes to overall situational awareness, enabling commanders to adapt logistics operations in real-time based on changing circumstances.
- Counterintelligence. Identifying and mitigating enemy intelligence activities directed at collecting on friendly logistics units and their networks.
- Engineer Reconnaissance. The LCE possess distinct expertise regarding mobility and infrastructure. This expertise can be leveraged as a sensor by the MAGTF to enhance all warfighting functions including fires.
- Operational Planning. Intelligence can enhance operational tempo by assisting the commander in risk assessments, balancing aggressive sustainment, and prudent force preservation.

LIAISON

Commanders at every level routinely establish contact with other units in their area. At the tactical level, this contact or liaison is established for general operations and logistics support coordination. Liaison improves the LCE's ability to support the supported unit's concept of operations. The LCE staff liaison may include the temporary or permanent assignment of liaison elements to integrate, coordinate, and execute military operations.

Liaison Element

The liaison element is the commander's personal representative(s) to another command. These designated liaison elements improve the contact and communications essential to effective command.

Liaison Officer. A liaison officer is the most commonly employed technique for establishing and maintaining close, continuous contact among commands. Use of a single individual with the proper rank and experience conserves manpower while guaranteeing contact.

Liaison Team. A liaison team is assigned to the supported organization when the workload or the requirement for better coordination dictates. Liaison teams normally include a liaison officer, a liaison chief, clerical personnel and drivers, and communications personnel with their equipment.

Courier. A courier is responsible for the secure physical transmission and delivery of documents and material. The courier can function as a liaison element to another command. An experienced, mature courier can amplify information about the situation or issues of concern.

Liaison Element Selection Considerations

Although there are no firm rules for selecting liaison personnel, the commander should consider requirements of the task, the individual's ability to represent the command, and the individual's—

- Logistics expertise.
- Rank.
- Experience.

- Knowledge.
- Personal initiative.
- Judgment.
- Communications skills.

The following sections provide some insights into determining the best type of liaison element to use.

Available Personnel. The lack of qualified personnel may prevent assignment of dedicated liaison elements even where there is a recognized need. If a liaison officer or team is not available, the commander can use couriers. The commander should select only those who have demonstrated the necessary maturity to handle the duties. The overriding consideration is always responsiveness to the supported unit.

Workload. Workload is a variable that influences the commander's decision to provide liaison, as well as the specific type of liaison element. It is a function of the LCE unit's scope of operations, personnel situation, priorities, and time. The workload varies with the size and mission of both the supporting and supported units and can change during the course of an operation. In some situations, the workload may require little more than routine liaison between principal staff officers or their assistants.

Proximity. When units are in proximity, the commander may rely on principal staff officers to maintain effective communications. Conversely, the workload may dictate the use of a dedicated liaison element despite the unit's location.

Tactical Situation. The need for liaison increases as the pace of tactical operations increases. In a static situation, requirements and procedures are routine. As the tempo of operations increases, maintaining liaison becomes more difficult, as well as more critical. Liaison is especially critical during offensive operations and periods of turbulence.

Timeliness. To complement and enhance the desired effects of early logistics planning, liaison elements should be assigned at the first opportunity. Early coordination between combat and LCE units ensures the timely involvement of the LCE units in the planning process.

Exchange of Liaison Element

Traditionally, commanders establish liaison from senior to subordinate, supporting to supported, reinforcing to reinforced, and left to right. As with all rules, however, there are situations that dictate exceptions. For example, often situations dictate the exchange of liaison elements between units.

Senior to Subordinate. The assignment of liaison elements within the same command is unusual. The senior headquarters would initiate such assignments. As such, the senior headquarters must provide the liaison element, with associated support equipment, to the subordinate unit.

Supporting to Supported. For task-organized CSS units, the availability of liaison elements depends on the identification of potential liaison requirements during the planning phase. Based on those requirements, the parent command should task-organize the LCE unit with the personnel and equipment to affect liaison.

Reinforcing to Reinforced. Similar-type units reinforce one another. The LCE unit assigned a reinforcing mission may provide a liaison element to the reinforced LCE unit.

Left to Right. Traditionally, units on the left flank are responsible for establishing liaison with units on their right. However, LCE units generally do not provide liaison elements to adjacent units. Liaison between the respective commanders and principal staff officers is the norm in such cases.

Liaison Element Duties and Responsibilities

Liaison duties and responsibilities closely correlate with those of the G-4/S-4 of the supported unit. The duties are separated into three broad categories: advise and assist, monitor, and coordinate.

Advise and Assist. The liaison element advises both the supporting commander and the supported commander. It assists the supported unit to determine its requirements, to ascertain associated priorities, and to assign appropriate allocations. The liaison element advises the supported unit on the capabilities of the supporting unit. It assists the supported unit G-4/S-4 to identify those courses of action (COAs) that are the most and least supportable from the LCE viewpoint.

Monitor. The liaison element observes the operations of the supported unit and monitors the status of those functional areas in which the parent LCE organization has a concern. Simultaneously, it keeps abreast of the status of its parent organization's operations. Specifically, the element follows activities that affect the capability to provide continuous support.

Coordinate. The liaison element coordinates and expedites the flow of support and information between the two organizations. In this regard, the liaison element serves as the conduit for two-way communications. It is not a substitute for direct coordination among commanders and principal staff officers; rather, it complements and augments such coordination.

Liaison Procedures

Initially, the commander of the supporting unit should accompany the selected liaison representatives. This allows the commander to introduce the selected liaison element to the supported commander and staff. This gesture can have a significant long-term impact on the success of subsequent actions with the supported unit. To effectively conduct liaison duties, the element must—

- Become familiar with the capabilities, limitations, and concept of operations of its parent organization before assuming its duties.
- Report to its assigned unit fully prepared to carry out its duties and responsibilities.
- Become familiar with the structure and functions of the supported unit.
- Know the supported unit's mission, concept of operations, and scheme of maneuver.

CHAPTER 4.
PLANNING

Planning for tactical logistics is concurrent with the larger planning process that prepares the MAGTF for operations.

LOGISTICS PLANNING CONCEPTS

The following basic concepts govern the planning of tactical logistics:

- Sustainment planning is concurrent with operations planning.
- Combat and combat support units should exploit their organic logistical capabilities before requesting assistance from CSS sources.
- The impetus of logistics is to provide necessary resources from the last known holder directly to the using unit.
- The logistics system must be responsive, effective, and efficient.

PLANNING FOR EXPEDITIONARY OPERATIONS

Logistics self-sufficiency is a primary consideration when planning expeditionary operations because MAGTFs are organized to conduct operations in austere environments. Fleet Marine Force elements and MAGTF commanders provide the operational logistics capabilities necessary for conducting expeditionary operations, while tactical logistics are initially provided by MAGTF commanders and their subordinates. This expeditionary or temporary capability will eventually leverage operational support or will be withdrawn after the mission is accomplished. These missions could include—

- Providing foreign humanitarian assistance.
- Providing noncombatant evacuation.
- Conducting peace-keeping operations.
- Countering an act of aggression.
- Countering drug operations.
- Protecting US citizens.
- Defeating an enemy in combat.
- Support security cooperation.

Phases of Action

Expeditionary operations involve five phases of action, which have strategic, operational, and tactical considerations. See MCDP 3, *Expeditionary Operations*, for additional information.

Deployment. Deployment is moving forces to the area of operations. Deployment is initially a function of strategic mobility. Operational-level movement in theater completes deployment as forces are concentrated for tactical employment. Deployment support permits the MAGTF commanders to marshal, stage, embark, and deploy their commands. Although deployment is a strategic and operational level concern, tactical-level CSS units (e.g., MLGs) may be required to assist the deployment.

Entry. Entry is the process of introducing forces onto foreign soil. Typically, entry is accomplished by sea or air, although in some cases forces may be introduced by ground movement from an expeditionary base in an adjacent country. Logistical capabilities are used in the entry phase to develop entry points (e.g., an airfield or port, an assailable coastline, a drop zone, an accessible frontier).

Enabling Actions. Enabling actions are preparatory actions taken by the expeditionary force to facilitate the eventual accomplishment of the mission. Enabling actions could include seizing a port, airfield, or other lodgment by which to bring in follow-on forces and establishing necessary logistics and support capabilities. In case of disaster or disruption, enabling actions could involve the initial restoration of order and stability. In open conflict, enabling actions could involve delaying an enemy advance, attacking certain enemy capabilities, or capturing key terrain that is necessary for conducting decisive actions.

Decisive Actions. Decisive actions are intended to create the conditions that will accomplish the mission. In disasters, decisive actions can include relief operations. In disruptions, they often include peacemaking and peacekeeping until local government control can be reestablished. In conflict, they usually involve militarily defeating the enemy. Logistics organizations provide support across the spectrum of decisive actions.

Departure or Transition. Because expeditions are by definition temporary, all expeditionary operations involve a departure of the expeditionary force or a transition to a permanent presence of some sort. Conducting a departure is not as simple as tactically withdrawing the expeditionary forces from the scene. It requires withdrawing the force in a way that maintains the desired situation while preserving the combat capabilities of the force. For example, care must be taken to reload the ships of an MPF or MEU to restore their sustainment capabilities because either force may be abruptly ordered to undertake another expeditionary operation.

Forward-Deployed Logistics Capabilities

The Marine Corps maintains strategic war reserve materiel (WRM) to enable MAGTFs to sustain themselves for initial combat operations and reduce the reliance on strategic lift to deploy the force. Strategic WRM is prepositioned afloat aboard MPF ships and in locations ashore supporting the Marine Corps pre-positioning program. War reserve materiel is designed to give the MAGTF additional sustainment, above deployed stocks, until theater-level supply lines are established. Logistics self-sufficiency is a fundamental defining characteristic of expeditionary MAGTFs.

Global Positioning Network. The Global Positioning Network modernizes the Marine Corps' legacy prepositioning programs into an integrated afloat/ashore (ashore includes allied and partner-nation agreements) capability enabling day-to-day campaigning, rapid response to crisis and contingency, and deterrence, to include support of stand-in forces. Used on a routine basis by forces as they campaign during competition, the Global Positioning Network enables constant forward presence of elements of the stand-in force as they campaign and accelerates force closure during conflict by reducing the deploying forces' FIE requirements while minimizing demand for strategic and intratheater lift. Beyond force closure, the Global Positioning Network enables forces operating from expeditionary advanced bases to persist throughout the competition continuum by providing sustainment support via globally positioned supplies until theater distribution networks open and materiel begins to flow via the JLEnt. Programs include the following:

- Afloat programs include the MPF, which is the combination of prepositioned materiel and airlifted elements with a sustainment capability of 30 days. For MAGTFs smaller than a MEB-sized force, they may be sustained ashore for longer periods of time. The number of MPS in support of the MAGTF is dependent on the required timelines to build the force, the materiel requirements, and available lift.
- Ashore program examples include land-based geo-prepositioned stocks such as the Marine Corps Prepositioning Program–Norway and the Marine Corps Prepositioning Program–Philippines. The vehicles, equipment, and supplies positioned within each program have been configured to support a MAGTF. The stocking goals for a geo-prepositioned program are the same as the MPF ships, although any global requirements can be supported and filled with this equipment if directed by Headquarters, United States Marine Corps.

War Reserve Materiel. A combination of force-held assets and MPF that should provide sufficient sustainment and supplies to ensure that MEB-level operations are supported up to 30 days of contingency operations. A MEF-sized MAGTF operating with 60 DOS and DOA provides a reasonable assurance that the force can be self-sustaining until resupply channels are established. Usually, the MAGTF ACE deploys with sufficient aviation-peculiar equipment and supplies for 90 days of contingency operations. Class V (A) ammunition is not usually computed in the ACE 90-day sustainment figure due to the large lift requirement associated with Class V(A).

Marine Expeditionary Planning Organization

The plans and future operations sections prepare plans using the MCPP. See MCWP 5-10, *Marine Corps Planning Process*, for more detail. Future and current operations sections oversee the execution of those plans. Subordinate elements and smaller MAGTFs conduct the same planning; however, their greater focus on the current battle and smaller size may dictate modifications to the staff organization.

Plans Section. Under the staff cognizance of the MEF G-5, the plans section—

- Provides a link between HHQ planning sections and future operations section.
- Focuses on deliberate planning and follow-on phases of a campaign or operation.
- Develops branch plans and sequels.

Future Operations Section. Under the cognizance of the G-3/S-3, the future operations section—

- Coordinates with the plans section and current operations sections to ensure integration of the next battle plan.
- Interacts with intelligence collection and the targeting process to shape the next battle.
- Manages the command's planning, decision, execution and assessment cycle to match HHQ battle rhythms to create the conditions for the success of current operations.

Current Operations Section. This section receives the OPORD from future operations and executes the OPORD from the COC. Under the cognizance of the G-3/S-3, the current operations section—

- Coordinates and executes the current order.
- Monitors operations of the MAGTF.
- Prepares fragmentary orders to modify the current OPORD.
- Assesses shaping actions and the progress toward the commander's decisive actions.
- Coordinates terrain management.
- Maintains essential maps and information.
- Provides plans and future operations with situational awareness.
- Provides transition officers to future operations.

Operational Planning Team. An operational planning team (OPT) is a temporary organization formed around the plans or future operations section to conduct integrated planning. While the current operations section manages the execution of current operations, an OPT plans future operations and develops the OPLAN, OPORD, or fragmentary order. The OPT integrates the various staff sections, battlefield function representatives, and subordinate liaisons into the planning process.

TYPES OF JOINT PLANNING

All FMF and MAGTF planners must be familiar with the Joint Operation Planning and Execution System (JOPES) because the Marine Corps continues to operate in a joint or combined environment. The JOPES outlines how the DoD plans for and conducts joint military operations. As described in JOPES, there are two primary methods of planning joint or combined operations: contingency and crisis action planning. The distinction between the following methods is important because it reflects significant differences in the amount of time available for MAGTF planning:

- Contingency planning (also known as deliberate planning) is conducted principally in peacetime and is accomplished in prescribed cycles that complement other DoD planning cycles. The process requires a significantly longer period of time for completion than crisis action planning.
- Crisis action planning is time-sensitive planning that involves emergencies with possible national security implications.

MARINE CORPS PLANNING PROCESS

The MCPP is the process commanders and their staffs use to provide input to the joint planning process and to plan force organization and employment. This process can be applied across the range of military operations and can be used at any echelon of command. It complements joint contingency and crisis action planning procedures outlined in JOPES and provides Marine commanders with a tool for preparing plans and orders. Logisticians participate in all steps of the MCPP with the representatives of the other warfighting functions, staff sections, subject matter experts, and command representatives.

The MCPP establishes procedures for analyzing a mission, developing and analyzing COAs against the threat, comparing friendly COAs against the commander's criteria and each other, selecting a COA, and preparing an OPORD for execution. It organizes the planning process into six manageable, logical steps.

The MCPP provides commanders and their staffs with a means to organize their planning activities and transmit the plan to subordinates and subordinate commands. Through this process, all levels of command begin their planning effort with a common understanding of the mission and commander's guidance. Interactions among various planning steps allow a concurrent, coordinated effort that maintains flexibility, makes efficient use of time available, and facilitates continuous information sharing (see Figure 4-1).

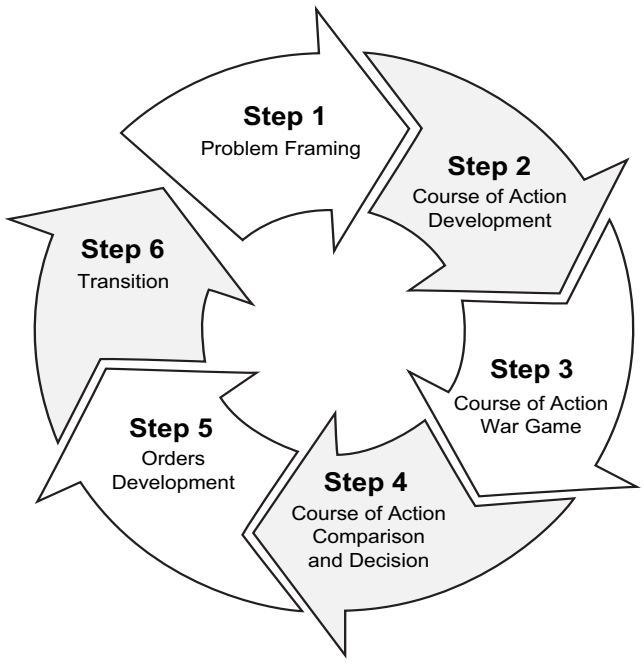

Figure 4-1. The Marine Corps Planning Process.

A time constrained version of MCPP is the rapid response planning process (also called R2P2). This version was developed to enable a MEU to plan and begin execution of certain tasks within a 6-hour time period. This process is advantageous to circumstances that require expeditionary planning and is not tied to just MEU operations.

Marine Corps Planning Process and the Logistician

Logisticians might perceive the MCPP as not being logistics focused or as a process used only by MAGTF staffs, as most formal learning centers teach the MCPP with maneuver-centered scenarios that only require logistic estimates to support maneuver COAs. This perception misrepresents the relationship between logistics and maneuver. Logistics does not simply dictate operational reach, as poor operational planning can lead to plans that are not logistically supportable. For this reason, even "maneuver-centric" iterations of the MCPP have much to offer logisticians because the COA war game and comparison provide a feedback loop for the decision-making process. Logisticians who learn the MCPP through a maneuver perspective achieve a better understanding of logistics estimates, support procedures, and how CSS can be a pacing function.

Problem Framing

Problem framing is understood to be the most important step of MCPP because no amount of planning can solve a problem that is insufficiently understood. Problem framing is supported by staff actions to enhance the understanding of the operational environment and the subsequent problem set. Problem framing identifies what the command must accomplish, when and where it must be done and, most importantly, why—the purpose of the operation. The mission statement articulates the "in order to"—the ultimate purpose of the operation. The commander's intent restates and amplifies the purpose of the operation, which is enduring. The understanding that results from problem framing allows the commander to visualize and describe how the operation might unfold, which is articulated in the commander's operational approach, a broad framework for solving the problems identified. As planning continues, the commander's guidance becomes more detailed, providing additional clarity and operational context.

Problem framing should not be a focus on estimates, but estimates are a critical aspect of problem framing and two types of estimates are used:

- Staff estimates are provided by a commander's staff and provide key information (e.g., facts, assumptions, asset locations and availability, forecasted shortages) that will increase the commander's understanding and aid decision making. Staff estimates depict how each staff section or warfighting function supports each COA. The staff estimates also list, in prioritized order, the key concerns and issues (e.g., availability of a particular port or airfield) of the associated staff officer. Staff estimates must clearly differentiate between concerns and problems that can be resolved through subsequent staff coordination, and any that require the commander's personal intervention. Once a COA is approved, staff estimates become the first drafts of each respective staff sections' portion of the order.
- Estimates of supportability are similar to staff estimates but are provided from subordinate units and focus on estimates of unit readiness across time, concurrent tasks and commitments, strengths, locations, shortages, deployment status, and other key concerns. Estimates of supportability are especially important for attached or supporting units, so commanders and planners can better envision employment options. These estimates should provide a timely examination of factors that support decision making and identify significant aspects of the situation that can influence the COA and affect mission accomplishment. An estimate should favor content over format and may be either a formal, detailed written document or an informal verbal briefing. For example, if the staff or subordinate unit is aware of a COA that will have a negative impact on mission accomplishment, there is no need to complete a formal document or wait until the next planning milestone meeting.

The operating environment review and refinement should use a logistics network analysis (LNA) to conceptualize logistics support and distribution network capabilities and limitations.

The LNA, critical for logisticians, serves as part of the preparation of the operational environment. The LNA depicts the following in the area of operations and an area of interest: infrastructure (e.g., roadway, railways, airfields, bridges, power plants, pipelines, telecommunication) and physical environment considerations (e.g., surface materials, terrain and navigability [restricted, unrestricted, severely restricted], vegetation, hydrology). Much of the information is available via open source and in products created by intelligence personnel. The LNA includes analyzing existing distribution nodes (e.g., air, sea ports, fleet logistics centers, Army theater support command locations), and host-nation capabilities. Conducting a thorough LNA during problem framing is critical because it serves as the foundation for developing a COLS during COA development. It also provides the commander with enough flexibility to support changes during execution. In addition, the logistics planner should also use the data and information about the area of operations to begin developing a list of facts, assumptions, and requests for information (RFIs).

Center-of-gravity analysis is the method used to focus the commander and staff on what is most important—during a particular time or event—among all the variables and factors that can influence the conduct of operations. Logisticians should not only provide friendly center-of-gravity input but provide center-of-gravity analysis and recommendations related to enemy force's logistics capabilities. This concept necessitates holistically viewing the enemy. During this analysis, the input of logistics personnel is critical in helping intelligence and operations personnel analyze enemy logistics to identify logistical vulnerabilities.

Course of Action Development

The commander's COA guidance should specify the number of COAs to be developed; if multiple COAs are directed, the COAs can be made distinguishable by means of distribution, of task organization, or by determining whether the mission is beyond the functions of logistics support (such as humanitarian assistance, disaster relief, or noncombatant evacuation operations). Having a solid understanding of the LNA and how it connects the LCE's support to the MAGTF's end state can greatly assist a logistician in developing distinct and realistic distribution methods or command relationships within task organization.

Discussing COA development requires updated staff estimates, estimates of supportability, and a LCE assessment plan. Assessment is a critical activity intended to inform situational understanding during execution, but it begins during COA development. There are three assessment components:

- Forming a basis for comparison in the form of planning goals (e.g., tasks, purpose, conditions, effects, actions).
- Examining the feedback loop that allows us to approximate the situation as it exists and gain an understanding of changes in our environment. This is accomplished by devising collections methods and assessment mechanisms that allow information analysis.
- Determining the process. Develop methods to help the commander, via the staff, determine the difference between the operational goals and current reality, the reasons for the difference and ability to recommend change.

The OPLAN or OPORD provides the goals and becomes the basis of comparison. Reporting capabilities and intelligence, surveillance, and reconnaissance assets provide the reality of the current situation. The devised process provides the feedback loop and helps the commander identify gaps between the desired goals and the reality of the current situation. In addition, the process needs to be able to provide the commander with recommendations. Ultimately, the commander compares whether the planned activities have achieved their desired effects and whether to modify or cease those activities to achieve the desired end state. Assessment plans developed accurately, provide a running comparison of the actual situation in the operational area during execution to the forecasted conditions described in the concept of operations, mission, and commander's intent. Assessment is a continuous activity that encompasses three discreet tasks:

- Calculating strengths, weaknesses, and vulnerabilities.
- Monitoring the situation while measuring the progress of the operation against the desired end state.
- Evaluating the progress of the operation against collectible, observable, relevant (tied to command goals), or measurable metrics.

Course of Action Wargaming

Wargaming offers challenges to logistics planners because the LCE may not use the traditional enemy to wargame against. Logistics, as a warfighting function, traditionally does not maneuver against the enemy. Therefore, creativity and critical thinking are required to stress developed COAs. Challenges within the environment (e.g., degraded road networks, interrupted supply nodes, unplanned GCE movements) can provide commanders more realistic perspectives of their COAs than physical enemy activity. While wargaming must incorporate the environmental, supply, and processes challenges inherent to tactical logistics, the enemy will likely focus on targeting friendly logistics and planning for the mitigation of that must be captured. This includes considering the sustainment flow further away from the front lines than in the past and the inclusion of non-lethal attacks that can happen anywhere.

Course of Action Comparison and Decision

The commander, with the assistance of the principal staff, collects and considers all the required information to make an informed decision based on COA comparison.

Orders Development

A written order is essential for clearly communicating critical information and providing a common understanding of the unit's problem and goals. The staff should not only focus on "proper" formatting, although important, but on putting critical thought into what must be articulated to properly execute the order. Higher headquarters information must not be regurgitated without purpose, and key points developed during the planning process must be written concisely and clearly to be relevant for operations. The key objective is to ensure a discussion takes place between the commander and the staff about how operational logistics are written within the order and the decision is communicated to HHQ, supported, and adjacent units. The ultimate test of an order's quality is when an officer or staff noncommissioned officer who is not exposed to the products planning processes understands the final product and can apply it.

Transition

Transition is the final step of MCPP and could involve a range of briefs, drills and rehearsals to ensure a successful shift from planning to execution. Transition is a continuous process that requires a free flow of information between commanders and staff, particularly logistics planners.

CONCEPT OF LOGISTICS SUPPORT

The COLS is a statement of the essential tasks involved in supporting the conduct of MAGTF operations. It gives an overall picture of logistics operations and addresses solutions to shortfalls cited in the staff estimates and the estimates of supportability. In addition, it is the foundation for subsequent development of detailed logistics and CSS plans and orders by the MAGTF elements. The MAGTF commander's concept for logistics is contained in the MAGTF OPORD, and Annex D (Logistics). The concept for logistics provides guidance for subordinate MAGTF elements and information required for coordination with logistics support agencies external to the MAGTF. The MAGTF G-4/S-4 prepares Annex D with input provided by the internal staff and input from the LCE G-3/S-3. Subordinate G-4/S-4s conduct detailed planning to accomplish the logistics and CSS tasks promulgated in the OPORD.

PLANNING ELEMENTS

The elements discussed in the following bullets must be addressed in each phase and stage of logistics planning:

- Mission. The MAGTF mission is paramount. The missions of subordinate elements must complement the MAGTF mission and may dictate additional parameters for tactical logistics planning.
- Concept of Operations. Logistics personnel should fully understand the supported commander's concept of operations. This is vital if they are to anticipate the requirements of the supported organizations. Anticipation is key to the principles of responsiveness and flexibility.
- Forces. Available forces and OPLANs dictate logistical requirements. The availability of support from other Services or host nations influences the COLS. Similarly, enemy capabilities influence the selection of a COLS in a given situation.
- Theater Characteristics. Theater characteristics include the distance between the objective area and sources of supply. Also important is the turnaround time for airlift and sealift assets. Local populations and environmental conditions (e.g., facilities, road nets, weather, terrain) also affect support operations.
- Intensity of Operations. The expected intensity of operations is a key planning factor for quantifying logistics and CSS requirements.
- Timing and Duration. The anticipated timing and duration of operations influence planning and preparation, as the time available to complete plans or to procure and stage equipment and supplies may be limited.

PLANNING TECHNIQUES

Limited information and limited time are characteristic of MAGTF planning. Upon receipt of the mission, the MAGTF staff reviews existing OPLANs, SOPs, and joint and Marine Corps lessons learned for related information. Staff members compare plans and SOPs to the assigned mission and to available information at each stage of the planning process. Operational planning often begins with a nucleus staff. During the initial phase, the MAGTF should place particular emphasis on the following techniques:

- Flexible Approach. Planning is a continuous process that requires a flexible approach. Initial estimates are based on assumptions and minimal data. Commanders and staffs must continually evaluate previous decisions and guidance. New information can confirm or invalidate previous assumptions or data.
- Timely Effort. Logistical planning must begin as early as possible at all levels of command. Identifying requirements, capabilities, and special considerations early accelerates coordination, timely guidance, and essential decisions. As the concept of operations becomes more specific, subordinate elements can begin preparing more detailed logistics plans.
- Coordinated Planning. To accomplish the MAGTF mission, every aspect of the operational concept requires coordination among the GCE, ACE, and LCE. To achieve this, every element has certain responsibilities regarding logistics planning. This mutual dependence requires concurrent, parallel, and detailed staff planning between and among all elements. Simultaneously, the MAGTF headquarters must coordinate with higher, adjacent, and supporting commands and, possibly, with participating joint and combined staffs. This coordination is essential for integrating MAGTF logistics and CSS operations with those of other organizations.
- Concurrent and Parallel Development. Based on both initial and revised guidance, the MAGTF and its elements develop their plans in a concurrent and parallel manner. Integrated planning shortens the planning cycle, enables early identification of potential problems, and improves anticipation of requirements. With proper coordination, concurrent efforts can prevent difficulties that might occur if planning is sequential or isolated. Logistical planning must parallel operational planning. Likewise, the MAGTF concept of operations cannot be developed without full consideration of the supporting COLS.

DEPLOYMENT PLANNING CONSIDERATIONS

There are two tactical logistics support scenarios to consider when planning for deployment. Under either of the following options, the tactical logistics planner must consider MAGTF requirements across all six tactical logistics functions and their sub-functions:

- The MAGTF can deploy to an area with an established logistics support base. This can be HNS, inter-Service support, or a combination of the two. The logistics planner must plan for reliance on, or expansion of, the existing support base. In addition, the planner must consider an effective alternative to that support if it stops.
- The MAGTF can deploy to an area without an established logistics support base. In this scenario, the logistics planner may rely on organic logistics resources or look to leverage the JLEnt to support the MAGTF.

COMMANDER'S INTENT

Planners cannot foresee every eventuality; even if they could, plans cannot practically address every possible situation. Commander's intent is the commander's personal expression of the purpose of the operation. Commander's intent helps subordinates understand the larger context of their actions and guides them in the absence of orders. It allows subordinates to exercise judgment and initiative, in a way that is consistent with the higher commander's aims, when the unforeseen occurs. Regardless of the form that it takes, the commander's intent must—

- Be clear, concise, and easy to understand.
- Support the higher, supported commander's intent.
- Include how the commander envisions achieving a decision.
- Provide an end state or conditions that, when satisfied, accomplish the purpose.

OPERATIONAL PLANNING CONSIDERATIONS

Logistical planning focuses on satisfying the logistics requirements generated by the supported force. This planning includes estimating materiel and functional support requirements as well as planning for the employment of organic and supporting tactical logistics organizations. Materiel and functional support requirements are calculated based on experience, assigned missions and tasks, and operational factors (e.g., time available, weather, and enemy).

A MAGTF commander and staff officers should consider the following considerations when planning. These considerations provide insights for developing and maintaining throughput systems and sustainment capabilities for the execution of logistics support of MAGTF tactical operations.

Supply

Ground. Commanders should optimize the basic load for all supplies, including class IX repair parts. The unit's basic load should not exceed the commander's anticipated requirements, even if the unit can carry additional quantities.

Aviation. The squadron maintenance staffs should ensure their pre-expended bins have been replenished by the supporting NAE source of supply. Aviation staffs must coordinate with the supporting NAE and joint units for aviation-specific logistics support en route to and within the theater.

Maintenance

Each MAGTF element should make maximum use of organic MCTs and LCE MSTs. They should repair and return equipment as far forward as possible to speed its return to the users. This practice also reduces the burden on both transportation and control capabilities.

Transportation
Because transportation is the most limited and limiting logistical capability in the MAGTF, it requires close management. Improper management of transportation assets can degrade combat operations.

External Support
A MAGTF plan should make maximum use of leveraging the JLEnt within the theater of operations. Plans should include use of facilities, supplies, utilities, captured materiel, and civilian labor.

Air Support
Logistics planning requires considering the use of aviation for support. Air support should typically be planned well in advance to meet the air-tasking order cycle. In situations where incorporation into the air tasking order cycle is not feasible, air support can be requested and expedited by submitting an assault support request through the direct air support center.

Alternate Supply Routes
Transportation planning at every echelon should include the development of alternate supply routes. Use of a single supply route increases the chances that enemy action could severely disrupt or prevent movement.

Security
The LCE commander is inherently responsible for the organization's security. While continuing to provide support, the LCE commander must plan for the employment of both active and passive measures to defend against attempts to disrupt support operations.

FUNCTIONAL AREA PLANNING CONSIDERATIONS

Supply
The LCE commander can establish multiple nodes to sustain the force, to include the use of cache sites. Their capacities and locations will vary based on the tactical situation, the concept of operations, and the scheme of maneuver.

Supply Cycle. The supply process is a cycle that involves requisition authority, use, and replenishment of supply items. The cycle period for each supply item varies based on criticality code, usage rate, storage and transport capacity, and procurement lead time. Typically, the shorter the cycle, the more intensive the management and transportation effort becomes. Conversely, items with longer cycles require forward planning and more storage area to accommodate the expanded size of the stockage objective.

Phases of Supply Support. The LCE and ACE perform the tactical supply that affects the sustainability of the MAGTF. Tactical supply extends from receipt of finished supplies through issue for use or consumption by the user. The LCE and ACE control the supply process through forecasting, requisitioning, receiving, storing, stock controlling, shipping, disposition, identifying, and accounting procedures established in directives. Ideally, the procedures used in peacetime are the same as those used in wartime. Combat requirements often necessitate rapid processing of requests submitted by unusual methods.

Maintenance

Ideally, maintenance procedures should be the same in peacetime and combat but peacetime or garrison maintenance procedures and techniques may not work effectively in combat or field conditions. Maintenance support for Marine aviation is closely integrated with the NAE. Logisticians must consider the following factors when planning maintenance systems and procedures:

- Maintenance activities must operate in harsh conditions during tactical operations.
- Limited resources may require around-the-clock work schedules.
- The use of field service representatives needs to be considered in the plan.
- Contamination in the battlespace may further complicate and delay repair of equipment.
- Units must minimize the time required to repair combat essential items. To minimize repair time, units should—
  - Perform only mission-essential maintenance during combat. Units must recover, evacuate, and repair equipment as far forward as possible. The lowest level maintenance activity with the proper capability should make the repairs. Repairing equipment as far forward as possible reduces transportation requirements and increases equipment availability.
  - Evacuate inoperable equipment only if it cannot be repaired forward or if the repairs will take excessive time. The MAGTF must have a well-defined and understood recovery and evacuation process. In combat, although recovery and evacuation could be the most difficult maintenance function, this function could also be the most important contributor toward sustaining the MAGTF's combat power.
  - Make critical repair parts available as far forward as practical. Combat requirements might even necessitate positioning critical parts at the using-unit level. Combat requirements might also lead to greater reliance on selective interchange.

Distribution and Transportation

Transportation planning involves determining throughput requirements: what, where, when, and how personnel and materiel must move to sustain the force. The transportation planning process is the same regardless of mode, distance, or location. The commander defines requirements that establish priorities based on the concept of operations. The transportation planner—

- Determines the desired arrival time at destination.
- Selects mode of transportation.
- Determines load and pickup points, intermediate and transfer points (as required), as well as off-load and drop points.
- Applies time-distance factors.
- Reconciles conflicting requirements for limited transportation assets (including MHE) and support facilities.
- Tests movement plan via route reconnaissance or advance party for feasibility.
- Determines throughput capacities of support facilities.
- Determines capacity and security of staging bases and supply depots.
- Determines special requirements caused by terrain, climate, and environment.

General Engineering

The MAGTF engineer assigns and integrates construction tasks and priorities for both Marine and NCF engineer components assigned to the MAGTF. The NCF headquarters assists the MAGTF engineer in planning and coordinating construction requirements to best use the unique capabilities of the NCF. Continuous liaison is vital during the planning, deployment, and execution phases of MAGTF operations. The following engineer-support planning areas require special consideration and are further detailed in the engineering publications:

- Heavy equipment.
- Transportation.
- Construction materials.
- Supply, maintenance, and ordnance support.
- Utilities support.
- Bulk fuel support.

Health Service Support

Commanders are responsible for the health and welfare of their troops. The equipment for some MAGTF medical units requires external transportation, fuel, and utilities support to be fully operational capable.

Although HSS staffs conduct medical logistics planning within the MAGTF, logistics planners should ensure—

- Complementary equipment and associated consumables kits (medical and dental allowance lists) are in sufficient quantities to support the force.
- Narcotics handling and security procedures are established.
- Medical regulating channels and procedures for moving and tracking casualties between and within the levels of care are established.
- The mix of dedicated and opportune lift for casualty evacuation is determined based on the concept of operations, casualty estimates, and METT-T.
- Roles I-III treatment facilities are identified, and medical evacuation policies are established.
- Preventive medicine requirements and preventive medicine technicians are identified for insect control and redeployment agriculture inspections.
- Mass casualty procedures are established.
- Primary and secondary CRTSs are identified for amphibious operations.
- Force health protection and special medical treatment requirements for the area of operations (e.g., immunizations, antivenin, blood products, and anti-malarial medication) are identified.
- Plans for the disposal and management of medical waste are developed.

Services

Planning considerations for services vary for each particular service's function and the operational situation as their function needs to be reviewed against planned and existing requirements. Input from a representative is required for each service and should be sought out as listed in Table 1-1. Some services, such as mortuary affairs, may not have a dedicated representative and logistics planners may be responsible for Appendix 2 (Mortuary Affairs) of Annex D (Logistics).

COORDINATING SUPPORT

Effective logistical planning requires a coordinated effort between the supported force and the supporting organizations. Both supported and supporting organizations make planning and subsequent support operations more efficient through careful calculation of requirements over specified periods of time while coordinating to reconcile potential shortages or excesses. Ground-common and aviation-peculiar logistics support must be provided in the right quantity, at the right time, and in the right place. Providing too much materiel or too robust a service at one location may disrupt operations of the supported unit or deprive other supported units of what they need when they need it. Effective planning can minimize the occurrence of shortages or excesses. Supported organizations must—

- Calculate their requirements as precisely as possible.
- Factor organic, attached, or direct-support cargo and personnel transportation capacity into the requirements calculation.
- Prioritize requirements.
- Integrate requirements with expected schedule and duration of the operation.
- Verify critical materiel or services allocations made by higher authority when determining requirements for tactical missions.

Supporting organizations must—

- Review support requirements with the supported organization.
- Coordinate with the supported organization to refine the requirements based on the supported organization's competing requirements.
- Procure materiel and task-organize internally to most efficiently provide support.
- Plan support distribution by anticipating demand.
- Provide the support required.

INTELLIGENCE SUPPORT

Logistics planners and staffs work closely with their intelligence sections to analyze infrastructure, environmental, and resource factors that could impact the success of a commander's operations plan. Logistics intelligence is a product of the MAGTF's intelligence cycle and intelligence preparation of the battlespace (IPB) functions. During planning, the LNA process is used to assess those factors and it is generally conducted in parallel with the intelligence section's IPB effort. Specifically, the initial

conduct of LNA links the IPB process, logistics analysis, and the commander's intent to support planning for the sustainment network. Intelligence can identify "what is there" but it is up to the logistics and sustainment professionals to determine "why it matters." The Marine Corps Intelligence Activity publishes the *Generic Intelligence Requirements Handbook* as a tool to assist the IPB process.

While initially used during planning, the LNA process is a continuous assessment of infrastructure, environmental factors, and available resources that will optimize or adversely impact sustaining military operations. The model of the operational environment generated by the LNA process continuously evolves both during planning and then as the mission progresses throughout operations.

The following is an LNA example: the output of LNA identifies a major logistics node outside the assigned area of operations.

Logistics network analysis potential actions and possible implications:

- Consider shifting a boundary or conducting cross-boundary coordination due to the identification of a new major logistics node outside the assigned area of operations.
- Consider establishing additional CSS nodes (a decision point made necessary by the GCE advancing beyond the range of the current support nodes).
- Consider using space available at an airfield, factoring the need for heavy equipment to conduct offload.
- Consider bridge-weight limitations, which require confirmation from an engineer reconnaissance team.

The LNA is continuously used to identify limiting factors and other opportunities that can support the sustainment network. See Appendix B for details on the four-step LNA process.

The LCE intelligence section is in an unusual position as much of the relevant knowledge required for logistics planning is available via open sources. With that, many of the knowledge gaps that the LCE will need to fill can be acquired without specialized collection assets, which the LCE possess few of. In many cases, the best sensors for those gaps are the eyes and ears of the personnel within the LCE units who are conducting operations. Therefore, effective knowledge management is key to ensure information on what is seen is reported, captured, and gets to where it can be assessed and maintained within a list of databases or a well-organized reference library.

One of the LCE intelligence section's key functions is to support the commander's decision-making process; therefore, the intelligence section should support the development of commander's critical information requirements by identifying planning assumptions and the method to determine when assumptions change. For example, what changes to the environment will alter the operational calculus or invalidate previously made assumptions?

HOST-NATION SUPPORT

Logistics planners should make maximum use of HNS—when feasible—that is available within the theater of operations. Generally, this support should be considered before contracted support. Host-nation support is not a substitute for essential MAGTF organic tactical logistics and CSS capabilities. However, it can augment MAGTF capabilities to meet logistics shortfalls in emergencies, reduce its logistics tail, add flexibility, or generate military-to-military interoperability. Bilateral international agreements provide legal authority to transfer logistics support, supplies, and service items such as food, transportation, medical services, base operations support, port services, billeting, POLs, and storage services. Program managers for ACSA are located at each Marine Corps component commands' G-4 to assist deploying units to acquire LSSS. Additional planning considerations include: ACSA program managers train and appoint unit ACSA ordering officials to engage the partner-nation point of contact to arrange support; transactions must be recorded in the Global Automated Tracking and Reporting System. Lastly, consider that a partner nation might request support via ACSA.

PLANNING DOCUMENTS

The COLS, Annex D (Logistics) of the OPORD, and the LCE OPORD are the primary MAGTF tactical logistical planning documents. Table 4-1 summarizes the standard logistics planning documents and identifies the preparer.

Table 4-1. Logistics and CSS Planning Documents.

Document	Prepared By
Concept of Logistics Support	CE, GCE, ACE, LCE down to battalion and squadron level
Annex D to OPORD	CE, GCE, ACE, LCE down to battalion and squadron level
LCE Operation Order	LCE
LEGEND CE command element	

Concept of Logistics Support

The estimate is the G-4/S-4's rapid assessment of logistics capabilities and limitations for each proposed COA. It analyzes the COAs under consideration to provide the logistical aspects of relative combat power. The estimate helps determine the most desirable and most supportable COA from the CSS standpoint. Additionally, this document provides the basis for later planning. See appendix B of this publication for a sample of the COLS.

The commander decides which COA will be used to accomplish the assigned mission. As an advisor, the G-4/S-4 provides the commander with information and makes recommendations based on the logistics or CSS estimate.

The COLS derives from the examination of the logistical factors that influence contemplated COAs and an appraisal of the degree and manner of that influence. The estimate looks at the six tactical logistics functional areas. The estimate compares requirements, available assets, problems, limitations, advantages, and disadvantages for each COA. The COLS assesses the limitations of each COA. It also determines what actions are necessary to overcome any problems or limitations. If any COA is not supportable, the estimate specifically states this. It gives the commander enough information to make a decision based on the suitability, feasibility, acceptability, and relative merit of each COA from a logistics standpoint.

Annex D (Logistics) to the MAGTF Operation Order

Annex D reflects the commander's plans, guidance, and directions for employment of logistics capabilities. This annex complements the concept of operations and amplifies paragraph 4 of the OPORD (Administration and Logistics). Annex D begins with the concept of operations and the concept of logistics support. It assigns tasks and responsibilities for logistics and CSS among the elements in each functional area. It also identifies support required from external agencies. Finally, it provides guidance and information (such as priorities and allocations) for planning, coordinating, and executing MAGTF logistics operations. See Appendix C for a sample format of Annex D.

Commander's Guidance. Annex D outlines the commander's overall plan and guidance for the provision of logistics support to the MAGTF during each phase of the operation. This annex specifies those requirements, priorities, and allocations that are necessary for the integration of the logistics effort in support of the MAGTF. It includes deployment, employment, sustainment, and redeployment planning matters. It includes external support coordination requirements and internal employment directives to present a single, unified plan for logistics support.

Concept of Logistics Support. The COLS (paragraph 3a of Annex D) is a broad statement of the essential logistics and CSS tasks involved in supporting the concept of operations. It is the basic unifying foundation for subsequent development of detailed logistics and CSS plans and orders by the MAGTF elements.

Staff Responsibility. The MAGTF G-4/S-4, in coordination with other staff sections, the subordinate G-4/S-4s, and LCE G-3/S-3, prepares Annex D. This document also contains the specific requirements, priorities, and allocations for logistics and CSS to support the concept of operations and scheme of maneuver. Each subordinate organization down to the battalion and squadron level publishes an Annex D. Optionally, they may use paragraph 4 of the OPORD to provide logistics guidance to subordinate units. The use of references to local SOPs contributes to sound plans and helps to avoid unnecessarily lengthy and detailed OPORDs.

Concept of Aviation Logistics Support. Aviation logistics support is addressed in the aviation estimate of supportability and Appendix 10 (Aviation Logistics Support) to Annex D to the OPORD.

Logistics Combat Element Operation Order

The LCE OPORD states the mission of the LCE, establishes task organizations, and assigns missions to each subordinate unit. It also states the LCE commander's requirements, priorities, and allocations for accomplishing the mission.

The LCE OPORD amplifies information normally contained in SOPs concerning CSS provided to other MAGTF elements. Primarily, the OPORD provides specific guidance and direction to subordinate CSS units regarding their tasks and missions. The LCE G-3/S-3 is responsible for preparing the LCE OPORD. The LCE G-4/S-4 prepares Annex D (Logistics) to the LCE OPORD.

Standing Operating Procedures

An SOP is a general order that deals with tactical and administrative procedures not covered by regulatory or doctrinal publications. An SOP is defined as "a set of instructions covering those features of operations that lend themselves to a definite or standardized procedure without loss of effectiveness. The procedure is applicable unless ordered otherwise" (*USMC Dictionary*).

The recurrent nature of logistics functions lends them to procedural standardization. As such, SOPs contribute to simplicity, clarity, and brevity. Reliance on SOPs in the various CSS planning documents simplifies and shortens those documents. It is not necessary to list SOPs as references; however, the order should cite the SOPs in the body of the document.

In addition to their advantages in the preparation of planning documents and orders, SOPs improve support by promoting familiarity and mutual confidence between supported and supporting units and personnel. They also reduce the confusion often associated with combat conditions.

Other Planning Documents

The G-4/S-4 has staff cognizance for major input to other documents. Many of these documents are unique to landing force operations. Other doctrinal publications, such as JP 3-02.1, *Amphibious Embarkation and Debarkation*, and MCWP 3-31.5, *Ship-To-Shore Movement*, discuss the following documents in detail:

- Embarkation plan.
- Plan for landing supplies.
- Landing plan.
- Organization for embarkation and assignment to shipping tables.

APPENDIX A.
LOGISTICS TASK-ORGANIZATION GUIDE

Table A-1. Logistics Task-Organization Guide.

Function	Capabilities			
	CE	ACE	GCE	LCE
Supply: • Determine Requirements. • Storage. • Procurement. • Distribution. • Salvage. • Disposal.	Capable of internal ground supply tasks. Communications battalions hold intermediate maintenance capability for ground electronics, non-ordnance vehicles and power generation equipment. Intelligence radio battalions perform organizational and intermediate maintenance on ground electronics.	Groups/squadrons capable of internal ground supply tasks. MALS performs aviation supply tasks.	Regimental headquarters, battalions, and separate companies capable of internal ground supply tasks.	Units capable of internal ground supply tasks. Combat Readiness Regiment provides ground supply support for the MAGTF.
Maintenance: • Inspection and Classification. • Servicing and Tuning. • Testing and Calibration. • Repair. • Modification. • Rebuilding and Overhaul. • Reclamation. • Recovery and Evacuation.	Capable of authorized maintenance tasks on assigned ground equipment.	Groups/squadrons capable of authorized field level for assigned ground equipment. Squadrons perform organizational on assigned aircraft. MALS performs intermediate and limited depot on supported aircraft. MWSS perform organizational and intermediate on ground equipment resident within the ACE.	Organizations capable of authorized maintenance tasks. Perform organizational and intermediate level on assigned ground equipment. Majority of intermediate capability resides at ground Battalions with large quantities of ordnance platforms and Division Headquarters Battalions.	Units capable of authorized maintenance tasks. Perform organizational and intermediate level on assigned ground equipment. Maintenance units provide field and limited depot level for designated MAGTF ground equipment. Medical battalion performs maintenance on MAGTF class VIII materiel.
Distribution and Transportation • Embarkation and Landing Support • Port and Terminal Operations • Motor Transport • Aerial Delivery • Materials Handling Operations • Distribution Management	Capable of preparing assigned personnel, equipment, and supplies for aerial and surface embarkation; limited capability for ground transport using organic light and medium trucks.	General capability for preparing assigned personnel, equipment, and supplies for aerial or surface embarkation. Capable of managing terminal operations and providing aerial transport for selected passengers and cargo. Most organic ground transport centralized in the MWSSs.	Capable of preparing assigned personnel, equipment, and supplies for air and surface embarkation. Limited capability for ground transport using organizational light and medium trucks, reinforced as necessary with medium trucks from the truck company of the H&S battalion.	Capable of preparing assigned personnel, equipment, and supplies for aerial and surface embarkation. Transportation support includes landing support, aerial delivery, port and terminal operations, medium- and heavy-truck transportation of freight and passengers, and material handling.

Table A-1. Logistics Task-Organization Guide (Continued).

Function	Capabilities			
	CE	ACE	GCE	LCE
General Engineering: • Horizontal/Vertical Construction. • Facilities Maintenance. • Demolition. • Explosive Hazard and Obstacle Clearance. • Water: Produce, Store, Distribute. • Bulk Fuel: Receive, Store, and Dispense. • Power: Generate and Distribute. • Hygiene Services: showers, laundry, and field sanitation.	Limited organic capability, focused on establishing and running field command posts.	The ACE capability for general engineering tasks is centralized in the MWSSs and focused on support of airfield operations.	Limited organic engineering capability for combat support tasks is centralized in the combat engineer battalion.	Engineer support battalion provides MAGTF capabilities for general engineering tasks and can also reinforce MWSSs and the combat engineer battalion if necessary.
Health Service Support: • Casualty Management. • Force Health Protection and Prevention. • Medical Logistics. • Medical Command and Control. • Medical Stabilization Activities.	Limited organic capability for health care and unit-level casualty care and evacuation.	Organic capability for health care and unit-level casualty care and evacuation in separate squadrons and groups. Aviation medical services available in aircraft groups.	Organic capability for health maintenance and unit-level casualty care and evacuation in regimental headquarters, battalions, and separate companies.	Organic capability for health maintenance and unit-level casualty care and evacuation in all battalions. Medical battalion provides shock-trauma and surgical support to the MAGTF. Dental battalion provides dental services for the MAGTF.
Services: • Operational Contract Support. • Food Service Support. • Mortuary Affairs. • Disbursing. • Legal Services. • Postal. • Marine Corps Community Services Exchange Services.	Limited organic capabilities for postal, and legal services. Capable of organic command support functions for assigned personnel and organizations.	Limited organic capabilities for legal services in separate squadrons and groups. Capable of limited organic command support functions for assigned personnel and organizations.	Limited organic capabilities for postal, security, and legal services; in regimental headquarters and battalions. Capable of organic command support functions for assigned personnel and organizations.	Appropriate organic capabilities for disbursing, postal, and legal services in headquarters elements. Mortuary affairs capabilities are provided from the reserve component. Capable of organic command support functions for assigned personnel and organizations.
• The CE (command element) and the GCE contain organic capabilities for internal ground logistics functions per applicable TO&Es. • The ACE contains organic capabilities for internal ground-common and aviation-peculiar logistics functions per applicable TO&Es. • The LCE contains organic capabilities for both internal and external (i.e., MAGTF support) ground logistics functions in accordance with the applicable TO&Es.				

APPENDIX B.
LOGISTICS NETWORK ANALYSIS

During planning, the logistics network analysis (LNA) is a critical step for logisticians and begins when the MAGTF commander identifies the MAGTF battlespace during the commander's orientation. It continues throughout planning as it is continuously updated as more information becomes available. The LNA process helps planners to understand the physical network of what is available and what needs to be planned for to support the logistics system or sustainment web. The LNA considers existing infrastructure in the area of operations, specifically identifying major and alternate routes and their capacities and existing and needed logistics and distribution nodes (e.g., air and seaports). In addition, this LNA is used to identify host-nation and other Service and JLEnt capabilities and support options.

Conducting a thorough LNA during problem framing is critical, as it is the basis for COA development and provides the commander with the options available to support changes during the execution of sustainment operations. The LNA also helps to understand and support complex distribution systems and sustainment webs that the "hub-and-spoke" and "point-to-point" methods could lack resiliency for in contested and dispersed environments (see Figure B-1).

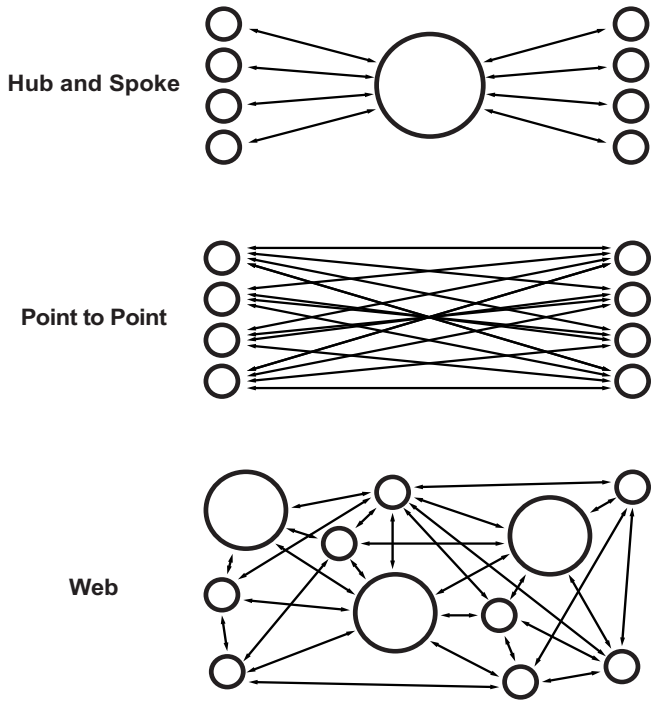

Figure B-1. Distribution Examples.

ANALYZING THE PHYSICAL NETOWRK

Although analyzing the physical network is not difficult, obtaining timely and relevant data in the detail required for later decisions during both MCPP and mission execution is the key to its value. Logisticians must work closely with intelligence, engineer, and other staff members to clearly articulate the specifics of the required information to successfully analyze the physical network.

The intelligence section cannot be expected to perform logistics analysis or feasibility-of-logistics support. Although intelligence sections are excellent at collecting and organizing information in a timely manner, logistics planners determine what the information means and plan against it.

Step One: Identify Infrastructure

Identify applicable infrastructure with the MAGTF area of operations and area of interest. Logisticians begin the LNA by leveraging the products the intelligence section has created during the IPB process, locating infrastructure within the MAGTF area of operations, and then expanding their scope to the areas within the MAGTF area of interest. Not all infrastructure is of the same value when developing a logistics support system; therefore, based on time available, logisticians prioritize their analysis. The following list provides examples of infrastructure a planner or the staff might consider:

- Airfields and ports.
- Beach landing sites.
- Navigable rivers.
- Navigable inland waterways.
- Roads and railways (associated tunnels and bridges).
- Other logistics infrastructure:
  - Water treatment and storage facilities.
  - Petroleum storage facilities and pipelines.
  - Medical facilities.
  - Other relevant host-nation logistics capable facilities.

Step Two: Determine Relevant Infrastructure

The logistician then determines identified infrastructure availability and capabilities ruling out infrastructure obviously unsuitable for MAGTF or LCE operations. The logistician—

- Determines availability of infrastructure for MAGTF or LCE use, which includes reviewing higher headquarters orders and coordinating with host nation through higher headquarters staff to determine if the infrastructure is available for MAGTF or LCE use. If so, how much of the capacity and capability can the MAGTF or LCE use?
- Conducts encyclopedic search for data and information on available infrastructure, recognizing that the information may be outdated or not available through encyclopedic research alone. When this occurs, planners should submit requests for information or intelligence requirements, as appropriate, to obtain required infrastructure capability information.

- Analyzes the usefulness of the infrastructure, which includes—
  - Analyzing infrastructure availability and information in the context of the MAGTF mission to determine the relevant and usable infrastructure.
  - Disregarding infrastructure that is not available for MAGTF or LCE use, or whose capabilities obviously will not contribute to supporting MAGTF or LCE operations.

Based on the operation and the geographical characteristics of the area, possible infrastructure and associate considerations may include—

- Airfields
  - Has higher headquarters designated the airfield as an aerial port of debarkation or embarkation (APOD/APOE)?
  - Is the airfield available for MAGTF or LCE use?
  - What capacity is available for MAGTF or LCE use?
  - What aircraft types can the airfield handle?
  - What is the aircraft maximum on ground time?
  - What support facilities and capabilities exist at the airfield?
  - What covered and open storage areas exist for the staging of supplies and personnel?
  - What access to other modes of transportation is available in the immediate vicinity?
  - What support services are available from the host nation?
- Ports
  - Has higher headquarters designated the port as a seaport of debarkation/embarkation?
  - Is the port available for MAGTF or LCE use?
  - What capacity is available for MAGTF or LCE use?
  - What size and type ships is the port capable of servicing?
  - How many and what type of berths are available?
  - What offloading capability is available for MAGTF use?
  - What support facilities and capabilities exist at the port?
  - What covered and open storage areas exist for the staging of equipment, supplies and personnel?
  - What access to other modes of transportation is available in the immediate vicinity?
  - What other US or coalition forces are using the port?
  - What support services are being provided by other US or coalition forces? (i.e. landing support, materiel handling, force protection)
  - What HNS services are available (i.e., stevedores)?
- Beach Landing Sites
  - Is the beach landing site available for MAGTF or LCE use?
  - What area is available to establish staging areas and beach support areas?
  - What other modes of transportation connect to the beach sites and what are their capabilities?
  - Is there inland access off the beach?

- Is the site suitable for logistics-over-the-shore operations?
- Is the site suitable for Offshore Petroleum Distribution System (OPDS) operations?
- What is the NAVCHAPGRP concept of support at the BLS?
- What other USN forces are coming ashore that require support?

- Navigable Rivers and Inland Waterways
  - Is the river or inland waterway available for MAGTF or LCE use?
  - What watercraft can operate on the river or inland waterway?
  - Are there any established landing sites? If so, where?
  - What access to other modes of transportation is available from these landing sites and what is their capacity?
  - Are there staging areas at or near the landing sites?
  - What HNS services are available?
- Road Networks
  - Has higher headquarters designated theater supply routes (TSRs) and alternate supply routes (ASRs)?
  - Which roads are available for MAGTF or LCE use?
  - What capacity is allocated for MAGTF or LCE use?
  - What urban areas does the road network connect?
  - What is the condition and capability of the road network?
  - What is the location and load classification of the bridges?
  - What tunnels are located along the road network and what are their dimensions?
  - How will the tunnels impede movement?
  - What are the local traffic routines in the area of operations (i.e., high traffic periods)?
  - Who is the movement control agency for the entire theater?
- Rail Networks
  - Which railways are available for MAGTF or LCE use?
  - What capacity is allocated for MAGTF or LCE use?
  - How many and what type rail cars are available?
  - Where are the rail yards and terminals located?
  - What are the capabilities at the rail yards and terminals?
  - Which urban areas does the rail network connect?
  - What is the gauge of the tracks? Is there more than one gauge of track within the country?
  - Who is operating the rail network?

Other logistics infrastructure might include—

- Water Treatment and Storage Facilities
  - Is the water treatment or storage facility available for MAGTF or LCE use?
  - What capacity is available for MAGTF or LCE use?
  - What modes of bulk water transportation are available in the immediate vicinity?
  - What host-nation services are available?

- Petroleum Storage Facilities and Pipelines
  - Is the Petroleum Storage facility or pipeline available for MAGTF or LCE use?
  - What type and quantities of fuel are available?
  - What capacity is available for MAGTF or LCE use?
  - What modes of bulk fuel transportation are available in the immediate vicinity?
  - What host-nation services are available?
- Medical Facilities
  - Is the medical facility available for MAGTF or LCE use?
  - What are the capabilities at the facility?
  - What capacity and capabilities are available for MAGTF or LCE use? (Include USN ship medical capabilities and theater medical facilities.)
  - What modes of transportation are available in the immediate vicinity (e.g., Army and Air Force MEDEVAC support)?
  - What host-nation support services are available?

Step Three: Connect Relevant Infrastructure

The logistician—

- Connects relevant infrastructure via the transportation and network using all available distribution modes and means—air, road, rail, river, inland waterway, and sea.
- Overlays relevant infrastructure and distribution modes or means on map (digital or hardcopy) with associated available capabilities and capacities.
- Creates map overlay products depicting the relevant infrastructure and distribution modes and means. Include capacities and capabilities of the relevant infrastructure and distribution methods and means in call out boxes.

Step Four: Refine Logistics Network Analysis

Analysis of the logistics network is a continuous process. The logistician must adjust the logistics network and refine the products after receiving new or updated information. It will be the environment and supported units that will be informing logistics operations; keep in mind that intelligence does not track friendly forces. As the model takes shape, nodes will be updated, sustainment arcs projected, and linkages evaluated. The output the model generates during COA development is a basic network flow model, which determines the through put capacity between nodes. Logistics network analysis supports the COA wargame by identifying the resiliency of the modeled distribution under stress. These considerations create decision points and support event template development. The goal of LNA is a systems model of the physical operations environment relevant to the requirements of logistics planners. The intelligence section will use it to inform intelligence requirements development and collection plans.

Causes for LNA updates and refinement may include—

- Newly identified infrastructure.
- Validation of assumptions made concerning infrastructure.
- Answers to requests for information (RFIs) or intelligence requirements.
- Output from COA wargaming during MCPP such as when external stressors are applied to the system.

The initial output of the four steps is an LNA overlay with capability and capacity information.

INTELLIGENCE SUPPORT TO LOGISTICS NETWORK ANALYSIS

The primary intelligence support to LNA is the analysis of the physical environment and infrastructure consisting largely of encyclopedic data tailored and updated to meet LCE requirements. In addition to the tactical terrain study and modified combined obstacle overlay, the following sections list other major infrastructure products used to support LNA development. This list is not all inclusive; METT- T and LCE commander and staff must still drive the requirements.

Lines of Communication Study

All-source line of communications (LOC) intelligence studies provide detailed information on the transportation infrastructure within the area of operations. A LOC study includes textual and graphical information on the roads, railroads, bridges, tunnels, airfields, and bypasses. These products are key elements of any LNA.

Beach Study

Beach Studies provide detailed information on beaches, gradients, beach exits, obstacles, and defenses and other potential points along the coastline that may support amphibious operations, logistics over-the-shore operations, or logistic operations ashore from afloat assets.

Aircraft Landing Zone and Drop Zone Study

These all-source intelligence studies identify potential aircraft landing zones and drop zones based on terrain factors. These factors include vegetation, slope, surface materials, and obstacles. The analysis also identifies approach patterns, potential exits, total area, as well as major and minor axes of the of both zones.

Hydrographic Study

Hydrographic studies focus on rivers and streams within the area of operations to support transportation and other requirements. These studies identify potential obstacles and their impacts on maneuvering forces.

Urban Study

Urban studies are high-resolution specialized studies of the urban environment to support military operations on urban terrain and can provide two- and three-dimensional battlespace views to support planning and rehearsal. Detailed analysis of available imagery and digital data of the urban terrain can reveal fields of observation and fire, radio communication dead spots, surface and subsurface avenues of approach, and transportation network capabilities.

Cross-Country Movement Study

Although this data is already incorporated into the modified combined obstacle overlay, cross-country movement (CCM) data is helpful in identifying severely restricted, restricted, and unrestricted terrain that is not improved specifically for vehicular traffic and it identifies the types of vehicles that may travel across that terrain. The CCM analysis does not imply that a particular vehicle, or group of vehicles, cannot operate in a severely restricted area, but identifies that

maneuver may require modification to tactics and procedures. Analysis includes factors such as vehicle and vegetation types as well as terrain slope, surface, and subsurface materials. A CCM study may support planning ground logistics convoys.

INTELLIGENCE AND LOGISTICS INTERACTION CONSIDERATIONS

The following are principles for intelligence and logistics operations interactions:

- There must be an active dialogue between intelligence and logistics sections to determine operational unknowns and means to mitigate them.
- Time will be factor during planning: Using a nodal analysis model (see Figure B-2) is helpful as it can help direct priorities when drilling into the physical features of an environment.
- Intelligence cannot provide perfect clarity to decision making, the best they can do is reduce uncertainty. It is up to the commander to assume some level of risk when decisions are made.
- Start simple and work towards complexity as the mission requires. Abstraction is an important means to display information without getting distracted by overly detailed maps. The process should be cyclic, the logisticians determining what they need to know about the operating environment to make good decisions and the intelligence section finding out for them.

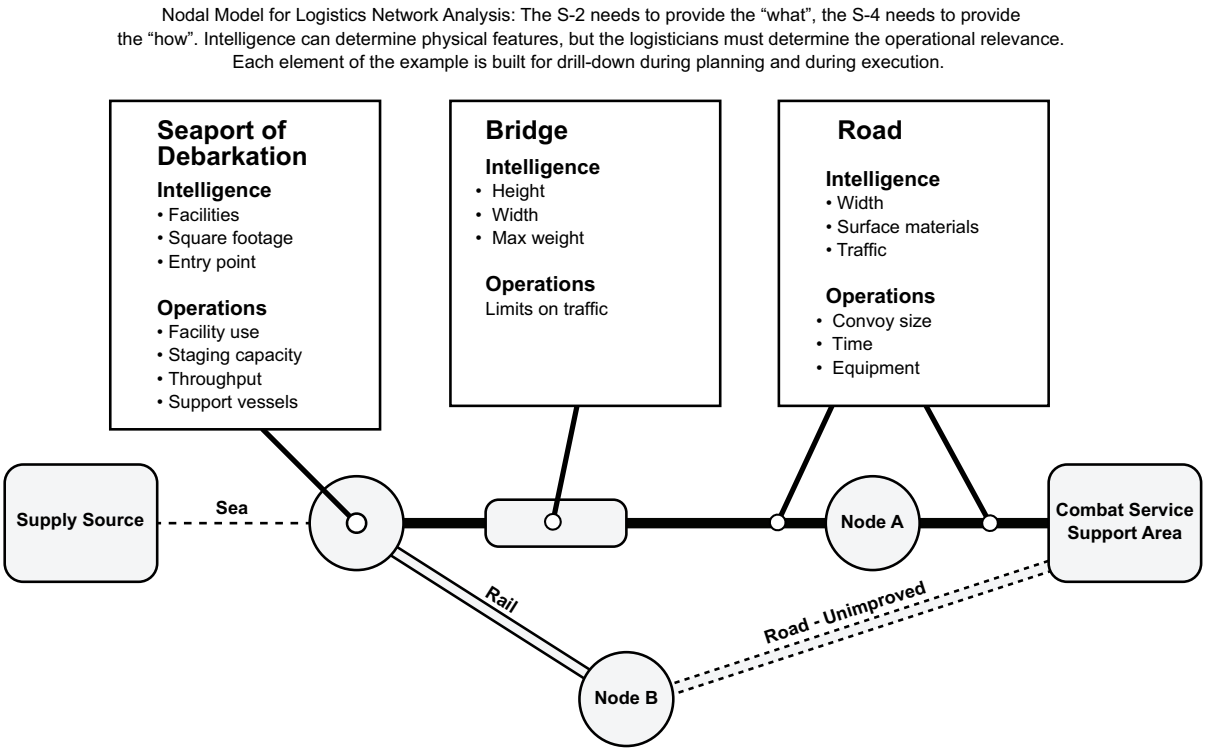

Figure B-2. Nodal Model for Logistics Network Analysis.

For addition information on LNA, see MSTP Pamphlet 4-0.2, *Logistics Planner's Guide*, and the MCLOG website under the Logistics Intelligence Planner's Course Toolbox.

APPENDIX C.
SAMPLE FORMAT ANNEX D: LOGISTICS

CLASSIFICATION

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OFFICIAL DESIGNATION OF COMMAND
PLACE OF ISSUE
Date-time group
Message reference number

ANNEX D TO OPERATION ORDER OR PLAN (Number) (Operation CODE WORD) (U)
LOGISTICS (U)

(U) REFERENCES: Cite references necessary for a complete understanding of this annex.

1. (U) Situation

a. (U) Enemy. refer to Annex B (Intelligence). Provide available information on enemy actions or intent to conduct actions to disrupt or degrade envisioned friendly logistics and combat service support operations. Include information on capabilities or assets that can augment friendly logistics and combat service support operations.

b. (U) Friendly. List supporting logistics or combat service support organizations not subordinate to the force and the specific missions and tasks assigned to each.

c. (U) Infrastructure. Refer to Annex B (Intelligence). Provide information on existing infrastructure, such as ports, factories, fuel and water sources, utilities, waste management, and lines of communications that can be used to support friendly logistics and combat service support operations.

d. (U) Attachments and Detachments. Refer to Annex A (Task Organization). List logistics and combat service support units from other Services/nations attached to the force. List all Marine Corps logistics and combat service support units detached to support other friendly forces.

e. (U) Assumptions. State realistic assumptions and consider the effect of current operations on logistics capabilities. Omitted in orders.

CLASSIFICATION

f. (U) Resource Availability. Identify significant competing demands for logistics resources where expected requirements may exceed resources. Include recommended solutions within resource levels available for planning, if any, and reasonably assured host nation support.

g. (U) Planning Factors. Refer to and use approved planning factors and formulas, except when experience or local conditions dictate otherwise. When deviating from planning factors, identify the factors and the reason.

2. (U) Mission. Provide the command's mission from the base order.

3. (U) Execution

a. (U) Concept of Logistics Support. State the concept for logistics support necessary to implement the order or plan. Describe how the logistics and combat service support assets will be organized and positioned to execute the mission. The concept may include planned employment of other Service and nation logistics and combat service support forces, host nation support logistics capabilities, or operation of the lines of communications.

b. (U) Tasks

(1) (U) Assign logistics and combat service support responsibilities to subordinate logistics organizations.

(2) (U) Identify and assign responsibility for logistics and combat service support required from other commands, Services, or nations.

(3) (U) Identify and assign responsibility for logistics and combat service support required for forces assigned or attached from other commands, Services, or nations.

(4) (U) Identify and assign responsibility for logistics and combat service support required for Marine Corps forces assigned or attached to other commands, Services, or nations.

(5) (U) Assign responsibilities to support joint boards and committees, such as transportation and procurement, and other Services or nations providing services.

4. (U) Administration and Logistics

a. (U) Logistics

(1) (U) Supply. Refer to Appendix 7 (Supply). Summarize the following, in coordination with supporting commanders and Service component commanders, if different from standard planning factors. Place detailed discussions in the appendices and listings of supply depots, terminals, and lines of communications in tabs or the appropriate appendices.

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(a) (U) Distribution and Allocation

1 (U) Purpose, location, and projected displacement of main and alternate supply depots or points and supporting terminals and ports to be used or considered.

2 (U) Prepositioned logistics resource allocation.

3 (U) Existing terminals and lines of communications and the known or estimated throughput capability. Indicate the time-phased expansion necessary to support the plan.

(b) (U) Level of Supply

1 (U) Indicate the time-phased operating and safety levels required to support the plan.

2 (U) Indicate the prepositioned war reserve materiel requirements to support the time-phased deployments pending resupply.

3 (U) Specify significant special arrangements required for materiel support beyond normal supply procedures.

4 (U) Indicate anticipated shortfalls.

5 (U) Indicate common user logistics supply support responsibilities and arrangements.

(c) (U) Salvage. Provide instructions for and identify the logistics impact of the collection, classification, and disposition of salvage.

(d) (U) Captured Enemy Materiel. Provide instructions for the collection, classification, and disposition of enemy materiel. See Annex B (Intelligence) for further guidance. See Appendix 10 to Annex B (Intelligence) for specific instructions for the disposition of captured enemy cryptographic equipment.

(e) (U) Operational Contract Support.

1 (U) Identify acquisition of goods and services in the following categories:

a (U) The general categories of materiel and services that are available and contemplated as a supplement to regular sources.

b (U) Those that may be used as emergency acquisition sources.

2 (U) Make a statement concerning the dependability of the local acquisition or labor source in each of the aforementioned categories and the joint or Service element that will obtain or manage these resources.

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3 (U) State that all essential contractor services, to include new and existing contracts, have been reviewed to determine which services will be essential to operation plan execution. Make a statement concerning the existence of contingency plans to ensure the continuation of these essential services.

(f) (U) Petroleum, Oils, and Lubricants. Refer to Appendix 1 (Petroleum, Oils, and Lubricants Supply).

(2) (U) External Support. Refer to Appendix 11 (External Support). Provide the required planning information including type and quantity of support and instructions where inter-Service and cross-servicing arrangements for common supply and service support are appropriate.

(a) (U) Summarize major support arrangements that are presently in effect or that will be executed in support of the plan.

(b) (U) Include significant inter-Service and cross-servicing support arrangements. refer to appropriate annexes or appendices.

(c) (U) Include foreign and host nation support.

(3) (U) Maintenance

(a) (U) General. Refer to Appendix 12 (Maintenance).

(b) (U) Specific Guidance

1 (U) Include sufficient detail to determine the requirements for maintenance facilities needed to support the plan

2 (U) Indicate the level of maintenance to be performed and where it is to occur, including host nation or contractor facilities, if applicable.

(4) (U) Transportation

(a) (U) General. Refer to Appendix 4 (Mobility and Transportation). Provide general planning or execution guidance to subordinate and supporting organizations to facilitate transportation of the force and its sustainment. This can include movement and use priorities.

(b) (U) Mobility Support Force and Movement Feasibility Analysis. Provide an estimate of the mobility support and movement feasibility of the plan. Include any appropriate remarks affecting mobility and transportation tasks. Consider the availability of adequate lift resources for movements of personnel and equipment, airfield reception capabilities, seaport and aerial port terminal capabilities, and port throughput capabilities. Consider any features that will adversely affect movement operations, such as the effect of deployment or employment of forces and materiel on airfield ramp space (to include possible HNS).

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(5) (U) General Engineering Support Plan. Refer to Appendix 5 (Engineering Support Plan) is not prepared.

(6) (U) Health Services. Refer to Appendix 9 (Health Services).

(7) (U) Services. Refer to Appendix 8 (Services).

(8) (U) Mortuary Affairs. Refer to Appendix 2 (Mortuary Affairs) or, if not used, indicate the mortuary affairs activities applicable to the operation order or plan and policy for providing these affairs.

(9) (U) Ammunition. Refer to Appendix 6 (Nonnuclear Ammunition) or if not used, discuss any critical ammunition issues that may affect the ability of the force to accomplish the mission.

(10) (U) Aviation Logistics Support. Refer to Appendix 10 (Aviation Logistics Support) or Annex D (Logistics) of the aviation combat element operation order or plan. Critical aviation logistics and combat service support issues may be discussed if they affect the ability of the force to accomplish the mission.

(11) (U) Operational Security Planning Guidance for Logistics. Refer to Tab C (Operations Security) to Appendix 3 (Information Operations) to Annex C (Operations). Provide comprehensive operations security planning guidance for planning, preparing, and executing logistics and combat service support activities. At a minimum, address base, facility, installation, node, logistics stocks, physical, and line of communications security. Provide guidance to ensure that logistics and combat service support activities promote essential secrecy for operational intentions, capabilities that will be committed to specific missions, and current preparatory operational activities.

a. (U) Administration. Include general administrative guidance to support logistics and combat service support operations for the basic operation order or plan. If reports are required, specify formats for preparation, time, methods, and classification of submission.

5. (U) Command and Signal

a. (U) Command Relationships. Refer to Annex J (Command Relationships) for command relationships external to logistics units. Provide support relationships.

b. (U) Communications System. Refer to Annex K (Combat Information Systems) for detailed communications and information systems requirements. Provide a general statement of the scope and type of communications required.

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CLASSIFICATION

ACKNOWLEDGE RECEIPT

Name
Rank and Service
Title

APPENDICES:

1–Petroleum, Oils, and Lubricants Supply
2–Mortuary Affairs
3–Sustainability Analysis
4–Mobility and Transportation
5–Engineering Support Plan
6–Nonnuclear Ammunition
7–Supply
8–Services
9–Health Services
10–Aviation Logistics Support (normally in the aviation combat element plan or order.)
11–External Support
12–Maintenance
13–General Engineering

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Rank and Service
Title

Page number

CLASSIFICATION

APPENDIX D.
LOGISTICS PLANNING CONSIDERATIONS FOR MCPP

Logisticians might perceive the MCPP as not being logistics-focused or as a process used only by MAGTF staffs, because most formal learning centers teach the MCPP with maneuver-centered scenarios that only require logistic estimates to support maneuver COAs. This perception misinterprets the relationship between logistics and maneuver. Logistics does not simply dictate operational reach as operations can rewrite what is logistically possible. For this reason, even "maneuver-centric" iterations of the MCPP have much to offer logisticians because the COA war game and comparison provide a feedback loop for the decision-making process. Learning the MCPP through a maneuver perspective can result in logisticians with an active focus on logistics estimates, support procedures, and how CSS can be a pacing function.

PROBLEM FRAMING

Problem framing is understood to be the most important step of MCPP because no amount of planning can solve a problem that is insufficiently understood. However, it is important for planners to recognize they will never completely understand a complex problem and the planning process itself will continue to reveal new aspects of a problem. Planners should go into problem framing with the goal of understanding the purpose of their mission, the tasks they have to accomplish toward this purpose, and a better understanding of the environment in which they will operate.

0. Discuss design concept with the commander:
    a. Receive commander's orientation.
    b. Define the environment:
        1) Area of operations.
        2) Area of interest.
        3) Area of influence.
        4) Information environment.
        5) Culture.
        6) Language.
        7) Demographics.
        8) Religion.

9) Geography.
10) Local economics.
11) Key actors.
12) Tendencies.
13) Relationships.
14) Security.
15) Climate.
16) Time.

c. Define the problem:
1) Analyze HHQ mission.
2) Analyze HHQ intent.
3) Analyze HHQ order.
4) Analyze enemy.
5) Update changes to the friendly force.
6) Analyze the information environment.
7) Analyze the effects of terrain and weather on operations.
8) Determine troops and support available.
9) Analyze civil considerations (to include indigenous and local population).
10) Differentiate between existing and desired conditions.
11) Analyze input from other commanders.
12) Determine the range of potential actions.

d. Receive commander's initial intent.
e. Receive commander's initial guidance.

1. OPT-Problem Framing.

2. Create situation update:
a. Staff estimates.
b. Functional estimates.
c. Estimates of supportability.

3. Create intelligence preparation of the battlespace (IPB) products:
a. Define the operational environment or battlespace:
1) Identify significant characteristics of the environment.
2) Identify the limits of the area of operations.

3) Establish the limits of the area of influence and the area of interest.

4) Evaluate existing databases and identify intelligence gaps.

5) Initiate collection of information required to complete IPB.

b. Describe environmental effects on operations and describe the battlespace effects:

1) Analyze the Environment.

2) Describe the environmental effects on enemy and friendly operations.

3) Courses of action/describe the battlespace effects on operations.

4) Enemy, adversary and friendly capabilities and COAs.

c. Evaluate the enemy and adversary:

1) Define enemy and adversary.

2) Update or create enemy and adversary models.

3) Identify enemy and adversary capabilities.

d. Determine threat or enemy courses of action:

1) Identify the enemy's and adversary's likely objectives and desired end state.

2) Identify the full set of COAs available to the enemy and adversary.

3) Evaluate and prioritize each COA.

4) Develop each COA.

5) Identify initial ISR requirements.

e. Analyze LNA

1) Locate infrastructure:

(a) Airfields.

(b) Ports.

(c) Navigable rivers.

(d) Navigable inland waterway.

(e) Beach landing sites.

(f) Roads.

(g) Railways.

(h) Tunnels.

(i) Bridges.

2) Locate logistics infrastructure:

(a) Water treatment.

(b) Water storage facilities.

(c) Petroleum storage.

(d) Petroleum pipelines.

(e) Medical facilities.

(f) Warehousing.

(g) Acreage.

(h) Power generation facilities.

(i) Power distribution.

(j) Solid waste facilities.

(k) Major manufacturing facilities.

4. Incorporate HHQ mission.

5. Incorporate HHQ commander's intent two levels up.

6. Incorporate commander's initial intent.

7. Incorporate commander's initial guidance.

8. Conduct task analysis:

a. Specified.

b. Implied.

c. Essential.

d. Adjacent/supported.

9. Develop assumptions.

10. Determine limitations:

a. Restraints.

b. Constraints.

11. Identify shortfalls.

12. Conduct center of gravity (COG) analysis:

a. Friendly.

b. Supported Unit.

c. Enemy: Logistics planners can become creative with COG analysis. The enemy may not be the conventional enemy most planners use. A logistics unit may see the enemy as a friendly artillery battery that will out-consume what a direct-support CLB can provide. This type of creative thinking enables a creative approach to how planners and commanders use their capabilities against the greatest threat to their mission.

13. Manage RFI process:
    a. Create.
    b. Submit.
    c. Organize (information management).
    d. Disseminate responses.
    e. Archive.
    f. Brief answers as facts.
    g. Follow up on unanswered RFIs.
14. Recommend commander's critical information requirements (CCIRs):
    a. Friendly force information requirements (FFIRs).
    b. Priority intelligence requirements (PIRs).
    c. Essential elements of friendly information.
15. Recommend mission statement.
16. Recommend COA development guidance.
17. Manage planning product information.
18. Establish Red Cell.
19. Establish Green Cell.
20. Determine essential elements of the plan to asses:
    a. Integrate commander's end state initial assessment planning.
    b. Integrate essential tasks into the assessment plan as required.
    c. Determine objectives.
21. Analyze the following information necessary to create the assessment plan:
    a. IPB into assessment planning to establish baseline.
    b. HHQ assessment annex.
    c. HHQ mission.
    d. HHQ objectives.
    e. HHQ concept of operations.
22. Develop the assessment plan and incorporate—
    a. IPB into assessment planning to establish baseline.
    b. HHQ assessment annex.

c. HHQ mission.

d. HHQ objectives.

e. HHQ concept of operations.

23. Identify the capabilities of the 6 functions of logistics across friendly forces analyze—

a. Friendly mission.

b. Friendly T/O.

c. Friendly T/E.

d. Friendly force organization.

e. Logistics operations cycle.

f. Potential locations of capabilities.

24. Correlate interrelationships of logistics functions across friendly forces:

a. Analyze support requirements.

b. Determine logistics shortfalls.

c. Analyze shortfall sourcing options (external agencies).

d. Analyze relationships of units performing the same function of logistics (throughout the MAGTF).

e. Analyze the information (reporting) requirements for interrelationships across functions of logistics.

f. Analyze HHQ COLS.

25. Identify capabilities of warfighting functions across friendly forces:

a. Analyze friendly T/O.

b. Analyze friendly T/E.

c. Analyze friendly force organization.

26. Correlate interrelationships of warfighting functions across friendly forces:

a. Analyze HHQ concept of fires support.

b. Analyze fires requirements.

c. Determine fires shortfalls.

d. Analyze fires shortfall sourcing options.

e. Analyze HHQ concept of intelligence support.

f. Analyze intelligence requirements.

g. Determine intelligence shortfalls.

h. Analyze intelligence shortfall sourcing options.

i. Analyze HHQ C2 plan.
j. Analyze C2 requirements.
k. Determine C2 shortfalls.
l. Analyze C2 sourcing options.
m. Analyze HHQ force protection plan.
n. Analyze force protection requirements.
o. Determine force protection shortfalls.
p. Analyze force protection sourcing options.
q. Analyze HHQ concept of operations.
r. Analyze maneuver requirements.
s. Determine maneuver shortfalls.
t. Analyze maneuver sourcing options.

27. Develop recommended commander's COA development guidance.

28. Draft warning order.

29. Conduct problem framing briefs:
    a. Brief situation update.
    b. Brief IPB & LNA.
    c. Brief HHQ mission.
    d. Brief HHQ commander's intent two levels up.
    e. Brief commander's initial intent.
    f. Brief commander's initial guidance.
    g. Brief task analysis.
    h. Brief assumptions.
    i. Brief facts.
    j. Brief RFIs.
    k. Brief limitations.
    l. Brief shortfalls.
    m. Brief COG analyses.
    n. Brief recommended CCIRs.
    o. Brief proposed mission statement.
    p. Brief recommended commander's COA development guidance.

30. Receive commander's approval of mission statement.

31. Receive commander's COA development guidance.

32. Release warning order:

a. Update.

b. Issue.

c. Confirm receipt.

COA DEVELOPMENT

0. Discuss design concept with the commander:

a. Integrate commander's orientation.

b. Integrate commander's initial intent.

c. Integrate commander's initial guidance.

1. OPT-COA development.

2. Update situation:

a. Update staff estimates.

b. Update functional estimates.

c. Update estimates of supportability.

3. Update IPB products:

a. Refine the operational environment or battlespace and—

1) Significant characteristics of the environment.

2) The limits of the area of operations.

3) The limits of the area of influence and the area of interest.

4) Existing databases and identify intelligence gaps.

5) Collection of information required to complete IPB.

b. Update environmental effects on operations and describe the battlespace effects:

1) Update the environment.

2) Refine the environmental effects on enemy, adversary, and friendly operations.

3) Refine the environmental effects on COAs.

4) Refine the battlespace effects on operations.

5) Update enemy, adversary, and friendly capabilities and COAs.

c. Update the enemy and adversary:
   1) Update enemy and adversary.
   2) Update enemy and adversary models.
   3) Update enemy and adversary capabilities.

d. Validate enemy and adversary COAs:
   1) Validate the enemy's and adversary's likely objectives and desired end state.
   2) Validate the full set of COAs available to the enemy and adversary.
   3) Validate evaluated and prioritized COAs.
   4) Validate each COA.
   5) Validate initial ISR requirements.

f. Analyze LNA
   1) Refine LNA for relevant infrastructure:
      (a) Airfields.
      (b) Ports.
      (c) Navigable rivers.
      (d) Navigable inland waterway.
      (e) Beach landing sites.
      (f) Roads.
      (g) Railways.
      (h) Tunnels.
      (i) Bridges.
   2) Refine LNA for relevant logistics infrastructure:
      (a) Water treatment.
      (b) Water storage facilities.
      (c) Petroleum storage.
      (d) Petroleum pipelines.
      (e) Medical facilities.
      (f) Warehousing.
      (g) Acreage.
      (h) Power generation facilities.
      (i) Power generation distribution.

4. Update assumptions:
    a. Answered RFIs become facts.
    b. New assumptions captured and RFIs submitted.
5. Incorporate limitations:
    a. Incorporate restraints.
    b. Incorporate constraints.
6. Update shortfalls:
    a. Refine existing shortfalls.
    b. Identify new shortfalls.
7. Refine and incorporate COG analysis:
    a. Friendly.
    b. Supported unit.
    c. Enemy.
8. Update RFIs:
    a. Update.
    b. Submit.
    c. Organize (information management).
    d. Disseminate responses.
    e. Archive.
    f. Brief answers as facts.
    g. Follow up on unanswered RFIs.
9. Refine CCIRs:
    a. FFIRs.
    b. PIRs.
10. Incorporate approved mission statement.
11. Develop recommend COA wargaming guidance.
12. Manage planning product information.
13. Maintain Red Cell planning.
14. Maintain Green Cell planning.

15. Develop the assessment plan:
    a. Integrate commander's end state into initial assessment planning.
    b. Integrate essential tasks into the assessment plan as required.
    c. Determine objectives tied tend state.
    d. Determine tasks tied to objectives.
    e. Determine measures of performance tied to tasks.
    f. Determine measures of effectiveness (MOEs) tied to objectives.
    g. Determine indicators tied to MOEs.
    h. Incorporate IPB into assessment planning to establish baseline.
    i. Incorporate HHQ assessment annex.
    j. Incorporate HHQ mission.
    k. Incorporate HHQ objectives.
    l. Incorporate HHQ concept of operations.
16. Identify the capabilities of the six functions of logistics across friendly forces and update the—
    a. Friendly mission.
    b. Friendly T/O.
    c. Friendly T/E.
    d. Friendly force organization.
    e. Logistics operations cycle.
    f. Potential locations of capabilities.
17. Correlate interrelationships of logistics functions across friendly forces and update the—
    a. Support requirements.
    b. Logistics shortfalls (Annex C and D).
    c. Shortfall sourcing options (external agencies).
    d. Relationships of units performing the same function of logistics (throughout the MAGTF).
    e. Information (reporting) requirements for interrelationships across functions of logistics.
    f. HHQ COLS.
18. Identify capabilities of warfighting functions across friendly forces and update the—
    a. T/O.
    b. T/E.
    c. Force organization.

19. Correlate interrelationships of warfighting functions across friendly forces and integrate—
    a. HHQ concept of fires support into COAs.
    b. Fires requirements into COAs.
    c. Fires shortfalls into COAs.
    d. Fires shortfall sourcing options into COAs.
    e. HHQ concept of intelligence support into COAs.
    f. Intelligence requirements into COAs.
    g. Intelligence shortfalls into COAs.
    h. Intelligence shortfall sourcing options into COAs.
    i. HHQ C2 plan into COAs.
    j. C2 requirements into COAs.
    k. C2 shortfalls into COAs.
    l. C2 sourcing options into COAs.
    m. HHQ force protection plan into COAs.
    n. Force protection requirements into COAs.
    o. Force protection shortfalls into COAs.
    p. Force protection sourcing options into COAs.
    q. HHQ concept of operations into COAs.
    r. Maneuver requirements into COAs.
    s. Maneuver shortfalls into COAs.
    t. Maneuver sourcing options into COAs.
20. Establish task organization and determine structure of resources.
21. Develop COA:
    a. Establish battlespace framework.
    b. Determine array of forces.
    c. Assign purpose.
    d. Assign task.
    e. Integrate actions across time and space.
    f. Determine control measures.
    g. Determine enemy and adversary.
    h. Incorporate commander’s intent.
    i. Incorporate commander’s guidance.

22. Develop COA graphic.

23. Develop COA narrative.

24. Develop synchronization matrix.

25. Prepare supporting concepts:
    a. Develop functional concepts for each COA.
    b. Develop supporting concepts for each COA.
    c. Ensure actions are integrated for each COA.
    d. Ensure actions are coordinated for each COA.

26. Develop recommended commander's wargaming guidance.

27. Develop recommended commander's evaluation criteria.

28. Conduct COA brief that consists of—
    a. HHQ mission.
    b. HHQ commander's intent two levels up.
    c. Commander's initial intent.
    d. Commander's initial guidance.
    e. COA graphic.
    f. COA narrative.
    g. Refined facts.
    h. Refined assumptions.
    i. Outstanding and unanswered RFIs.
    j. Possible enemy and adversary COAs.
    k. Rational for each COA.
    l. Recommended commander's wargaming guidance and evaluation criteria.

29. Receive commander's refinements to COAs.

30. Receive commander's COA wargaming guidance.

31. Receive commander's evaluation criteria.

COA WARGAMING

Wargaming offers challenges to logistics planners. The LCE or support may not use the traditional enemy to wargame against. Logistics, as a warfighting function, typically does not maneuver against the enemy. Therefore, creativity and critical thinking is required to stress developed COAs. Challenges within the environment, degraded road networks, interrupted supply nodes, unplanned GCE movements, etc., can provide commanders realistic perspectives of their COAs than physical enemy activity.

0. Discuss design concept with the commander and integrate the commander's—
    a. Wargaming guidance.
    b. Initial intent.
    c. Initial guidance.

1. OPT-COA wargaming.

2. Update the situation with considerations for—
    a. Staff estimates.
    b. Functional estimates.
    c. Estimates of supportability.

3. Update IPB products:
    a. Refine the operational environment or battlespace to include—
        1) Significant characteristics of the environment.
        2) The limits of the area of operations.
        3) The limits of the area of influence and the area of interest.
        4) Existing databases and identify intelligence gaps.
        5) Collection of information required to complete IPB.
    b. Update environmental effects on operations and describe the battlespace effects:
        1) Update the environment.
        2) Refine the environmental effects on enemy, adversary, and friendly operations.
        3) Refine the environmental effects on COAs.
        4) Refine the battlespace effects on operations.
        5) Update enemy, adversary, and friendly capabilities and COAs.
    c. Update the enemy and adversary to include—
        1) Enemy and adversary models.
        2) Enemy and adversary capabilities.

d. Validate enemy and adversary COAs and validate—

1) The enemy's and adversary's likely objectives and desired end state.

2) The full set of COAs available to the enemy and adversary.

3) Evaluated and prioritized COAs.

4) Each COA.

5) Initial ISR requirements.

e. Analyze LNA

1) Refine LNA for relevant infrastructure:

(a) Airfields.

(b) Ports.

(c) Navigable rivers.

(d) Navigable inland waterway.

(e) Beach landing sites.

(f) Roads.

(g) Railways.

(h) Tunnels.

(i) Bridges.

2) Refine LNA for relevant logistics infrastructure:

(a) Water treatment.

(b) Water storage facilities.

(c) Petroleum storage.

(d) Petroleum pipelines.

(e) Medical facilities.

(f) Warehousing.

(g) Acreage.

(h) Power generation facilities.

(i) Power generation distribution.

4. Update assumptions:

a. Answered RFIs become facts.

b. New assumptions captured and RFIs submitted.

5. Incorporate limitations to include—

a. Restraints.

b. Constraints.

6. Update shortfalls:
    a. Refine existing shortfalls.
    b. Identify new shortfalls.
7. Refine and incorporate COG analysis:
    a. Friendly.
    b. Supported unit.
    c. Enemy.
8. Update RFIs:
    a. Update.
    b. Submit.
    c. Organize (information management).
    d. Disseminate responses.
    e. Archive.
    f. Brief answers as facts.
    g. Follow up on unanswered RFIs.
9. Refine CCIRs:
    a. FFIRs.
    b. PIRs.
10. Incorporate approved mission statement.
11. Develop recommended commander's COA comparison and decision guidance.
12. Manage planning product information.
13. Develop the Assessment Plan (as required) and refine—
    a. Objectives tied to endstate.
    b. Tasks tied to objectives.
    c. Measures of performance tied to tasks.
    d. MOEs tied to objectives.
    e. Indicators tied to MOEs.
14. Identify the capabilities of the six functions of logistics across friendly forces and update—
    a. Friendly mission.
    b. Friendly T/O.

c. Friendly T/E.

d. Friendly force organization.

e. Logistics operations cycle.

f. Potential locations of capabilities.

15. Correlate interrelationships of logistics functions across friendly forces and update—

a. Support requirements based on wargame.

b. Logistics shortfalls (Annex C and D).

c. Shortfall sourcing options (external agencies).

d. Relationships of units performing the same function of logistics (across the MAGTF).

e. The information (reporting) requirements for interrelationships across functions of logistics.

f. HHQ concept of logistics support.

16. Identify capabilities of warfighting functions across friendly forces and update friendly—

a. T/O.

b. T/E.

c. Force organization.

17. Correlate interrelationships of warfighting functions across friendly forces and integrate—

a. HHQ concept of fires support (Appendix 19 to Annex C) into wargaming.

b. Fires requirements (Appendix 19 to Annex C) into wargaming.

c. Fires shortfalls into wargaming.

d. Fires shortfall sourcing options into wargaming.

e. HHQ concept of intelligence support (Annex B) into wargaming.

f. Intelligence Requirements (Annex B) into wargaming.

g. Intelligence shortfalls into wargaming.

h. Intelligence shortfall sourcing options into wargaming.

i. HHQ C2 plan (Annex J, K, and U) into wargaming.

j. C2 requirements (Annex J, K, and U) into wargaming.

k. C2 shortfalls into wargaming.

l. C2 sourcing options into wargaming.

m. HHQ force protection plan (Appendix 15, 16 to Annex C) into wargaming.

n. Force protection requirements (Appendix 15, 16 to Annex C) into wargaming.

o. Force protection shortfalls into wargaming.

p. Force protection sourcing options into wargaming.

q. HHQ concept of operations (Annex C) into wargaming.

r. Maneuver requirements (Annex C) into wargaming.

s. Maneuver shortfalls into wargaming.

t. Maneuver sourcing options into wargaming.

18. Develop a COA wargaming worksheet to include—

a. Supported unit action.

b. LCE action.

c. Enemy reaction.

d. Host-nation reaction.

e. Supported unit counteraction.

f. LCE counteraction.

g. Required assets.

h. Approximate time.

i. Decision points.

j. CCIRs.

k. Remarks.

19. Conduct wargaming for each COA:

a. Determine supported unit action for each turn.

b. Determine LCE action for each turn.

c. Determine enemy reaction for each turn.

1) Implement Red Cell.

d. Determine host-nation reaction for each turn:

1) Implement Green Cell.

2) Green Cell discusses anticipated civilian population responses to friendly, enemy, and adversary actions, reactions, and counteractions.

e. Determine supported unit counteraction for each turn.

f. Determine LCE counteraction for each turn.

g. Determine required assets.

h. Determine approximate time.

i. Determine decision points.

j. Determine CCIRs.

k. Determine remarks.

l. Evaluate each COA independently.

m. Remain unbiased and avoid premature conclusions.

n. Continue determination if each COA is suitable, feasible, acceptable, distinguishable, and complete.

o. Record the advantages and disadvantages of each COA.

p. Record issues and mitigations for risk, assumptions, and limitations.

q. Record data based on commander's evaluation criteria for each COA.

r. Keep to the established timeline of the war game.

s. Identify possible branches and sequels for further planning.

20. Develop a decision support template (graphical) to include—

a. Decision points.

b. Timeline.

c. NAIs.

d. Target areas of interest.

e. Restricted terrain.

f. Avenues of approach.

g. LOCs.

21. Develop a decision support matrix (verbal) to include—

a. Event numbers.

b. Event.

c. No earlier than.

d. No later than.

e. NAIs.

f. Target areas of interest.

g. Friendly action.

22. Update functional and supporting concepts based on wargaming results:

a. Risk assessment.

b. Casualty projections and limitations.

c. Personnel replacement requirements.

d. Projected enemy losses.

e. Enemy prisoner of war procedures.

f. Intelligence collection requirements and limitations.

j. Support (fires, information operations, logistics, aviation) strengths and limitations.

k. Projected assets and resource requirements.

l. Operational reach.

m. Projected allocation of mobility assets, lift, and sorties versus availability.

n. Requirement for prepositioning equipment and supplies.

o. Projected location of units and supplies for future operations.

p. Projected location of the combat operations center and command post echelons.

q. C2 systems requirements.

23. Develop updates to COAs based on wargaming results and update—

a. New implied tasks.

b. Task organization.

c. Laydown locations.

d. COA ground LOCs (also known as GLOCs).

e. COA air LOCs (also known as ALOCs).

f. COA sea LOCs (also known as SLOCs).

d. COA APOEs/APODs.

e. COA SPOEs/SPODs.

f. COA timelines.

g. Update synchronization matrix.

24. Conduct COA wargame brief:

a. Brief HHQ mission.

b. Brief HHQ commander's intent two levels up.

c. Brief commander's initial intent.

d. Brief commander's initial guidance.

e. Brief COA overview (graphic and narrative).

f. Brief refined facts.

g. Brief refined assumptions.

h. Brief outstanding or unanswered RFIs.

i. Wargame technique used.

j. Advantages of each COA.

k. Disadvantages of each COA.

l. Enemy and adversary COA situation templates:
   1) Updated intelligence estimate:
      (a) Terrain.
      (b) Weather.
      (c) Enemy forces and adversaries.
      (d) Local population.
   2) Wargamed responses of the population.

m. COA wargame products and results:
   1) COA war game worksheet.
   2) Identification of any additional tasks.
   3) Revised COA graphic and narrative.
   4) Decision support template and matrix.
   5) Revised synchronization matrix.
   6) Branches and potential sequels.
   7) Estimated time required for the operation.
   8) Risk assessment.

n. Recommended commander's COA comparison and decision guidance.

25. Receive commander's input and—
   a. Approval to any changes to COAs.
   b. COA comparison and decision guidance.

COA COMPARISON AND DECISION

0. Discuss design concept with the commander and integrate the commander's—
   a. COA comparison guidance.
   b. Initial intent.
   c. Initial guidance.

1. OPT-COA comparison and decision.

2. Update situation to include—
   a. Staff estimates.
   b. Functional estimates.
   c. Estimates of supportability.

3. Update IPB products:

a. Refine the operational environment or battlespace to include—

1) Significant characteristics of the environment.

2) The limits of the area of operations.

3) The limits of the area of influence and the area of interest.

4) Existing databases and identify intelligence gaps.

5) Collection of information required to complete IPB.

b. Update environmental effects on operations; describe the battlespace effects:

1) Update the environment.

2) Refine the environmental effects on enemy, adversary, and friendly operations.

3) Refine the environmental effects on COAs.

4) Refine the battlespace effects on operations.

5) Update enemy, adversary, and friendly capabilities and COAs.

c. Update the enemy and adversary.

1) Update enemy and adversary.

2) Update enemy and adversary models.

3) Update enemy and adversary capabilities.

d. Validate enemy and adversary COAs and validate—

1) The enemy's and adversary's likely objectives and desired end state.

2) The full set of COAs available to the enemy and adversary.

3) Evaluated and prioritized COAs.

4) Each COA.

5) Initial ISR requirements.

e. Analyze LNA

1) Refine LNA for relevant infrastructure:

(a) Airfields.

(b) Ports.

(c) Navigable rivers.

(d) Navigable inland waterway.

(e) Beach landing sites.

(f) Roads.

(g) Railways.

(h) Tunnels.

(i) Bridges.

2) Refine LNA for relevant logistics infrastructure:
   (a) Water treatment.
   (b) Water storage facilities.
   (c) Petro storage.
   (d) Petro pipelines.
   (e) Medical facilities.
   (f) Warehousing.
   (g) Acreage.
   (h) Power generation facilities.
   (i) Power generation distribution.

5. Update assumptions:
   a. Answered RFIs become facts.

6. Incorporate limitations to include—
   a. Restraints.
   b. Constraints.

7. Update shortfalls:
   a. Refine existing shortfalls.
   b. Identify new shortfalls.

8. Refine and incorporate COG analysis:
   a. Friendly.
   b. Supported unit.
   c. Enemy and adversary.

9. Update RFIs:
   a. Update.
   b. Submit.
   c. Organize (information management).
   d. Disseminate responses.
   e. Archive.
   f. Brief answers as facts.
   g. Follow up on unanswered RFIs.

10. Refine CCIRs:
    a. FFIRs.
    b. PIRs.
11. Incorporate approved mission statement.
12. Manage planning product information.
13. Identify the capabilities of the six functions of logistics across friendly forces (as required):
    a. Update friendly mission.
    b. Update friendly T/O.
    c. Update friendly T/E.
    d. Update friendly force organization.
    e. Update logistics operations cycle.
    f. Update potential locations of capabilities.
14. Correlate interrelationships of logistics functions across friendly forces:
    a. Update support requirements.
    b. Update logistics shortfalls (Annex C and D).
    c. Update shortfall sourcing options (external agencies).
    d. Update relationships of units performing the same function of logistics (throughout the MAGTF).
    e. Update the information (reporting) requirements for interrelationships across functions of logistics.
    f. Update HHQ concept of logistics support.
15. Identify capabilities of warfighting functions across friendly forces and update friendly—
    a. T/O.
    b. T/E.
    c. Force organization.
16. Correlate interrelationships of warfighting functions across friendly forces and integrate—
    a. HHQ concept of fires support into comparison and decision.
    b. Fires requirements into comparison and decision.
    c. Fires shortfalls into comparison and decision.
    d. Fires shortfall sourcing options into comparison and decision.
    e. HHQ concept of intelligence support into comparison and decision.
    f. Intelligence requirements into comparison and decision.

g. Intelligence shortfalls into comparison and decision.
h. Intelligence shortfall sourcing options into comparison and decision.
i. HHQ C2 plan into comparison and decision.
j. C2 requirements into comparison and decision.
k. C2 shortfalls into comparison and decision.
l. C2 sourcing options into wargame.
m. HHQ force protection plan into comparison and decision.
n. Force protection requirements into comparison and decision.
o. Force protection shortfalls into comparison and decision.
p. Force protection sourcing options into comparison and decision.
q. HHQ concept of operations into comparison and decision.
r. Maneuver requirements into comparison and decision.
s. Maneuver shortfalls into comparison and decision.
t. Maneuver sourcing options into comparison and decision.

19. Conduct COA comparison:
    a. Evaluate COAs independently and apply—
        1) Evaluation criteria.
        2) Estimates of supportability.
        3) Weight to criteria.
    b. Decide comparison method:
        1) Qualitative comparison technique.
        2) Quantitative comparison technique.
        3) Hybrid or blended comparison technique.
    c. Compare COAs:
        1) Create comparison and decision matrix.
        2) Display weight of criteria.
    d. Determine COA to recommend.

20. Conduct COA comparison and decision brief:
    a. Brief HHQ Mission.
    b. Brief HHQ commander's intent two levels up.
    c. Brief commander's initial intent.
    d. Brief commander's initial guidance.

e. Brief COA overview (graphic and narrative).

f. Brief refined facts.

g. Brief outstanding assumptions.

h. Brief outstanding or unanswered RFIs.

i. Brief comparison method used.

j. Evaluation results for each COA.

k. Comparison results between COAs.

l. Completed comparison and decision matrix.

21. Receive commander's input, which includes—

    a. Approval on a COA.

    b. Direction to modify a COA.

    c. Direction to merge two or more COAs.

    d. Direction to discard all COAs.

22. Refine CONOPS.

23. Update warning order:

    a. Issue.

    b. Confirm receipt.

ORDERS DEVELOPMENT

Having a written order is essential to clearly communicate critical information and provide a common understanding of the unit's problem and goals. Staff should not only focus on "proper" formatting, although important, but on putting critical thought into what must be articulated to properly execute the order. Higher headquarters information must not be regurgitated without purpose and key points developed during the planning process must be written concise and clearly to be relevant for operations.

A common problem for the LCE is that most references do not direct how LCEs write Annexes C or D, as it is dependent of commanders and the situation. Often in an LCE, Annex C is written as Logistics Operations and Annex D (Logistics) as internal logistics, but there are other methods that can be used. The key point is to ensure a discussion takes place between the commander and staff about how logistics is written within the order and the decision is communicated to HHQ, supported, and adjacent units.

Orders should be well-written so that anyone can understand it.

0. BASE ORDER

a. Does the order succinctly provide information relevant to providing situational awareness?

b. Is the battlespace presented accurately? Are maps provided?

c. Is the enemy described in a way relevant to combat support?

d. Did the Order get creative and discuss friendly forces COG in relation to logistics?

e. Were attachments/detachments accurately described?

f. Is the mission and execution communicated clearly?

- Did either get creative and identify a problem to the reader?
- How well does the concept of operations communicate the summary treader?
- Does the concept of operations accurately capture the COA chosen?
- Are tasks clear with purpose and necessary for concept of operations?

g. The focus is not the mechanics of writing or nuances of formatting:

- Thoughtful content and clear communication of how to execute a synthesized plan is the goal of an order.
- Ask yourself, "Can I make a plan and execute based off of this order?"

1. Annex B. Intelligence:

a. Appendix 11. Intelligence Estimate:

1) Tab A. Tactical Study of Terrain.

- Cover, concealment, natural obstacles, observation/fields of fire, avenues of approach and escape.

2) Tab B. Beach Studies:

- Condition of sand (loose, packed).
- Best position for amphibious bulk liquid transfer system.
- Terrain that challenges of establishing amphibious bulk liquid transfer system.
- Location of largest flat or level area from beach to establish fuel farm.

3) Tab C. Climatology:

- Visibility, precipitation, temperature impacts to operations.

4) Tab D. Airfields:

- Aircraft supportability (weight, runway length), adequate marshalling area access.

5) Tab E. Landing Zones and Drop zones:

- Overhead obstacles.
- Route access.

6) Tab F. Port Studies:

- Water depth, warehouse access, stevedore, and MHE availability.

b. Appendix 13. Intelligence Collection Plan:

1) Tab C. NAIs:

- Tied to enemy activity, should be an area where activity is anticipated in or around.
- Clear, appropriate size, NAI.
- Possible non-doctrinal approach, have they tied NAI to GCE support?

2. Annex C. Operations:

a. Appendix 2. Chemical, Biological, Radiological, and Nuclear.

- Only include relevant information.

b. Appendix 4. Evasion and Recovery Operations:

- Ensure this appendix and Appendix 11 are consolidated.

c. Appendix 6. Rules of Engagement:

- Pass through from HHQ, but ensure right to defend yourself, return of hostile fire, use of minimum force for hostile but unarmed people, property seizure, civilian detention are simple and easy to remember.

d. Appendix 10. Explosive Ordnance Disposal:

- Identify how EOD is organized within the MEB.
- If CLR is EOD, operations must be developed by the CLR.

e. Appendix 13. Rear Area Operations:

- Does CLR have tasks in rear area operations?
- Have appropriate taskings been given in the areas of: security, sustainment, infrastructure development, HNS, and intelligence?

f. Appendix 16. Operations Overlay:

- Appropriate use of operations terms and symbols, color-coded.
- Are LCE operations terms and symbology included.
- LNA overlay.

3. Annex D. Logistics:

a. Appendix 1. Petroleum, Oils, and Lubricants:

- Does this Appendix and Tabs A, B, C, D present a clear picture of how POL storage and distribution will be conducted?

b. Appendix 2. Mortuary Affairs:

- Is retrieval, identification, transportation, and storage addressed?

c. Appendix 5. Engineering Support Plan:

- Are naval construction forces addressed and their role communicated?
- How are MEB engineers depicted in this Appendix?
- Is there a priority of engineer effort by phase?
- Is there a concept for employment of engineers?
- Is there a MAGTF order or SOP that describes the procedures for submitting and managing requests for engineer projects?

d. Appendix 7. Supply:

- Is there a priority of transportation by phase?
- Does the order present a clear picture on classes of supply and LCE responsibility?
- Is the process for procurement (order/delivery) of the classes of supply communicated?

e. Appendix 11. External Support:

- What is the process to identify the requirement for external support?

f. Appendix 12. Maintenance:

- Where are the intermediate and depot levels of maintenance available?
- Briefly and generally, what is the process to induct equipment into the maintenance cycle?

4. Annex E. Personnel:

a. Has there been thought put into transportation responsibilities of enemy prisoners of war, internees, or other detained persons?

5. Annex G. Civil-Military Operations.

a. Is the appropriate information from MEB being passed on to subordinate units?

6. Annex I. Information:

a. Anchored with ability to impact friendly mission accomplishment, influences on enemy's and adversary's decision-making process, and importance of swaying otherwise neutral parties.

b. Is this annex developed to be relevant based upon MEB order?

7. Annex J. Command Relationships:

a. Has a command relationship diagram been completed depicting what is being communicated within the order.

b. How is EOD being depicted? How does that compare to Annex C?

8. Annex P. Host-Nation Support:

    a. What host-nation support is being relied on?

    b. If relying on HNS for shortfalls is that communicated here?

9. Annex Q. Medical Services:

    a. Is this Annex depicted as a standalone Annex? Did the Order incorporate medical services in other annexes, such as Annex C?

10. Annex V. Interagency or Interorganizational Coordination:

    a. Does the order identify other organizations that may be encountered within the area of operations?

    b. Is the information presented in a way that may help subordinates gain situational awareness on other agencies?

11. Annex W. Aviation Operations:

    a. Does the order depict information that is relevant to subordinate units?

    b. Are processes for requesting air support included?

GLOSSARY

Section I. Abbreviations and Acronyms

AAOG	arrival and assembly operations group
ACE	aviation combat element
ACSA	acquisition and cross-servicing agreement
ADCON	administrative control
AFOE	assault follow-on echelon
ALD	aviation logistics division
AMC	Air Mobility Command
APOD	aerial port of debarkation
APOE	aerial port of embarkation
ASP	ammunition supply point
ATF	amphibious task force
BSA	beach support area
C2	command and control
CCDR	combatant commander
CCF	contingency contracting force
CEB	combat engineer battalion
CLB	combat logistics battalion
CLR	combat logistics regiment
COA	course of action
COC	combat operations center
COCOM	combatant command (command authority)
COG	center of gravity
COLS	concept of logistics support
CRTS	casualty receiving and treatment ship
CSP	contingency support package
CSS	combat service support
CSSA	combat service support area
DoD	Department of Defense

DoDD	Department of Defense directive
EAF	expeditionary airfield
EOD	explosive ordnance disposal
ESB	engineer support battalion
FARP	forward arming and refueling point
FFIR	friendly force information requirement
FIE	fly-in echelon
FMF	Fleet Marine Forces
FOO	field ordering officer
FSR	first strike ration
G-1	assistant chief of staff, personnel
G-3	assistant chief of staff, operations
G-4	assistant chief of staff, logistics
G-5	assistant chief of staff, plans
G-6	assistant chief of staff, communications system
GCE	ground combat element
GCPC	Government-Wide Commercial Purchase Card
H&S	headquarters and service
HHQ	higher headquarters
HNS	host-nation support
HSS	health service support
HST	helicopter/tiltrotor support team
IMA	intermediate maintenance activity
IPB	intelligence preparation of the battlespace
ISR	intelligence, surveillance, and reconnaissance
J-1	manpower and personnel directorate of a joint staff
J-4	logistics directorate of a joint staff
JLEnt	joint logistics enterprise
JOPES	Joint Operation Planning and Execution System
JP	joint publication
JTF	joint task force
LCE	logistics combat element
LFOC	landing force operations center

LFSP	landing force support party
LOTS	logistics over-the-shore
LSSS	logistical support, supplies, and services
MAG	Marine aircraft group
MAGTF	Marine air-ground task force
MALS	Marine aviation logistics squadron
MALSP	Marine aviation logistics support program
MARFORCOM	Marine Forces Command
MARFORPAC	Marine Forces Pacific
MAW	Marine aircraft wing
MCCS	Marine Corps community services
MCDP	Marine Corps doctrinal publication
MCILE	Marine Corps installations and logistics enterprise
MCO	Marine Corps order
MCPP	Marine Corps Planning Process
MCRP	Marine Corps reference publication
MCT	maintenance contact team
MCTP	Marine Corps tactical publication
MCWP	Marine Corps warfighting publication
MCX	Marine Corps Exchange
MDDOC	MAGTF deployment and distribution operations center
MEB	Marine expeditionary brigade
MEF	Marine expeditionary force
MEU	Marine expeditionary unit
MHE	materials handling equipment
MLG	Marine logistics group
MMCC	Marine air-ground task force movement control center
MMT	military mail terminal
MPF	military post office
MPO	maritime prepositioning ship
MPS	maritime prepositioning ship
MRE	meal, ready to eat
MSC	Military Sealift Command
MSR	main supply route
MST	maintenance support team

MSTP	Marine Air-Ground Task Force Staff Training Program
MWSS	Marine wing support squadron
N-4	Navy component logistics staff officer
NAE	Naval Aviation Enterprise
NATO	North Atlantic Treaty Organization
NBG	naval beach group
NCB	naval construction battalion
NCF	naval construction force
NCR	naval construction regiment
NDP	naval doctrine publication
NLI	Naval Logistics Integration
NMCB	naval mobile construction battalion
NSOR	nutritional standards for operational rations
OCS	operational contract support
OPCON	operational control
OPLAN	operation plan
OPORD	operation order
OPT	operational planning team
PIR	priority intelligence requirement
POL	petroleum, oils, and lubricants
POR	packaged operational ration
RFI	request for information
S-1	personnel officer/office
S-2	intelligence officer/office
S-3	operations officer/office
S-4	logistics officer/office
S-6	communications systems officer/communications staff office
SECNAVINST	Secretary of the Navy instruction
SOFA	status-of-forces agreement
SOP	standing operating procedure
SPOD	seaport of debarkation
SPOE	seaport of embarkation
STS	ship-to-shore

T/E	table of equipment
T/O	table of organization
TACLOG	tactical-logistical group
TACON	tactical control
T-AVB	aviation logistics support ship (MSC)
TO&E	table of organization and equipment
UCT	underwater construction team
UGR	unitized group ration
UMCC	unit movement control center
US	United States
USTRANSCOM	United States Transportation Command

Section II. Terms and Definitions

acquisition and cross-servicing agreement
Agreement, negotiated on a bilateral basis with countries or international organizations, that allow United States forces to exchange most common types of support, including food, fuel, transportation, ammunition, and equipment. Also called **ACSA**. See also cross-servicing. (DoD Dictionary)

allocation
Distribution of limited forces and resources for employment among competing requirements. (Part 1 of a 2-part definition. DoD Dictionary)

amphibious assault
A type of amphibious operation that involves establishing a force on a hostile or potentially hostile shore. (DoD Dictionary)

amphibious operation
A military operation launched from the sea by an amphibious force to conduct landing force operations within littorals. (DoD Dictionary)

basic load
The quantity of supplies required to be on hand within, and moved by a unit or formation, expressed according to the wartime organization of the unit or formation and maintained at the prescribed levels. (DoD Dictionary)

beach party
The Navy component of the landing force support party under the tactical control of the landing force support party commander. (DoD Dictionary)

campaign
A series of related operations aimed at achieving strategic and operational objectives within a given time and space. (DoD Dictionary)

casualty
Any person who is lost to the organization by having been declared dead, duty status–whereabouts unknown, excused absence–whereabouts unknown, missing, ill, or injured. (DoD Dictionary)

casualty collection

The assembly of casualties at collection and treatment sites. It includes protection from further injury while awaiting evacuation to the next level of care. Planning for casualty collection points must include site selection and staffing. (USMC Dictionary)

casualty evacuation

(See DoD Dictionary for core definition. Marine Corps amplification follows.) The movement of the sick, wounded, or injured that begins at the point of injury or the onset of disease and includes movement both to and between medical treatment facilities. (Note: All units have an evacuation capability. Any vehicle may be used to evacuate casualties. If a medical vehicle is not used it should be replaced with one at the first opportunity. Similarly, aeromedical evacuation should replace surface evacuation at the first opportunity.) (USMC Dictionary)

civil augmentation program

standing, long-term external support contracts designed to augment Service logistics capabilities with contracted support in both preplanned and short-notice contingencies. Also called **CAP**. (DoD Dictionary)

classes of supply

(See DoD Dictionary for core definition. Marine Corps amplification follows.) The ten categories into which supplies are grouped to facilitate supply management and planning.

a. Class I—Subsistence, which includes gratuitous health and welfare items and rations.

b. Class II—Clothing, individual equipment, tentage, organizational tool sets and tool kits, hand tools, administrative and housekeeping supplies, and equipment.

c. Class III—Petroleum, oils, and lubricants, which consists of petroleum fuels, lubricants, hydraulic and insulating oils, liquid and compressed gases, bulk chemical products, coolants, deicing and antifreeze compounds, preservatives together with components and additives of such products, and coal.

d. Class IV—Construction, which includes all construction material; installed equipment; and all fortification, barrier, and bridging materials

e. Class V—Ammunition of all types, which includes, but is not limited to, chemical, radiological, special weapons, bombs, explosives, mines, detonators, pyrotechnics, missiles, rockets, propellants, and fuzes.

Class V(A) Aviation ammunition

Class V(W) Ground ammunition

f. Class VI—Personal demand items or nonmilitary sales items.

g. Class VII—Major end items, which are the combination of end products assembled and configured in their intended form and ready for use (e.g., launchers, mobile machine shops, vehicles).

h. Class VIII—Medical/dental material, which includes medical-unique repair parts, blood and blood products, and medical and dental material.

i. Class IX—Repair parts (less Class VIII), including components, kits, assemblies, and subassemblies (reparable and nonreparable), required for maintenance support of all equipment.

j. Class X—Material to support nonmilitary requirements and programs that are not included in classes I through IX. For example, materials needed for agricultural and economic development. (USMC Dictionary)

combatant commander

A commander of one of the unified or specified combatant commands established by the President. Also called **CCDR**. (DoD Dictionary)

combatant command (command authority)

Nontransferable command authority, which cannot be delegated, of a combatant commander to perform those functions of command over assigned forces involving organizing and employing commands and forces; assigning tasks; designating objectives; and giving authoritative direction over

all aspects of military operations, joint training, and logistics necessary to accomplish the missions assigned to the command. Also called **COCOM**. (DoD Dictionary)

combat logistics battalion
The task-organized logistics combat element of the Marine expeditionary unit. Personnel and equipment are assigned from the permanent battalions of the Marine logistics group. As required, it may be augmented by combat service support assets from the Marine division or Marine aircraft wing. Also called **CLB**. (USMC Dictionary)

combat power
The total means of destructive and disruptive force that a military unit/formation can apply against an enemy at a given time. (DoD Dictionary)

combat service support area
(See DoD Dictionary for core definition. Marine Corps amplification follows.) The primary combat service support installation established to support Marine air-ground task force operations ashore. Normally located near a beach, port, and/or an airfield, it usually contains the command post of the logistics combat element commander and supports other combat service support installations. Also called **CSSA**. (USMC Dictionary)

command and control
(See DoD Dictionary for core definition. Marine Corps amplification follows.) The means by which a commander recognizes what needs to be done and sees to it that appropriate actions are taken. Command and control is one of the seven warfighting functions. Also called **C2**. (USMC Dictionary)

concept of operations
A verbal or graphic statement that clearly and concisely expresses what the commander intends to accomplish and how it will be done using available resources. Also called **CONOPS**. (DoD Dictionary)

contracting
The purchasing, renting, leasing, or otherwise obtaining supplies or services from nonfederal sources. Contracting includes description (but not determination) of supplies and services required, selection and solicitation of sources, preparation and award of contracts, and all phases of contract administration. It does not include making grants or cooperative agreements. (Federal Acquisition Regulation)

contracting officer
A Service member or Department of Defense civilian with the legal authority to enter into, administer, modify, and/or terminate contracts. (DoD Dictionary)

control
Authority that may be less than full command exercised by a commander over part of the activities of subordinate or other organizations. (Part 1 of a 4-part definition. DoD Dictionary)

coordination
The action necessary to ensure adequately integrated relationships between separate organizations located in the same area. Coordination may include such matters as fire support, emergency defense measures, area intelligence, and other situations in which coordination is considered necessary. (USMC Dictionary)

cross-servicing
A subset of common-user logistics in which a function is performed by one Service in support of another Service and for which reimbursement is required from the Service receiving support. See also acquisition and cross-servicing agreement. (DoD Dictionary)

depot-level maintenance
Maintenance actions taken on materiel or software involving the inspection, repair, overhaul, or the modification or reclamation (as necessary) of weapons systems, equipment end items, parts, components, assemblies, and sub-assemblies that are beyond field-level maintenance capabilities. (USMC Dictionary)

directive authority for logistics
Combatant commander authority to issue directives to subordinate commanders to ensure the effective execution of approved operation plans, optimize the use or reallocation of available resources, and prevent or eliminate redundant facilities and/or overlapping functions among the Service component commands. Also called **DAFL**. (DoD Dictionary)

distribution point
A point at which supplies and/or ammunition, obtained from supporting supply points by a division or other unit, are broken down for distribution to subordinate units. (DoD Dictionary)

distribution system
That complex of facilities, installations, methods, and procedures designed to receive, store, maintain, distribute, and control the flow of military materiel between the point of receipt into the military system and the point of issue to using activities and units. (DoD Dictionary)

embarkation
The process of putting personnel and/or vehicles and their associated stores and equipment into ships and/or aircraft. (DoD Dictionary)

engineer reconnaissance
The gathering of specific, detailed, technical information required by supporting engineer forces to prepare for and accomplish assigned missions. (USMC Dictionary)

explosive ordnance
All munitions and improvised or clandestine explosive devices, containing explosives, propellants, nuclear fission or fusion materials, and biological and chemical agents. (DoD Dictionary)

explosive ordnance disposal
The process to detect, locate, access, diagnose, render safe/neutralize, recover, exploit, and dispose of explosive or improvised explosive threats. Also called **EOD**. (DoD Dictionary)

floating dump
Emergency supplies preloaded in landing craft, amphibious vehicles, or in landing ships that are located in the vicinity of the appropriate control officer, who directs their landing as requested by the troop commander concerned. (DoD Dictionary)

forward arming and refueling point
A temporary facility, organized, equipped, and deployed to provide fuel and ammunition necessary for the employment of aviation maneuver units in combat. Also called **FARP**. (DoD Dictionary)

general engineering
(See DoD Dictionary for core definition. Marine Corps amplification follows.) Intensive effort by engineer units that involves high standards of design and construction as well as detailed planning and preparation. It is that wide range of tasks in rear areas which serves to sustain forward combat operations. (USMC Dictionary)

horizontal and vertical construction
Deliberate engineering projects that normally involve time, manpower, material, and equipment- intensive tasks. These tasks usually relate to survivability and sustainability efforts. (USMC Dictionary)

landing force
A Marine Corps or Army task organization, which is part of the amphibious force, formed to conduct amphibious operations. Also called **LF**. (DoD Dictionary)

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. (USMC Dictionary)

logistics
(See DoD Dictionary for core definition. Marine Corps amplification follows.) 1. The science of planning and executing the movement and support of forces. 2. All activities required to move and sustain military forces. Logistics is one of the seven warfighting functions. See also warfighting functions. (USMC Dictionary)

logistics combat 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's mission. The logistics combat element varies in size from a small detachment to one or more Marine logistics groups. It provides supply, maintenance, transportation, general engineering, health services, and a variety of other services to the MAGTF. In a joint or multinational environment, it may also contain other Service or multinational forces assigned or attached to the MAGTF. The logistics combat element itself is not a formal command. Also called **LCE**. (USMC Dictionary)

Marine aircraft group
Administratively and tactically structured by aircraft category as being either a fixed-wing group or a combined rotary-wing and tiltrotor group. Marine aircraft groups may also be formed for specific missions or unique organizational/geographic considerations. Each Marine aircraft group has a headquarters and maintenance squadron. With a source of supply, the Marine aircraft group is the smallest aviation unit capable of self-sustaining, independent operations. Also called **MAG**. (USMC Dictionary)

Marine aircraft wing
The highest level aviation command in the Fleet Marine Force that is task-organized to provide a flexible and balanced air combat organization capable of the full range of combat air operations in a variety of areas without the requirement of prepositioned support, control, and logistic facilities. Only the wing has the inherent capability of performing all six Marine aviation functions. Also called **MAW**. (USMC Dictionary)

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 logistics combat 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. In a joint or multinational environment, other Service or multinational forces may be assigned or attached. Also called **MAGTF**. (USMC Dictionary)

Marine division
A ground force of combat and combat support units organized and equipped primarily for amphibious operations. It consists of three infantry regiments, an artillery regiment, and separate combat support battalions. Subordinate units can be organized into effective forces of combined arms based upon the infantry regiment, infantry battalion, or assault amphibian battalion. One or more divisions form the ground combat element of the Marine expeditionary force. To perform its combat role, it requires air defense and aviation support from a Marine aircraft wing and service support from a Marine logistics group. Also called **MARDIV**. (USMC Dictionary)

Marine expeditionary brigade
A Marine air-ground task force that is constructed around an infantry regiment reinforced, a composite Marine aircraft group, and a combat logistics regiment. 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 range of military operations. In a joint or multinational environment, it may also contain other Service or multinational forces assigned or attached to the MAGTF. Also called **MEB**. (USMC Dictionary)

Marine expeditionary force
The largest Marine air-ground task force and the Marine Corps' principal warfighting organization, particularly for larger crises or contingencies. It is task-organized around a permanent command element and normally contains one or more Marine divisions, Marine aircraft wings, and Marine logistics groups. The Marine expeditionary force is capable of missions across the range of military operations, including amphibious assault and sustained operations ashore in any environment. It can operate from a sea base, a land base, or both. In a joint or multinational environment, it may also contain other Service or multinational forces assigned or attached to the Marine air-ground task force. Also called **MEF**. (USMC Dictionary)

Marine expeditionary unit
A Marine air-ground task force that is constructed around an infantry battalion reinforced, a composite squadron reinforced, and a task-organized logistics combat 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. In a joint or multinational environment, it may contain other Service or multinational forces assigned or attached to the Marine air-ground task force. Also called **MEU**. (USMC Dictionary)

Marine logistics group
The logistics combat element of the Marine expeditionary force (MEF). It is a permanently organized command tasked with providing combat service support beyond the organic capabilities of supported units of the MEF. The Marine logistics group is normally structured with direct and general support units, which are organized to support a MEF possessing one Marine division and one Marine aircraft wing. It may also provide smaller task-organized logistics combat elements to support Marine air-ground task forces smaller than a MEF. Also called **MLG**. (USMC Dictionary)

maritime prepositioning ship
(See DoD Dictionary, maritime pre-positioning ships, for core definition. Marine Corps amplification follows.) A maritime prepositioning ship is normally designated as a T-AKR. (USMC Dictionary)

materials handling equipment
Mechanical devices for handling of supplies with greater ease and economy. Also called **MHE**. (USMC Dictionary)

mobility
A quality or capability of military forces which permits them to move from place to place while retaining the ability to fulfill their primary mission. (DoD Dictionary)

mortuary affairs
Provides for the search, recovery, identification, preparation, and disposition of human remains of persons for whom the Services are responsible. Also called **MA**. (DoD Dictionary)

objective
1. The clearly defined, decisive, and attainable goal toward which an operation is directed. 2. The specific goal of the action taken which is essential to the commander's plan. (DoD Dictionary)

obstacle
Any barrier designed or employed to disrupt, fix, turn, or block the movement, and to impose additional losses in personnel, time, and equipment. (DoD Dictionary)

operation
1. A sequence of tactical actions with a common purpose or unifying team. 2. A military action or the carrying out of a military mission. (DoD Dictionary)

operation order
A directive issued by a commander to subordinate commanders for the purpose of effecting the coordinated execution of an operation. Also called **OPORD**. (DoD Dictionary)

operation plan
A complete and detailed plan containing a full description of the concept of operations, all annexes applicable to the plan, and a time-phased force and deployment list. Also called **OPLAN**. (DoD Dictionary)

operational level of warfare
The level of warfare in which campaigns and operations are planned, conducted, and sustained to achieve operational objectives to support achievement of strategic objectives. See also **tactical level of warfare**. (DoD Dictionary)

port
A place at which ships may discharge or receive their cargoes. (Navy Dictionary)

procurement
The process of obtaining personnel, services, supplies, and equipment. (Navy Dictionary)

rebuild
The restoration of an item to a standard as nearly as possible to its original condition in appearance, performance, and life expectancy. See also **overhaul; repair**. (USMC Dictionary)

recovery
Actions taken to extricate damaged or disabled equipment for return to friendly control or repair at another location. (Part 3 of a 3-part definition. DoD Dictionary)

repair
The restoration of an item to serviceable condition through correction of a specific failure or unserviceable condition. See also **overhaul; rebuild**. (USMC Dictionary)

repair cycle
The stages through which a repairable item passes from the time of its removal or replacement until it is reinstalled or placed in stock in a serviceable condition. (DoD Dictionary)

resupply
The act of replenishing stocks to maintain required levels of supply. (DoD Dictionary)

security
Measures taken by a military unit, an activity or installation to protect itself against all acts designed to, or which may, impair its effectiveness. (Part 1 of a 3-part definition. DoD Dictionary)

selective interchange
The controlled removal and replacement of a serviceable repair part or component from one item to satisfy a deficiency in another item. (USMC Dictionary)

serial
1. An element or a group of elements within a series that is given a numerical or alphabetical designation for convenience in planning, scheduling, and control. 2. A group of people, vehicles, equipment, or supplies used in airborne, air assault, amphibious operations, and convoys. (DoD Dictionary)

ship-to-shore movement
That portion of the action phase of an amphibious operation that includes the deployment of the landing force from ships to designated landing areas. (DoD Dictionary)

subordinate command
A lower-echelon command consisting of a commander and all those individuals, units, detachments, organizations, or installations that have been placed under the command by the establishing authority. (DoD Dictionary)

supply
The procurement, distribution, maintenance while in storage, and salvage of supplies, including the determination of kind and quantity of supplies. (DoD Dictionary)

support
1. The action of a force that aids, protects, complements, or sustains another force in accordance with a directive requiring such action. 2. A unit that helps another unit in battle. 3. An element of a command that assists, protects, or supplies other forces in combat. (DoD Dictionary)

supporting establishment
Those personnel, bases, and activities that support the Fleet Marine Forces. (USMC Dictionary)

survivability
(See DoD Dictionary for core definition. Marine Corps amplification follows.) The degree to which a system is able to avoid or withstand a man-made hostile environment without suffering an abortive impairment of its ability to accomplish its designated mission. (USMC Dictionary)

sustainment
The provision of logistics and personnel services required to maintain and prolong operations until successful mission accomplishment. (DoD Dictionary)

tactical level of warfare
The level of warfare at which forces plan and execute battles and engagements to achieve military objectives. See also **operational level of warfare**. (DoD Dictionary)

tactical-logistical group
Representatives designated by troop commanders to assist Navy control officers aboard control ships in the ship-to-shore movement of troops, equipment, and supplies. Also called **TACLOG group**. (DoD Dictionary)

task force
A temporary grouping of units, under one commander, formed for the purpose of carrying out a specific operation or mission. (USMC Dictionary)

throughput
(See DoD Dictionary for core definition. Marine Corps amplification follows.) In logistics, the flow of sustainability assets in support of military operations, at all levels of warfare, from point of origin to point of use. It involves the movement of personnel and materiel over lines of communications using established pipelines and distribution systems. (USMC Dictionary)

warfighting functions
The seven mutually supporting military activities integrated in the conduct of all military operations. The seven warfighting functions are command and control, fires, force protection, information, intelligence, logistics, and maneuver. See also command and control; logistics. (USMC Dictionary)

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