MCWP 3-43.3

MAGTF Fires

U.S. Marine Corps

Second Coordinating Draft of 20 December 2002

DEPARTMENT OF THE NAVY
Headquarters United States Marine Corps
Washington, DC 20308-1775

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FOREWORD

1. PURPOSE

Marine Corps Warfighting Publication (MCWP) 3-43.3, *MAGTF Fires*, establishes the doctrine and tactics, techniques, and procedures (TTP) used by the Marine air-ground task force (MAGTF) for planning, coordinating, and executing fires to support the MAGTF commander's concept of operations across the range of military operations.

2. SCOPE

MCWP 3-43.3 will establish doctrine and provide TTP for planning and execution for MAGTF fires. This publications primary audience is the commander's and staff responsible for planning, coordinating, and executing fires at the MAGTF. Commanders and fire support personnel within the major subordinate commands and other service and foreign officers in joint and combined commands will also use the TTPs provided in MCWP 3-43.3.

3. SUPERSESSION

MCWP 3-43.3 replaces Fleet Marine Force Manual (FMFM) 2-7, *Fire Support in Marine Air-Ground Task Force Operations*, of 26 September 1991 and FMFM 2-7-1, *Fire Support by the MAGTF Command Level*, of 8 July 1992.

4. RECOMMENDATIONS AND CHANGES

Recommendations and changes for improving this publication are invited from commands as well as directly from individuals. Forward suggestions using the user suggestion format via either of the following means:

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Recommendations should include the following information:

Location of change: publication number and title; current page number; paragraph number (if applicable); line number; figure number (if applicable).
Nature of change: add, delete; and proposed new text (preferably double-spaced and typewritten).
Justification and/or source of change.

5. OBTAINING ADDITIONAL COPIES

Additional printed copies of MCDP 0-1 may be obtained from Marine Corps Logistics Base, Albany, GA 31704-5001, by following the instructions in MCBul 5600, *Marine Corps Doctrinal Publications Status*. Electronic copies

may be obtained from the Doctrine Division, MCCDC, worldwide web homepage which is found at the following universal reference locator (letters in lower case): **http://138.156.107.3/docdiv**.

6. ADDITIONAL INFORMATION

The proponent for MCDP 1-0 is the Marine Air-Ground Task Force Staff Training Program (MSTP), Marine Corps Combat Development Command.

Unless otherwise stated, whenever the masculine or feminine gender is used, both men and women are indicated.

7. CERTIFICATION

Reviewed and approved this date.

BY DIRECTION OF THE COMMANDANT OF THE MARINE CORPS

E. HANLON, JR.
Lieutenant General, U.S. Marine Corps
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DISTRIBUTION: 143 000xx 00

MAGTF Fires

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Chapter 1

Overview

Combined arms is a core competency of the Marine Corps. Combined arms is the full integration of arms in such a way that to counteract one, the enemy becomes more vulnerable to another, presenting the enemy with a dilemma—a no-win situation. The use of combined arms allows the commander to maximize his combat power.

The Marine air-ground task force (MAGTF) is first and foremost a combined arms force. Its success in combat depends on its commander's ability to synchronize the striking power of *fires* with maneuver and sustainment forces to achieve the effects necessary to defeat the enemy and accomplish the MAGTF's mission. The MAGTF commander must be able to synchronize fires with the other warfighting functions to effectively plan, coordinate, and execute fires to achieve desired effects on the enemy.

During the 1980's the Marine Corps underwent a fundamental institutional change in thinking how it would command and control combat operations. The MAGTF became the primary organization charged with planning and executing combat operations and the Marine division ceased to be preeminent organization that all other elements of the MAGTF supported. The test of how well the Marine Corps had assimilated the idea of the primacy of the MAGTF came in August 1990 when I Marine Expeditionary Force (MEF), under the command of Lieutenant General Boomer, deployed to Southwest Asia in support of Operation Desert Shield/Desert Storm.

One of the most immediate challenges in implementing this new paradigm was how the MAGTF would plan, coordinate, and control fires throughout the battlespace in support of the MAGTF's concept of operations. The existing table of organization provided only minimal structure for a coordination agency, the supporting arms special staff, which was unable to perform the myriad fire support planning, coordination, and targeting functions necessary to MEF level operations in a major regional conflict.

Accordingly, Lieutenant General Boomer established a MEF fire support coordination center (FSCC) which planned and orchestrated fires to support the MEF commander's single-battle in the deep, close, and rear areas and coordinated fires between the MEF and higher and adjacent commands. The MEF commander provided his concept of fires, battlespace-shaping objectives, targeting guidance and priorities and allocated and apportioned fire support assets to best achieve desired effects against the Iraqis. While the MEF FSCC performed many similar functions to that of the Marine division's FSCC, the MEF's FSCC did not coordinate intra-MEF artillery fires or close air support (CAS). The success of I MEF's FSCC during Operation Desert Storm in planning and employing fires in combination with the MEFs maneuver to shape the enemy and achieve his desired effects laid the foundation of Marine Corps doctrine for MAGTF fires and the use of the force fires coordination center (FFCC).

Over the next decade, the lessons learned during expeditionary operations and numerous exercises were refined and applied to this doctrinal foundation. This publication codifies those hard-won lessons and provides the MAGTF commander and his staff the framework and guidance necessary to plan, coordinate, and execute fires in support of the MAGTF.

1001. Introduction

Fires are the employment of firepower against air, ground, and sea targets. Fires delay, disrupt, degrade, or destroy enemy capabilities, forces, or facilities, as well as affect the enemy's will to fight. Fires include the collective and coordinated use of target acquisition systems, direct and indirect fire weapons, armed aircraft of all types, and other lethal and nonlethal means, such as electronic warfare (EW). Fires are normally used in concert with maneuver and help to shape the enemy, setting conditions for decisive action.

Synchronizing fires with the other warfighting functions is critical to the successful prosecution of combat operations. Commanders synchronize organic and supporting joint and combined fire assets with their scheme of maneuver to achieve maximum effect. Subordinate fire support systems and processes for determining priorities, identifying and locating targets, allocating fires assets, attacking targets, and assessing battle damage must be fully integrated with the MAGTF. The employment of all available fires throughout the depth of the battlespace as an integrated and synchronized whole is done through the process of fire support planning, coordination, and execution.

1002. Fires and Maneuver Warfare

Marine Corps Doctrinal Publication (MCDP) 1, *Warfighting*, defines maneuver warfare as a warfighting philosophy that seeks to shatter the enemy's cohesion through a variety of rapid, focused, and unexpected actions to create a turbulent and rapidly deteriorating situation with which the enemy cannot cope. MAGTF commanders use combined arms, to include fires, to achieve effects upon the enemy that bring about such results.

Fires are central to maneuver warfare. Maneuver warfare is based on the avoidance of the enemy's strengths—surfaces—and the exploitation of the enemy's weaknesses—gaps. Rather than attacking the enemy's surfaces, Marines bypass the enemy's main defense and penetrate those defenses through gaps to destroy the enemy system from within. The goal of maneuver warfare is to render the enemy incapable of effective resistance by shattering his moral, mental, and physical cohesion. According to MCDP 1, the greatest effect of fires is usually not physical destruction of the enemy but the disruption to the enemy's systems and moral, mental, and physical cohesion.

The tenets of the Marine Corps Planning Process (MCPP)—top-down planning, single-battle concept, and integrated planning—are derived from the doctrine of maneuver warfare. These tenets help ensure unity of effort and guide the commander and his staff in planning and executing fires in maneuver warfare. As planning is a fundamental responsibility of command, the commander must ensure that he drives the planning effort. The commander's operational design, including his intent and guidance, provides the basis for top-down planning. The commander's single-battle concept is also derived from the commander's operational design, forming the basis for the battlefield framework and, ultimately, his concept of operations. For more on operational design and the battlefield framework, see MCDP 1-0, *Marine Corps Operations*. Finally, integrated planning is a coordinated, thorough, and systematic approach to planning that produces unity of effort and is essential in conducting combined arms operations.

1003. Fires as an Element of Combat Power

MCDP 1 describes combat power as "...the total destructive force we can bring to bear against the enemy at a given time." MCDP 1-3, *Tactics*, describes it as "…a unique product of a variety of physical, moral, and mental factors." MCDP 1-0 states that commanders conceptually combine the elements of combat power—maneuver, *fires*, sustainment, leadership, force protection, and information—to create overwhelming effects that lead to the defeat of the enemy. By combining and synchronizing these effects at the decisive place and time the commander can convert

the potential of his forces, resources, and opportunities into combat power. He then uses his combat power, including fires, to reduce that of the enemy by destroying or disrupting the enemy's capability and will to resist. Combat power is generated through integrated planning and synchronization of fires with the other warfighting functions.

1004. Fires as a Warfighting Function

The warfighting functions encompass all military activities performed in the battlespace. Warfighting functions are a grouping of like activities into major functional areas to aid in planning and execution of operations. These functional areas currently include command and control, maneuver, fires, logistics, force protection, and intelligence. The warfighting functions are used in integrated planning to ensure that the commander and his planners consider all critical functional areas when planning and making decisions. Warfighting functions are planning and execution tools used by planners and subject matter experts in each of the functional areas to produce comprehensive plans that are integrated with the other warfighting functions. This integration of planning helps the commander to achieve unity of effort.

The key advantage of using warfighting functions is that they allow the commander and his planners to look at all aspects of the battlespace and not leave anything to chance, if it is within their capability to coordinate, control, influence, and synchronize them. The use of warfighting functions help to prevent omissions in planning that can lead to problems in execution. By synchronizing the warfighting functions, the commander can increase the force's combat power, mass effects on the enemy, and aid in the assessment of the success of the operation As stated in MCDP 1-2, *Campaigning*, maximum impact is obtained when all warfighting functions are synchronized to accomplish the desired objective within the shortest time possible and with minimum casualties.

Planners consider and synchronize the warfighting functions when analyzing how to accomplish the mission. According to Marine Corps Warfighting Publication (MCWP) 5-1, *Marine Corps Planning Process*, "Integrating the warfighting functions helps to achieve focus and unity of effort. They provide a method for planners to think in terms of how each function supports the accomplishment of the mission. Critical to this approach to planning is the coordination of activities not only within each warfighting function but also among all the warfighting functions. By using warfighting functions as the integration elements, planners ensure all functions are focused toward a single purpose". The warfighting functions apply equally to planning and executing conventional operations and other types of operations such as military operations other than war.

Fires are the employment of firepower against air, ground, and sea targets. Fires delay, disrupt, degrade or destroy enemy capabilities, forces or facilities, as well as affect the enemy's will to fight. Fires include the collective and coordinated use of target acquisition systems, direct and indirect fire weapons, armed aircraft of all types, and other lethal and nonlethal means, such as EW and physical destruction. Fires are normally used in concert with maneuver and help to shape the battlespace, thus setting conditions for decisive action.

Synchronizing fires with maneuver is critical to the successful prosecution of combat operations. Commanders synchronize organic and supporting joint fire assets with their scheme of maneuver to get maximum effects of fires. Generating effective firepower against an enemy requires that organic and supporting fires be coordinated with other warfighting functions such as intelligence, maneuver, and logistics. Subordinate fire support systems and processes for determining priorities, identifying and locating targets, allocating fires assets, attacking targets, and assessing battle damage must be fully integrated. The employment of all available fires throughout the depth of the battlespace as an integrated and synchronized whole is done through the process of fire support planning, coordination, and execution.

1005. Fires in the Single Battle

The MAGTF commander conducts operations within the context of the single-battle. Single-battle allows the commander to effectively focus the efforts of all the elements of the force to accomplish his mission. Within the single-battle, the commander conducts centralized planning while fostering decentralized execution allowing subordinates to exercise disciplined initiative and exploit opportunities. Centralized planning is essential for controlling and coordinating the efforts of all available forces. Decentralized execution is essential to generate the tempo of operations required and to cope with the uncertainty, disorder, and fluidity of combat.

A commander must always view his area of operations (AO) as an indivisible entity—operations or events in one part of the AO may have profound and often unintended effects on other areas and events. While the AO may be conceptually divided to assist centralized planning and decentralized execution, the commander's intent ensures unity of effort by fighting a single-battle. Within the single battle concept, the MAGTF commander employs the unique capabilities of the elements of the MAGTF asymmetrically to achieve the effects needed to accomplish his mission. (See Figure 1-1.)

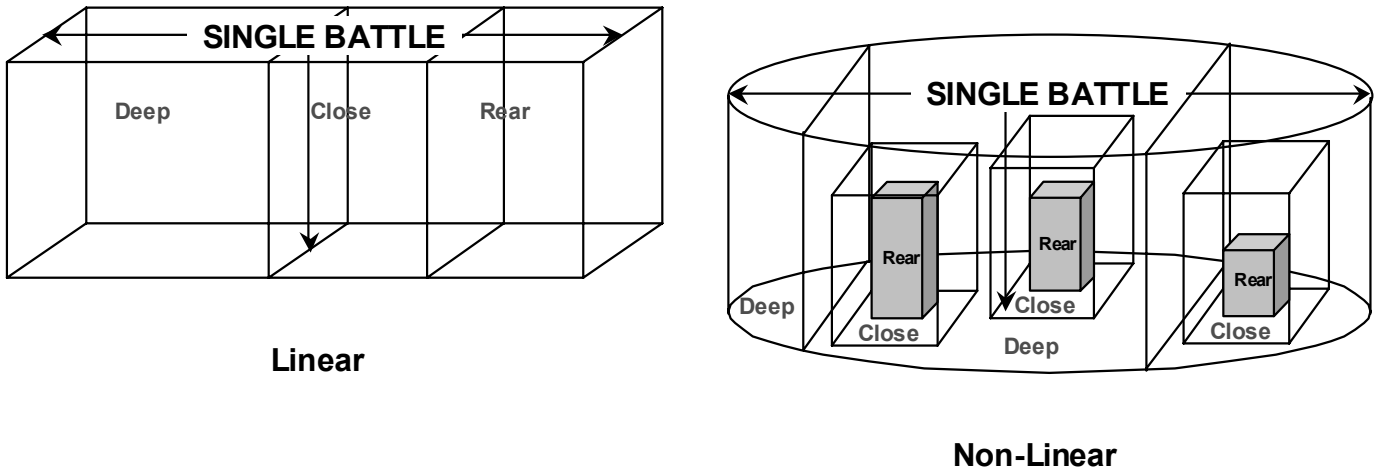

Figure 1-1. Single-battle.

In the single-battle, the AO is conceptually divided into three major areas—deep, close, and rear—in which distinctly different operations are performed. These operations are not necessarily restricted to, or characterized by distance or location in the AO; rather, they are functional actions that must be accomplished for other functions to be effective. The MAGTF does not merely divide the battlespace up between the major subordinate commands (MSC) with the aviation combat element (ACE) taking the deep, the ground combat element (GCE) taking the close, and the combat service support element (CCSE) taking the rear area. The MAGTF commander is responsible for planning and executing the entire battle. To synchronize actions within the single-battle, the commander must determine where, when, and how to apply the warfighting functions.

While the MAGTF commander ideally desires to defeat the enemy in one-battle or engagement, it may be beyond the capabilities of the MAGTF to achieve this. Thus, MAGTF operations may need to be phased. All actions and phases must be connected and focused on achieving a decision. This arrangement of forces in time, space, and purpose to generate sufficient combat power to achieve a decision is the result of detailed and integrated planning.

In order to conduct single battle, the MAGTF may coordinate and integrate its operations with those of joint and combined forces. These operations may also rely on national-level assets. These operations may include—

- Interdiction by fires and maneuver.
- Surveillance, reconnaissance, and target acquisition.
- Information operations (IO) such as deception, physical destruction, or psychological operations (PSYOP).
- Offensive antiair warfare (AAW).

a. Deep Operations

Deep operations shape the battlespace to influence future operations. They seek to create windows of opportunity for decisive action, restrict the enemy's freedom of action, and disrupt the cohesion and tempo of his operations. Deep operations help the commander seize or maintain the initiative and set the conditions for close operations.

The commander focuses on attacking enemy capabilities—moral and physical—that most directly contributes to the accomplishment of his mission. Deep operations normally focus on the enemy's follow-on and supporting forces, command and control nodes, and key lines of communications or facilities. Deep operations may require coordination and integration with national-level assets and joint or combined forces.

Deep operations are normally considered the MAGTF commander's fight, with the MAGTF commander determining the timing, priority, and desired effects of fires. Accurate and timely fires in the deep battle are particularly dependent on preplanned intelligence collection, and fires and intelligence planners must carefully synchronize fire plans with the intelligence collection plan. Because of its operational reach, deep operations are primarily conducted by the ACE, although the GCE and CSSE may play significant roles. MAGTF intelligence assets such as force reconnaissance and signals intelligence, and ACE and GCE surveillance and reconnaissance assets, like unmanned aerial vehicles (UAVs) and ground surveillance radars, contribute to the conduct of deep operations.

The coordination of fires and the transfer of responsibility for portions of the deep battle to subordinate elements of the MAGTF is a complex undertaking. Fire planners must plan and coordinate early with the MSCs to ensure a seamless battle handover. This planning includes establishing the conditions under which the MAGTF will handover portions of the deep battle to that element of the MAGTF conducting the close battle.

b. Close Operations

Close operations project power against enemy forces in immediate contact and are often decisive actions. These operations require speed and mobility to rapidly concentrate overwhelming combat power at the critical time and place, and exploit success. Close operations are dominated by fire and maneuver conducted by combined arms forces from the GCE and the ACE. Combined arms forces maneuver to enhance the effects of their fires and fire to enhance their ability to maneuver. As they maneuver to gain positions of advantage over the enemy, combined arms forces deliver fires to disrupt the enemy's ability to interfere with that maneuver. Commanders prioritize fires to weight the main effort and to focus combat power to achieve effects that lead to a decision. The effects of fires can be massed to strike the enemy at the decisive point and time, while reducing the risks to the force entailed in massing maneuver forces at a single point or in a single portion of the battlespace.

c. Rear Operations

Rear operations support deep and close operations and facilitate future operations by ensuring the freedom of action of the force and providing continuity of operations, logistics, and command and control. Security is inherent in rear operations—sustainment must not be interrupted and assets must be protected. Rear area operations deny the use of the rear area to the enemy. Rear area functions are conducted by all elements of the MAGTF and the GCE and the MAGTF both establish rear areas that must be protected. For more information see MCWP 3-41.1, *Rear Area Operations*.

Fire support in the rear area is normally limited to those assets organic to the tactical combat force. Additional assets may be made available by the MAGTF commander based on his analysis of the factors of METT-T—mission, enemy,

terrain and weather, troops and support available - time available. These assets might include CAS provided by attack helicopters, naval surface fire support (NSFS), or host nation artillery. Rear area fires must be planned and coordinated with rear area units and host nation units to ensure the uninterrupted flow of sustainment and the security of isolated rear area units.

d. Battlespace Organization

A MAGTF commander must be well versed in the capabilities and limitations of his forces and their role in deep, close, and rear operations to conduct the single-battle. He must consider that there may be deep, close, and rear operations at every level of command. For example, a subordinate commander's deep operations may constitute part of the higher commander's close operations. (See Figure 1-2.)

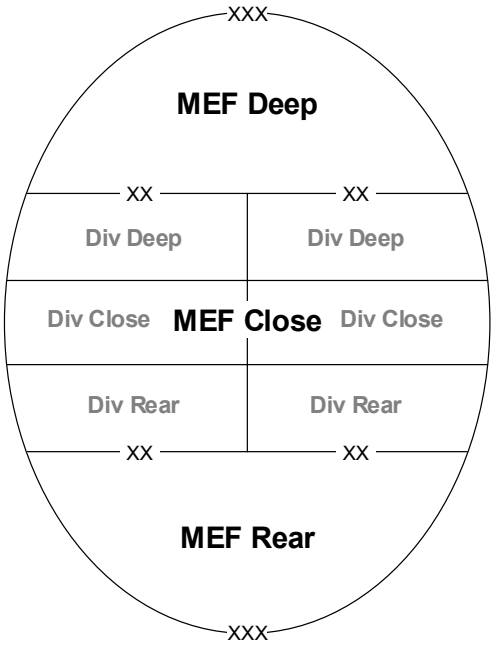

Figure 1-2. Battlespace organization.

By conceptually dividing the AO and articulating the battlefield framework, the commander sets the stage for the planners to use the warfighting functions to conduct integrated planning. Integrated planning helps to ensure the synchronization of the commander's forces in executing the single-battle. It is important to remember that the enemy's disposition and actions will seldom coincide with how the MAGTF commander has organized his AO. Therefore, the commander's planning and execution must be flexible enough to accommodate this difference and exploit resulting opportunities.

1006. Operational and Tactical Fires

Operational fires are those fires conducted by the MAGTF or other joint or component forces to accomplish the Marine Corps Service component commander's or the MAGTF commander's objectives during an operation or campaign. These fires are designed to produce effects on targets whose destruction, neutralization or suppression will have a significant impact on the outcome of the campaign or operation. Operational fires often set the conditions for decisive actions, especially when coupled with maneuver that exploits the effects of these fires. They often take the form of deep operations used to shape the battlespace and interdict enemy forces before they enter the close battle area.

Tactical fires destroy or neutralize enemy forces, suppress enemy fires, and disrupt enemy movement. They set the conditions for decisive action and often take place in the close battle area. Commanders must ensure that tactical fires are closely coordinated with the other warfighting functions to ensure maximum combined arms effects are achieved.

1007. Fires in Support of Joint Operations

Joint fires are defined in Joint Pub 3-09, *Doctrine for Joint Fire Support*, as fires produced during the employment of forces from two or more components in coordinated action toward a common objective. These joint fires comprise joint fire support that assists land, maritime, amphibious, and special operations forces to move, maneuver, and control territory, populations, and key waters.

The MAGTF may be required to support the joint force commander's (JFC) concept of operations with its organic fire support assets, which usually takes the form of aviation sorties. Joint fires, usually in the form of interdiction delivered by air and long-range missile fires, routinely supplement organic MAGTF fires. Interdiction is an action to divert, delay, or destroy the enemy's military potential before it can be used effectively against friendly forces. Other Service components, combined forces, or adjacent commands may also reinforce or be reinforced by MAGTF fire support assets. A common example of this is U.S. Army Tactical Missile System (ATACMS) used to support MAGTF operations.

The JFC normally establishes the AO for land and maritime forces. The land force and maritime commanders become the supported commanders within these designated AOs, and are responsible for integrating maneuver, fire support, and interdiction to achieve the desired effects and accomplish their respective objectives. These commanders determine target priorities, effects, and timing of fires and interdiction within their AO, ensuring that all efforts contribute to the accomplishment of the JFC's objectives. In short, all fires and interdiction must ultimately support the JFC's single-battle effort. The MAGTF commander must consider the linkage between his operations within his AO and those of the JFC and the other components outside the MAGTF's AO. Specifically, he should identify targets and effects outside of his AO for attack by joint forces that can help create conditions for decisive action within his AO. He must also be prepared to provide capabilities to the JFC to support other components outside of his AO in the accomplishment of their objectives.

Accordingly, the Marine Corps Service component commander and the MAGTF commander must carefully consider the implications of various joint force command relationships, particularly the use of functional components on MAGTF operations. The MAGTF commander must understand joint force command relationships and recommend to the Marine Corps Service component commander and the JFC the command relationships and organizations that best enable the MAGTF to operate to the extent of its capabilities. For more information on joint forces and Service and functional components see Chapter 2, Organization for Fires.

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Chapter 2

Organization for Fires

This chapter explains how the Marine Corps component commander requests and coordinates external fire support for the MAGTF and coordinates with the JFC and other component commanders in requesting and providing operational fires. It also describes how the MAGTF is organized to plan, coordinate, execute, and assess fires. External fire support agencies and their relationship to the MAGTF are also discussed. While the material in this chapter applies to both the MEF and the Marine expeditionary brigade (MEB), only the MEF is depicted and described for illustrative purposes.

2001. The Marine Corps Component

All joint forces include Service components. The Marine Corps component provides Marine Corps representation to their assigned joint force. The Marine Corps component commander sets the conditions to ensure the success of the MAGTF. He does this by assigning the MAGTF an appropriate mission and battlespace, establishing responsive command relationships, and providing the necessary resources. In addition, the Marine Corps component performs many of the administrative and logistic requirements previously done by Marine Corps forces. This allows the Marine Corps component commander's assigned MAGTF to concentrate on combat operations.

Using a Marine Corps component takes full advantage of the established lines of command and standing operating procedures (SOP), and it enables Marine Corps forces to function as they were designed, as a MAGTF. As Joint Pub 0-2, *Unified Action Armed Forces (UNAAF*), states, "The intent is to meet the needs of the [JFC] while maintaining the tactical and operational integrity of the Service organizations." Conducting operations through Service component commanders also provides the advantage of clear and uncomplicated command lines.

There are two levels of Marine Corps components: a Marine Corps component under a unified command and a Marine Corps component under a subordinate unified command or joint task force (JTF). The subordinate unified command-level or JTF-level Marine Corps component will communicate directly to the combatant command-level Marine Corps component on Marine Corps-specific matters.

The Marine Corps component commander's primary responsibility is as a force provider and sustainer. The Marine Corps component commander deals directly with the JFC in matters affecting Marine Corps forces. The Marine Corps component commander commands, trains, equips, and sustains Marine Corps forces. The Marine Corps component commander translates the JFC's intent into Marine Corps forces' actions and is responsible for—

- Advising the JFC on the proper employment of Marine Corps forces. This may include recommending appropriate missions and command relationships.
- Accomplishing the missions or tasks assigned by the JFC. Operational missions are normally executed by the Marine Corps component commander's assigned forces.
- Informing the JFC regarding the Marine Corps component's readiness, situation, and progress.
- Providing Service-specific support (administrative, logistics, training, intelligence) to Marine Corps forces.

The Marine Corps component commander provides Service logistic and administrative support using established Marine Corps procedures. The Marine Corps component commander's Service responsibilities also include—

- Internal discipline and administration.
- Training in Marine Corps doctrine, tactics, techniques, and procedures.
- Logistic functions normal to the command, except as otherwise directed by higher authority.
- Service intelligence matters and the oversight of intelligence activities according to current laws, policies, and directives.

The combatant command-level Marine Corps component commander also has the following additional responsibilities to the combatant commander—

- Selecting and nominating specific Marine units or forces for assignment to other subordinate forces of the combatant command.
- Conducting joint training and exercises. A major focus of this training is to train the component staff to meet the standards contained in Chairman of the Joint Chiefs of Staff Manual 3500.04, *Universal Joint Task List*, and the Chief of Naval Operations Instruction 3500.38, *Naval Tactical Task List*.
- Informing the combatant commander of any changes in planning for logistic support that will affect the combatant commander's ability to accomplish the mission.
- Developing Marine Corps programming and budgeting requests to support the combatant commander's warfighting requirements and priorities and keeping the combatant commander informed of the status of these programs.
- Providing supporting operation and exercise plans to support assigned missions.

a. Tasks

The Marine Corps component represents its assigned forces on the following boards.

- **Joint Targeting Steering Group**. To assist the combatant commander in developing targeting guidance and reconciling competing requests for assets within his area of responsibility, a joint targeting steering group (JTSG) may be established. If the combatant commander has more than one JTF operating in his theater requiring targeting support or resources, the JTSG can assist the him in deciding how to deploy and use limited assets and resources (e.g., missiles, aircraft, personnel). The JTSG should have appropriate Service and functional component, national agency, and combatant command-level joint staff representatives (as appropriate) to make recommendations regarding theater strategic and/or operational issues.

- **Joint Target Coordination Board**. JFCs may establish and task an organization within their staffs to accomplish broad targeting oversight functions or may delegate the responsibility to a subordinate commander. Typically, JFCs organize a joint target coordination board (JTCB). If the JFC so designates, the JTCB may be an integrating center for the targeting oversight effort or a JFC-level review mechanism. In either case, it must be a joint activity comprised of representatives from the joint force staff, all components and, if deemed necessary, their subordinate units. The JFC defines the role of the JTCB.

  The JTCB provides a forum in which all components can articulate strategies and priorities for future operations to ensure that they are synchronized and integrated. The JTCB normally prepares and refines the draft joint integrated prioritized target list (JIPTL) for the JFC. Specific target issues are not typically addressed by the JTCB and/or JFC unless they cannot be resolved at a lower level.

  The focus of the JTCB is on the operational level of war. The primary focus of the JTCB is to develop target priorities and other targeting guidance in accordance with the JFC's objectives. The JTCB must be flexible

enough to adjust its attention to whatever scope or fidelity it needs to address targeting issues. Briefings conducted at the JTCB should focus on ensuring that intelligence, operations (by all components and applicable staff elements), and fires are on track, coordinated, and synchronized.

Component representatives at the JTCB present their component's target nominations. It is essential that the component representatives at the JTCB understand the priorities, objectives, and supporting rationale behind their commander's targeting effort. Failure to receive timely targeting information from subordinate commands will result in an inability of component representatives to properly represent their interests at the JTCB.

- **Joint Fires Element**. The JFC may approve the formation of a joint fires element (JFE) within the operations directorate (J-3). The JFE is an optional staff element that provides recommendations to the J-3 to accomplish fires planning and coordination. The JFE assists the J-3 to accomplish responsibilities and tasks as a staff advisor to the JFC. Specific duties may include:

  - Prepare estimates of the situation and participate in developing courses of action (COAs).
  - Develop the concept of fire.
  - Propose targeting priorities and guidance for JFC approval.
  - Develop fires portions of operation orders (OPORDs) and operation plans (OPLANs).
  - Coordinate the fires portion of combat assessment efforts by the joint force.
  - Participate in development of the rules of engagement (ROE).
  - Recommend, coordinate, review, designate, and disseminate fire support coordinating measures (FSCMs).
  - Maintain munitions supply status and logistic concerns.
  - Coordinate closely with the intelligence directorate (J-2) to ensure that the commander's priority intelligence requirements (PIR) to support targeting are fully integrated into the intelligence collection plan.

b. Organization Capabilities

The size of the Marine Corps prevents the manning of numerous, large Marine Corps component headquarters. The combatant command-level Marine Corps component headquarters is manned primarily by permanently assigned personnel who are augmented by additional personnel from sources throughout the Marine Corps during operational commitments and combat operations. These active duty and reserve Marines and Sailors may participate in periodic exercises and training to maintain theater awareness and billet proficiency.

A subordinate joint command-level Marine Corps component headquarters is task-organized to support a subordinate joint command. A combatant command-level Marine Corps component commander supporting a subordinate joint force must provide a subordinate joint command-level Marine Corps component staff. He can use personnel from his headquarters as well as personnel from the Marine Corps forces assigned to the subordinate joint force and other global sources. Globally sourced personnel may come from the Marine Corps Reserve, the supporting establishment, or other Marine Corps component organizations.

Along with the basic core of personnel required to man Marine Corps component headquarters, augmentees, liaisons, and representatives are also necessary for component operations.

- **Augmentees**. Functional area experts comprise the Marine contribution to a joint force headquarters, functional component headquarters, or other joint agencies within the joint force. These augmentees are usually globally sourced from outside the Marine Corps component headquarters. They should be provided in numbers that reflect the overall composition of Services within the joint force or functional component. Augmentees are staff members of a joint force headquarters and do not directly represent the Marine Corps

component commander. They provide the JFC or functional component commander with expertise in their specific areas as well as a general appreciation of Marine Corps forces capabilities and operational considerations. As members of the gaining command, they receive full logistical and administrative support from that command. They return to the Marine Corps forces upon completion of the operation or the disestablishment of the joint force headquarters or functional component.

- **Liaisons**. Liaison officers (LNOs) and their supporting teams are the direct representatives of the Marine Corps component commander and are assigned to appropriate higher, adjacent, and lower joint, component, and Service headquarters. Liaison teams gather and exchange information between the assigned headquarters and the Marine Corps component—in addition to speaking for their commander they are his eyes and ears. Liaison teams are headed by a LNO. The Marine Corps component commander determines what authority to give the senior LNO to make decisions on his behalf. Marines assigned as LNOs must understand the Marine Corps component commander's intent and be capable of representing that interest.

  LNOs facilitate critical interstaff issues and provide a conduit to the appropriate staff officer at the Marine Corps component for the gaining command. They are not augments to the staff of the gaining command and should not be assigned any duties other than liaison. LNOs and their teams provide their own administrative and logistics support, including robust and redundant communication and computer capabilities.

- **Representatives**. JFCs and functional component commanders may establish certain standing or temporary boards, agencies, and committees to perform essential joint functions or provide critical joint services or support. The Marine Corps component commander provides representation to these boards, agencies, or committees. He may elect to have personnel of the MAGTF or its major subordinate command's staffs participate on behalf of the Marine Corps component. A Marine sent to such a board must have the requisite subject matter expertise and the appropriate grade to fully represent the Marine Corps component commander. Such representatives should not be assigned any staff duties by the command hosting the board and will usually return to the Marine Corps component, MAGTF, or MSC headquarters upon completion of the board to assume their other duties.

Marine Corps component commanders must ensure that their component headquarters provide Marines of appropriate grade and experience to meet these requirements for augmentation, liaison, and representation. Subordinate joint command-level Marine Corps component commanders must ensure that their initial planning and requests for staffing also reflect realistic manning for these critical functions.

2002. Functional Components

The combatant commander may establish functional component commands to centralize selected functions and reduce his span of control by placing forces with similar capabilities under a single commander. Conducting operations through functional component commands requires that the combatant commander—in accordance with joint doctrine—accomplish the following:

- Assign the authority and responsibilities of functional component commanders based on his concept of operations.
- Designate the forces or capabilities to be made available for tasking by the functional component commander. Functional component commanders have authority over those forces or capabilities made available to them by the combatant commander.
- Establish the command relationship of the functional component commander over the forces or assigned capabilities.

The functional component commander must be aware of the organization, capabilities, and limitations of assigned or attached forces and the responsibilities retained by the Service component commander. The functional component commander's assigned authority and responsibilities will not affect the command relationships between the Service component commander and the combatant commander. (See Figure 2-1.)

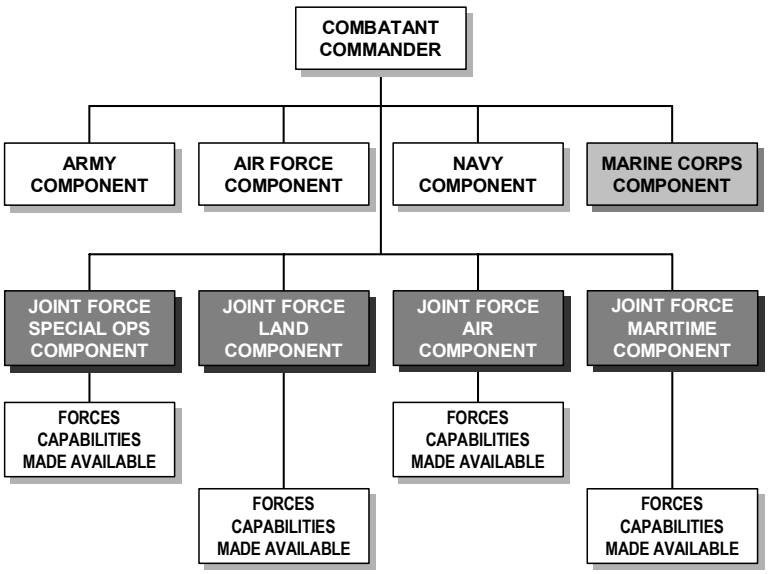

Figure 2-1. Combatant command organized by functional components.

*Functional component commanders are normally selected from Service component commander*s. The combatant commander will normally appoint the Service component commander with the preponderance of forces capable of accomplishing the function or assigned mission and the command and control capability to conduct such operations. The functional component commander is responsible for completing his assigned operational tasks or objectives. The functional component commander also makes recommendations to the combatant commander on the proper use of the military forces or capabilities available to accomplish the assigned missions. A Service component commander designated as the functional component commander retains Service component responsibilities.

The JFC can designate the Marine Corps component commander as a functional component commander. The JFC can designate the Marine Corps component commander as the—

- Joint force maritime component commander (JFMCC).
- Joint force land component commander (JFLCC).
- Joint force air component commander (JFACC).

If the Marine Corps component commander is assigned functional component commander responsibilities, execution of these responsibilities is normally accomplished by the assigned MAGTF. Designation as a functional component commander brings additional responsibilities; however, they do not replace Service component responsibilities for assigned Marine Corps forces. *Regardless of the joint command structure, the Marine Corps component commander must still provide administrative and logistic support to assigned forces.* In addition to functional component duties, the JFC can assign the Marine Corps component commander other joint duties such as the area air defense commander or airspace control authority. Again, these functions are normally accomplished by the assigned MAGTF.

While one commander may have two designations—Marine Corps component commander and joint force functional component commander—the responsibilities are separate, distinct, and not interchangeable. Because the command functions are separate, so are the staff functions. The Marine Corps component commander's staff performs Service

component functions and is manned by the Marine Corps component's normal staff members. The functional component commander's staff performs functional component activities and should be manned to reflect the composition of the functional component command. The Service component and functional component staffs, while separate, can be collocated and use the same facility. In this case, the Service staff "hosts" the functional staff. (See Figure 2-2.)

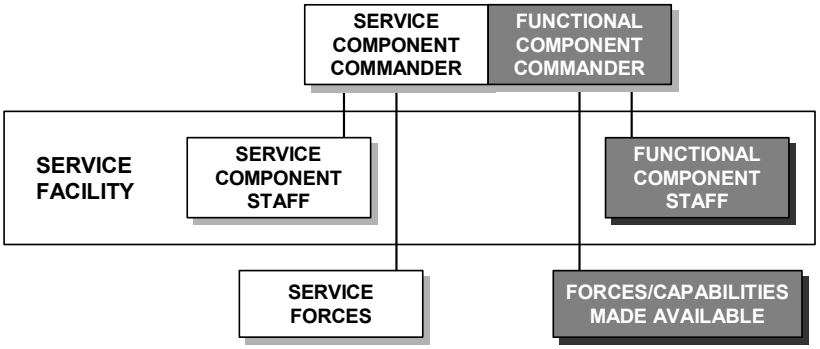

Figure 2-2. Arrangement of Service and functional staffs.

a. Joint Force Maritime Component Commander

The JFMCC, if designated, normally exercises operational control (OPCON) over an assigned MAGTF. Other possible command authorities that the JFC may assign include tactical control (TACON) and supported/supporting. The MAGTF must provide LNOs to the JFMCC headquarters, often a Navy staff, to ensure a better understanding of MAGTF capabilities and operational procedures. MAGTF fire planners must ensure that the LNOs understand the MAGTF concept of fires, targeting objectives, and targeting priorities. Frequently, MAGTF common source target nominations must compete with other naval requirements at the JFMCC headquarters. The MAGTF fires liaison team must be thoroughly familiar with the Marine Corps targeting process, and must be able to clearly articulate the MAGTF commander's intent and targeting guidance. While performing their duties, the MAGTF liaison team must also frequently "translate" between different fire support command and control systems.

b. Joint Force Land Component Commander

In many OPLANs and contingency plans, the MAGTF is OPCON or TACON to the JFLCC. It is vital that the MAGTF provide talented LNOs to the JFLCC headquarters, often an Army staff with little understanding of how the Marine Corps and the MAGTF employs organic aviation assets. MAGTF fire planners must ensure that the LNOs understand the MAGTF concept of fires, targeting objectives, and targeting priorities. Frequently, MAGTF common source target nominations must compete with other corps or divisions at the JFLCC headquarters. The MAGTF fires liaison team must be thoroughly familiar with the MAGTF targeting process, and must be able to clearly articulate the MAGTF commander's intent and targeting guidance. While performing their duties, the MAGTF liaison team must also frequently "translate" between different fire support command and control systems.

c. Joint Force Air Component Commander

Although the ACE coordinates most functions with the JFACC, the MAGTF FFCC must be fully knowledgeable of all coordination and control measures. The MAGTF provides personnel to augment the JFACC staff, as well as separate MAGTF/ACE liaison personnel. These augments and liaisons can do much to smooth coordination, explain MAGTF concerns, resolve conflicts and provide advance information. Successful liaison with the JFACC will increase the success of the MAGTF fires and targeting effort.

The authority and command relationships of the JFACC are established by the JFC. These normally are TACON over other military capabilities/forces made available for tasking. The responsibilities of the JFACC include planning,

coordinating, allocating, and tasking joint air operations based on the JFC's concept of operations and air apportionment decision. Because of the integrated relationship between air operations, airspace control and air defense operations, the JFC normally designates one commander as the JFACC, airspace control authority (ACA), and area air defense commander (AADC).

The organization that supports the JFACC is the joint air operations center (JAOC). The JAOC is divided into a planning section that focuses on development of the joint air tasking order (ATO) for future operations and an operations section for executing the current joint ATO.

The ACA is assigned by the JFC to develop policies and procedures for conducting airspace control within the JFC's area of operation. Procedures are promulgated in the airspace control plan and include instructions for coordinating user requirements, including air and fires assets.

d. Joint Special Operations Task Force Commander

The joint special operations task force (JSOTF) commander has two primary coordination and liaison organizations: the special operations command and control element (SOCCE) and the special operations liaison element (SOLE).

The SOCCE is the focal point for the synchronization of special operations forces' (SOF) activities with land conventional force operations. It performs command and control or liaison functions according to mission requirements and as directed by the JSOTF commander. The SOCCE normally is employed when SOF conduct operations in support of a conventional joint or Service force (for example, a JTF, Army corps, or a MEF). It collocates with the command post of the supported force to coordinate special operations with the operations of the supported force and to ensure communications interoperability. The SOCCE also can receive SOF operational, intelligence, and target acquisition reports directly from deployed SOF elements and provide them to the supported component.

The SOLE provides SOF liaison to the JFACC or the appropriate Service component air command and control facility. A critical role of the SOLE is to prevent fratricide through the coordinated use of shared assets. At a minimum, the SOLE coordinates and synchronizes SOF air and surface operations with joint air operations. The SOLE must consider airborne fire support and reconnaissance, command and control platforms, and aerial refueling, as well as the coordination of deep battlespace operations. Coordination and integration of SOF operations are accomplished through the joint ATO and the airspace control order.

e. Joint Psychological Operations Task Force Commander

A joint psychological operations task force (JPOTF) is a temporary joint agency established by the JFC to accomplish a specific mission or control PSYOP forces in a specific theater of operations. The JPOTF assists the JFC in developing strategic, operational, and tactical PSYOP plans for a theater campaign or other operations. A JPOTF is composed of psychological operations and other units from more than one Service, formed to carry out PSYOP in support of a JFC's campaign or other contingencies. The JPOTF may have a staff comprised of staff officers from one or more Services.

The JPOTF is normally in general support of the joint force to provide a centralized PSYOP theme. In unusual circumstances, the JPOTF may be deployed and employed in advance of the JTF or multinational force of which it will eventually become a part.

A JPOTF normally plans, coordinates, and executes the theater PSYOP campaign plan. In some cases, the JFC may elect to create separate PSYOP task forces to support the JPOTF and a joint civil-military operations task force or to place tactical PSYOP forces in direct support of maneuver elements of the components. The nature of the operation and the objective to be accomplished ultimately determines specific command relationships.

The scale of an operation generally dictates the organization of PSYOP forces. The PSYOP organization may vary in size depending on the nature of the operation, the capability of available forces, and the supported commander's assessment of the PSYOP requirement.

The supported commander may request a PSYOP assessment team to assist in developing the PSYOP objectives and to advise on the appropriate component mix of assets. If the PSYOP assessment team can accomplish the necessary planning to assist tactical commanders executing PSYOP activities, no further PSYOP forces may be necessary.

2003. The MAGTF Force Fires Coordination Center

The FFCC ensures the timely, efficient employment of organic and external assets against enemy targets capable of affecting the MAGTF commander's battlespace or forces. These assets are described in Appendix A. It ensures that fires are planned and executed to support the commander's intent and guidance. While the FFCC assists the commander in fighting a single-battle, its focus is on the deep fight. It assists in providing and coordinating fires for the close and rear fight as required.

Within the MAGTF, the FFCC interfaces with the GCE's FSCC, the ACE tactical air command center (TACC), Marine air command and control system (MACCS), the CSSE's operations center (CSSOC), and the rear area operations center (RAOC), if established. The FFCC coordinates those matters that cannot be coordinated by the GCE FSCC, those matters that affect the MAGTF as a whole, and with higher, adjacent, and external commands. It maintains close coordination with the GCE(s) FSCC(s), ACE TACC (Marine TACC), CSSOC, and RAOC for integration of the fire support plans of the deep, close, and rear battle. External to the MAGTF, the FFCC integrates with the other joint and combined fire support agencies, such as the JAOC, deep operations coordination cell (DOCC), the Navy's supporting arms coordination center (SACC), and the Army's battlefield coordination detachment (BCD). While fire support may be used to support any element of the MAGTF, fire support is used by the MEF commander primarily to prosecute the single-battle.

The MEF combat operations center (COC) provides the MEF commander with a means to command and control his forces. It is the focal point for supervision and execution of his concept of operations. The COC coordinates and monitors the execution of the current OPORD or fragmentary order (FRAGO), monitors the friendly and enemy situation, analyzes the current battle, and recommends to the MEF commander adherence to/changes in the current order, priority of effort, and targeting priorities. The COC also advises the MEF commander in assessing whether conditions for phasing of an operation have been met or whether the end-state has been achieved. The COC is the MEF's primary control node during execution. The G-3 current operations officer, under the guidance of the G-3, directs all activities and functions within the COC. The current operations officer and the senior watch officer are responsible for synchronizing the warfighting functions to accomplish the MEF commander's intent during the current battle and to set the conditions for the next battle.

The current intelligence watch officer is responsible for coordinating intelligence and collections with current operations. The G-3 analysis cell, under the guidance of current operations officer, is responsible for analyzing the current battle, assessing the MEF's progress toward reaching the desired end state of the current campaign, ensuring the MEF commander is fully informed of current or impending friction, and of any conditions which might alter the current order. The analysis cell then translates the commander's guidance into fragmentary orders.

The FFCC, under the cognizance of the G-3, is located in proximity to the COC and provides the MAGTF commander the means to shape the battlespace with fires. Its mission is to ensure timely, efficient employment of organic and/or other supporting fires against enemy targets capable of affecting MEF battlespace and to plan and execute shaping operations through lethal and non-lethal fires, in accordance with the commander's guidance, to set conditions for success in the MAGTF. The focus of execution is on the deep fight and to provide and coordinate fires

for the close and rear fight as required. The FFCC participates in planning with the future operations and future planning sections within the MEF G-3 and G-5 (Plans) respectively. The FFCC's primary tasks are:

- Ensure the commanding general's targeting priorities are followed.
- Review MSC fire support plans to ensure they support the MEF's concept of fires.
- Ensure MSCs have adequate support to successfully conduct operations.
- Coordinate/disseminate battlefield geometry.
- Advise the MEF commander/G-3 on current capabilities, limitations and employment of fires assets.
- Provide representation to the operational planning team to plan fires.
- Destroy or substantially degrade enemy operational capabilities.
- Facilitate maneuver by the ACE and GCE by suppressing the enemy's deep strike systems, disrupting the enemy's operational maneuver and tempo, and creating exploitable gaps in enemy positions.
- Isolate the battlespace by interdicting enemy military potential before it can effectively be used against friendly forces.
- Provide timely reactive fires.
- Redirect resources as required.
- Facilitate execution/modification of the ATO.
- Monitor and coordinate counterfire.
- Coordinate cross boundary fires with higher and adjacent headquarters.
- Resolve fire support conflicts.

The FFCC is run by the force fires coordinator (FFC) and is organized as follows.

a. Plans/Target Information Section

Depending upon the scope of the operation, these two sections may be combined or operate separately.

- **Plans**. The plans section is tasked with supporting the planning functions carried out in G-3 future operations and G-5 future plans sections. The fires plans officer accomplishes this by ensuring FFCC representation from plans to the planning cells/operational planning team (OPT). This representative returns with input for the FFC and assistant FFC to use to produce planning documents for the targeting guidance working group (TGWG) and the synchronization working group, if established. (These working groups may also be combined.) The plans section is also responsible for the integration of various functional areas such as IO or engineer operations, into the fire planning and subsequent target development process.
- **Target Information Section**. The target information section is responsible for the portion of the target development process that resides with the G-3. This consists of chairing the TGWG that develops the MEF's proposed integrated targeting objectives and priorities of attack for the MEF targeting board and subsequent approval by the MEF commander. The target information section conducts the MEF targeting boards and confirmation briefs as required. This section also manages the submission of target nominations to higher headquarters (HHQ) for common source attack. The target information officer (TIO) chairs the TGWG and the synchronization working group that synchronizes the collection plan with the fire plan and scheme of maneuver. He coordinates other targeting boards or briefs, as required. A special working relationship exists between the TIO and the target intelligence officer, as the interaction between them is central to the targeting process. The TIO develops a conceptual approach toward the enemy's critical capabilities; the target intelligence officer identifies critical components of those capabilities, and future targets, the attack of which can accomplish the commanders shaping objectives. The target intelligence officer manages the target intelligence database to create lists of targets and the TIO sponsors those targets through the targeting board and either forwards approved targets to MEF fire support agencies for attack or nominates them to HHQ.

b. Current Fires Section

The current fires section (see Table 2-1) executes the deep fight and coordinates fires for the close and rear fight, as required. This section monitors execution of the fire support plan, revises and adjusts the plan in keeping with the developing situation, and engages reactive targets per the MEF commander's guidance. Within the COC, the current fires section coordinates closely with the current operations section, intelligence, the G3 analysis cell and LNOs. Externally, the current fires section maintains close contact with the Marine TACC, and the force artillery, if employed. It conducts reactive targeting in concert with the current operations section and intelligence, and directs the attack of targets with the appropriate strike assets. The current fires section is usually manned to provide two 12-hour watches.

Billet	Rank
Current fires officer in charge (OIC)	LtCol
Current fires watch officer*	Major/LtCol
Air fires watch officer*	Capt/Major
Surface fires watch officer	Capt/Major
NSFS watch officer	LT USN
Counterfire LNO**	Major/LtCol
Current fires chief*	Staff Sgt/Gunnery Sgt
Plotter*	LCpl/Cpl
Plotter/journal clerk	LCpl/Cpl
AFATDS operator*	LCpl/Cpl
TBMCS operator*	LCpl/Cpl
Structure is modified to meet mission requirements (*) Minimal staffing for MEF (FWD) (**) Not a MEF staff billet - LNO from force artillery to FFCC	

Table 2-1. Sample current fires section table of organization.

- **Current Fires Officer-in-Charge**. This officer is normally a field artillery Lieutenant Colonel who—

  - Provides/modifies specific direction for current fires section execution.
  - Responsible for the current fires section operations and training.
  - Serves as current fires section's primary interface with higher, adjacent, and MSC headquarters.
  - Actively pursues guidance/info from the G-3, FFC, future operations officer, G-2, and other staff sections as required.
  - Must be familiar with MAGTF command and control systems.

- **Current Fires Watch Officer**. The current fires watch officer is responsible for monitoring, coordinating, and supervising the execution of fire plans and the ATO in support of the MEF's operations. The focus is on the deep battle but the close and rear area fight must be monitored and adjustments directed as required. This normally involves the reallocation of air or artillery. As the senior FFCC officer in the COC, he is responsible for the organization and operation of the COC current fires section and the training of its watch standers. During operations, he supervises and coordinates their efforts. Additionally, he functions as the MEF TIO for current operations. The current fires officer is responsible for the following:

  - Execution of the MEF's deep attack plan (includes ATO/integrated tasking order and any surface fire support plans).
  - Monitors the MEF's fire support situation and expeditiously reports significant events or incidents to the COC current operations officer and command, control, and communications (C3) analyst.
  - Maintains current plots of all FSCMs and ensures this information is current in MAGTF command and control systems and on the COC fire support map.

- Coordinates with the COC senior watch officer, watch officer, and current intelligence watch officer to ensure that the FSCMs in effect support the disposition of the MEF's and higher, adjacent, and supporting forces, to include collection assets.
- Coordinates the dissemination of FSCMs to higher, adjacent, supporting, and subordinate commands, via SECRET Internet Protocol Router Network (SIPRNET) and the Advanced Field Artillery Tactical Data System (AFATDS), with the senior watch officer.
- Maintains a journal of significant fire support events.
- Plans, recommends, prepare, and issues orders and instructions for attacking emerging targets located in the deep area. This is also known as reactive targeting. Targets are selected and prioritized using the reactive attack guidance matrix (RAGM) and high-payoff target list (HPTL).
- Resolves fire support conflicts.
- As necessary, prepares requests to obtain additional supporting arms support from higher, adjacent, and supporting commands.
- Reviews the fire support plans of subordinate and supporting commands.
- Prepares and presents the fire support estimate of supportability for rapid planning within the COC.
- Ensures, in conjunction with senior watch officer, that timely and adequate warning of attack by nuclear and chemical munitions is disseminated to all appropriate commands.
- Is prepared to brief the MEF commander, his staff, or any official visitor on the MEF's fire support situation and targeting plans and operations. The current fires watch officer will conduct the fires portion of the shift change brief, and may be directed by the G-3 to brief fires during the MEF commander's morning or evening update.
- Maintains the following maps and information displays:

    - Current fires map (Scale – As required. Normally, 1:250,000, 1:100,000 or 1:50,000)
    - Air operations map (Scale – Normally, 1:500,000).
    - Naval surface fire assets status.
    - Artillery status, if a force artillery is employed.
    - Air defense conditions/weapon release condition.
    - Aircraft status.
    - Attack guidance matrix (AGM).
    - RAGM.
    - ATACMS attack criteria/status.
    - Battlespace shaping matrix (BSM).
    - Damage criteria matrix.

- As the TIO in the COC, the current fires watch officer—

    - Receives reports on potential targets from all sources. Frequently checks the current intelligence situation map and maintains constant contact with G-2 operations and the target intelligence cell.
    - Ensures that all collection assets are properly protected by FSCMs.
    - Keep FFCC personnel informed about the status of targets.
    - Posts targets and pertinent target intelligence on the indirect fire and air operations maps.
    - Keeps the current intelligence watch officer advised of target information available through supporting arms sources.
    - Performs hasty target analysis in conjunction with the current intelligence watch officer.

- **Air Fires Watch Officer**. The air fires watch officer assists the current fires watch officer and is directly responsible for all matters pertaining to the use of aviation assets in the current battle. He maintains close contact with the Marine TACC, monitors the ATO, and focuses on reactive targeting in the MEF deep battle

using targeting priorities, the AGM, the RAGM, and the BSM. The air fires watch officer assists in validating the targets scheduled for air attack by informing the Marine TACC of all significant target information and intelligence concerning the location and dispositions of those targets. Additionally, he—

- Ensures target update sheets are received from the ACE.
- Consolidates aviation status reports.
- Tracks downed pilot situations.
- Maintains air status (locations, strength, sortie rate).

- **Surface Fires Watch Officer**. The surface fires watch officer is directly responsible for all matters dealing with indirect fires in the current battle. As such, he maintains and keeps the current fires watch officer informed of the status of all artillery units. When force artillery is used, he performs direct coordination between the COC and force artillery, employing the force artillery LNO who is co-located with the FFCC. His primary focus is the MEF's deep fight, and he continually coordinates with the current intelligence watch, the air officer, and other collection assets to determine appropriate targets for long-range artillery such as Multiple Launch Rocket System (MLRS) and ATACMS, if available. He also—

  - Coordinates ground fires with air and NSFS fires.
  - Maintains artillery status.
  - Maintains counterfire radar status.
  - Consolidates indirect fire status reports.
  - Assumes responsibilities as the naval surface fires watch officer, as required.

- **Naval Surface Fires Watch Officer**. The naval surface fires watch officer assists the surfaces fire watch officer and the current fires watch officer, and is directly responsible for all matters dealing with NSFS in the current battle. He also recommends fire support coordination measures as they relate to NSFS; requests NSFS ships to occupy a specific fire support area (FSA) or fire support station (FSS) if indicated by the current situation; and transmits decisions and requirements with respect to employment of naval surface fire to the appropriate naval surface fire control agency for action. Additionally he—

  - Forwards indirect fire orders/requests.
  - Maintains NSFS status (locations, ammo, FSA/FSS data).
  - Provides general coordination with U.S. Navy agencies.

- **Counterfire Liaison Officer**. This officer, if required, is normally a major or a lieutenant colonel field artillery officer who is responsible for counterfire matters and liaison with the force artillery. Additionally he—

  - Monitors execution of the counterfire plan.
  - Coordinates combined arms for the attack of high-payoff targets (HPTs) and active targets in the counterfire fight.
  - Ensures counterfire information is shared between the current fires section, the G-2/reactive targeting section and the force artillery to close the sensor -to-shooter loop.
  - Assists coordination of cross-boundary fires.
  - Participates in planning and coordination of counter fires with future operations, the force artillery LNO and the force artillery plans section.
  - Maintains counterfire radar status in the MAGTF's AO and provides radar zone recommendations.

- **Current Fires Chief**. The current fires chief's primary responsibility is to assist the current fires OIC. He supervises all enlisted Marines assigned to the current fires section. His specific duties are:

- Assists the fires officer in controlling the flow of information within the fires section.
- Provides administration support within the fires section.
- Ensures the fires situation map display and the AFATDS database remain current and consistent with all other common tactical picture systems employed in the COC.
- Ensures the status boards are current.
- Forwards updated information to the tactical combat operations (TCO) operator (or other systems operators) via the current fires section watch officer and the COC watch officer. Updates will not be directly forwarded to systems operators.
- Ensures messages, plans, orders and miscellaneous fires information are incorporated into the journal.
- Ensures the current fires section area in the COC is kept in a proper state of police.
- Establishes watch rosters for the enlisted personnel.
- Consolidates information/reports from MSCs and drafts all status reports required by HHQ.

- **Plotter/Journal Clerk**. This Marine—

  - Immediately plots target data as directed.
  - Maintains fires situation map (friendly units, geometry, FSCMs, and ensures all map updates are authorized/directed by current fires supervisory personnel).
  - Ensures situation map consistency with other displays.
  - Records journal entries.

- **Advanced Field Artillery Tactical Data System Operator**. This Marine—

  - Establishes/maintains AFATDS communications.
  - Enters database information as directed by current fires personnel.
  - Processes mission data.

- **Theater Battle Management Core System Operator**. This Marine—

  - Establishes/maintains theater battle management core system (TBMCS) communications.
  - Provides ATO information.
  - Disseminates theater missile defense alerts received via TBMCS.

c. Liaison Section

The liaison section consists of a liaison coordinator, clerk, and liaison teams as appropriate and necessary for the circumstances. LNOs will deploy with the computers, communications equipment, and administrative materials necessary to accomplish their tasks without hampering the operations of the units to which assigned. Fires LNOs from higher, adjacent and MSC headquarters ensure that the FFCC is kept informed of their parent command's fires-related intentions and actions. Further, LNOs are responsible for communicating the intentions and activities of MEF fires to their parent command. LNOs coordinate and assist in fire planning and may be called on to assist in the processing of cross border/boundary operations between the two headquarters. Additional responsibilities include—

- Plan and coordinate MEF directed activities with host unit.
- Maintain situational awareness of MEF unit movements and activities.
- Maintain situational awareness of host unit movements and activities and keep the MEF apprised of critical information.
- Coordinate cross-boundary fires with the host and their subordinate units with the MEF.
- Coordinate movement and dissemination of FSCMs.

- Maintain communications with the MEF by multiple communications channels.
- Ensure proper supplies, materials and publications are available to accomplish the mission.

2004. Information Operations Cell

IO includes all actions taken to affect enemy information and information systems while defending friendly information and information systems. IO is conducted during all phases of an operation, across the range of military operations, and at every level of war. Whatever the nature of the conflict, IO targets information and information systems to affect information-based decisionmaking processes. At the tactical level of war, the primary focus of IO is to affect the enemy information and information systems related to command and control, and intelligence, while protecting similar friendly capabilities. There are two mutually supporting categories of IO—offensive and defensive IO.

Offensive IO involves the integrated use of assigned and supporting capabilities and activities, mutually supported by intelligence, to affect enemy decisionmakers and their information and information systems. These capabilities include, but are not limited to—

- Operations security (OPSEC).
- Military deception.
- PSYOP.
- EW.
- Physical attack/destruction.
- Computer network operations.

Commanders conduct offensive IO to reduce the enemy's tempo, disrupt the enemy's plans, and to influence the enemy's perceptions and estimate of the situation. Offensive IO objectives must be clearly stated, support the overall national and military objectives, and must include indicators that reliably measure success in meeting these objectives. Selection and employment of specific IO capabilities must be appropriate and proportional to the situation. Units conducting offensive IO may be designated as the main effort. Offensive IO may be conducted to accomplish a specific purpose and these operations may be a phase or stage of an operation.

Defensive IO provide for the defense of information and information systems that the MAGTF depends on to conduct operations and achieve its objectives. It integrates and coordinates policies and procedures, operations, personnel, and technology to protect and defend friendly information and information systems. Defensive IO is conducted and assisted through information assurance, OPSEC, physical security, counter deception, counter propaganda, counter intelligence, and EW. Defensive IO ensures timely, accurate, and relevant information access while denying the enemy the opportunity to exploit friendly information and information systems for their own purposes. Four interrelated processes comprise defensive IO are—

- **Information Environment Protection**. The MAGTF establishes an information environment consisting of information systems, facilities, and processes such as intelligence collection and analysis, which serves to focus defensive IO.
- **Attack Detection**. Determination and identification of enemy capabilities, timely detection of attack, and immediate reporting are keys to restoring degraded information systems and the delivery of a response to the attack.
- **Capability Restoration**. Capability restoration relies on established procedures and mechanisms for the prioritized restoration of essential information and information systems. These procedures and mechanisms include redundant links, backup information system components, alternative means of information transfer,

and should incorporate automated restoration capabilities. A post-attack analysis should be conducted to determine the MAGTFs vulnerability to attack and recommended security improvements.

- **Attack Response**. At the MAGTF level, attack detection or indications of a potential attack may result in a lethal or non-lethal response to eliminate or disrupt the enemy information attack system or means.

Commanders conduct defensive IO to reduce the enemy's ability to affect friendly command and control and to reduce mutual interference of friendly command and control throughout the electromagnetic spectrum. Related operations that are not elements of IO, such as public affairs and civil-military operations, must still be coordinated with IO.

The IO cell is a task-organized group of staff officers and subject matter experts of varied and separate disciplines and functions brought together at the MAGTF and other levels of command to plan and execute IO. It is composed of intelligence personnel, augments from supporting IO activities and representatives from various staff elements and appropriate warfighting functions under the cognizance of the G-3/ S-3.

During planning, the IO cell coordinates and facilitates the planning efforts of all the staffs and organizations responsible for conducting IO. It works closely with the FFCC and targeting board to ensure IO is an integral part of the MAGTF's overall fire plan. IO cell members routinely conduct planning and supervise execution of the IO portion of the MAGTF's fire plan with FFCC personnel. The IO cell must have access to communications equipment—the COC, FFCC, or their own—to effectively coordinate changing IO requirements.

For more information on IO, see MCWP 3-40.4, *Information Operations*.

2005. Major Subordinate Command Fire Support Organizations

The MSCs of the MAGTF and other subordinate organizations and agencies operate fire support organizations and agencies to plan, coordinate, conduct and assess the effects of fires within their respective AOs or in support of the MAGTF commander's concept of operation.

a. Aviation Combat Element

The MAGTF's ACE commander exercises air operations authority for the MAGTF commander through the MACCS. Within the ACE there are three major centers that participate in the command and control of aviation assets—

- **Marine Tactical Air Command Center**. The Marine TACC is the senior MACCS agency. It is the operational wing command post from which the ACE commander and his staff plan, supervise, coordinate, and execute MAGTF air operations (this includes the planning and execution of all ATOs and the execution of the current ACE OPORD or FRAGO). The Marine TACC is the MACCS agency from which the ACE commander exercises command. The Marine TACC integrates the six functions of Marine aviation with the MAGTF command element through the MAGTF COC and the FFCC. The Marine TACC provides functional interface for employment of MAGTF aviation in joint and multinational operations. It is referred to as the Marine TACC to avoid confusion with the Navy tactical air control center. For further discussion of the roles, tasks, and organization of the Marine TACC refer to MCWP 3-25.4, *Marine TACC Handbook*.
- **Tactical Air Operations Center**. The tactical air operations center (TAOC) is the principal MACCS air defense agency that conducts airspace control and management. Personnel and equipment are provided by the Marine air control squadron of the Marine air control group. Through radar inputs from its organic sensors and data links from other military radar units, the TAOC provides real-time surveillance of assigned airspace in addition to air direction, positive aircraft control, and navigational assistance to friendly aircraft. Its primary function, to conduct and coordinate AAW, is accomplished through the direction, coordination, and

employment of various air defense weapons systems which include interceptor aircraft and ground-based air defense weapons. For further discussion refer to MCWP 3-25.7, *Tactical Air Operations Center*.

- **Direct Air Support Center**. The direct air support center (DASC) is the principal MACCS air control agency responsible for the direction of air operations that directly support ground forces. It functions in a decentralized mode of operation, but is directly supervised by the Marine TACC or the Navy TACC. During amphibious or expeditionary operations, the DASC is normally the first MACCS agency ashore and usually lands in the same category; i.e., scheduled or on-call wave, as the GCE's senior FSCC. The DASC's parent unit is the Marine air support squadron of the Marine air control group.

  The DASC processes immediate air support requests; coordinates aircraft employment with other supporting arms; manages terminal control assets supporting GCE and CSSE forces; and controls assigned aircraft, unmanned aerial vehicles, and itinerant aircraft transiting through DASC controlled airspace. The DASC controls and directs air support activities affecting the GCE commander's focus on close operations and those air missions requiring integration with the ground combat forces (close air support, assault support, and designated air reconnaissance). The DASC does not normally control aircraft conducting deep air support missions as detailed coordination of these missions are not required with ground forces. However, the DASC will provide battle damage assessments (BDAs) and mission reports from deep air support missions to the GCE's senior FSCC when required. For more detailed information, refer to MCWP 3-25.5, *DASC Handbook*.

b. Ground Combat Element

The GCE plans, integrates, and coordinates all fire support within the GCE's area of operations. It plans fires, conducts targeting, and integrates fires with maneuver in close operations. The GCE plans and coordinates the delivery of its organic fire support; the delivery of fire support provided by other means such as aviation, NSFS, and other assets capable of contributing to a combined arms effort, such as electronic attack or electronic warfare support. The GCE coordinates with other elements of the MAGTF as necessary, and with adjacent external forces on fire support matters. The organization the GCE commander uses to perform these tasks is the FSCC. The FSCC is a single location in which there are centralized communications facilities and personnel incident to the coordination of all forms of fire support. A FSCC exists at each echelon of the GCE from division to battalion levels. The fire support coordinator (FSC) organizes and supervises the FSCC under the staff cognizance of the G-3/S-3. The FSCC is collocated with the COC. Facilities and consumable supplies are provided by the headquarters to which the FSCC is assigned.

The FSCC plans fires, conducts targeting, and integrates fires with maneuver in close operations. The FSCC plans and coordinates the delivery of fire support provided by other means such as NSFS, air, and other means capable of contributing to the combined arms effort. The FSCC coordinates with adjacent FSCCs, other elements of the MAGTF as required, and with adjacent, combined and combined forces when authorized by the FFC. Issues that can not be resolved by direct coordination between subordinate division FSCCs, or FSCCs adjacent to joint or coalition forces will be resolved through the MAGTF FFCC. Detailed listings of personnel by grade, military occupational specialty, and billet description are found in unit tables of organization. For further information on the FSCC refer to MCWP 3-16, *TTP for Fire Support Coordination in the GCE*.

c. Force Artillery

The mission of the force artillery is to provide artillery, rocket and missile fire support to the MAGTF and MSCs as required. The force artillery controls only those ground indirect fires assets not organic to the GCE—not all MAGTF artillery. Its mission includes command and control of attached artillery, rocket and missile assets, as well as survey, meteorological and counterbattery radar to support the force artillery and the MAGTF as a whole. The force artillery normally requires extensive logistic support and will generally involve the assignment of a dedicated direct support CSSE.

During operations the force artillery will provide a liaison team to the FFCC, positioned with the MEF G-3 force fires plans section, and will provide additional teams to attached U.S. Army and combined forces rocket, cannon, or missile artillery commands, as required. Table 2-2 shows a notional force artillery liaison team.

Force Artillery Liaison Team OIC	LtCol/0802
Current Plans Officer:	LtCol/0802
Current Plans Assistant	Capt/0802
Future Plans Officer:	LtCol/0802
Future Plans Assistant:	Capt/0802
Force Artillery Liaison Chief:	MSgt/0861
Force Artillery Liaison Comm Chief:	GySgt/2591
Force Artillery Liaison Man:	GySgt/0861
Arty Scout Observers:	Sgt/0861
(6) Field Radio Operators:	Sgt/2531
(5) MUX Operators:	Cpl/2532
(6) Microwave Tech:	Cpl/2831

Table 2-2. Notional liaison officer team composition.

Force artillery LNO teams will perform the following tasks:

- Provide the MAGTF commander and his staff with advice on force artillery capabilities and employment.
- Communicate the MAGTF commander's intent, fire support guidance, and priorities to the force artillery commander.
- Provide force artillery representation in the FFCC's plans, future plans, and future operations sections.
- Direct and/or monitor execution of force artillery missions as ordered by the MAGTF commander or his staff.
- Monitor current status of force artillery units.

d. Combat Service Support Element

The CSSOC is the CSSE commander's agency to control and coordinate the day-to-day operations of the organization. Within the CSSOC, a fires element may be established in order to coordinate fire support requirements for the CSSE.

e. Rear Area Fire Support Agencies

Integration and coordination of rear area fire support is a key part of MAGTF operations. The integration of rear area fire support requirements into the MAGTF's fire plan is critical. Air support requests for the rear area are submitted for incorporation in the MAGTF ATO.

The rear area coordinator or rear area commander normally establishes a facility from which to command, control, coordinate, and execute rear area operations. This facility normally contains an operations cell and a logistic cell to coordinate the following:

- Security forces (e.g., military police, tactical combat force).
- Fire support agencies.
- Support units (e.g., supply, engineer, medical).
- Movement control agencies.
- Other command and control facilities.
- Bases and base clusters.
- Other organizations as necessary (e.g., counterintelligence team, civil affairs group).

A rear area command and control facility may be located within or adjacent to an existing facility or it may be a single-purpose facility established specifically for rear area operations. An existing facility may include an existing organization, a cell within an existing organization, or a separate organization collocated with a host organization.

When located within or adjacent to an existing facility, a rear area command and control facility may be able to use some of the existing facility's personnel and equipment, thus reducing the need for additional resources. Based on the scope of rear area operations within a major theater of war, it may be necessary to establish a separate rear area command and control facility.

Table 2-3 shows the appropriate titles for rear area command and control organizations at the various MAGTF command echelons. The commander establishes various rear area command and control organizations, but the naming of those organizations should conform to the table to promote common understanding.

Echelon	Title	Facility
MAGTF or major subordinate command	Rear area coordinator	Rear area operations center
	Rear area commander	Rear area command post

Table 2-3. Rear area command and control organizations.

The rear area coordinator or rear area commander executes assigned tasks to ensure that rear area operations support the conduct of tactical operations in the close and deep battle. The rear area command and control facility integrates and coordinates its activities with the main and forward command posts to ensure that the Marine Corps component or MAGTF commander has a better understanding of the battlespace and can influence and orchestrate the single-battle.

The rear area command and control facility must have reliable communications and connectivity with the higher, adjacent, and subordinate headquarters involved in rear area operations. Connectivity to the joint rear area intelligence network, movement control infrastructure, and other support structures is also vital to the successful conduct of rear area operations.

2006. External Fire Support Organizations

The FFCC coordinates fire support efforts with other organizations external to the Marine Corps Service component command and the MAGTF.

a. United States Navy

- **Supporting Arms Coordination Center**. The SACC is located aboard an amphibious ship configured with the communications facilities required to coordinate the employment of mortars, rockets, artillery, air, and naval surface fires. The SACC is organized into a naval gunfire section, air support section, and target information section and functions under the supervision of the supporting arms coordinator (SAC). The SAC, with the advice of the landing force FSC, integrates the fire plans of the supporting arms to ensure their most effective use in furthering the commander, amphibious task force's (CATF) concept of operations and supporting the landing force scheme of maneuver. During an amphibious operation, the SACC is the primary agency that coordinates and controls all supporting fires for the CATF to establish the landing force ashore. When the commander, landing force (CLF) is ashore and his control and coordinating agencies are operating effectively, CATF normally passes responsibility for control and coordination of supporting arms to CLF upon CLF's request. Thereafter, CLF coordinates the fires of supporting arms through the FFCC and subordinate Marine Corps FSCCs or Army fire support elements (FSEs). CLF is then authorized to assign NSFS missions directly to NSFS ships and to supervise execution of these missions. The change in responsibility for fire support coordination is based on established criteria, including the capability to coordinate all ground and air fires, and is contingent on CATF's decision. After passage of control and coordination responsibilities ashore, SACC assumes a monitoring status, prepared to resume control and coordination functions if required.

- **Navy Tactical Air Control System**. The Navy tactical air control system is the principle air control system afloat. The senior control agency is the Navy TACC. During amphibious operations, before control is phased ashore, the Navy TACC plans and controls all air operations within the amphibious objective area (AOA), however, landing force aviation command and control personnel will augment and provide input to the Navy TACC.

b. United States Army

- **Fire Support Element**. FSEs are normally established from the maneuver battalion to corps level and are provided by the supporting field artillery command. These elements advise the maneuver commander on capabilities and the effective use of fire support assets, and assist with planning and coordinating fire support. The FSE is directed and supervised by the fire support coordinator (FSCOORD).

  At the division and corps level, fire support planning, coordination, and execution normally involve representatives from various elements. Such elements include the FSE, Army aviation units, electronic warfare support elements, air defense artillery, Air Force support to include an air liaison officer and tactical air control party, naval fire support and others. When available and if assigned, a naval gunfire liaison officer (NGLO) acts as the liaison officer for the naval task force supporting the Army ground forces down to battalion level. He coordinates all naval gunfire supporting the ground maneuver forces or that may affect their area of operations. He advises the FSCOORD on all matters pertaining to naval gunfire employment. These matters include capabilities, limitations, status of fire support ships, and targets suitable for naval gunfire engagement. FSEs at Corps level and below are the focal points of Army fire support activities.

  The FSCOORD, typically the senior field artillery commander at the given echelon, ensures that all available means of fire support are planned for, integrated, and synchronized with the battle plan. He has dual responsibility for implementing the force commander's fire support concept, as well as the command and control of his field artillery organization. At the division and corps levels FSEs are similar in structure. They are located in the main and tactical command posts and, as required, in the rear area operations cell of the rear command post. Assisted by FSE personnel, the FSCOORD:

  - Develops, disseminates, and implements the approved fire support plan.
  - Accommodates fire support requirements through the allocation of assets, assignment of missions, and positioning of delivery, target acquisition, and logistic assets.
  - Advises the commander on fire support capabilities in support of committed maneuver units and expedites the processing of immediate fire support requests.
  - Maintains status of command's available fire support means.
  - Responds to requests for additional fire support from subordinate FSEs.

  The FSCOORD at the brigade level is the direct support field artillery battalion commander. He establishes FSEs in each maneuver battalion and fire support teams in each company. The battalion fire support officer is the FSCOORD for the maneuver battalion commander. He is in charge of the FSE and he is the principal fire support advisor to the maneuver commander. He supervises and coordinates the training and the actions of the company fire support teams. FSEs at brigade and battalion are located with the maneuver tactical operations center.

- **Deep Operations Coordination Center**. The DOCC serves as the center for focusing and integrating the planning, coordination, synchronization, and execution functions for all corps-level deep operations. DOCCs may also be found at the division-level and at echelons above Corps. The primary functions of DOCC are promoting situational awareness; planning, synchronizing, and coordinating targeting; and executing deep fires to include controlling designated fire assets. These functions are performed simultaneously and

continuously throughout the conduct of combat operations. The DOCC does not replace the functions of other fire support command and control agencies, but centralizes the process. The DOCC has the communications equipment, processing hardware, and personnel to interface with HHQ, joint, and national sensors. Either the chief of staff or corps artillery commander is normally the DOCC OIC and responsible to the commander for carrying out the functional tasks of the DOCC. By interacting with other coordination elements, the DOCC plans and coordinates the use of fires, combined arms maneuver, special operations forces, and Army airspace command and control (A2C2) in support of deep maneuver operations. The DOCC ensures effective and efficient employment of critical assets and facilitates synchronization of joint operations. For example, the DOCC might request the use of NSFS assets to support the Army's deep battle. Because of the time sensitivity of some missions, such as theater missile defense attack operations, the DOCC may establish direct communications channels to selected attack systems under its control. The DOCC is responsible to coordinate the attack of targets when multiple delivery systems may be available, or are operating in the same general area. The analysis and control element provides the intelligence, target analysis, and correlation support for the DOCC. The analysis and control element develops and manages the collection plan to avoid duplication of effort among available target acquisition assets. The G-2/J-2 controls the analysis and control element. Sensors report priority acquisitions to the DOCC. These reports serve as trigger events for deep fire execution. The DOCC will normally use decentralized execution for certain high priority targets with relatively short dwell times. The DOCC incorporates routine, less time sensitive sensor reports into fire plans. Connectivity with analysis and control element also provides the DOCC with timely BDA.

- **Battlefield Coordination Detachment**. The BCD is an Army liaison element provided by the Army component commander to the U.S. Air Force air operations center and/or to the component designated by the JFC to plan and coordinate air operations. The BCD processes Army requests for tactical air support, monitors and interprets the land battle situation for the JAOC, and provides the necessary interface for exchange of current intelligence and operational data. The BCD's mission is to establish the Army forces (ARFOR) liaison and interface with the JFACC. The BCD is normally collocated with the JAOC. The BCD's mission encompasses the following:

  - Exchanging operational and intelligence data and support requirements between the JFACC and ARFOR.
  - Coordinating ARFOR requirements for CAS and air interdiction.
  - Communicating the commander, ARFOR's (COMARFOR) decisions and interests to the JFACC.
  - Interpreting the land battle situation for the JFACC by ensuring the JFACC is familiar with the COMARFOR's scheme of maneuver and intent and the concepts for application of ground, naval and air assets within the ARFOR's AO.
  - Interpreting the JFACC's air operations situation for the ARFOR.
  - Passing JFACC requests for ARFOR supporting fires.
  - Coordinating the integration of ARFOR requirements for airspace control measures, joint FSCMs, and theater airlift.

  The BCD must be prepared to operate with an Air Force air operations center, a Navy TACC, or a Marine TACC depending on which component commander is appointed as the JFACC.

c. United States Air Force

The air support operations center (ASOC) is the key Air Force Theater Air Control System agency involved in coordinating CAS for ground forces (normally the Army). It performs coordination, direction, and control of the air effort to support land forces' maneuver objectives and processes requests for immediate CAS. It is usually collocated with the Army Corps-level tactical or main FSE and A2C2 elements. The ASOC is a subordinate element to the air operations center. It performs functions similar to the Marine Corps' DASC.

Chapter 3

Planning for Fires

This chapter explains how the MAGTF commander and his staff plan for the employment of fires. It describes how the MAGTF is organized to plan, and how planning is conducted using the MCPP and the targeting process. Planning with external fire support agencies is also discussed. While the material in this chapter applies to both the MEF and the MEB, only the MEF is depicted and described for illustrative purposes.

3001. Fire Planning

Fire planning is the continuous process of analyzing, allocating, synchronizing, and scheduling fire support to effectively integrate fires in support of the commander's concept of operation and to generate and maintain combat power. Fire planning, like all planning, is an inherent part of command and control. Products of detailed fire planning include the fire plan and various appendixes to the OPLAN/OPORD. A fire plan, according to Joint Pub 1-02, is a tactical plan for using the weapons of a unit or formation so that their fires will be coordinated.

Fire planning consists of conceptual, functional, and detailed planning. The highest level, or conceptual planning, establishes the aims, objectives, intentions of the commander, and includes developing broad concepts for action. Conceptual planning is primarily the province of the commander and generally corresponds to the art of war. During conceptual planning, fire planners develop the concept of fire for the operation. The concept of fires is based on the commander's operational design, including his commander's intent, concept of operations, vision of shaping and decisive actions, and targeting guidance and priorities.

Functional planning is the design of plans for the employment of discrete functional activities. Functional planning is performed by both the commander and his staff and is a combination of the art and science of war. In functional planning, fire support planners design supporting plans for functions such as artillery, aviation, and naval surface fire support.

At the lowest level is detailed planning, which translates the results of conceptual and functional planning into complete and practical plans. Detailed planning, encompassing the specifics of implementation, is performed by the staff and generally corresponds to the science of war. Detailed planning doesn't establish objectives; it prescribes the actions or tasks that accomplish the objectives. Detailed planning for fires includes targeting, scheduling, and combat assessment—the critical steps where targets are selected, attack means are assigned, and effects are measured to accomplish the commander's objectives for fires.

3002. The Operational Planning Team

The OPT is a task organized planning cell centered around the future operations or future plans sections, and it has representatives from the MAGTF's principal and special staff, planners, LNOs from subordinate, adjacent, and

supporting, headquarters, and subject matter experts, as dictated by METT-T. Every OPT includes representatives with expertise in each of the warfighting functions. These representatives may be "dual-hatted"—they may represent a warfighting function as well as a specific staff section (the G-2 representative may also be the intelligence representative, etc.). Normally, the G-3 future operations section provides the nucleus of the OPT, and upon receipt of a mission, the OPT is augmented by representatives from the other staff sections and LNOs and planners from the MSCs and any supporting agencies.

Normally, the FFCC and the MAGTF air section of the G-3 and the ACE LNO provides fire planning representation to the OPT. The OPT plans fires utilizing the Marine Corps targeting process of decide, detect, deliver and assess (D3A) within the MCPP. The OPT utilizes the D3A process to conduct the conceptual planning and make the broad functional decisions necessary to develop a concept of fires. The detailed planning for fires is conducted by those functional agencies tasked with providing or coordinating fires such as the force fires, force artillery, the ACE, and radio battalion. Whether the fire planners work directly for the future operations officer or the FFC is not as important as their knowledge of each MEF fire support asset (artillery, NSFS, aviation, EW, etc.) and their full-time participation in the OPT.

The fire planners are responsible for coordinating fire planning across the warfighting functions and elements of the MAGTF, providing input to the OPT process, and briefing the FFC and the G-3 throughout the process. Fire planners work closely with planning personnel from the MSCs, force artillery, G-2, G-6 (communications and information systems), IO, and HHQ fires agencies and planners to ensure coordination of the fires effort.

3003. Operational Design

The commander initiates planning with a design that will guide his subordinate commanders and the OPT in planning, execution, and assessment. This operational design is the commander's tool for translating the operational requirements of his superiors into the tactical guidance needed by his subordinate commanders and the OPT. Operational design helps the commander to ***visualize***, ***describe***, and ***direct*** those actions necessary to achieve his desired end state and accomplish his assigned mission. It includes the purpose of the operation, what the commander wants to accomplish, and how he envisions achieving a decision. Visualization of the battlespace and the intended actions of both the enemy and the friendly force is a continuous process that requires the commander to understand the current situation, broadly define his desired future situation, and determine the necessary actions to bring about the desired end state. The commander begins his operational design during the mission analysis step of the MCPP.

Operational design includes the commander's guidance for the use of fires to help achieve a decision. The commander articulates this broad concept of fires to his subordinate commanders and the OPT in his commander's orientation consisting of his commander's battlespace area evaluation (CBAE) and initial guidance. By sharing his vision he provides them with the critical roles and tasks that fires will have to perform. This includes his initial thoughts on what constitutes decisive action, how fires can help to achieve a decision, and the role of fires in shaping the battlespace. He may identify critical enemy units, capabilities, and infrastructure that if attacked by fires could contribute to mission accomplishment.

3004. Battlefield Framework

After receiving the commander's planning guidance, the OPT begins to develop the battlefield framework. This framework is part of the commander's operational design and describes how the commander will organize his battlespace and his forces to achieve a decision. The battlefield framework consists of the battlespace organization of

envisioned deep, close, and rear tactical operations as well as the organization of the force into the main effort, reserve, and security. Supporting efforts are addressed in the context of deep, close, and rear operations as part of the single battle. The battlefield framework provides the commander and the OPT with an organized way to ensure that they consider all essential elements of successful military operation in planning and execution. The OPT begins to develop the battlefield framework during mission analysis and continues its development through COA development and COA wargaming.

In determining the part that fires plays in the battlefield framework, the OPT takes the conceptual planning contained in the commander's operational design and translates it into functional and detailed fire planning. This includes battle space, FSCMs, targeting objectives, and the selection and prioritization of targets.

3005. Fire Planning in the Marine Corps Planning Process

The MCPP is a six-step problem solving methodology. It is a learning process to promote understanding for success in execution. It aids the commander and staff in—

- Analyzing the mission to determine the scope and essence of the problem.
- Developing solutions to the problem in the form of COAs.
- Wargaming COA(s) against possible threat actions.
- Comparing multiple COAs against each other and selecting the one that best satisfies the requirement.
- Writing the plan.
- Transitioning the plan to subordinate commands and the current operation section for execution.

The scope, complexity, planning horizon (distance in time or event), and time available will determine the level of detail contained in the plan. Planning timelines can vary greatly from the combatant commander's biannual cycle to weeks or even hours in the case of the MAGTF. The MCPP is designed to be scaleable and fit any timeline. See MCWP 5-1, *Marine Corps Planning Process*, for more information.

a. Mission Analysis

Mission analysis is the first step in planning. Mission analysis begins with receipt of the mission, or more commonly, receipt of tasks from which a mission is determined. The purpose of mission analysis is to review and analyze orders, guidance, and other information provided by HHQ and produce a mission statement. This step drives the remainder of the MCPP.

The commander begins the planning process by issuing his commander's orientation. The commander's orientation includes the CBAE and his initial guidance. The CBAE includes the commander's battlespace, initial assessment of the friendly and enemy centers of gravity (COGs), commander's intent, and the commander's critical information requirements (CCIRs). He draws on his experience to visualize the relationship between friendly forces, enemy forces, and the battlespace. He envisions the interaction of these elements over time and how he will achieve a decision that leads to the desired end state. When the commander issues his intent and initial guidance, he addresses critical enemy units, capabilities, or infrastructure he wants attacked by fires. He may also give guidance on the role of fires in decisive and shaping actions.

- **Fire Planners**. In mission analysis the OPT reviews and analyzes HHQ orders, guidance and other information to determine the command's tasks, limitations, and mission statement. The fires representatives in the OPT focus their analysis on the HHQ concept of fires to determine any fires related specified or implied tasks or limitations. Fire planners should learn everything they can about the battlespace as it relates to the

mission, threat, and the fires warfighting function. Fire planners should key on several items during mission analysis:

- Designation of area of interest and area of influence that predict the future MAGTF AO, as well as adjacent/deep areas for target nominations.
- Existing boundaries, maneuver control measures, and FSCMs that depict the current/future MAGTF AO.
- Status of higher, adjacent, and supporting units that may require or augment MAGTF fires capabilities.
- Identification or refinement of friendly and enemy COGs to exploit friendly strengths and defeat the enemy's.
- Explore how fires can be employed to exploit enemy critical vulnerabilities (CVs) and protect friendly CVs.
- Determination of specified and implied tasks that could involve fires.
- Known or predicted events or time driven actions that will influence shaping actions and the concept of fires.
- Status (location, mission readiness, munitions) of organic fire support systems.
- Intelligence preparation of the battlespace (IPB) products, particularly doctrinal and situation templates and the modified combined obstacle overlay (MCOO) to determine potential targets (enemy forces, bridges, choke points, etc.) and possible threats to friendly fire support assets.
- Target value analysis (TVA) based on the generation of high-value targets (HVTs) by the G-2.
- Weather and especially its affect on aviation operations.

- **Target Information Section**. During mission analysis, the target information section will:

  - Review HHQ directives and SOPs for battle rhythm timelines (targeting cycles) in order to align the MEF's accordingly.
  - Determine HHQ software application, version, and format for timely, acceptable electronic submissions of target nominations and target list updates.
  - Maintain the MEF target list and submit updates to the HHQ for additions or deletions to the JFC's master target database.

The HHQ concept of fires, ongoing joint force shaping activities, the HVTs for each enemy COA, friendly fires assets available, and the commander's initial guidance on the enemy's COG(s) help frame the fires representative's thinking during mission analysis.

b. Course of Action Development

COA development is the creative step in the planning process where potential solutions that satisfy the commander's intent and guidance and accomplish the mission determined during mission analysis are developed. This step generates options for follow-on wargaming and comparison that satisfy the mission, commander's intent and guidance. COA development begins with planning guidance from the commander based on the learning that took place in mission analysis. The commander's intent—normally expressed as purpose, method, and end state—is a form of planning guidance as to how he sees operations unfolding.

The commander will normally give specific planning guidance on the operation. This could include guidance on each of the warfighting functions, including guidance on the desired effects of fires, and an initial concept of fires to achieve those effects. The commander's guidance, CBAE, and vision of decisive, shaping, and sustaining actions frames the development of COAs by the OPT.

During COA development, the OPT will devise concepts of operations and supporting concepts—including fires—to form COAs. Fire planners in the OPT will suggest ways to employ fires as part of any potential COA. The supporting

concepts must be coordinated and compliment each other. The concept of maneuver and the concept of intelligence with its collections plan must be synchronized with the concept of fires.

As a COA is developed, the OPT identifies the specific enemy formations or capabilities that must be attacked by fires for the command to be successful. The OPT analyzes the HVTs provided by the G-2 to determine potential HPT. HPTs are those HVTs whose loss to the enemy will significantly contribute to the success of the friendly COA. The OPT uses four criteria in screening HVTs to determine if they will become HPTs: Can the HVT be acquired? Can the HVT be attacked by lethal or nonlethal assets? Is the HVT a critical node whose disruption or destruction will immediately degrade the enemy's ability to command and control or conduct combat operations? Is the attack of the HVT by fires necessary for the success of the friendly COA? If the answer to each of these questions is yes, then that target becomes an HPT.

The OPT also identifies the targeting objectives which translate to the desired effects of fires against specific enemy formations and functions. Targeting objectives include disrupt, delay, limit and divert. Because targeting objectives have important level of effort and resourcing considerations, the OPT must use proper terminology in determining targeting objectives. It is important that the OPT not confuse targeting objectives with the terms suppress, neutralize or destroy which describe the intensity of fires required to achieve the targeting objectives of disrupt, delay, limit or divert. For example, if the commander tasks the ACE with delaying a specific unit from crossing a river, the ACE planners may determine that to achieve this targeting objective they need to suppress that unit's air defenses and destroy its bridging assets.

Fire planners' major tasks are to—

- Array friendly fire support assets to achieve asymmetric advantage.
- Assess enemy fire capabilities for lethality, range, and ability to range friendly CVs.
- Develop the concept of fires and the initial fire support estimate.
- Integrate fires with schemes of maneuver (combined arms) to pose dilemmas for the enemy.
- Exploit critical vulnerabilities to allow friendly forces to disrupt or defeat a center of gravity resulting in an action larger than itself (decisive action).
- Plan shaping activities which render enemy strengths vulnerable to attack in order to set conditions for decisive action.
- Develop FSCMs that allow for the best support of the concept of operations.
- Coordinate with other planners to determine appropriate maneuver and airspace control measures.
- Identify areas (target areas of interest [TAIs]) where the successful engagement of HPTs will cause the enemy to abandon a particular COA or prevent the enemy from interfering with the friendly COA.
- Help to identify areas (named areas of interest [NAIs]) where enemy activity or lack of activity will confirm or deny an enemy COA or that may support a friendly commander's decision point (DP). Decision points are points in the battlespace where the commander must make a decision to commit to a particular COA.
- Select HPTs from the HVTs provided by the G-2 and determine the timing and sequence of attack, assets required, and the desired effects.
- Synchronize collection planning with fire planning to ensure targets are detected and tracked prior to execution and assessed afterwards.
- Formulate a counterfire plan, if required, that states which agency or MSC will have responsibility for coordinating strikes against enemy artillery, including strikes by the ACE or the force artillery beyond the range of the GCE's organic capabilities.
- Review and provide input to ROE.
- Plan fires to protect the force.
- Identify fires command and control issues with HHQ, adjacent and subordinate units.

At this point in the planning, the relative importance of individual targets emerges. This relative importance is known as target relevancy. However, relevancy is strictly dependent on a particular COA. For each proposed COA, fire planners develop a rough concept of fires and initial estimate depicting the role that fires will play.

c. Course of Action War Game

The COA war game is a step-by-step process of action, reaction, and counteraction for visualizing each friendly COA in relation to enemy COAs. The purpose of the COA war game is to conduct a detailed test of each COA as it pertains to the enemy and battlespace. This test occurs as the OPT fights its' COAs against a thinking responding enemy in the form of the Red Cell. The Red Cell employs enemy equipment, doctrine and tactics in fighting threat COAs selected by the MAGTF commander to give the OPT an accurate picture of enemy capabilities and intentions. During the war game, the OPT identifies the strengths, weaknesses and potential resource shortfalls for each COA as they become apparent, and takes corrective action to strengthen friendly COAs. COA wargaming can lead to—

- A better understanding of the battlespace and all its elements.
- Advantages and disadvantages of each friendly COA.
- Refinement and improvement of friendly COAs.
- Validation of the commander's decisive action.
- Validation of friendly and enemy COGs.
- Identification of branches and sequels.

Fire planner participation in COA wargaming is critical to fires and targeting. COA wargaming is the most productive event in the planning process for confirming known HPTs and determining new HPTs. The initial concept of fires and fires estimate developed during COA development is tested and refined as necessary. Through observation and participation in an interactive war game against a free-thinking, willful enemy, fire planners can determine or confirm the attack of which bridge, chokepoint, enemy force, etc., is key to friendly success and choose the best fires asset to conduct the attack.

During the war game the fire planners in the OPT validates or refines the HPTs proposed during COA development and ensure that fires are synchronized to best support the concept of operations. Testing fires plans against the enemy COAs may require adjustments to the concept of fires; a fires task assigned to one MSC might be better accomplished by another, the timing of the attack by fires might be changed to have better effect, and new HPTs might arise as a result of the war game.

The war game refines TAIs and NAIs. Fires related NAIs must be placed to allow for sufficient reaction time for HPTs to be engaged by fires in TAIs. Identifying NAIs and TAIs are the OPT's main role in the development of the collection plan.

Fire planners' major tasks also include—

- Validate and refine fires related tasks determined during COA development and record for later use in developing the synchronization matrix and the OPLAN/OPORD/FRAGO.
- Validate and refine which HPTs should be attacked in each COA.
- Help develop the decision support matrix (DST) by identifying fires related NAIs and TAIs associated with DPs. The DST will become a key tool in execution for current operations.
- Validate and refine coordination of fire s procedures with HHQ, adjacent, and subordinate units.
- Validate and refine airspace coordination measures and FSCMs in conjunction with the AO, MSC boundaries, and maneuver control measures.
- Validate and refine the counterfire plan.

d. Course of Action Comparison and Decision

The fourth step in the MCPP is COA comparison and decision. The purpose this step is for the commander to select the COA that the MAGTF will execute to accomplish the mission. During this step friendly COAs are evaluated against each other and the commander's evaluation criteria. The commander establishes the criteria (risk, simplicity, supportability, etc) to weigh the merits of each COA. The commander then selects the COA that best accomplishes the mission. This step requires the involvement of the commander, his subordinate commanders, and their staffs. With a decision by the commander, detailed planning can accelerate now that all planning is focused on one COA.

The fires representatives produce staff estimates (artillery, aviation, naval surface fires), which focus on how effectively each COA allows the detection and attack of HPTs with fires. This effectiveness can be measured in terms of time, terrain, projected loss of friendly assets, and the certainty of achieving the desired effects on enemy forces or capabilities. The commander will weigh the fires estimates, along with those of the other warfighting functions, in making his COA selection. Once the commander has selected a COA, the fires planning for that COA serves as a base concept of fires and the fire support appendix of the OPLAN/OPORD. If the MAGTF is part of a JTF that is involved in lethal shaping, the MAGTF's force fires may also nominate targets from the selected COA's fires plan to the JTF targeting board for inclusion in the JFC's shaping plan.

- **Fire Planners**. Fire planners can assist during COA comparison and decision by—

  - Providing an estimate of supportability for artillery, aviation, NSFS, and EW.
  - Planning the fires portion of any emerging branch plans.
  - Completing the concept of fires—lethal and nonlethal—for each COA.
  - Completing the fires portion of the synchronization matrix to ensure fire support assets are integrated with the other warfighting functions in time, space, and purpose.
  - Develop a draft BSM, if used.

- **Target Information Section**. With the selection of a COA (including the concept of fires), the target information section can—

  - Schedule the MEF TGWP and targeting board.
  - Develop a proposed MEF prioritized target list for consideration at the targeting board based on targeting objectives, targeting priorities (by category), MSC target nominations, and any HPTs identified during the war game.
  - Continue to work with G-2 Collections to schedule reconnaissance, surveillance, and target acquisition assets to detect, identify and validate desired targets in concert with NAIs and TAIs.
  - Develop and publish MAGTF target numbering system, if other than the SOP.

e. Orders Development

After a COA has been selected, the MAGTF staff and OPT conduct the fifth step in the MCPP, orders development. The orders development step allows planners to communicate the commander's intent, guidance, and decisions in a clear, useful form that is easily understood by those who must execute the order. The order directs actions and focuses subordinate activities toward accomplishing the mission. The MAGTF force fires is responsible for developing the fire support plan which addresses the conceptual, functional and detailed levels of planning. In the base operations order, the concept of fires paragraph (paragraph 3.b.2) provides the conceptual plan for fires and includes targeting objectives. The functional level of planning is captured in the fire support plan (Appendix 19 to Annex C) and includes fires related taskings to the major subordinate commands. The detailed fires planning is captured in the functional support plans tabs to Appendix 19 to Annex C (Tab A is the Air Support Plan, Tab B is the Artillery Support Plan, Tab C is the Naval Surface Fires Support Plan).

- **Fire Planners**. Fire planners' major tasks include—

  - Writing the concept of fires for the basic order.
  - Drafting fires tasks for subordinate units and agencies that appear in paragraph 3 of the basic order.
  - Writing the fire support appendix (Appendix 19 to Annex C).
  - Confirming battlespace geometry, FSCMs, and maneuver control measures with the future operations section.
  - Completing all fires-related planning and execution tools, such as the DST, decision support matrix (DSM), BSM, AGM, and target selection standards (TSS) for use by the current fires section in execution. The size of these products may preclude placement in the order itself, but all should be delivered or available electronically for local reproduction.
  - Confirming fires tasks to subordinates reflect a balance between the best system to achieve asymmetrical advantage and MSC workload.
  - Ensuring proper terminology is used in drafting tasks or establishing goals.
  - Ensuring that conditions, phases, targeting effects, etc., are understandable, achievable, and measurable to assist the assessment process. See Chapter 5 for more on assessment.
  - Conducting orders reconciliation with the staff using the basic order and the annexes to ensure the concept of fires is an integral part of the MAGTF commander's single-battle. Orders reconciliation reduces the impact of uncoordinated, stove-piped planning and helps to integrate detailed planning conducted by functional planners and subordinate commands and agencies.
  - Conducting an orders crosswalk to compare the MAGTF order with the orders of higher and adjacent orders to prevent any conflicts.

- **Target Information Section**. The activity level in the target information section will pick up noticeably during orders development as execution approaches. The target information section major tasks in this step include—

  - Assisting the fire planners in writing their portion of the order.
  - Assisting the fire planners in developing or updating the BSM and other execution tools.
  - Translating targeting guidance, objectives, and target sets into specific target nominations for upcoming targeting boards.
  - Submitting requests for additional fires assets at upcoming targeting boards.
  - Receiving target nominations from subordinate commands.

f. Transition

The final step in the MCPP is transition. Transition ensures a successful shift from planning to execution. It enhances the situational awareness of those who will execute the plan, maintains the intent of the concept of operations, promotes unity of effort, and generates tempo through timely, informed decisions. At the MEF level, the scope and complexity of operations usually requires separate planners and executors. The MAGTF concept of operations is normally planned by the OPT while the current operations section oversees its execution. The transition step is critical to conveying the understanding that the planners have gained to the executors, since tempo is so critical to success.

The commander and staff facilitate this transition by conducting a combination of briefs and rehearsal of concept (ROC) drills to raise the situational awareness of those who are to execute the order. Transition is an important and challenging step for fires personnel. It is important that the fires representatives to the OPT ensure that the current fires section personnel fully understand the concept of fires they are to execute. It is critical that MSCs fully understand their fire related tasks and that these tasks are synchronized with the MAGTF and the other MSCs. Transitioning the concept of fires is especially challenging because the OPT conducted event driven planning while

current fires—in the form of the ATO—is involved in time driven execution. A solid understanding of the concept of fires (including targeting objectives) is important so the current fires section can modify ATOs planned 72 hours in advance to achieve the desired effects planned for by the OPT. Because of changes on the battlefield, the current fires section must continuously update/modify the fire support plan during execution to achieve the desired effect of fires on the enemy.

- **Fire Planners**. Fire planners' major tasks are to—

  - Transition fire plans to the personnel in the current fires section using briefs, drills, ROCs, and fire support rehearsals.
  - Provide any fires-related planning and execution tools developed in planning, such as the DST, DSM, AGM, and BSM to the current fires section.
  - Participate in the targeting boards.

- **Target Information Section**. Transition is a very busy period for the target information section, as execution becomes imminent. The target information section major task during this step is the conduct of the daily MAGTF targeting board. The target information section will—

  - Develop and disseminate the target cycle summary to ensure targeting board timelines are synchronized with HHQ battle rhythms.
  - Receive apportionment recommendations from the ACE and other subordinate commands.
  - Monitor the GCE's requests for preplanned CAS. (Validated requests affect the apportionment decision.)
  - Conduct a daily target working group meeting with action officers from the MSCs and MAGTF staff sections.
  - Prioritize target nominations based on targeting priorities and designation of main effort.
  - Review the initial list provided by the ACE—known as the "cut line"—of targets to attack with organic assets.
  - Nominate targets that do not make the MAGTF "cut line" for joint attack.
  - Request additional assets or capabilities to strike targets that cannot be attacked with MAGTF assets.
  - Review sortie allotment messages (SORTIEALOTs) to ensure MAGTF requests are filled.
  - Coordinate and conduct the MAGTF targeting board in accordance with the MAGTF's battle rhythm and SOP.
  - Prepare briefing slides and map graphics for the MAGTF targeting board.
  - Review published ATOs to verify sorties and targets match MAGTF and joint targeting board deliberations.
  - Provide a detailed brief to MAGTF and Marine Corps component representatives to the joint targeting board so they can convey the rationale behind MAGTF targets and their linkage to the MAGTF's concept of operations.

- **Current Fires Section**. During the transition step, the current fires section will receive the transition brief from the OPT and participate in drills, ROCs, and rehearsals. In preparation for execution their major tasks are to—

  - Participate in the transition brief. Ensure all members are familiar with the execution tools provided by the OPT.
  - Conduct execution drills using the commander's critical information requirements and planning and execution tools (e.g., DST, DSM, AGM, RAGM, and BSM).
  - Set up appropriate maps, screens, monitors, electronic journal, and verify voice and data net connectivity.
  - Verify digital switching voice transmitter phone numbers and e-mail addresses for key personnel.

- Conduct communication checks with all appropriate fire support agencies, to include the MEF representatives on the airborne battlefield command and control center (ABCCC).
- Verify availability of command and control support equipment (e.g., AFATDS, TCO).

3006. Intelligence Support to Fires Planning

Intelligence supports fires planning through rigorous analysis of the enemy and the MAGTF's battlespace, and by the collection of additional information. Collection and analysis of target information may be conducted by internal or external agencies.

a. Intelligence Preparation of the Battlespace

IPB assists in developing targeting objectives and guidance by identifying significant threat military, economic, and political systems that are of importance to the MAGTF. The IPB process evaluates a threat's capabilities, vulnerabilities, doctrinal principles, preferred tactics, techniques, and procedures, observed patterns, and activities. From a thorough analysis of this data, the IPB process develops products that form the foundation of fires planning—

- **Modified Combined Obstacle Overlay**. The MCOO is a graphic of the battlespace's effects on military operations. It is normally based on a terrain overlay depicting all obstacles to mobility. The overlay is then modified to depict numerous additional factors. These factors can include cross-country mobility classifications, objectives, mobility corridors, avenues of approach by unit size, likely obstacles, defensible battlespace, likely engagement areas, key terrain, and built-up areas and civil infrastructure.
- **Threat Models**. A threat model depicts how threat forces prefer to conduct operations under ideal conditions. It is based on the threat's normal or "doctrinal" organization, equipment, tactics, techniques, and procedures. Threat models result from a detailed study of the threat force. Ideally, threat models are constructed prior to deployment. Threat models consist of three parts: doctrinal templates, a description of preferred tactics and options, and identification of HVTs.
- **Doctrinal Template**. Doctrinal templates are diagrams of threat formations based on postulated threat doctrine and tactics and illustrate the disposition and activity of threat forces conducting a particular operation arrayed on ideal terrain. Doctrinal templates depict the enemy's nominal organization, frontages, depths, boundaries, and control measures for combat. Doctrinal templates are usually scaled for use with a map background.
- **Situation Template**. A situation template is a doctrinal template modified through analysis to depict threat dispositions based on the effects of the battlespace, and the pursuit of a particular COA. This accounts for the threat's current situation with respect to the terrain, training and experience levels, logistic status, losses, and dispositions. Normally, the situation template depicts enemy units two levels down and critical points in the COA. The IPB process may develop more than one situation template to depict locations and formations at various times. At a minimum, a situation template is produced for the most likely and the most dangerous enemy COAs, although separate situation templates can be developed for each potential enemy COA.
- **Event Template and Matrix**. The event template is derived from the situation template and depicts the NAIs. Time phase lines indicate movement of forces and the expected flow of the operation and are also indicated on this template. The event template is a guide for intelligence collection planning. The event matrix depicts types of activity expected in each NAI, when the NAI is expected to be active, and any additional information to aid in collection planning. Like the situation template, an event template and matrix is developed for the most likely and most dangerous enemy COAs, with other COAs developed as required.

From these basic products, IPB can be used to develop targets. During the construction of situation templates, HVTs are identified for a specific battlespace and COA. HVTs can include command and control nodes, types of equipment, airfields and refueling points, critical lines of communications such as ports or airfields, ammunition storage sites or

distribution points, or regimental or division artillery groups. Concurrent with development of the situation template, the threat commander's decision cycle and points associated with each potential COA are examined and key assets become apparent. Those key assets are the HVTs associated with that particular enemy COA or phase of a COA.

HVTs and HPTs provide focus and set priorities for intelligence collection and attack planning. Targets placed on a target list resulting from the target development process are HVTs, HPTs, or both. The HVTs are kept, modified, or replaced by other targets the staff identifies. The final products are prioritized, time-phased, and compiled into a prioritized list of HPTs that are to be acquired and attacked in order for the mission to succeed. Considerations in the prioritization of HPTs are—

- The anticipated sequence or order of appearance of the target on the battlefield.
- The ability to detect, identify, classify, locate, and attack the target.
- The degree of accuracy available from target acquisition systems.
- The ability to engage the target.
- The ability to suppress, neutralize, or destroy the target on the basis of attack guidance (vulnerability).

Once the commander has approved a target, the G-2/S-2 should develop target/objective studies to support mission planning. Target and objective studies are focused, detailed intelligence products that aid in the application of fires or the maneuver of forces against a specific target set or area. Smaller MAGTFs and units, such as Marine expeditionary units (special operations capable) (MEU[SOC]s), can also use these studies for mission preparation and execution. These studies use many of the graphics derived during the IPB process. One such product is a target folder, which may contain the following information depending on the specific mission:

- Orientation graphic.
- Time-distance graphic.
- Weather forecast.
- Hydrographic forecast and astronomical data.
- Intelligence briefing notes for mission.
- Graphic intelligence summary.

b. Intelligence Collection

Intelligence collection seeks to help reduce uncertainty regarding the enemy, weather, terrain and operational environment. Because collection resources are limited and resulting reporting can easily inundate the MAGTF with more data than it can process, intelligence collection is based on the IPB products developed during planning. Scarce collection resources can then be focused on answering CCIRs and massed when and where necessary to detect HPTs and support fires.

The situation template depicts all confirmed threat locations to include those identified as targets in the IPB analysis. Unlocated targets are doctrinally templated until their location is confirmed. The event template and event matrix together provide a description of the enemy indicators and activity expected to occur in NAIs and TAIs. The intelligence collection manager uses NAIs and TAIs to acquire previously unlocated threat assets and confirm the location of previously acquired targets within the battlespace.

The decision support template and synchronization matrix are management tools developed during COA development and tested and refined in the COA war game and are used to determine where and how the targets can be acquired. They allow war game participants to record their assessment of sensor systems and attack systems to acquire and attack targets at a critical event or phase of the battle. The collection manager uses the requirements contained in the DST and synchronization matrix to plan where and when collection assets should be used to detect and locate the desired targets.

If the concept of fires dictates, the intelligence collection manager plans and coordinates for the direct dissemination of targeting data from the collection asset to the fire support coordination center or even the attack asset to shorten the reaction time between acquisition and attack. The data should be passed simultaneously to the G-2/S-2 for additional analysis to confirm or change previous IPB products.

c. Intelligence Agencies

The IPB process and target intelligence analysis are conducted both within and external to the MAGTF. Generally, time-sensitive tactical analysis is conducted by those agencies internal to the MAGTF, while operational and strategic analysis requiring longer periods of time are conducted by external agencies.

d. Internal

The MEF intelligence section resident in the MEF command element, supported by the Red Cell and the intelligence battalion, is the focal point for IPB studies and target intelligence operations and analysis in the MEF.

- **MEF Intelligence Section**. The intelligence section supports the commander, FFCC, OPT, and the entire command by maintaining an accurate image of the battlespace and enemy situation, and through the production and dissemination of target analysis and target intelligence products. The intelligence section will also direct the collection and analysis of BDA data to assist the combat assessment process. The target intelligence officer will usually lead this effort. During the OPT process the intelligence planner works closely with the fires planner to ensure correct identification of HPTs and to ensure a coordinated collections and targeting effort.
- **Red Cell**. The Red Cell assists the commander in assessing his COAs against a thinking enemy. It develops likely enemy COAs and portrays a doctrinally correct enemy during wargaming. A Red Cell can range in size from the intelligence officer to a task-organized group of subject matter experts. Using IPB products, the Red Cell refines the threat COAs that will be used during COA wargaming and develops enemy planning support tools (i.e., synchronization matrix). The Red Cell may also participate in the analysis of enemy COGs. In addition to using IPB products, the Red Cell provides the OPT with additional detailed IPB analysis on the enemy, tailored to the planning needs of the OPT.
- **Target Analysis and BDA Team, Analysis and Production Company, Intelligence Battalion**. The target analysis and BDA teams focus on detailed analysis of targets identified by the MAGTF commander, his staff, and MSCs which are not destined for the ATO (the ACE's G-2 section generally manages target and BDA analysis and intelligence support for ATO-nominated targets). These teams provide the full range of target development and analysis to support the deliberate and reactive targeting efforts of the MAGTF. The BDA elements also maintain the comprehensive picture of battle damage caused to targets and prepare the BDA reports and assessments that support the MAGTF's combat assessment effort.

e. External

Marine Corps intelligence assets are optimized for the production of tactical intelligence in support of MAGTF operations. However, national, theater, joint, and other-Service intelligence assets provide unique capabilities that are beyond those of the MAGTF intelligence support structure. The MAGTF can request the following external assets to enhance its organic capabilities to support MAGTF fires—

- **Joint Staff J-2**. The Joint Staff J-2 is the primary coordination element for national-level intelligence support to joint targeting. The targeting directorate within the J-2 organization functions as the lead agent for providing and coordinating intelligence support to joint targeting. Specific J-2 targeting responsibilities include the following:
  - Provide the Chairman of the Joint Chiefs of Staff and Joint Staff J-3 with joint crisis and contingency targeting, BDA, theater missile defense, and technical planning support.

  - Provide the combatant commands with target development and analytic support through all phases of the targeting cycle.
  - Manage the National Military Joint Intelligence Center (NMJIC), the primary conduit through which combatant command and subordinate joint force national-level target intelligence requirements are received, validated, and tasked for production.
  - Provide the combatant command and JTFs direct access to national intelligence support through and links between national databases and the appropriate J-2 element in support of targeting.

- **Defense Intelligence Agency**. The Defense Intelligence Agency (DIA) is responsible for providing finished target intelligence to the NCA and JFCs in support of joint worldwide operations. DIA's Operational Intelligence Coordination Center directly supports Joint Staff J-2 targeting efforts by consolidating all-source target development and material production, to include IPB products.
- **National Security Agency**. The National Security Agency (NSA) Information Warfare Support Center (IWSC) serves as the agency's primary point of contact for specific targeting or targeting- related analytical information. The IWSC directly assists with the preparation of command and control warfare (C2W) strategies as well as all-source targeting studies for the Department of Defense (DOD), Chairman of the Joint Chiefs of Staff, combatant commands, and JTFs. NSA performs detailed analyses of adversary leadership and communications nodes in support of targeting, intelligence gain and/or loss assessments (used to evaluate the quantity and quality of intelligence data lost when a particular target is attacked), and signals intelligence (SIGINT) analysis in support of BDA.
- **National Imagery and Mapping Agency**. The National Imagery and Mapping Agency (NIMA) brings together in a single organization the imagery tasking, production, exploitation, and dissemination responsibilities and the mapping, charting, and geodetic functions of eight previously separate organizations of the defense and intelligence communities. It is responsible for providing timely, tailored, relevant, and accurate mapping, imagery, and imagery intelligence to DOD, the Chairman of the Joint Chiefs of Staff, combatant commands and JTFs. Major targeting assistance includes the deployable point positioning data base and the provision of precise points to support targeting. NIMA also manages national imagery programs and procedures across national, theater, and tactical lines. NIMA provides imagery collection support to target intelligence through its management of the imagery intelligence Community Support Center. This center validates all national imagery nomination requests, deconflicts multiple requirements, and implements tasking of national imagery assets. In crisis operations, NIMA can deploy an Imagery Management Support Element to provide imagery tasking, collection, processing, exploitation, and dissemination assistance in support of joint targeting efforts for combatant commands or a deployed JTF.
- **Central Intelligence Agency**. The Central Intelligence Agency (CIA), through its Central Targeting Support Staff works closely with DOD on issues relating to every phase of the targeting cycle. This staff makes a variety of CIA intelligence resources available to military target planners. During peacetime requests for information (RFIs) can be routed to the CIA by the agency's Office of Military Affairs. Of the national non-DOD agencies, only the CIA maintains a permanent desk officer on duty at the NMJIC. In a crisis or war, CIA personnel or teams can be attached to combatant commands, JTFs, or joint force components, as required.
- **Theater Joint Intelligence Center**. Each theater joint intelligence center (JIC) is responsible for managing target intelligence requirements and producing IPB and target intelligence products for its combatant commander and subordinate commanders during joint operation planning and ongoing operations. It is the focal point for planning and coordinating the overall target intelligence and IPB effort within the theater. The JIC ensures that its analysis and production effort is coordinated and integrated with subordinate commands and organizations external to the theater. The JIC identifies information gaps in existing intelligence databases and formulates collection requirements and RFIs to address these shortfalls.
- **Joint Force J-2**. The joint force J-2 has primary staff responsibility for planning, coordinating, and conducting the overall IPB and target analysis and production effort at the joint force level. The J-2 uses the joint IPB process to formulate and recommend PIRs for the JFC's approval, and develops information

requirements that focus the intelligence effort (collection, processing, production, and dissemination) on intelligence questions crucial to joint force planning. To enhance the joint force's common view of the battlespace, the J-2 ensures that component command IPB and target intelligence products are disseminated to all components. The JIC integrates the joint force's IPB products to form a complete and detailed picture of an adversary's capabilities, vulnerabilities, and potential COAs. The joint force J-2 is also responsible for incorporating the intelligence capabilities of supporting national agencies and joint commands into the IPB and targeting process, particularly in the areas of geospatial information and services, meteorological and oceanographic, and strategic targeting. Additionally, the J-2 disseminates IPB and target intelligence products in time to support planning by other joint force staff sections and component command staffs, and ensures such products are continuously updated.

- **Joint Intelligence Support Element**. The joint intelligence support element (JISE) is a tailored subset of the theater JIC, functioning within the J-2 organization. It provides intelligence support to the joint force and subordinate commands. The JISE is tailored to fit the operating environment and can expand to meet the needs of the joint force J-2. The JISE is the focal point for planning, coordinating, and conducting joint IPB analysis and production at the subordinate joint force level. The responsibilities of the JISE include complete air, space, ground, and maritime order of battle analysis; identification of adversary COGs; analysis of command, control, communications, and computers; targeting support; collection management; and maintenance of a 24-hour watch. The JISE conducts its joint IPB and target intelligence analysis together with all other appropriate joint force and component command staff elements. The JISE identifies gaps in existing IPB and target intelligence databases and initiates collection requirements and RFIs.
- **Joint Command and Control Warfare Center**. The joint command and control warfare center (JC2WC) is not strictly an intelligence organization. Even so, the JC2WC provides direct C2W support, including target intelligence, to combatant commanders. This support concentrates on the five pillars of C2W: OPSEC, PSYOP, military deception, EW and physical destruction, to include C2W applications of IO.
- **Joint Information Operations Center.** The joint information operations center (JIOC) is not strictly an intelligence organization; however, the JIOC provides direct IO support, including target intelligence to the JFC.
- **Joint Warfare Analysis Center**. The joint warfare analysis center serves as the Joint Staff agent for the analysis of engineering, scientific, and intelligence data and the integration of these disciplines with combatant commander requirements to conduct targeting under the Joint Operational Planning and Execution System. Like the JC2WC and JIOC, this center is not strictly an intelligence organization; however, a significant portion of its work supports target intelligence applications.
- **Marine Corps Component**. The Marine Corps component does not normally have the intelligence resources to conduct IPB or target intelligence analysis itself. Instead, it assists the MAGTF and other assigned or attached commands by conducting the detailed intelligence planning necessary to support MAGTF. The Marine Corps component coordinates its IPB and target intelligence effort with the joint force J-2 and with other component commands that have overlapping responsibilities to ensure that products are produced and disseminated in time to support the MAGTF's commander's planning effort. The Marine Corps component intelligence section participates in various joint target intelligence and/or targeting forums as required. Performing this function ensures that MAGTF target intelligence collection and production requirements as well as collection requirements for support of combat assessment/BDA are adequately supported.

3007. The Targeting Process

According to Joint Pub 1-02, targeting is the process of selecting targets and matching the appropriate response to them taking account of operational requirements and capabilities. It involves the analysis of enemy situations relative to the commander's mission, objectives, and capabilities at his disposal, to identify and nominate specific vulnerabilities that, if exploited, will accomplish his purpose through delaying, disrupting, disabling, or destroying enemy forces or critical resources.

Targeting is an integral part of the planning process that begins in COA development and continues throughout the development and execution of the plan. It is based on the concept of operations and includes an assessment of the weather, terrain, and the enemy situation. This assessment then identifies those enemy units, equipment, facilities, and terrain that must be acquired and attacked or influenced to support the concept of operation. Targeting includes deciding which targets are to be acquired and attacked, when and how they are to be acquired and attacked, and what is required to achieve the desired effects on target.

The commander's targeting objectives and guidance focuses the targeting process. They drive targeting and determine target priorities. Objectives and guidance should be as quantifiable and unambiguous as possible in order to resolve damage criteria and set collection requirements. Objectives and guidance begin at the national level as broad concepts and become more specific at lower levels of command.

Targeting is a continuous decisionmaking process. Commanders and key personnel (fire support, intelligence, operations, and planning) must understand the functions associated with the process, be knowledgeable of the capabilities and limitations of acquisition, target intelligence development, and attack systems, and be able to integrate them into the concept of operations.

The MAGTF uses two complementary targeting processes to perform targeting.

a. Marine Corps Targeting Process

The D3A targeting process is the internal methodology used by the Army and the Marine Corps. (See Figure 3-1.)

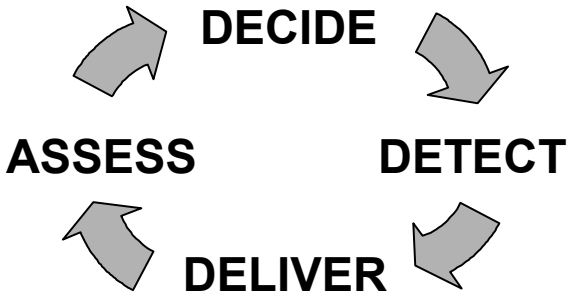

Figure 3-1. Marine Corps targeting process.

The OPT fire planners use the Marine Corps targeting process of **decide**, **detect**, **deliver** and **assess** within the MCPP. They use the D3A process to conduct the conceptual planning and make the broad functional decisions necessary to develop a concept of fires. The detailed planning for fires is conducted by those functional agencies tasked with providing or coordinating fires such as the force fires section, force artillery, the Marine aircraft wing, and radio battalion.

The D3A methodology helps the commander to answer the following questions:

- What enemy capabilities, functions, formations, individuals, etc. whose loss to the enemy will set conditions which contribute to the success of the friendly COA?
- What must we do to these targets to deny them to the enemy?
- Have these targets been located with enough accuracy to successfully attack them? If not, where should we look for them, with what collection asset to locate them with the requisite accuracy, and what level of production effort is required to develop the needed target intelligence?
- When will we attack these targets (as detected, at a specific time in the operation, or in a particular sequence)?
- What fire support asset is best suited to achieve the desired effects on the enemy?

- Once attacked, how will we assess the success of the attack to determine if I have deprived the enemy the use of the target?
- If we do not achieve the desired effect, what is the impact on the friendly COA and, if necessary, how will we re-attack the target and evaluate effectiveness of the re-attack?

In the **decide** step of D3A, the OPT's fire planners identify the specific enemy formations, facilities, and capabilities to be attacked by fires and targeting objectives which translate to the desired effects of fires against those specific enemy formations, facilities, and capabilities. Targeting objectives include disrupt, delay, limit and divert. Because targeting objectives have level of effort and resourcing considerations, it is important that the OPT fire planners use proper terminology to determine targeting objectives. The following definitions are from Marine Corps Reference Publication (MCRP) 3-16A, *Tactics, Techniques, and Procedures for Targeting*:

- **Disrupt**. Prevent the effective interaction or cohesion of enemy combat power and combat support systems. *"Disrupt the 302nd Artillery Battalion's ability to mass fires above the battery level on Assembly Area Tiger from H-hour to H+6 to allow 1st Marine Division (-) to maintain freedom of maneuver."*
- **Delay**. Alter the time of arrival of forces at a point on the battlefield or the ability of the enemy to project combat power from a point on the battlefield. *"Delay 102nd Armored Brigade's reinforcement of the first echelon of the enemy's division in the vicinity of Objective Eagle from H-Hour to H+5 to allow the 2nd Marine Division to defeat the 2-21st and 3-21st Mechanized Infantry Brigades."*
- **Limit**. Reduce the options or COAs available to the enemy. *"Limit the 2-21st Mechanized Brigade from moving to the west along Highway 14 from H-3 to H+3 to prevent reinforcement of the 1-21st Mechanized Infantry Brigade."*
- **Divert**. Tie up critical enemy resources. Attack of selected targets may cause the enemy commander to divert capabilities or assets from one area or activity to another. Diversion reduces the capability of the enemy commander to pursue his plan. *"As part of the deception plan, divert the 1-101st Tank Battalion from supporting the 2-21st and 3-21st Mechanized Infantry Brigades."*

A function of the decide phase is TVA. TVA provides a relative ranking of target sets, or categories using the following enemy characteristics: doctrine, tactics, equipment, organizations, and expected behavior

Once the OPT fire planners had decided what enemy formations, facilities, and capabilities to attack by fires and the targeting objective for each, the OPT coordinates with the G-2 to develop a collection plan to **detect** HPTs. The collection plan should address questions such as: Where does the fire planners and the G-2 anticipate finding these HPTs on the battlefield? Where are the TAIs and NAIs? Who or what asset is best suited to acquire them? When should they be looking for these HPTs?

While the current operations section—the executors—have the lead in the **deliver** step, the OPT fire planners follow the execution of the plan. If changes are necessary they recommend to the commander when, and with what fire support assets the targets should be attacked.

Determining when to attack involves synchronization. When do the OPT fire planners anticipate acquiring the HPTs on the battlefield? When would their attack by fires best support the commander's concept of operations? The OPT fire planners make an initial determination of when to attack HPTs by fires in COA development, but may refine the timing of the attack as their situational awareness increases through wargaming or when there are battlefield changes.

The final step in D3A is **assess**. The OPT fire planners must define the criteria for success for each targeting objective. Measures of effectiveness (MOE) linked to the targeting objective support assessment efforts. For instance, if the targeting objective was to delay a specific unit for six hours, one MOE might be that unit's rate of movement. Combined with other information and military judgment, MOEs allow the OPT fire planners and executors to make assessments and determine reattack criteria.

b. Joint Targeting Process

The joint targeting process (see Figure 3-2) builds on conceptual planning resulting from D3A and is used within the joint force in functional and detailed planning, such as production of the joint ATO, the principal deliverable of the joint targeting process. This process uses the following six steps:

- Commander's guidance and objectives.
- Target development.
- Weaponeering assessment.
- Force application.
- Force planning and execution.
- Effects assessment.

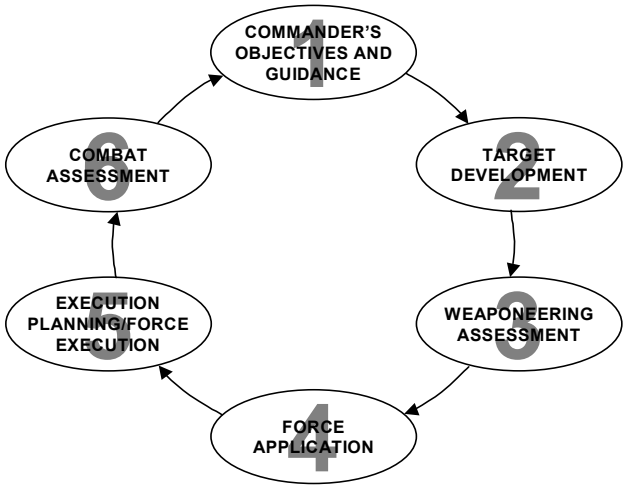

Figure 3-2. Joint targeting process.

The joint targeting process determines the employment of military force to achieve the JFC's objective. Both operations and intelligence share this function. The joint targeting process includes the steps by which target intelligence and target materials are produced and applied to support operational decisionmaking and force employment. The joint targeting process is depicted as a "cyclical process" with sequential phases. However, the joint targeting process is really a continuously operating series of closely related, interacting, and interdependent functions. It provides for a logical progression in the development of targeting solutions. It proceeds from the definition of the problem to an assessment of the solution. The cycle allows the targeting officer to test multiple solutions and refine both the understanding of the problem and the proposed solutions.

Joint targeting is not a static, inflexible process, but rather a dynamic process that must be fluidly applied. Each phase of the process can directly affect other phases of the process. For example, combat assessment directly affects subsequent force application if mission results prove inadequate. Likewise, weaponeering directly affects execution planning as weapons will influence execution tactics.

3008. Targeting Boards

Targeting boards are a technique used by the commander to ensure that his intent and guidance for fires are being met. Targeting boards are also an opportunity for the commander to ensure that his fires are synchronized with the other warfighting functions.

a. MAGTF Targeting Board

The MAGTF targeting board is the forum in which members present and discuss potential targeting objectives and guidance. The targeting board will then propose targeting priorities and guidance, recommend air apportionment for the commander's approval. The board is composed of representatives from each of the MSCs within the MAGTF as well as the staff sections. Agencies from the theater and national level may be represented at the targeting board depending upon the nature and scope of operations. Typically, the MAGTF targeting board is chaired by the deputy commander, who may act as the commander's executive agent in approving objectives and guidance.

The targeting board usually meets twice daily. In the morning, the board conducts an informal working group to discuss MSC concerns and to draft targeting objectives and guidance for the operational day being planned. Based upon this draft guidance, the MAGTF staff sections and MSCs will begin detailed planning for actions required during later steps of the targeting process. The targeting board's second meeting normally occurs during the evening and is used to formally present the objectives and guidance to the MAGTF commander (or his designee) for approval.

b. Joint Targeting Coordination Board

The JTCB is manned by representatives from all Services and components. The JTCB coordinates targeting information, recommends targeting priorities to the JFC, and prepares and refines the joint target list. Normally, JTCB meetings are conducted daily to disseminate JFC targeting guidance and objectives, monitor effectiveness of targeting efforts through combat assessment, coordinate and deconflict all joint targeting operations, validate no-fire areas, approve new targeting nominations for inclusion in the joint target list, and establish priority targets in the joint target list. The JTCB ensures deconfliction between operations of the various service components. It also ensures that various service components support each other and support the JFC's campaign strategy. JTCB results are considered to be JFC direction and are disseminated through the JFC to the appropriate components or agencies. If fires-related conflicts arise between the MAGTF and the JFACC, they are submitted to the JTCB for resolution.

c. Functional Component Targeting Board

A functional component commander may establish his own targeting board. When assigned to a functional component commander who conducts such a board, the MAGTF will be represented by either Marine Corps Service component representatives or will send its own LNO or representative to the board to ensure MAGTF requirements are understood and adequately addressed by the functional component commander.

3009. Fire Support Coordinating Measures

An important aspect of fires planning is the application of FSCMs. FSCMs are placed to facilitate the rapid engagement of targets while protecting friendly forces. FSCMs are determined after targeting objectives have been assigned and functional agencies tasked to achieve them. They are determined during COA development and refined during the COA war game. See Appendix B.

a. Permissive Measures

The purpose of permissive FSCMs is to facilitate the attack of targets. When established, these measures permit the engagement of targets beyond the measure or into the area described by the measure without additional coordination with the headquarters establishing the measure. Permissive measures are—

- **Coordinated Fire Line**. The coordinated fire line (CFL) is a line beyond which conventional surface fire support means (artillery, mortars, and NSFS) may fire at any time within the zone of the establishing headquarters without additional coordination.

- **Fire Support Coordination Line**. The fire support coordination line (FSCL) is a line established by the appropriate land or amphibious commander within his AO. This permissive measure allows the attack of surface targets beyond the FSCL without prior coordination with the establishing commander, providing the attack does not produce adverse surface effects on, or to the rear of the FSCL. Attacks against surface targets short of the FSCL cannot be conducted without the approval of, and in coordination with, the establishing commander. The establishment of a FSCL should be coordinated with the appropriate aviation force commander and adjacent ground commanders. FSCLs should, whenever possible, follow well-defined terrain features to facilitate recognition by aircrews and fast moving maneuver units.
- **Battlefield Coordination Line**. The battlefield coordination line (BCL) facilitates the expeditious attack of surface targets of opportunity between the BCL and the FSCL. When established, the primary purpose is to allow MAGTF aviation to attack surface targets without approval of the commander in whose area the targets are located. An airspace coordination area (ACA) will always be established over the area between the BCL and FSCL. Ground commanders may attack targets between the BCL and FSCL without coordination if they do not violate the ACA. Like the FSCL, the BCL should follow well-defined terrain. The Marine Corps is the only Service that uses the BCL.
- **Free-Fire Area**. The free-fire area (FFA) is a designated area into which any weapon system may be fired without additional coordination with the establishing headquarters. Normally it is established on identifiable terrain by the division or HHQ.

b. Restrictive Measures

The purpose of restrictive FSCMs is to safeguard friendly forces. When established, restrictive FSCMs impose certain requirements for coordination prior to the engagement of those targets affected by the measure—

- **Restrictive Fire Line**. The restrictive fire line (RFL) is a line established between converging friendly forces (one or both may be moving) that prohibit fires or their effects across the line without coordination with the affected force. It is established by the common commander of the converging forces.
- **Restrictive Fire Area**. A restrictive fire area (RFA) is an area in which specific firing restrictions are imposed and into which fires that exceed those restrictions will not be delivered without coordination with the establishing headquarters.
- **No-Fire Area**. A no-fire area (NFA) is an area in which fires or their effects are not allowed, with the following exceptions: when the establishing headquarters temporarily approves fires within the NFA on a mission by mission basis, and when an enemy force within the NFA engages a friendly force and fires are deemed necessary to defend friendly forces.
- **Airspace Coordination Area**. An ACA acts as a safeguard for friendly aircraft while allowing other supporting arms to continue to fire. Formal ACAs are three-dimensional blocks of airspace in which friendly aircraft may operate reasonably assured that friendly fires will not pass through or detonate in the ACA.. Informal ACAs provide for a safe separation between the passage and impact of surface-to-surface fires and friendly aircraft. This separation may be as simple as designating a terrain feature as the limit of surface fires or designating a maximum ordinate and azimuth of fire for surface-to-surface fires which aircraft then avoid.

c. Boundaries

According to Joint Pub 1-02, a boundary is a line by which areas of responsibility between adjacent units or formations are defined. While not strictly a fire support coordinating measure, boundaries are used to designate the geographic limits of the zone of action of a unit. Unless otherwise restricted, a unit commander has complete freedom to fire and maneuver within his own boundaries. No unit may fire across a boundary unless such fires are coordinated with the unit to whom the area is assigned, or unless such fires are beyond the CFL or other coordinating measure imposed by the affected unit. It is important that FSCMs not be used in place of boundaries. Boundaries clearly define the responsibilities of command, while FSCMs address only fires.

Boundaries aid the commander in conducting rapid, flexible, and opportunistic maneuver (movement in combination with fires). If employed improperly, boundaries can impose rigidity on operations that impedes maneuver. The establishment and adjustment of boundaries must receive deliberate and continuous attention by the establishing commander.

3010. Aviation Fires Planning Products

The ACE commander is the MAGTF commander's aviation expert. His inputs are critical to the development of the aviation estimate of supportability, the air plan, and the air operations annex to the MAGTF operation order. In a decentralized planning environment, the ACE commander is free to conduct much of the MAGTF's detailed aviation planning. However, the ACE commander's actions and decisions must support the MAGTF commander's intent and concept of operations. He provides the detailed planning that supports the MAGTF commander's broad concept for employment of aviation assets. The ACE commander's responsibilities include—

- Provide planners to the OPT.
- Provide a LNO to represent the MAGTF in the JAOC to coordinate with the JFACC.
- Developing essential elements of information and other intelligence requirements and submitting them to the MAGTF G-2.
- Developing preliminary air operation plans for MAGTF approval.
- Coordinating air operations with the GCE and CSSE.
- Developing the MAGTF ATO.
- Receiving the MAGTF's initial assessment of the enemy air defense.
- Providing input to the MAGTF list of targets.
- Recommending target priorities to the MAGTF commander.
- Recommending apportionment to the MAGTF commander.
- Submitting external support requirements requests to the MAGTF commander.
- Recommending air defense priorities (along with the GCE and CSSE commanders) to the MAGTF commander.

One of the most critical and challenging responsibilities of the ACE commander is the publication of the MAGTF ATO. It reflects the MAGTF commander's priorities and allocates assets for specific unit tasking.

a. Air Requests

Elements of the MAGTF request aviation support from the ACE through the MAGTF commander. GCE and CSSE commanders submit air support requests to support their concepts of operations. An air support request is a means to request preplanned and immediate CAS, air interdiction, air reconnaissance, surveillance, escort, helicopter airlift, and other aircraft missions. These requests may be in the form of an air support request message (AIRSUPREQ), a joint tactical air strike request (JTAR), or an assault support request (ASR).

b. Air Apportionment

Air apportionment is the determination and assignment of the total expected air effort by percentage and/or priority that should be devoted to the various air operations and or geographic areas for a given period of time. The ACE commander makes apportionment recommendations based on his assigned mission. During apportionment planning, the ACE commander—

- Issues guidance to his staff.
- Identifies the “up front” sorties to be made available to the JFC, for tasking through the JFACC, for air defense, long-range interdiction, and long-range reconnaissance.

- Identifies the total number of sorties available for MAGTF use.

While awaiting the approved apportionment, the ATO planning cell in future operations generates the number of sorties available based on asset location, availability, crew cycles, aircraft capabilities, etc.

c. Allocation

Allocation is the translation of the air apportionment decision into the total numbers of sorties (by aircraft type) available for each operation or task. Once the apportionment decision is receive, the ACE develops its allocation plan. This process begins with determining the total number of sorties required for direct support of MAGTF operations. The number and type of sorties is compared to the MAGTF sorties available after the "up front" sorties have been filled. The difference between the sorties available and the direct support requirement becomes the excess or shortage. Sorties identified as excess will be made available to the JFC, for tasking through the JFACC, for the support of other components of the joint force or the joint force as a whole. Shortages will be identified to the JFC as a request for support.

The ACE then prepares the allocation request (ALLOREQ) that lists, by mission type—

- Agreed upon sorties that are made available to the JFC.
- The proposed use of ACE and other sorties in direct support of the MAGTF.
- Excess or shortage sorties.

Upon approval of the MAGTF commander, the allocation is transmitted to the JFC.

d. Allotment

The JFC will subsequently release a SORTIEALOT message that approves or alters the ALLOREQ to meet the JFC's intent. If not in a joint operation, once the MAGTF commander approves the allocation, it is merely a process of allotting or distributing the sorties to the MAGTF and its subordinate commands.

Allotment is the assignment of allocation (sorties by type) to specific units. This allows the subordinate commands to plan and coordinate the integration of sorties into their fire and movement efforts. GCE and CSSE commanders are then able to determine the appropriate distribution of the sorties that they have been allotted.

e. Air Tasking Order

The ACE commander initiates the MAGTF air tasking cycle after he receives his mission and apportionment decisions from the MAGTF. Tasking is the process of translating the allotment decision into orders, and then passing these orders to the units involved. The MAGTF ATO provides instructions that allow executing units to accomplish their missions successfully. It is prepared by the ACE commander and should include, but is not limited to, the following information:

- Mission number.
- Tasked unit.
- Supported unit.
- Request number (JTAR, ASR, etc.).
- Priority.
- Mission type.
- Mission times (time on/off target, time on station, pick up/drop off times, etc.).
- Alert status.
- Location of mission, target, pick up/drop off zones (to include coordinates).

- Cargo/passengers (size, weight, number).
- Call sign.
- Number and type of aircraft.
- Number/type of ordnance.
- Identification friend or foe/selective identification feature mode and code.
- Call sign/frequency of control agency, controller, terminal controller, landing zone control, etc.
- Amplifying notes and special instructions.

The MAGTF ATO is disseminated to all major subordinate elements of the MAGTF and to all elements that requested air support. Normally, it is distributed to the following:

- Marine TACC.
- TAOC.
- Early warning/control (EW/C).
- DASC.
- Marine air traffic detachment.
- FFCC/FSCC.
- LNO at the JAOC.
- Operations sections.
- Air bases.
- Aircraft groups/squadrons.
- Separately deployed units (squadrons/detachments).

The MAGTF ATO assigns missions to specific squadrons. Upon receipt of the ATO, aircraft squadrons complete the scheduling process by assigning individual aircrews and aircraft to specific mission numbers and issuing squadron flight schedules. The scheduling process completes one evolution of the air tasking cycle.

To be successful, fires planning must be integrated with the planning of all aspects of the MAGTF concept of operations. The OPT is the vehicle used to conduct this integrated planning, and the OPT employs the MCPP to achieve integration. The fires representatives work with the entire OPT in using the D3A targeting process within the framework of MCPP. This ensures that fires are synchronized—arranged in time, space and purpose to maximize combat power—with the other warfighting functions, and that fires best support the MAGTF's concept of operations.

Chapter 4

Executing Fires

This chapter explains how the MAGTF commander and his staff employ and coordinate fires. It describes how the MAGTF is organized to execute and coordinate fires. It also addresses how the MAGTF interacts with external fire support agencies to coordinate fires in support of the MAGTF commander's concept of operations. While the material in this chapter applies to both the MEF and the MEB, only the MEF is depicted and described for illustrative purposes.

4001. Executing the Fire Plan

Execution is the continuous process of analyzing, allocating, and scheduling fire support to effectively integrate fires in support of the commander's concept of operation and to generate and maintain combat power. The delivery of fires is the execution of fire plans and the necessary coordination in operations.

The term ***execute*** means to produce in accordance with a plan. At lower levels of command, execution means activities like firing artillery or flying an aircraft, maneuvering across terrain, or delivering critical supplies. At the MAGTF level, execution is more mental than physical as the staff concentrates on gathering and managing information to aid the commander in decisionmaking.

Unlike planning timelines that may be measured in months and weeks, the MAGTF commander and his fire support staff normally have only hours, minutes, and sometimes even seconds to decide and act during execution. This is especially true in the current fires section of the FFCC where the time to engage emerging targets is always limited. The commander and his staff cannot wait until they have a "complete" picture to react to emerging events. They must process information expeditiously to generate actions faster than the enemy can respond. The resulting advantage in tempo is cumulative and provides the MAGTF an increasing advantage that can be exploited throughout the operation.

During execution the commander and his staff must be able to assess the effectiveness of the plan and rapidly identify shortfalls in obtaining the commander's objectives and determine alternative actions that must be taken to accomplish the mission. Assessment aids the commander in adapting to the changing situation in the battlespace. Assessment is integral to execution and is often performed concurrently with execution. This relationship is discussed further below and in Chapter 5.

4002. Adapting to Changes

The situation envisioned by the commander and staff during the planning process usually begins to change immediately and may be radically different as the operation commences. The fire plan must often be revised and adjusted as soon as execution begins. This requires a commander and staff, particularly the current operations section

in the COC, to be flexible and innovative in adapting to these changes. The best way to be prepared to rapidly adapt to changes is to have a thorough understanding of what was planned and to strive to maintain a high level of situational awareness, especially on the part of the commander.

a. Situational Awareness

Situational awareness is the knowledge and understanding of the current situation, which promotes timely, relevant, and accurate assessment of friendly, enemy, and other operations within the battlespace in order to facilitate decisionmaking. The establishment and maintenance of situational awareness requires the commander and the staff to develop an informational perspective and skill that fosters the ability to determine quickly the context and relevance of events that are unfolding.

Fire support personnel must provide essential information to the commander and the staff to help them achieve and sustain situational awareness. They must be continuously apprised of all successes and failures of the fire plan as executed to allow them to discern possible opportunities or unexpected enemy threats. The fire support staff gathers or receives this information (input) and then evaluates the information to determine its usefulness. If relevant, the information updates the commander's understanding of what is happening in the battlespace and determines what action, if any, is required.

The information necessary to create and maintain situational awareness comes from a variety of sources such as —

- **Higher Headquarters**. The HHQ will pass down guidance and direction, as well as assessments of ongoing operations from the broader perspective of higher-level commands. This type of information updates the context within which MAGTF fires take place, providing changes in mission, intent, and tasks. It could also include shifts in the main effort which have direct implications for the level of fire support the MAGTF can expect from external sources (joint air sorties, NSFS, ATACMS, etc.).
- **Adjacent Units**. Adjacent units can be a great source of information on enemy units, either directly by routine reporting or indirectly through requests for fire support. During combined operations, it is not unusual for adjacent allied units to request the MAGTF attack targets of common interest, since many of these units lack the sensors and range of weapon systems available within the MAGTF. Normally, information between adjacent units at the MEF level is exchanged by LNOs. At a minimum, LNOs will pass information verbally over single- channel radio at regular intervals or as required for significant events.
- **Force Artillery**. The force artillery headquarters is a MAGTF-level, task organized, artillery unit designed to command and control additional cannon and high mobility artillery rocket system (HIMARS) battalions, and if assigned, U. S. Army MLRS units. Force artillery may use these units to reinforce subordinate commands, provide fires to the rear area, or support MAGTF deep operations. The force artillery headquarters can be tasked to coordinate the MAGTF's counterfire fight. Army MLRS units supporting Marines normally includes the target acquisition capabilities of a field artillery detachment with long-range counterbattery radar. For more on force artillery, see Chapter 8.
- **Subordinate Units**. An important source of information is feedback from subordinate units, whether an update of current status or requests for additional fire support. The subordinate commands (and rear area operations center, if established) provide information to the fire support staff on a regular basis as they request supporting fires, update the friendly and enemy situation, and nominate additional FSCMs. As the principal executor of the MAGTF's deep fight, the ACE deep battle cell will be in constant contact with the current fires section to discuss—

    - Strike results.
    - Intelligence from pilot reports.
    - New target assignments.
    - Changing FSCMs.
    - Execution day changes to the apportionment decision driven by emerging events in the battlespace.

The single most important factor in building and maintaining the commander's situation awareness is the contribution of intelligence support to execution.

b. Intelligence Support to Execution

MAGTF target intelligence must have the flexibility, agility, and sustainability to support the execution of fires. The target intelligence required during operations present unique challenges and considerations for intelligence support. Target intelligence must be accurate and timely. The MAGTF intelligence agencies that provide this support are the surveillance and reconnaissance center (SARC), the operations control and analysis center (OCAC), and subordinate commands.

The SARC is the element of the G-2 that plans and supervises the execution of integrated organic, attached, and direct support intelligence collection and reconnaissance operations for the MAGTF. The SARC supports the execution of fires by coordinating, monitoring, and maintaining the status of all ongoing intelligence collection efforts directed against enemy HVTs and HPTs. SARC responsibilities include—

- Conducting detailed intelligence collections planning and coordination with the major subordinate commands and planners from external intelligence organizations, with emphasis on ensuring understanding of the collection plan and specified intelligence reporting criteria.
- Ensuring other MAGTF command and control nodes (e.g., the COC, FFCC, etc.) are made aware of ongoing intelligence collection and reconnaissance operations.
- Receiving routine and time-sensitive intelligence reports from deployed collection elements, cross-cueing among intelligence collectors, as appropriate and rapidly disseminating reports to MAGTF command and control nodes and others in accordance with current PIRs and other intelligence requirements, intelligence reporting criteria and dissemination plans, and the current tactical situation.

The OCAC is the main node for the command and control of radio battalion SIGINT operations and the overall coordination of MAGTF SIGINT operations. The OCAC performs SIGINT processing, analysis, exploitation, production, and reporting of SIGINT products and information for the MAGTF. Additionally, it is the primary organization that coordinates with other intelligence nodes to plan, direct, and integrate SIGINT operations with other intelligence and reconnaissance operations. The OCAC supports the execution of fires by providing key operational intelligence and current locations of enemy command and control operations and facilities, weapon systems, and force composition and dispositions. Information provided through SIGINT can identify and help to locate HVTs and HPTs and also help to develop options for attacking these targets. The OCAC can support all-source intelligence assessments of the impact of fires on enemy targets. It can also direct the ground-based EW non-lethal activities of the radio battalion.

Subordinate commands, especially ground units in contact with the enemy are among the most reliable sources of target intelligence. Although intelligence reporting may be the least of their concerns during the heat of battle, target intelligence can be developed from subordinate commands' combat reporting. The artillery regiment's counter–fire radar section can be a lucrative source of information, providing the location of enemy indirect fire units. Aviation units' capability to observe the battlespace and report in near-real time gives the MAGTF commander a multi-dimensional capability. These units can view the entire area of operations in depth, supporting the early identification and location of enemy HPTs. Combat service support units can provide information on enemy targets located in the MAGTF's rear area. One of the most important target intelligence functions of subordinate commands is the provision of timely and accurate feedback on the target intelligence support received. The MAGTF commander and his G-2 must know if the target intelligence provided to subordinate commands is accurate as determined during actual operations.

c. Adjustments

The commander and his fire support personnel must be prepared to rapidly adjust or modify planned fire support actions to meet changes in the tactical situation, the MAGTF's mission, commander's intent, unexpected enemy

actions, or fleeting opportunities. Adjustments are also made to accommodate changes in targeting objectives and priorities, fire support system availability, desired effect on targets, assessed success or failure of completed fire support actions. The commander and his fire support personnel must be able to anticipate the need for adjustments and recognize the conditions or specific points that trigger such adjustments. This requires the timely collection and correct analysis of available information by the commander and the staff. Some of this information may be so important to the commander's ability to conduct fire support operations that he designates it as a CCIR.

One of the best ways to facilitate adjustments is to have a plan that is flexible and contains appropriate branches that reflect likely changes in the tactical situation. Armed with a flexible plan, the commander and his fire support personnel are then able to more readily adjust their actions from the baseline of the operation plan.

d. Decentralized Execution

Maneuver warfare calls for centralized control and decentralized execution. MAGTF fire support is executed at the lowest possible level. This decentralized execution allows for more rapid adaptation of plans and adjustment based on changing situations. Subordinate commanders who are usually the first to recognize changing conditions are free to make adjustments to planned fire support actions as long as those changes contribute to achieving the commanders mission and support the commander's intent.

The coordination and delivery of fires is performed by the lowest echelon capable of coordinating effective support and achieving the desired effects on the enemy. Effective coordination is enhance by commanders who encourage and permit subordinate commanders to determine solutions to emerging changes in the situation without having to ask for guidance or permission from HHQ.

4003. Target Detection

MAGTF planners use the D3A targeting process in developing the concept of fires and fire plans. In the decide step, planners identify specific enemy formations and functions to be attacked by fires, and determine the effects desired against each enemy formation or function. Those enemy formations and functions that must be successfully acquired and attacked by fires for the success of the friendly mission are HPTs. Planners develop the HPTL, based on the commander's intent, vision of decisive and shaping actions, and targeting guidance.

The detection step of the D3A methodology is designed to acquire the targets selected in the decide step. Upon execution of the collection plan, the G2 focuses all available capabilities including reconnaissance units and surveillance assets to acquire and track HPTs. This detection is normally focused in specific areas such as NAIs. Fire support units, using counterfire radars and organic observation assets, contribute to the target detection effort by collecting intelligence information and target location data within their zone of coverage. Maneuver and CSS units are also sources of combat information and reporting that help build a more complete picture of the activities and current location of the enemy HPTs.

Targets must be monitored after their initial detection to provide firing units with current and accurate target location. This monitoring includes the tracking of targets based on the concept of fires and the commander's targeting priorities. Tracking of HPTs is an element of the collection plan. Some critical targets may require continuous tracking while other targets may be tracked only intermittently due to limited surveillance resources.

Tracking of targets may continue during the execution of the deliver and assess steps of D3A so that the most current information can be used in determining whether the target will be reengaged or if effects desired against that target have been achieved.

In the detect step of D3A, planners synchronize the collection plan to acquire and, if necessary, to track HPTs to enable their attack by fires. Those HPTs with locations confirmed by the G-2 are normally attacked with planned fires. Fires can also be planned to attack HPTs whose location is unknown, but whose future movement or positions can be predicted. Planners use IPB tools such as the MCOO, the enemy's doctrinal, situational and event templates, and the enemy's potential COA to anticipate enemy actions. Planners identify NAIs, which help form the basis of the collection plan, to confirm or deny enemy COAs. NAIs can have associated TAIs, where successful interdiction of HPTs causes the enemy to abandon a particular COA or forces him to employ specialized engineering equipment to continue. Fire planners employ NAIs and TAIs to acquire and attack HPTs with unknown but predicted locations.

It is impossible to confirm the location or accurately predict where every HPT on the battlefield will be. It is inevitable that certain HPTs will appear in unanticipated places at unanticipated times on the battlefield. HPTs that expose themselves or are acquired in an unanticipated manner are considered *emerging targets*. Fire planners conduct reactive targeting against emerging targets even though they do not know and cannot predict where or when to attack these targets.

Planning for reactive fires begins with the identification of HPTs and the development of the HPTL. TSSs are determined to distinguish between known and suspected targets. TSS criteria are related to the attack systems target location error requirements, size and status of enemy activity, and the timeliness of the information.

The AGM is a document that depicts how and when to attack HPTs by fires, and what the desired effect of fires is for each HPT. The AGM can combine or include the information from the HPTL and TSS. The AGM captures the MAGTF commander's attack guidance for fires and is designed to support his particular plan. (See Table 4-1).

EVENT OR PHASE: Attack to Secure Objective C					
Priority	**Category**	**HPTs**	**When**	**How**	**Comments**
1	Air Defense	SA-8, SA-11, SA-15	P	N/EW	Coordinate with EA/EP
2	Fire Support	Artillery CP MLR, C/B Weapons	I	N/EW	Coordinate with EA/EP
3	Engineer	Bridging units, pontoons	A	N	
4	C3	MRR, MRD CP	P	N/EW	Coordinate with EA/EP
5	Maneuver	1st echelon/lead division	P	N	
6	RSTA	Forward intercept DF nodes	A	N	
7	NBC		A	D	Need BDA
8	Class III (POL)		P	N	

LEGEND:

A – As acquired
I – Immediate
P – Planned.

D – Destroy
EW – Jamming or other offensive EW
N – Neutralize
S – Suppress

C/B – Counterbattery
EA – Electronic attack
EP – Electronic protection

MRD – Motorized rifle division
MRL – Multiple rocket launcher
MRR – Motorized rifle regiment

Table 4-1. Attack guidance matrix.

Those HPTs identified for immediate attack or for attack as acquired on the AGM will be engaged as emerging targets upon acquisition. Targets that appear unexpectedly on the battlefield that are not HPTs will be engaged only if there are un-tasked assets available and if their attack will enhance the conduct of friendly mission.

One technique fire planners can use to facilitate reactive targeting is the use of a RAGM. The RAGM is used in conjunction with the AGM and provides a quick means to determine whether emerging targets should be struck. It also prioritizes reactive target sets, specific targets within those sets, and targeting objectives within specific locations. If used, the RAGM is normally updated with each ATO cycle. (See Table 4-2).

	1	2	3	4
Area	Port City	Northwest Mountains MSR	Eastern approach to Port City	Capital to Port City MSR
Target Category Priority	FS-MRL/LR/COASTAL C3I-Corps/DIV DEFENSE MMR-MECH/ARM	C3I-CORPS/DIV FS-MRL.LR MOB/CM MVR-MECH/ARV/AVIATION	C3I-CORPS/DIV FS-MRL.LR MVR-MECH/ARM	FM-MRL.LR MVR-MECH/ARM
Unit Priority	20th Arty BDE 15th Corps HQ	5th Div HQ 22nd Arty BDE	3d Army CE 4th BDE	42nd BDE
Intent	Defeat ground force in vicinity of Port City to set conditions for force entry operations	Prevent long range artillery from interdicting I MEF forces	Prevent remnant forces, special operations, and bypassed units from interfering with I MEF rear area operations	Prevent forces from disrupting planned I MEF river crossings

Table 4-2. Reactive attack guidance matrix.

4004. Coordination of Fires

Fire support coordination is a continuous process of evaluating fire support needs or missions, analyzing the situation, and planning and orchestrating the implementation of the fire support plan while in a continually changing environment. This process enables the commander to use his available fire support to influence the action while ensuring the safety of his forces.

a. Principles of Fire Support Coordination

The goal of fire support coordination is accomplish coordination in a timely manner to allow for the responsive delivery of appropriate and effective fires. The maximum effectiveness of fire support is achieved through close adherence to the principles of fire support coordination. The following principles provide a framework for conducting fire support coordination—

- **Know and Understand the Commander's Intent**. The commander's intent establishes the framework within which fire support coordinators and supporting arms commanders and their representatives can conduct fire support coordination. The commander's intent is the basis on which to make fire support decisions during both planning and battle, to determine when and how fires will be delivered, and to determine requirements for fire support.
- **Plan Early and Continuously**. Planning must be continuous to meet the needs of the present tactical situation and to prepare for the next. Execution planning takes place to address changes to the tactical situation and deviations from the fire support plan caused by taking advantage of fleeting opportunities and by unexpected enemy actions.
- **Exploit all Available Targeting Assets**. Fires can only be timely and effective if the target acquisition system is fully exploited. Target information from all available target acquisition systems must be rapidly evaluated, processed, and routed to the appropriate fire support delivery system.
- **Consider the Use of All Available Fire Support Means**. All fire support means—organic, assigned, attached, and supporting—are employed as appropriate to take advantage of their lethality, range, and responsiveness. A concerted effort is made to use all fire support means in a coordinated manner, ensuring each fire support means complement each other and that they are applied simultaneously, consistent with availability, economy and the commander's fire support priorities. In some situations, it may be necessary to use the most available means even if it is not the most effective.
- **Use the Lowest Capable Echelon**. Coordination of fire support is accomplished at the lowest echelon capable of coordinating effective support. Effective coordination can be enhanced if commanders encourage and permit subordinate commanders to coordinate among themselves. For example, if two subordinate elements of the MEF can coordinate the delivery of fires between themselves, the FFCC may not have to take

any action. Additionally, the lowest echelon with the means available to achieve the desired effects on the target delivers fire support. If an artillery battery can achieve the desired results, there is no need to place aircrew at risk by attacking that target with aviation.

- **Use the Most Effective Means**. Usually, fire support is requested from the fire support system or asset that can deliver the most effective support. The most effective means can vary based on factors like the nature of the target, whether the target is a fleeting opportunity, availability of fire support assets and observers, and the effects desired. Often, it may be necessary to use a less effective fire support means to engage the target until a more effective means becomes available.
- **Furnish the Type of Support Requested**. The requesting command is usually in the best position to determine its immediate fire support requirements. However, factors such as competing priorities, ammunition considerations, and range may make it impracticable to furnish the type of support requested. Alternative types of fire support may then be provided and the requesting commander is made aware of the change and the reason his initial request was not filled.
- **Avoid Unnecessary Duplication**. Scarce fire support assets should not be used to unnecessarily duplicate effects on a target. Overkill of this sort may endanger personnel and use up ammunition. However, the effective engagement of a target should not be jeopardized because of a desire to conserve ammunition.
- **Consider Airspace Coordination**. Because all fire support uses airspace, coordination must be made to reduce interference among users. The extent of coordination is dependent on the time available. Formal coordination such as prearranged air space coordination areas may be used when there is adequate time for their development and dissemination. Informal coordination such as lateral or time separation can be employed when time for coordination is limited.
- **Provide Adequate Support**. The factors of METT-T and the commander's guidance determine the amounts and types of fire support required for success. The MAGTF commander must ensure each committed force has adequate fire support resources.
- **Provide Rapid Coordination**. Procedures for rapid coordination must be established and practiced in order to effectively attack targets in the shortest possible time.
- **Provide for Flexibility**. The fire support plan and its method of execution must allow for changes based on the factors of METT-T.
- **Provide for the Safeguarding of Friendly Forces and Installations**. Protecting friendly troops, vessels, and installations is a basic tenet of fire support coordination. The commander and fire support personnel use FSCMs and consider the location of friendly forces during target analysis to ensure that exposure to the effects of the friendly fires are held to an absolute minimum consistent with the accomplishment of the mission.

b. Fire Support Coordination in Operations

Fire support coordination in operations is the process of implementing the fire support plan and managing the fire support available to support the command. It involves the execution of pre-planned fires contained in the fire support plan and the coordination of unscheduled fires requested by units conducting operations.

Fire support coordination is the responsibility of all commanders. Commander's fire support coordination responsibilities include the requirement to disseminate timely fire support information, establish and activate FSCMs as required, and to coordinate fire support activities which affect two or more fire support agencies, maneuver units, or adjacent commands.

Commanders and their fire support personnel must maintain a high level of situational awareness of each HPT, its location, when it is scheduled for attack, and the desired effects on the target. This knowledge of the enemy situation must be coupled with a complete understanding of the friendly situation, to include current friendly unit locations and their scheme of maneuver, to ensure the integration of fires and the safeguarding of friendly forces. The necessary situational awareness can only be derived if the commander and his fire support personnel are provided timely and accurate information. This information is derived from multiple sources and may differ in levels of reliability and

timeliness. It is received by the MAGTF and some of it is processed into intelligence and target intelligence by the G-2. Much of this information is provided directly to the appropriate agency such as the FFCC and is processed and acted on by those agencies.

The MAGTF commander and his fire support personnel in the FFCC focus on MAGTF deep operations and coordination with higher and adjacent forces. He and his fire support personnel may task elements of the MAGTF to conduct fire support and coordinate this support with other elements of the MAGTF. This tasking usually involves the attack of targets deemed critical to the MAGTF's mission. The MAGTF FFCC may employ force artillery, NSFS, or task the ACE to attack targets in the MAGTFs deep area as part of battlespace shaping. The FFCC also has the same responsibilities for the planning and direction of fires in the rear area, if required. The GCE may also be tasked to employ its target acquisition and attack assets to help the MAGTF commander achieve his objectives. The FFCC must be prepared to coordinate the attack of multiple targets using all combined arms assets.

The MAGTF FFCC coordinates the employment MAGTF fire support assets in support of joint or multinational operations. The FFCC also anticipates the requirement for and arranges fire support from external sources such as adjacent units, joint, or multinational forces. Liaison teams conduct this coordination. The personnel assigned to these teams must be able to explain the MAGTF commander's concept of fires, targeting priorities and guidance, and status of fire support operations within the MAGTF AO.

Fire support coordination is best accomplished at the lowest level. The practice of conducting fire support coordination at the lowest level possible is central to the effective functioning of the MAGTF's FFCC. Involving numerous agencies and echelons in fire support coordination may lead to reduced responsiveness, overtaxed communications, and confusion among the staffs. While the MAGTF FFCC is normally continuously involved in the integration of fires in deep operations and when necessary, the rear area operations, it rarely becomes involved in the integration of fires in close operations. The FFCC intervenes in fire support coordination matters pertaining to the close and rear areas only when the matter can not be resolved at lower echelons.

4005. Counterfire Execution

In many possible crisis areas through out the world, potential enemy forces have significant fire support capabilities. These enemy fire support systems may prevent or disrupt the MAGTF from accomplishing its mission. The MAGTF commander's freedom of action and ability to establish and maintain momentum may be jeopardized if enemy fire support assets are not rapidly and efficiently engaged and defeated. The MAGTF must be prepared to plan for and execute counterfire to protect the force and to enable the accomplishment of the MAGTF's mission.

Counterfire is fires intended to destroy or neutralize enemy weapons and includes counterbattery, counterpreparation, and countermortar fires. See Appendix C for a description of world-wide fire systems. Counterfire also includes fires executed throughout the battlespace that attack the enemy's total fire support system. In keeping with the MAGTFs core capability of combined arms expertise, counterfire is conducted using all available MAGTF assets including aviation, artillery, NSFS, EW, and even maneuver forces.

There are two types of counterfire—

- **Proactive Counterfire**. This type of counterfire is employed when there is sufficient time to identify, locate, and engage enemy fire support systems before they attack friendly forces. Proactive counterfire is normally conducted during shaping operations or as part of the deep fight.
- **Reactive Counterfire**. This type of counterfire is conducted against enemy fire support systems after they have attacked friendly forces. Reactive counterfire is normally conducted against enemy mortar or artillery systems in the close fight usually within the GCE's AO.

The MAGTF commander may decide to conduct the MAGTF's counterfire effort through his staff, or he may elect to delegate the authority to another commander (e.g., the force artillery commander or GCE commander). The force artillery, if established, may be assigned tube and rocket artillery that can be used with other fire support assets to conduct both close- and long-range counterfire. For more on the role of the force artillery in counterfire see Chapter 8.

a. Proactive Counterfire

Proactive counterfire is often conducted at the MAGTF level and is an essential part of the MAGTF commander's overall concept of shaping. The MAGTF scheme of maneuver may depend on the successful proactive attack on enemy fire support systems. Certain effects on enemy fire support assets may be required before the MAGTF commander may continue offensive operations. For instance, enemy medium and heavy artillery capable of ranging planned breaches in the enemy's defenses may have to be disrupted before the MAGTF commander initiates the attack.

MAGTF assets, primarily aviation and rocket fires, are used to attack HPTs that comprise the enemy's fire support system. These HPTs are not limited to only artillery batteries and rocket or missile launchers but can include command and control nodes, target acquisition systems, and logistics capabilities that resupply, repair, or transport fire support assets.

Proactive counterfire targets should be engaged as part of the MAGTF commander's overall plan for shaping the enemy. For example, these HPTs could be nominated through the MAGTF's target process to the targeting board for inclusion in the MAGTF ATO or forwarded through the Marine Corps or functional component to the JTCB for possible attack by joint assets. Counterfire planning and coordination should be an integral part of the MAGTF's concept of operations and should be reflected in the MAGTF's fire support plan or appropriate tabs. Counterfire should be integrated into the MAGTFs OPLAN and must not be fought as a separate battle.

MAGTF intelligence and target acquisition assets are tasked with the timely locating and subsequent tracking of fire support HPTs. Post attack collection should be scheduled to obtain BDA on these HPTs to determine whether the desired effects have been achieved and if reattack is necessary.

b. Reactive Counterfire

In reactive counterfire, MAGTF fire support assets respond primarily against enemy missiles, rocket or cannon artillery, and heavy mortar fires during or immediately after enemy attack of friendly forces. Reactive counterfire is a measure taken to protect the force from continued attack and disruption of the concept of operations. Although this type of counterfire is a reaction to enemy action, the commander and his fire support personnel must anticipate what effect enemy fire support can have on friendly forces during critical stages in the operation and develop plans to address possible enemy fires.

The counterfire plan must address how the MAGTF will conduct reactive counterfire. The counterfire plan should include how collection assets are synchronized to acquire counterfire targets, and what MAGTF units will engage these targets. Based on IPB information, the MAGTF can anticipate where the enemy may try to employ his fires against the MAGTF.

Fire support assets tasked with conducting reactive counterfire must be capable of rapidly responding to enemy fires. The counterfire plan may direct the use of special communications and data channels to facilitate rapid attack of reactive counterfire targets. This might include the use of a direct sensor-to-shooter link.

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Chapter 5

Assessing Fires

Assessment is an estimation of effectiveness of the overall operation in light of assigned missions and the commander's desired end state. It gives the commander a broad perspective of the comprehensive impact of operation's progress towards its stated purpose. Assessment is the evaluation of how well an assigned mission has been achieved. It estimates the total impact on the enemy's warfighting capabilities, and incorporates combat assessment activities that evaluate the effect of fires on specific targets and target systems.

5001. Assessment

The process of assessment involves continuously evaluating military operations to determine the progress of the command toward its established goals. Assessment is a process that seeks to answers the commander's question, "How are we doing?" The commander and staff should continuously assess the results of ongoing friendly and enemy operations to determine if the planned activities are achieving their desired effects. Assessment is the basis for the commander's decisions concerning future actions. Through the assessment process, the commander may find that, in order to achieve his desired end state, it is necessary to modify MAGTF activities to exploit unexpected success or opportunity, or to counter unanticipated enemy successes.

Successful assessment requires the commander to visualize the battlespace and the operation and perceive the difference between the desired effects and the actual achievements of the operation. The commander must then be able to describe his vision so that the staff and OPT can compare what has been achieved to what was planned. Much then depends on the experience and judgment of the commander, as assessment is as much an art as it is a science. To assess an operation, the commander must first identify the information he needs to conduct assessment in planning, and then ensure that his collection plan and information management system are synchronized to provide a continuous flow of information about the unfolding situation.

While the fog and friction of combat will inevitably cause information gaps, the commander's staff and his MSCs provide analytical information the commander needs in a timely fashion to develop and maintain situational awareness. The staff should deliver this information to the commander in a format with which he is comfortable. The commander fills in information gaps with intuitive conclusions based on experience and judgment. The analytical and intuitive pieces build the commander's situation awareness and give him an approximation of the situation as it exists.

Intelligence plays an important role in assessment by gauging the overall impact of military operations against the enemy. Targeting and intelligence personnel provide objective assessments to planners, estimating the overall impact of military operations on enemy forces as well as providing an assessment of likely enemy reactions and counteractions.

a. Command Assessment

Command assessment is the combination of information, skill, and judgment that provides the commander with an understanding of the situation from which he can base future decisions. Enhanced situational awareness enables the

commander to anticipate future conditions, visualize operations, provide guidance and accurately assess situations. The commander can then compare his understanding of the situation to his goals and the objectives of his plan. This assessment of the difference between the actual situation and the plan may indicate the need to adjust and modify the operation.

The commander must accurately assess the effectiveness of his command's activities. If the commander does not see that he is failing to meet his goals, he will not be able to adapt to the situation and make the necessary adjustments required. If the commander fails to recognize that his operations are having success, he may miss fleeting opportunities to exploit that success and take advantage of the initiative, tempo, and momentum that his command has gained. Implicit in the doctrine of maneuver warfare is that the commander will recognize and exploit such success as it occurs. Recognition of success will also prevent the command from expending resources on objectives and targets that have been successfully attacked. Success is not merely the attainment of specified desired effects on the enemy. This initial success may also be amplified by the cascading of unexpected secondary effects that present the enemy with even more challenges and the commander with additional opportunities.

Once it has been determined that the situation has diverged from the desired objectives, the commander should be well armed with the information he needs to make the proper decision to either adapt to the situation or develop and execute a branch plan that establishes a new path toward the desired end state.
Assessment is necessary because the cumulative damage to the targets does not represent the total effectiveness of the operation; tallying physical damage alone does not account for the intangible and synergistic effects achieved by proper targeting of enemy activities. Some targets will be destroyed, others will be functionally impaired, and some may not be affected. BDA and munitions effect assessment (MEA) may result in reattack recommendations. However, if the enemy has withdrawn its forces, the command assessment would be that the overall targeting objective has been achieved, and no further attacks against that target are necessary.

Assessment must be focused on the overall effectiveness of the MAGTF and is not merely an assessment of the success of the targeting effort. Assessment is based on the commander's articulated mission, intent, and end state. The commander must clearly state the required conditions for the command to accurately conduct an assessment process. Although the assessment process uses information derived from past actions, its focus must be on decisions for future action. Assessment is not conducted merely to determine what has occurred without follow-on actions.
The assessment process is continuous throughout planning and execution. During planning the commander establishes his intent (purpose) for the mission as well as his envisioned end state. It is also when the staff identifies the essential tasks and associated conditions that must be accomplished in order to achieve mission success. These are amplified and supported by MOEs, indicators, and pertinent information in the commander's OPLAN/OPORDER, and are expressed in clear, precise, and measurable language. They are used as the "gauges" for measuring performance in execution and become information requirements for evaluating the effectiveness of previously made decisions.

b. Combat Assessment

Combat assessment is the determination of the overall effectiveness of force employment during military operations, and is composed of three elements: BDA, MEA, and reattack recommendation. If the combat assessment reveals that the commander's targeting objectives have not been met, the targeting process will continue to focus on the appropriate targets as long as their attack continues to support the commander's concept of operations. Combat assessment feedback may result in changes to the original plan if fires alone cannot achieve the command objectives.

The assessment of fires must examine both how fires are contributing to the accomplishment of the MAGTF's objectives (assessment) as well as the effect of fires on individual enemy targets (combat assessment). While important in its own right, combat assessment is limited in focus, is conducted during the execution phase, and should be integrated into the overall command assessment effort to properly evaluate the impact of fires.

5002. Value of the Assessment Process

The impact and challenges of assessment and combat assessment can be demonstrated by the experiences of the Commander, United States Central Command (COMUSCENTCOM) in the Persian Gulf War. During the second and third phases of Operation Desert Storm (Air Offensive in the Kuwaiti Theater of Operations (KTO), and Air Offensive Battlefield Preparation), planners hoped to reduce the combat effectiveness of Iraqi ground forces in the KTO by 50 percent before the ground offensive (Phase IV). This command objective was complicated by the requirement to verify the damage dictated by an arbitrary formula, and the limited ability of U.S. forces to observe and assess the impact of these air operations on Iraqi forces.

Two different assessment methodologies, based on fundamentally distinct purposes and guidance, were used in the two principal periods of conflict during the Persian Gulf War. Before the commencement of ground operations on 24 February 1991, BDA estimates were designed to help determine when Iraqi forces in the KTO had been reduced to half of their overall combat effectiveness—the point when COMUSCENTCOM would be confident in starting the ground offensive. Consequently, BDA analysts attempted to track carefully the number of tanks, armored personnel carriers, and artillery pieces destroyed, primarily by air attack, to produce an approximate measure of Iraqi unit degradation. Estimating levels of destruction inflicted on the enemy proved to be extremely difficult due to the pace of operations involving massive attacks throughout the KTO, using a wide variety of equipment and munitions. These difficulties were compounded by the fact that some new precision weapons made determination of actual damage difficult, and by the fact not all platforms had sensors and equipment to record the effects of their weapons.

Eventually, these difficulties led COMUSCENTCOM to default to a second process to evaluate Iraqi combat effectiveness. This methodology consisted of analysis of the destruction of bridges, degradation of communications, estimates of supplies available, troop physical condition and morale, enemy prisoners of war debriefings, the results of the battle of Khafji intelligence reports and assessments, and destruction of vehicles and other equipment. In the end, it was professional military judgment developed through this comprehensive assessment process--assisted by BDA and other information--that dictated the beginning of ground operations.

The perils of inadequate assessment can be demonstrated by the performance of the Iraqi commanders following the end of hostilities. During ceasefire negotiations, the Iraqis asked for an accounting of the Iraqi prisoners of war. When COMUSCENTCOM replied that the number exceeded 58,000, the Iraqi vice chief of staff was stunned. When he asked his III Corps commander if this were possible, the corps commander replied that it was possible, but he did not know. When COMUSCENTCOM presented the proposed separation of forces line, the Iraqi vice chief of staff asked why it was drawn behind the Iraqi troops. COMUSCENTCOM said this was the forward line of the Coalition advance. The Iraqi officer, again looking stunned, turned to the III Corps commander, who again replied that it was possible, but he did not know. Three days after hostilities ended, the Iraqi senior military leadership still did not know how many men they had lost or where the Coalition forces were.

5003. Planning for Fires Assessment

Fires produce effects that influence the enemy and it is these effects that should be considered in developing a concept of fires and the assessment of those fires. The objectives of targeting are conceptual in nature. These objectives must be easily understood across the combined and joint environment of future operations.

a. Targeting Objectives

Targeting objectives must focus assets on enemy capabilities that could interfere with the achievement of friendly objectives. Targeting objectives are usually expressed in terms of the desired impact of friendly actions on the enemy capabilities. Targeting objectives include—

- **Limit**. Enemy capabilities are limited by reducing the options or COAs available to the enemy commander. For example, the commander may direct the use of air interdiction and fire support to limit the use of one or more avenues of approach available to the enemy. Also, he may direct the use of EW to limit enemy use of fire support communications capabilities.
- **Disrupt**. Fires that prevent effective interaction or cohesion of enemy combat and combat support systems can disrupt enemy plans and actions. A targeting objective of disrupt forces the enemy into less efficient and more vulnerable dispositions that can be exploited by friendly forces.
- **Delay**. Fires can delay the time of arrival of forces at a point on the battlefield or the ability of the enemy to project combat power from a point on the battlefield. Delay results from disrupting, diverting, or destroying enemy capabilities or targets.
- **Divert**. Divert is a targeting objective which addresses the commander's desire to tie up critical enemy resources. Attack of certain targets may result in the enemy diverting capabilities or assets from one area or activity to another. Divert indirectly reduces the capability of the enemy commander to continue his plans.
- **Damage**. Damage can be used to reflect a subjective or objective assessment of battle damage or to describe nuclear targeting objectives. Light, moderate, or severe damage are terms associated with nuclear target analysis commander's criteria for desired effects on the enemy.
- **Destroy**. Destruction attempts to ruin the structure, organic existence, or condition of an enemy target that is essential to an enemy capability. A destruction objective requires establishing specific quantities or percentages within the ability of the weapon system or systems. For example, artillery normally uses 30 percent as the criteria for destruction, whereas maneuver combat forces typically use 70 percent. Destroy is the most difficult targeting object to assess and to achieve.

The designation of targeting objectives for a force with limited resources will require the command to determine what the targeting objective means, does not mean, and how to assess progress towards achieving the objective. During COA development, fire planners establish MOEs that will specifically depict the success or failure of the command's effort to meet the commander's targeting objectives. These MOEs are applied during the assessment step in D3A, and when combined with other information and the commander's judgment, will enable the commander and the staff to make accurate and timely decisions.

b. Attack Guidance

Determining target vulnerabilities and the effects fires will have on enemy operations allows the staff to propose the most efficient available attack option. Key guidance is whether the commander wishes to disrupt delay, limit damage, or destroy the enemy. During war gaming, DPs linked to events, areas (NAIs and TAIs), or points on the battlefield are developed. These DPs cue the command decisions and staff actions where tactical decisions are needed.

On the basis of commander's guidance, the staff recommends how each target should be engaged in terms of the effects of fire and what attack systems to use. Effects of fire are to harass, suppress, neutralize, or destroy the target. The subjective nature of these terms means the commander must ensure his staff understands exactly what he means by using measurable terms to clearly describe his desired effects.

- **Harassing Fires**. Fires designed to disturb the rest of enemy troops, to curtail movement and, by the threat of losses, to lower morale. The decision to employ harassing fires requires careful consideration. Harassing fire has little real physical effect on the enemy, increases the workload of friendly forces, and increases the threat of counterbattery fires. Rules of engagement and/or the potential for adverse public opinion may prohibit the use of harassing fires. However, harassing fires may be a combat multiplier in some situations. Their use may be valuable in military operations other than war, delaying actions, and economy of force operations.
- **Suppression Fires**. Fires on or around a weapons system, to degrade its performance below the level needed to fulfill its mission objectives. Suppression lasts only as long as the fires continue. The duration of suppression fires is dependent on the nature of the target and is either specified in the call for fire or

established by SOP. Suppression is used to prevent effective fire on friendly forces and is typically used to support a specified movement of forces. Use of one round volleys to suppress a target is normally insufficient to provide suppression for an action or move that last more than a few minutes. Scheduling and duration of suppression fires should be considered during planning.

- **Neutralization Fires**. Fires delivered to render the target ineffective or unusable for a temporary period. Neutralization fire results in enemy personnel or material becoming incapable of interfering with an operation or COA. The commander must articulate when and how long the target is to be neutralized. Most planned missions are neutralization fires.
- **Destruction Fires**. Fires physically render the target permanently combat-effective or so damaged that it cannot fiction unless it is restored, reconstituted, or rebuilt. Setting automated fire support default values for destruction of 30 percent does not guarantee the achievement of the commander's intent. The surviving 70 percent may still influence the operation. Destruction missions are expensive in terms of time and material.

c. Collection Planning

The same assets that acquire targets can provide data on the effectiveness of an attack. When a target is designated, in addition to planning intelligence systems to detect and track the target for attack, the command should designate systems to provide post-strike information for assessment, and what criteria will be used to determine success or failure of the engagement. Collection planning must therefore be synchronized with fire support planning to ensure the most efficient and economical use of valuable and often scarce collection assets. Damage assessment also may be made passively through the fortuitous collection of information regarding a particular target area. An example may be a reconnaissance team reporting the cessation of enemy fires from a particular target area.

During the detection step of the targeting process, the collection manager supervises the execution of the collection plan, focusing on the commander's PIRs. Target acquisition assets gather information and report their findings back to their controlling headquarters, such as the intelligence battalion or UAV squadron, which in turn pass pertinent information to the tasking agency such as the MEF. Some collection assets provide actual targets, while other assets must have their information processed and combined with other information to produce valid targets. Not all of the information reported benefits the targeting effort, but it may be valuable to the development of the overall situation assessment.

The target priorities developed during planning are used to expedite the processing of targets. Situations arise where the attack, upon location and identification, of a target is either impossible (for example, out of range) or undesirable (outside of but moving toward an advantageous location for the attack). HPTs that cannot be attacked or those that the commander chooses not to attack in accordance with the attack guidance must be tracked to ensure they are not lost. Tracking suspected targets expedites execution of the attack guidance and keeps them in view while they are validated. Planners and executers must keep in mind that assets used for target tracking may be unavailable for target acquisition. As emerging targets are located, appropriate attack systems are tasked in accordance with the attack guidance and location requirements of the system.

Intelligence collection assets may not be able to collect the information needed to assess the impact of fires. As demonstrated during the Persian Gulf War, modern munitions often inflict damage that may not be detectable such as the impact on the enemy’s morale or the psychological impact of fires on the enemy commander’s decisionmaking. The effects of non-lethal fires, particularly EW attacks, are exceeding difficult to verify. When accurate assessment information is unavailable or inadequate, the commander will be forced to make predictions or value judgments as to what effects his fires have on various targets. In order to reduce the inherent risks of such weak data, the commander should prioritize his assessment information feedback requirements, identifying what information is truly essential. Intelligence systems are also susceptible to enemy deception efforts, and only careful analysis of multiple collection sources can reduce this danger.

Although assessment marks the completion of the targeting cycle, the assessment process is continuous and dynamic. Inputs, in the form of intelligence collection and reports from combat forces, are essential to maximize the effectiveness of the assessment process. The feedback of information allows for assessment, adjustment of the plan, and movement forward. This will increase the efficiency of subsequent targeting cycles.

5004. Assessing Fires During Execution

Combat assessment measures progress and assists the commander in determining future objectives and guidance. It effectively "closes the loop" and enables the other steps of the targeting process by determining if the objectives for an operation are being met. To make this determination, three questions need to be answered. First, were the commander's objectives met? Second, did the fires employed achieve the desired results? Finally, if the objectives were not met, or if the employed fires did not perform properly, what can be done to fix the problem areas? From the answers to these questions, an assessment can be made as to the overall effectiveness of the forces and branch plans or future COAs can be recommended. The commander's combat assessment of his fires efforts is based on his use of BDA, MEA, and reattack recommendations.

a. Battle Damage Assessment

BDA is intended to be a timely and accurate assessment of damage resulting from the application of military force, either lethal or nonlethal, against a predetermined target. It helps to answer the question, "Were the strategic, operational, and tactical objectives met by force employment?" by providing input into the overall commander's assessment. Although BDA is primarily an intelligence responsibility, the process requires input and coordination from operations personnel.

The most critical ingredient for effective BDA is a comprehensive understanding of the commander's objectives and desired effects as they relate to a specific target. MOEs developed during COA development in planning and during the decide step of D3A for each target help to determine whether the commander's objectives have been met. Whether the MOEs and the commander's objectives have been met can be evaluated by conducting physical damage, functional damage, and target system assessments. The commander should develop a comprehensive strategy, together with an intelligence architecture, to support collecting and analyzing BDA. Pre-strike planning should consider the types and availability of collection systems needed to support BDA. During combat, BDA reporting must follow standardized formats and should be passed to command planners and force executors quickly. BDA should use all-source intelligence to answer the commander's target intelligence requirements. Post-strike requirements should include assessing the extent of damage inflicted on the target as a final determination of the effectiveness of the fires employed. Planners and executors must ensure that the information management plan is synchronized with the collection plan to provide reliable and timely BDA feedback to the current fires section and the COC.

BDA is conducted in three phases. All three phases examine whether the command's objectives were satisfied.

- **Physical Damage Assessment (Phase I).** The first BDA phase is an initial analysis, based primarily on visual observation of the target to develop an estimate of the extent of physical damage. This first post-attack target analysis should be a coordinated effort between the staff, MSCs, the JTF, adjacent commands, and theater and national agencies. Some representative sources for data needed to make a physical damage assessment include: mission reports, imagery, weapon system video, visual reports from ground spotters or combat troops, controllers and observers, artillery target surveillance reports, SIGINT, human intelligence, and imagery intelligence. The unit that initially engaged the target should report whether a target was hit or missed, assess observe physical damage, and recommend an immediate reattack if necessary. The report is then sent to the appropriate BDA analysts for further study.

Phase I Report Example: Visual observation and imagery of an enemy multiple rocket launcher battalion indicates that six of 18 BM-21 multiple rocket launchers (MRL) are destroyed, three are damaged. 30% of all other transportation assets are destroyed. Two command and signal vans appear damaged but are probably mobile.

- **Functional Damage Assessment (Phase II).** The functional damage assessment reviews all first-phase damage assessment, amplifies the initial analysis by drawing on all-source intelligence and operational data, and estimates the extent and duration of the effects of the fires used on the operational capability of the target. This includes an assessment of the remaining functional or operational capability of the targeted facility or object. Functional assessments are inferred from the assessed physical damage and include estimates of the recuperation or replacement time required for the target to resume normal operations. This all-source analysis is typically conducted at the MAGTF level, in conjunction with support from theater and national level assets. The BDA analysts then compare the original objective for the attack with the current status of the target to determine if the desired effects of the fires have been met.

Phase II Report Example: Physical damage to the nine rocket launchers limits the enemy battalion's ability to perform fire missions in support of the division commander. Three rocket launchers may be able to provide limited support. Damage to the MRL transportation assets will inhibit the battalion's ability to displace and conduct resupply. Damage to the battalion command and control will prevent timely response to calls for fire. The enemy is capable of reconstituting the battalion (all 18 systems operational within 12 hours).

- **Target System Assessment (Phase III).** Target system assessment is an estimate of the overall impact of force employment against an adversary target system. These assessments can be conducted by the MAGTF, supported by theater and national-level assets for additional target system analysis. The MAGTF fuses all BDA reporting on functional damage to targets within a target system and assesses the overall impact on that system's capabilities. However, Phase III BDA often requires a degree of expertise and analysis that may not be resident within the MAGTF. Accordingly, Phase III assessments are usually generated at the theater-level. Phase III assessments lay the groundwork for future recommendations for military operations in support of operational objectives.

Phase III Report Example: The enemy's fire support system is known to include 21 artillery battalions, two of which are MRL battalions. Partial destruction of one MRL battalion has an insignificant short-term impact on the effectiveness and capability of the enemy's overall fire support system.

One of the most important sources of assessment information can be derived from spot reports and situation reports from ground units. In the course of their normal operations—direct fire engagements, artillery fire missions, close air support missions, patrols, or maneuvers as it occupies contested ground—ground combat units can make accurate and timely assessments of the effects of fires. These reports often provide information that is not available from any intelligence source. For example, if attacked targets are captured by the ground combat element, MEA and BDA teams can be used to gather detailed information on the target and how the munitions functioned against it. This information could have a crucial impact on future operations and the quality of future BDA.

b. Munitions Effects Assessment

The MEA is conducted concurrently and interactively with BDA, since the same visual signatures used to determine the level of physical damage also give clues to the munitions effectiveness. MEA is primarily the responsibility of the operations section, with inputs and coordination from the intelligence section. After several targets of a specific type are attacked by the same weapon, MEA should be accomplished to identify, through a systematic trend analysis, any

deficiencies in weapon system and munitions performance or combat tactics. Using a variety of inputs targeting analysts, imagery analysts, mission planners, and operators report on the effectiveness of the munitions employed. The report details weapon performance against specified target types. The MAGTF targeting board may include discussion and analysis of MEA, and will consider MEA when making targeting decisions.

c. Reattack Recommendations

Reattack recommendations follow directly from both BDA and MEA analysis. Reattack recommendations answer the question, "What can be done to fix the problem areas identified by BDA and MEA?" Evolving objectives, target selection, vulnerabilities, timing, tactics, weapons, and munitions are all factors in the new recommendations, combining both operations and intelligence functions. Phase I and II BDA supports recommendations for reattack or redirection of forces against specific targets. Phase III BDA supports recommendations for maintaining or changing priorities for attacking target systems. The most important contribution of MEA in selecting weapon systems to engage specific target types is its force application recommendations. MEA analysts can also make recommendations for procedural changes, different tactics, system modifications, or new system development. MEA may also influence immediate reattack decisions against specific targets.

Chapter 6

Fires in Amphibious Operations

An amphibious operation is a military operation launched from the sea by an amphibious task force (ATF) embarked in ships or craft with the primary purpose of introducing a landing force (LF) ashore to accomplish the assigned mission. Amphibious operations seek to exploit the element of surprise and capitalize on enemy weakness by projecting and applying combat power precisely at the most advantageous location and time. Properly planned and executed supporting arms fires are usually critical to the success of an amphibious operation. At the beginning of the assault, the LFs have no organic surface supporting arms to support their advance. Only when sufficient area ashore has been seized can organic artillery be landed to provide additional support. Planning for and coordinating the use of supporting arms is complex and requires that all the organizations involved work closely together.

This chapter explains how the MAGTF commander and his staff plan for the employment of fires in support of amphibious operations. It describes the typical organizational structures and processes used by MAGTFs to plan and coordinate fires, the process by which control of fires is passed ashore during an amphibious operation, and the impact of new operational concepts on the planning, coordination, and execution of fires.

6001. Command Relationships

Amphibious operations are normally part of a joint operation. The JFC ensures unity of effort in achieving the objectives of the amphibious operation by establishing unity of command over amphibious forces. The JFC will organize the amphibious force in such a way as to best accomplish the mission.

The command relationships established within the ATF are in accordance with JP 0-2, *Unified Action Armed Forces (UNAAF)* and are issued in the initiating directive. The JFC may establish unity of command over amphibious forces by retaining OPCON over the Service or functional component commands executing the amphibious operation, or by delegating OPCON or TACON of the ATF to a Service or functional component commander. If organizing forces along Service components, the JFC may establish a support relationship between the Navy component commander and the Service component commander of the LF, or delegate OPCON or TACON of the assigned or attached amphibious forces to a Service component.

If organizing the joint force with a combination of Service and functional component commands with operational responsibilities, the JFC may establish a support relationship between the functional components, Service components, or other appropriate commanders, or delegate OPCON or TACON of the assigned or attached amphibious forces to a functional component or Service component commander.

The command relationships established among the CATF, CLF, and other designated commanders of the ATF is important. The type of relationship chosen by the common superior commander (or establishing authority) for the amphibious force should be based on mission, nature and duration of the operation, force capabilities, command and control capabilities, battlespace assigned, and recommendations from subordinate commanders. A support relationship between the commanders is based on the complementary rather than similar nature of the ATF and LF.

Support is a command authority commonly used in amphibious operations. The establishing authority of the amphibious operation establishes a support relationship between commanders within the amphibious force as well as other designated commanders as appropriate. This relationship is appropriate when one organization should aid, protect, complement, or sustain another force. The designation of the supporting relationships is important as it conveys priorities to the commanders and staffs who are planning or executing the operation. The support relationship is, by design, a somewhat vague and therefore very flexible arrangement. The publishing of an establishing directive to specify the purpose of the support, the desired effect, and the scope of action to be taken enhances this flexibility.

In a support relationship, the CATF and CLF and other commanders designated in the order initiating planning for the amphibious operation are coequal. All decisions made by these commanders are reached based on a common understanding of the mission, objectives, and procedures and on a free exchange of information. Unless published in the order initiating the amphibious operation, the CATF and CLF will identify the events and conditions for any shifts of the support relationship throughout the operation during the planning phase and forward them to the establishing authority for approval. The establishing authority will resolve any differences among the commanders.

A supported commander may be designated for the entire operation, a particular phase or stage of the operation, a particular function, or a combination of phases, stages, events, and functions. Unless limited by the establishing directive or the order initiating the amphibious operation, the supported commander has the authority to exercise general direction of the supporting effort. General direction includes the designation and prioritization of targets or objectives, timing and duration of the supporting action, and other instructions necessary for coordination and efficiency. The establishing authority is responsible for ensuring that the supported and supporting commanders understand the degree of authority that the supported commander is granted. In an operation of relatively short duration, normally the establishing authority will choose one commander for the entire operation. When there is no littoral threat to the amphibious force the establishing authority may designate the CLF as the supported commander for the entire operation. During the movement or transit phase, the CATF may be designated the supported commander based on having responsibility for the major action or activity during that phase. The CATF may be designated the supported commander based on capabilities for airspace control and air defense for the entire operation if, for example, the landing force does not intend to establish a tactical air command center ashore. The establishing authority should consider several factors when designating the supported commander at various phases and events during the amphibious operation, including but limited to the following—

- Responsibility for the preponderance of the mission.
- Force capabilities.
- Threat.
- Type, phase, and duration of operation.
- Command and control capabilities.
- Battlespace assigned.
- Recommendations from subordinate commanders.

Amphibious operations commence with an order issued by the commander with establishing authority to the amphibious force commanders. The order initiating the amphibious operation may come in the form of a warning order, an alert order, a planning order, or an OPORD. The complete information required to conduct an amphibious operation may come from a combination of these orders (e.g., a warning order followed by an alert or OPORD). The order initiating the amphibious operation should normally provide the following information—

- The establishing authority's mission, intent, and concept of operations.
- Designation of required commanders, establishment of their command relationships, and provision of special instructions as required to support the amphibious force organization and mission. Special instructions may include an establishing directive if a support relationship is established among designated commanders of the amphibious force.
- Designation of assigned, attached, and supporting forces to the amphibious force.

- Assignment of an operational area as appropriate. The amphibious operational area must be of sufficient size to conduct necessary sea, land, and air operations required to execute the mission of the amphibious force. The operational areas that may be assigned to an amphibious force in an order initiating the amphibious operation are an AOA or an AO normally in conjunction with a high-density airspace control zone.
- Assignment of tasks.
- Assignment of responsibility and provision of necessary coordinating instructions for the conduct of supporting operations.
- Target dates for execution of the operation.
- Additional coordinating instructions, as required.

Termination of an amphibious operation is predicated on the accomplishment of the amphibious mission in accordance with the specific conditions contained in the order initiating the amphibious operation. Upon completion of the amphibious operation, the establishing authority will provide instructions as required for command arrangements and assignment of amphibious forces.

For more information see Joint Pub 3-02, *Joint Doctrine for Amphibious Operations*.

6002. Organization

The establishing directive or the order initiating the amphibious operation identifies responsibilities for fire support planning and coordination among the commanders of the amphibious force. The following organizations are usually employed in the planning and coordination of fires in amphibious operations.

a. Supporting Arms Coordination Center

Upon initiation of planning, a SACC is established. The CATF or supported commander as designated exercises his responsibility for the overall coordination of supporting fires through the SACC. The SACC plans, coordinates, and controls all organic and non-organic fires within the operational area in support of the amphibious force. It is located aboard an amphibious ship or appropriate ship configured with the requisite command and control facilities, coordinating all forms of supporting fires (land, air, and sea based). The CATF or supported commander may choose either the ATF's SAC or the LF's FFC to supervise the SACC. Whether the SAC or FFC supervises the SACC, fire support personnel from both the ATF and LF operate the SACC. Coordination of supporting fires by the SACC or later by the senior FSCC is characterized by supervision rather than the detailed coordination accomplished at lower echelons. The SACC and senior FSCCs become directly involved only when lower level fire support coordination agencies are unable to perform the necessary coordination. This procedure is consistent with the following principles:

- Coordinate each fire at the lowest possible echelon.
- A commander has the authority to approve the use of supporting arms within his zone of action. He and he alone authorizes fires in his zone of action.

The organization of the SACC is typically the same for any size amphibious operation; however, variations in operations may require specific needs. A SACC is usually composed of the following sections.

- **Naval Surface Fire Support Section**. The ATF staff mans the NSFS section. This section monitors the naval gun fire control net, support net, and other gunfire nets as appropriate. The LF staff provides liaison to the section.
- **Air Support Section.** This section is manned by members of a Navy air control agency (e.g., tactical air control squadron or tactical air control group) and directed by the air support coordinator who reports to the

tactical air officer. This section supports the Navy TACC by controlling, supporting, or transferring control to subsidiary tactical air direction controllers afloat or ashore. The section is located in the SACC and coordinates with the Navy TACC to assist in the deconfliction of air missions, routes, and requests with fires. The LF staff provides liaison to the section.

- **Target Information Center.** The target information center is responsible for targeting information and intelligence. The ATF target intelligence officer, ATF air intelligence officer, LF target information officer, and other personnel of the target information section of the landing force FSCC man the target information center. Members will normally operate in the SACC. The ATF target intelligence officer supervises the target information center and maintains close liaison with ATF and LF intelligence and operations staff. The LF target information officer normally works in the intelligence center of the amphibious force. Although the target information center is dissolved when the LF headquarters is displaced ashore, the target intelligence center must be prepared to resume normal operations if required.

b. Navy Tactical Air Control Center

The Navy TACC, the senior Navy amphibious air control agency, will normally be established as the agency responsible for controlling all air operations within the allocated airspace regardless of mission or origin, to include supporting arms. During amphibious operations, the Navy TACC coordinates the types of airspace control measures and controls all air operations until a land-based air control agency is established ashore. Once a land-based air control agency receives control of all LF air operations, the Navy TACC becomes a tactical air direction center (TADC) supporting the land-based air control agency. Ideally, the Navy TACC is collocated with the SACC. The Navy TACC has five sections, four of which control and integrate aircraft. The first three sections reside in current operations and the fourth in the plans, execution, and support section.

- **Air Traffic Control Section.** The air traffic control section is located in the Navy TACC and provides initial safe passage, radar control, and surveillance for CAS aircraft in the operational area. The air traffic control section also controls and routes rotary-wing CAS aircraft and assault support aircraft and coordinates with individual shipboard helicopter direction centers during amphibious operations.
- **Air Support Control Section.** The air support control section is located in the SACC and is the section of the Navy TACC designated to coordinate, control, and integrate all direct support aircraft (i.e., CAS) and assault support operations.
- **Air Defense Section.** The air defense section, located in the Navy TACC, provides liaison with air defense commanders and provides early detection, identification, and warning of enemy aircraft.
- **Plans, Execution, and Support Section**. The plans, execution and support section participates in the targeting effort as air operations subject matter experts through the targeting board. The section's planning will coincide with the ATO process. The section forwards excess air sorties and air support requests to the establishing authority for tasking and allocation. Input from the targeting board is processed by the ATO planning, production, and execution cell.

For more information see Joint Pub 3-02.

Other air command and control agencies include—

- **Air Mission Commander.** An air mission commander (AMC) is designated when separate aircraft formations, each led by a formation leader, are required for a common support mission or whenever a formation of four or more aircraft must perform a multiple sortie mission. The mission commander, an appropriately qualified naval aviator, shall plan, coordinate, and direct the mission and is responsible for the overall effectiveness of that mission.
- **Assault Support Coordinator (Airborne)**. The assault support coordinator (airborne) (ASC[A]) is an experienced naval aviator operating from an aircraft to direct airborne coordination and control of assault support operations. The ASC(A) functions as an extension of the DASC. He coordinates with the tactical air

coordinator (airborne) (TAC[A]) or forward air controller (airborne) (FAC[A]), as appropriate, for support of CAS aircraft, as determined by the AMC. The ASC(A) assists in providing situational awareness to the assault force, relays requests to the DASC, exercises launch authority for immediate and on-call missions, and provides routing recommendations to the AMC.

- **Tactical Air Coordinator (Airborne)**. The TAC(A) is an officer who coordinates from an aircraft the action of combat aircraft engaged in close support of ground or sea forces. The TAC(A), as an on-site airborne extension of the DASC, TACC, or TADC, is normally the senior air coordinating authority over all aircraft operating within his assigned area of responsibility. However, the specific authority exercised by a TAC(A) will be as specified or delegated by the DASC, TACC, or TADC, as appropriate. During helicopterborne operations where an AMC or ASC(A) is employed, the relationship between the TAC(A) and the AMC or ASC(A) will be established during the planning phase by the tactical air commander or his designated representative. The TAC(A)'s principal responsibilities are to de-conflict aircraft and coordinate employment of supporting aircraft with other supporting arms. In fulfilling this responsibility, the TAC(A) coordinates as necessary with the AMC or ASC(A), ground commanders' tactical air control parties (TACPs), the FFCC, FSCCs, subordinate FAC(A), and with artillery and NSFS. The TAC(A) may or may not be assigned depending on mission requirements and aircraft availability. When assigned, the TAC(A) is subordinate to the DASC or the TACC or TADC.
- **Forward Air Controller (Airborne).** The FAC(A) is an officer (aviator/pilot) member of the tactical air control party who controls close air support aircraft from an airborne position in support of ground troops. This control may be exercised by qualified Marine or Navy personnel.

c. Force Fires Coordination Center

When the responsibility for fire support planning and coordination is passed ashore, the FFCC is the Marine Corps' senior fire support coordination agency and is responsible for the planning, execution, and coordination of all organic and non-organic fires within the operational area. Prior to control being passed ashore, the FFCC incrementally assumes responsibility for fire support planning and coordination from the SACC. The FFCC is organized and supervised at the MAGTF-level by the FFC who is responsible to the CLF for MAGTF fires. The organization operates at both the tactical and operational level addressing current and future fire support issues.

d. Fire Support Coordination Center

The FSCC is the fire support coordination agency within the LF GCE. FSCCs are established at the battalion, regiment, and division level. The FSCC is responsible for the planning, execution, and coordination of all forms of fire support within the GCE's area of operations. The FSCC is organized and supervised by the fire support coordinator who is responsible to the appropriate level GCE operations officer for GCE fires. FSCCs are initially subordinate to the SACC or to the FFCC if it is established ashore.

e. Marine Corps Air Control Agencies Ashore

The Marine Corps has a command and control system—the MACCS—through which the LF commander can control air operations. The following elements of the MACCS are phased ashore and increase their responsibilities overtime until all aspects of Marine air operations are controlled by the MAGTF:

- **Marine Tactical Air Command Center**. The Marine TACC is the senior agency of the MACCS. It provides the facilities for the ACE commander to command, supervise, and direct MAGTF air operations. The Marine TACC is the MACCS agency that exercises command. It integrates the six functions of Marine aviation with COC/FFCC and provides functional interface for employment of MAGTF aviation in joint and multinational operations. The Marine TACC maintains complete information on the friendly situation, including the status of air and ground forces, the air situation, and ground combat information essential to the air effort. It also maintains and disseminates critical enemy air and ground information. The Marine TACC manages all aircraft and surface-to-air weapons in the MAGTF's AO to ensure a balanced use of assets. Until

authority for control of air operations is passed to the CLF ashore, the Marine TACC operates as TADC under overall supervision of the Navy TACC and accomplishes such air control functions as may be assigned. As the primary LF air control agency, whether operating as a TACC or a TADC, the Marine TACC requires current intelligence on the ground and air situation, a means to display current situation and enemy intelligence data that will permit rapid evaluation, and communications equipment to provide the means to shift air power rapidly to meet changing requirements.

- **Tactical Air Direction Center**. The TADC is an air operations installation under the overall control of the Marine or Navy TACC, from which aircraft and air warning service functions of tactical air operations in an area of responsibility are directed. A TADC may be established at a forward operating base or remote airfield to coordinate MAGTF aviation activities within a specific area. It may also be assigned to perform specific functions as directed by its senior agency or the ACE commander, or it may mirror the TACC's functions in the capacity as an alternate TACC or in preparation for assuming sector airspace management functions. Depending on the TADC's role, it may be task-organized to perform senior supervisory planning and coordination functions normally provided by a TACC.
- **Direct Air Support Center**. The DASC is the principal air control agency of the MACCS responsible for the direction and control of air operations directly supporting the GCE. It processes and coordinates requests for immediate air support and coordinates air missions requiring integration with ground forces and other supporting arms. It normally collocates with the senior FSCC within the GCE and is subordinate to the Marine TACC. The DASC processes immediate air support requests, coordinates aircraft employment with other supporting arms, manages terminal control assets that support ground combat and combat service support forces, and controls assigned aircraft transiting its area of responsibility. It also adjusts preplanned schedules and diverts airborne assets if delegated authority by the ACE and coordinates changes with the FSCC. The DASC also coordinates the execution of direct air support missions with other supporting arms through the appropriate FSCC and as required with the appropriate MACCS agencies.
- **Tactical Air Operations Center**. The TAOC is responsible for airspace control and management. It detects, identifies, and controls the intercept of hostile aircraft and missiles and provides navigational assistance to friendly aircraft. It is subordinate to the Marine TACC. The TAOC provides real-time surveillance of assigned airspace and direction, positive control, and navigational assistance for friendly aircraft. It performs real-time direction and control of AAW operations involving aircraft and surface-to-air weapons. By collecting and displaying information from its own sensors, other Marine Corps sources, and external sources, the TAOC controls assigned airspace and directs and controls the fires of assigned air defense assets. It can be used to enhance the ability of the Marine TACC to prosecute the ACE's support of the MAGTF's deep operations.
- **Early Warning and Control Center**. The EW/C provides extended radar coverage and aids in control of antiair warfare aircraft and air defense missiles and is subordinate to the TAOC. The EW/C may perform some of the TAOC functions as MACCS agencies transition ashore.
- **Tactical Air Control Party**. TACPs are agencies through which ground commanders can control aircraft. TACPs establish and maintain the necessary communications with other elements of the MACCS, advise ground unit commanders on the employment of aircraft, transmit requests for direct air support, and transmit directions to aircraft providing CAS and other air support.

For more information on the MACCS see MCWP 3-25.3, *Marine Air Command and Control System Handbook*.

6003. Planning and Coordination

The purpose of planning and coordination of fires is to optimize the employment of fire support to achieve the commander's intent. Through planning and coordination, fires can shape the enemy and provide effective support to maneuver forces.

a. Fire Support Planning

Commanders determine how to shape the enemy with fires to assist both maritime and land maneuver forces and how to use maritime and land maneuver forces to exploit fires. When developing the fire support plan, the designated commander will formulate the "commander's guidance for fires." It is from this guidance that supporting and subordinate commanders and fire support personnel begin to frame the role of fire support in the plan. The commander's guidance for fires should articulate the effects desired on the enemy's capabilities and how these effects will contribute to the overall success of the operation. The designated commander identifies targets that are critical to the success of the operation (HPTs), force protection issues, and any prohibitions or restrictions on fire support. A clear determination of the enemy's COGs and CVs is central to fire support planning.

Fire support planning is the continuous and concurrent process of analyzing, allocating, and scheduling of fire support to integrate it with the forces to maximize combat power. Fire support planning in preparation for an amphibious operation is more centralized than that for subsequent operations ashore. For example, in preparation for an amphibious operation, fire support requirements are integrated and coordinated at each echelon and then forwarded to the next echelon for approval and further integration and coordination. In subsequent operations ashore, landing force elements may develop and execute fire support plans in their areas of responsibility that are neither integrated nor coordinated at the higher levels.

Fire support planning for an amphibious operation has two distinct but related aspects. One involves the preparation of the objective area and includes supporting, preassault, and prelanding operations. The other involves the provision of fire support means to the LF and its combat elements subsequent to landing. For each of these phases in the amphibious operation, the CLF coordinates his overall and detailed fire support requirements with the CATF. These requirements result in a tentative allocation of aircraft and ships as a basis for planning and are eventually captured in the fire support plan.

- **Preparation of the Objective Area**. Preparation of the objective area involves the determination of targets to be attacked, the general timing of attack, the selection of fire support means, the effect desired, and a statement of the probability, or assurance, that the effect will be attained. This analysis determines the extent to which the objective area will be prepared. Planning for supporting and preassault operations will consider the time required to prepare the objective area and the fire support means available. Prelanding operations consist primarily of neutralization and suppressive fires in the vicinity of the landing areas. Planning is not limited to confirmed targets but may include suspected targets or areas that, if occupied, will present a threat to the ship-to-shore movement and initial operations ashore. Destruction of targets may be an additional requirement during prelanding operations.
- **Support of the Landing Force Subsequent to Landing**. Support of the LF and its combat elements subsequent to landing involves the assignment of adequate fire support means to committed maneuver elements, and to other elements or echelons requiring fire support. Such assignment of fire support increases the combat power of supported units on an as-required basis.
- **Overall Fire Support Requirements**. Overall fire support requirements consist of the number and type of aircraft, fire support ships, artillery units, and the respective munitions needed to support each operational phase of the operation—pre-D-day, D-day, and post-D-day operations ashore. The CLF submits his air and NSFS requirements for each operational phase as the basis for a tentative allocation of fire support means for planning. These requirements are reviewed and revised as detailed planning progresses. Commanders of subordinate echelons submit artillery requirements to the CLF. In estimating the number and type of aircraft, NSFS ships, and artillery units for any operational phase, due consideration is given to the mission, the scheme of maneuver, and the requirement for coordination among the three arms.
- **Detailed Fire Support Requirements**. Detailed fire support requirements are the CLF's specific recommendations to the CATF concerning the use of available fire support means to accomplish preparation of the objective area or to provide fire support to the LF subsequent to landing. As such, these recommendations are the basis for detailed fire support plans of the landing force. These requirements

include, as appropriate, specific targets to be attacked and the delivery means recommended, amounts of ammunition to be expended and schedules for delivery, and specific LF elements to be supported and the types of support required. Detailed requirements should be submitted in sufficient detail as to require only approval and implementation by the CATF.

- **Fire Support Plan**. The fire support plan consists of the detailed requirements for air, NSFS, and artillery for the various operational phases of the amphibious operation. The fires support plan is prepared jointly by the air, NSFS, and artillery representatives under the supervision of the FSC. The plan accommodates the fire support requests of subordinate units. Close and continuous coordination is required among supporting arms representatives and with corresponding staff representatives of the ATF and other components to ensure that LF requirements are compatible with and coordinated with overall ATF requirements and are incorporated in the ATF fire support plan.

b. Targeting

The amphibious force normally forms an integrated targeting board to provide broad fire support and targeting oversight functions. These functions may include: coordinating desired effects; approving and prioritizing HPTs and confirming targeting objectives; identifying no strike or prohibited targets; preparing the amphibious target list; evaluating the effectiveness of fires; and establishing and shifting of FSCMs.

The CATF is responsible for the preparation and promulgation of the target list. All available target data are collected in the JIC. The JIC provides target data to the SAC, who prepares the target list. The CLF and tactical air officer provide lists of targets that require attack by fires and assist the SAC in preparation of the target list. The SAC assigns classification and recommends priorities to the targets. The target list is approved by the CATF. When advance force operations are conducted, the advance force commander will initially control the target list. Control of the target list may be passed to the CLF as the operation progresses.

The supported commander during the period within which the targets are attacked has final approval authority over the fire support plan and target list. Those targets to be attacked by organic assets are tasked to the appropriate agencies for execution. Targets identified for attack by non-organic assets are nominated to the next higher-level targeting board for consideration. The amphibious force will provide, at a minimum, liaison officers to this targeting board (i.e., component level) and may provide LNOs to the senior joint targeting board (i.e., the JFC's joint targeting coordination board), if established. Targeting timelines for the amphibious force must be synchronized with the targeting timelines of the JFC.

The amphibious force may seek to shape their designated (but not yet activated) AO prior to the arrival of amphibious forces through target nominations for attack by other components' forces. Restrictions on the attack of certain targets may also be requested, if the designated amphibious force commander desires to exploit them at a future time, such as certain enemy communications sites or bridges.

Target selection is the prerogative of the supported commander. After the targets are selected, they are analyzed and the method of attack is determined for each target. The selection and allocation of fire support assets to deliver the desired fire support is a function of the CATF or designated commander. The selection and allocation of artillery units is a function of the CLF. The CLF is responsible for the organization for combat of organic artillery.

c. Principles for Fire Support Coordination in Amphibious Operations

- **Plan Early and Continuously**. To effectively integrate fire support with the scheme of maneuver, amphibious fire support planning must begin with mission analysis and the designated commander's planning guidance. The fire support personnel should solicit guidance from the commander whenever needed during the planning of an operation. Fire support planning is continuous.

- **Continuous Flow of Targeting Information**. Fire support planners and/or coordinators should ensure that acquisition requirements for fire support are identified and focused on detecting priority targets. An integrated target acquisition plan, coupled with responsive communication paths, enhances the continuous flow of targeting information.
- **Consider the Use of All Available Fires**. Fire support personnel will consider the use of available organic and non-organic lethal and nonlethal assets in support of the amphibious force commander's intent.
- **Use the Lowest Echelon Capable of Furnishing Effective Support**. The lowest echelon that has the necessary means to accomplish the mission should furnish the fire support. When coordination cannot be accomplished or additional guidance is required, the next higher echelon should be consulted (e.g., a battalion FSCC would contact the regimental FSCC if it lacked the necessary means to accomplish a mission, and the regimental FSCC would contact the SACC or FFCC, if required).
- **Use the Most Effective Fire Support Means**. Requests for fire support are sent to the supporting arm capable of delivering the most effective fires within the required time. Factors to be considered include the nature and importance of the target, the engagement time window, the availability of attack means, and the results desired. The commander may also consider assets to delay or suppress the target until a more effective means to attack it becomes available.
- **Furnish the Type of Fire Support Requested**. The fire support requester is usually in the best position to determine fire support requirements. However, the SAC or FFC is in a position to weigh the request against the commander's guidance and the current and future needs for fire support. If a request for fire support is disapproved, the SAC or FFC stops the request and notifies all concerned. When possible, the coordinators recommend a new fire support means and alert the agencies that may provide the support to the requesting unit.
- **Avoid Unnecessary Duplication**. A key task for fire support personnel is to ensure that unnecessary duplications of fire support are resolved and that only the minimum force needed to get the desired effects is used. This does not mean that only one asset is used; taking advantage of the complementary characteristics of different types of assets and integrating their effects provides the synergy of combined arms.
- **Coordinate Airspace**. Inherent in fire support coordination is the deconfliction of airspace by supporting arms. The collocation of the SACC and Navy TACC can facilitate the coordination and integration of airspace, air defense, and fires. FSCMs and coordination procedures are used to provide a measure of protection to the aircraft while incorporating CAS with indirect fires.
- **Provide Adequate Support**. The mission and the commander's guidance determine the effects that fire support should achieve for the fire support plan to succeed.
- **Provide Rapid Coordination**. Procedures for rapid coordination ensure speed and flexibility in delivery of fires. SACC and FFCC personnel must know the characteristics of available fire support weapons, the weapons' status, and maintain situational awareness in order to attack both planned targets and targets of opportunity effectively.
- **Provide Safeguards and Survivability**. Force protection includes considerations of enemy threats and the potential for fratricide. Detailed integration of maneuver and fire support is required to prevent fratricide. SACC and FFCC personnel seek to prevent fratricide through close coordination at all levels and situational awareness. Three dimensional radars and digital data links should be used for safeguards and for enhancing survivability. Use of FSCMs, coordination of position areas, and the consideration of the locations of friendly forces during target analysis all contribute to safeguarding friendly units.
- **Establish Communications Support**. Timely and efficient exchange of information is a key requirement for all successful operations. The physical collocation of coordinating agencies (SACC or TACC and FSCC or DASC) provides the surest form of communication, but is not always possible or practical. Therefore, reliable and extensive networking among target acquisition assets, the fire support coordination agencies, and attack resources is required to increase the responsiveness of fires in support of the amphibious operation and to increase the amphibious force's operational tempo. Timely and efficient communications with adjacent forces will also be required.

- **Establish Fire Support Coordinating Measures**. FSCMs facilitate the rapid engagement of targets throughout the operational area and, at the same time, provide safeguards for friendly forces. The CLF designates all land fire support coordinating measures within the operational area. The CATF designates primary and alternate FSAs as required to support the LF maneuver ashore. FSCMs must be synchronized with the air control plan.

d. Planning and Coordination Responsibilities

- **Commander, Amphibious Task Force**. The CATF is the Navy officer designated by the initiating directive or order as the commander of the ATF. This order or directive should identify fire support planning and coordination responsibilities among the various commanders assigned to the ATF and will usually identify the commander responsible to plan and coordinate fires for the entire amphibious operation or for a particular phase of the operation. Normally, the CATF is responsible for preparation of the overall NSFS plan, based on the requirements submitted by the CLF and on Navy requirements. The planning includes allocation of NSFS ships and facilities.

  The Navy TACC, normally onboard the ATF flagship, is usually responsible for coordinating the conduct of all air operations to include the delivery of fires within the AOA or AO of the ATF. The Navy TACC coordinates airspace control measures and coordinates air operations until LF or joint air control agencies are established ashore. Once air control agencies are established ashore and control of air operations are passed, the Navy TACC becomes a TADC supporting the LF or joint air control agency. For more information see Joint Pub 3-02.

  Additional responsibilities include:

  - **Air Defense Commander**. The CATF normally coordinates active air defense of the ATF with the AADC unless otherwise specified in the initiating order or directive. The CATF usually assigns an air defense commander, normally the commander of the most capable air defense platform, to actually conduct air defense operations. The air defense commander will communicate with the Navy TACC to maintain the current air situation and coordinate air defense operations.
  - **Regional Air Defense Commander**. While the AADC has overall responsibility for air defense in the joint AO, he may designate regional air defense commanders (RADCs) for specific geographic areas to accomplish the joint force mission. A RADC is normally established within the ATF and is responsible for the airspace allocated for the amphibious operation, including, but not limited to, the AOA, if established.
  - **Sector Air Defense Commander**. Sector air defense commanders may be designated within and subordinate to RADCs. The CATF will normally be assigned this responsibility for the seaward sector of the AO. As sufficient air defense assets are established ashore, the CLF will coordinate with CATF to pass sector air defense commander responsibility for the landward sector of the AO to the CLF. The dimensions of the landward sector of the AO will have been determined during planning.
  - **Supporting Arms Coordination Center**. The CATF or the commander designated to control ATF fires will establish the SACC to plan, coordinate, and control all fires. The CATF or the designated commander may choose either the SAC of the FFC to supervise the SACC. Whether the SAC or the FFC supervises the SACC, personnel from both the ATF and the LF will serve in the SACC.

- **Commander, Landing Force**. The CLF is a Marine or Army officer designated in the initiating order or directive as the commander of the landing force. He determines the LF's requirements for NSFS and provides input to the CATF on all fire support and targeting issues and decisions that affect the LF. The CLF establishes a fire support coordination agency at each appropriate level of the LF for accomplishment of

landing force fire support coordination responsibilities during planning and execution of the operation. For more information see Joint Pub 3-02.

Additional responsibilities include:

- Provides the FFC to supervise the SACC, if directed.
- Provides personnel to assist in the operation of the SACC.

e. Other Planning and Coordination Considerations

- **Advance Force SACC**. Although normally only one SACC is active at any one time, advance force operations may require the establishment of a fire support agency to coordinate fires in support of the neutralization or destruction of enemy high value assets or the emergency extraction of SOF or reconnaissance units. The advance force SACC must maintain situational awareness on the insertions and extractions of teams, locations of teams ashore, and mine warfare operations within the area, to include sea and air assets. The amphibious force SACC assumes responsibility as the primary fire support agency from the advance force SACC, upon its arrival in the operational area.
- **NSFS Ships in Support of the LF**. During planning, the CLF identifies specific NSFS missions to the CATF. Based on the LF requirements, the number of ships available, and their other assigned tasks, the CATF organizes NSFS assets and assigns ships in a manner that will best support the LF scheme of maneuver ashore.

6004. Passage of Fire Support Command, Control, and Coordination Ashore

In an amphibious assault, combat power is built up ashore as rapidly as possible. As the various units (e.g., infantry battalions and artillery battalions) land and establish the facilities and communications needed for their commanders to exercise control over the elements of their units, the commanders assume control (authority) over their units.

The rapid buildup of combat power ashore causes some of the landing force staff agencies to be ready to function before others. The senior FSCC is often one of the first. When these agencies are established ashore, the CATF may pass control (i.e., delegate authority) over certain functions to the CLF so that the CLF may exercise authority through his own staff agencies rather than having to request the CATF to direct the actions that are related to these functions. For example, control of NSFS (the authority to assign missions to NSFS ships) is vested in the CATF. If the CATF passes control of NSFS to the CLF, the CATF delegates the authority to the CLF to designate directly to the commander of the NSFS ships what landing force units will be provided with direct and general support ships. Before the control of NSFS is passed to the CLF, the CLF must request the changes of direct and general support missions from the CATF.

To obtain the most effective fire support coordination, the commander responsible for the overall coordination of supporting fires also controls all supporting fires. When control of direct air support is passed from the CATF to the CLF, the situation normally permits a concurrent shift in responsibility for control of NSFS and for the overall coordination of supporting fires. When responsibility for the coordination of supporting fires is passed to the CLF, the appropriate supporting arms circuits continue to be monitored in the SACC. If, after such a shift of responsibility, returning control of one function or another to afloat facilities becomes necessary, the SACC may re-assume the responsibility for elements of supporting arms on a temporary basis. The principle of concurrent shift of responsibility for control and coordination of supporting fires is similarly applicable to attack groups and landing groups.

a. Control of Pre-D-Day Air Operations

When an advance force is employed, the advance force commander is responsible for pre-D-day NSFS and air operations in the assigned area. Control of air operations is exercised through the TADC established in the flagship of the advance force commander while control of NSFS is normally exercised through the advance force SACC. The CATF assumes control of all air operations and NSFS upon arrival in the objective area. At this point, control of air operations is transferred to the Navy TACC. Subordinate TADCs, as designated in advance, monitor air control circuits in readiness to assume all or part of the duties of the TACC if required. Control of NSFS is transferred to the ATF SACC.

b. Control Afloat

Command of all supporting arms rests with the CATF or any supported commander designated in the initiating directive or order. Control initially rests with the CATF or the supported commander for: air, NSFS, and artillery used to support the initial landing (as opposed to artillery landed with the LF). Control of artillery landed with the LF is provided by the CLF. The CATF or supported commander can pass control of air, NSFS, and artillery used to support the initial landing to the CLF after the required control agencies are established ashore.

When subordinate amphibious task groups are formed for operations in widely separated landing areas, the CATF normally delegates each attack group commander authority over air support in his respective landing area. The attack group commander exercises control through a TADC in his flagship. Overall control, which includes daily planning and execution of air operations, is retained by the CATF and exercised through the Navy TACC.

c. Transfer of Control Ashore

As coordination agencies are set up ashore, communications established between the DASC, Navy TACC, FSCC ashore, and the SACC, and when conditions warrant, the process of passing control of supporting arms ashore begins.

- **Air**. As soon as conditions permit, air control agencies are established ashore that parallel the Navy control agencies afloat. The control agencies ashore are initially in a standby status, monitoring all air control circuits. Control of air operations is then passed to ashore per the initiating directive. Typically, this occurs at the discretion of the CATF and upon recommendation of the CLF, when the CLF has the capability to control such operations. The passage of control may be incremental; e.g., control of direct air support may be passed ashore before control of other aspects of air operations. After passage of any or all control to the CLF, the Navy control centers afloat continue to monitor appropriate circuits, ready to resume control if necessary.

  - **Before Air Support Control Agencies are Established Ashore**. Until the TACPs landed with assault units are established ashore, CAS missions are executed under the direction of the TAC(A)s or FAC(A)s. When the TACPs are established ashore, they request CAS from the TAC(A), DASC, or the TADCs afloat. These agencies assign aircraft to missions as requests are received. As the landing progresses, air control elements to be established ashore land and prepare to operate shore-based facilities for control of air operations.
  - **Air Support Control Agencies Established Ashore**. As air support control agencies are established ashore, they function initially under the Navy TACC. These agencies subsequently operate under the designated authority when control of CAS has been passed ashore by the CATF. In any case, requests are sent by the TACP directly to the air control agency, which assigns aircraft to CAS missions. TACP requests are monitored by the SACC, FFCC, or FSCC. When the CATF passes control of air operations to the CLF, the latter exercises control of air operations through his Marine TACC.

- **Naval Surface Fire Support**. On order of the CLF (or appropriate subordinate commander), the FFCC or FSCC displaces ashore, leaving in the SACC sufficient personnel to provide continuity of coordination until the LF fire support agency is established and functioning ashore. When the CLF establishes the necessary

control facilities ashore, control of NSFS may be passed to him. He then has the authority to assign NSFS missions directly to the NSFS ships. The CATF, or his designated subordinate, retains responsibility for the allocation of available NSFS ships, logistic support of NSFS ships, and operational control of the NSFS ships for functions other than fire control.

d. Shift of Airspace Control on Termination of the Amphibious Operation

Upon termination of the amphibious operation, the ATF will be dissolved and air control and air defense responsibilities in the area will be passed to the appropriate commander in accordance with the establishing authority's direction.

6005. Operational Maneuver from the Sea and Ship-to-Objective Maneuver

a. Operational Maneuver From the Sea

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

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

The force focuses on an operational objective, using the sea as maneuver space to generate overwhelming tempo and momentum against enemy critical vulnerabilities. OMFTS provides increased operational flexibility through enhanced capabilities for sea-based fires and command and control. Sea-basing facilitates maneuver warfare by eliminating the requirement for an operational pause as the LF builds combat power ashore and by freeing the MAGTF from the constraints of a traditional beachhead.

Successful execution of OMFTS will drive changes in fire support. To improve the mobility of LF units ashore, OMFTS will promote the development and use of sea-based fires and shore-based fire support systems with improved tactical mobility. To support rapidly maneuvering forces, OMFTS will force the streamlining of fire support coordination procedures to improve responsiveness. To provide effective fires, forces afloat and ashore will develop the ability to deliver fires with increased range and improved accuracy and lethality. Combat aircraft must be capable of operating from a variety of ships and austere bases ashore, perform a variety of missions, and land on a wide variety of afloat platforms and ashore surfaces. Aviation units must be organized, trained, and employed as integral parts of a naval expeditionary force. Finally, the LF will use fires to exploit maneuver just as maneuver is used to exploit the effects of fires.

b. Ship-to-Objective Maneuver

Ship-to-Objective Maneuver (STOM) is the tactical implementation of OMFTS by the MAGTF to achieve the JFC's operational objectives. It is the application of maneuver warfare to amphibious operations at the tactical level of war.

STOM treats the sea as maneuver space, using the sea as both a protective barrier and an unrestricted avenue of approach. While the aim of ship-to-shore movement was to secure a beachhead, STOM thrusts Marine Corps forces ashore at multiple points to concentrate at the decisive place and time in sufficient strength to enable success.

STOM creates multiple dilemmas too numerous for the enemy commander to respond to, disrupting his cohesiveness and diminishing his will or capacity to resist. This concept focuses the force on the operational objective, providing increased flexibility to strike the enemy's critical vulnerabilities. By requiring the enemy to defend a vast area against the ATF's inherent seaborne mobility and deep power projection, most of the enemy force becomes irrelevant. His thinly spread defenses will allow friendly forces greater freedom of maneuver at sea and ashore. Preassault operations will confuse and deceive the enemy, locate and attack his forces, and further limit his ability to react. If the enemy chooses to withhold a strong mobile reserve, he will be attacked with long-range fires.

In STOM, the distinction between advance force operations and the assault fades. Historically, amphibious operations have relied on successful preassault operations. A dedicated advance force which preceded the main body of the amphibious task force conducted deception operations, mine clearing, fire support, and obstacle reduction in the objective area. While such tasks remain critical to the success of STOM, it may no longer be desirable to establish a separate advance force to perform them. Reconciling the contradictory requirements of preassault operations and surprise requires a change in advance force operations. The benefits of surprise are so important that, with the exception of deception, those functions that cannot be executed by clandestine means will be performed "in-stride" by assault units. Preparatory fires—traditionally preassault tasks—will become an integral part of the assault phase.

STOM calls for the rapid projection of combined arms teams ashore, but emphasizes sea-based command and control, logistics, and fire support. Improved information connectivity allows the landing force command element to remain at sea, capable of effective command, but better protected from enemy attack. When afloat, the headquarters retains direct influence upon naval support operations, but does not drain scarce landing force combat and logistic resources. The seabasing concept may result in control agencies such as the Marine TACC, FFCC, or even the FSCC remaining afloat for the duration of the operation. As a result, control of fires could remain afloat and never be passed ashore.

Seabasing most supporting fires and the attendant logistics burden significantly reduces LF vulnerability, support requirements, and footprint ashore. STOM greatly improves freedom of maneuver for the LF, and enables the naval force to project combat formations ashore that are leaner, lighter, and more effective.

STOM operations, conducted with dispersed forces maneuvering over extended distances, will complicate fire support planning. The organic firepower of maneuver units and sea-based fires from many directions and units will be required to concentrate to create overwhelming combat power. Fire support must provide immediate and responsive high volume suppression and neutralization fires in support of all LF elements. Unit commanders at all levels may call for and control the fires of organic and supporting arms. Fire support systems must be capable of providing highly accurate and lethal long-range fires to simultaneously satisfy the needs of both the vertical assault and the surface assault. Furthermore, these fires must be available "around the clock" and in all weather conditions. Fire support agencies must respond to calls for fire with sufficient speed and accuracy to support landing force maneuver.

Chapter 7

MEU(SOC) Fire Support

The MEU(SOC) is the Marine Corps' principal forward-deployed MAGTF conducting day-to-day operations. The forward presence of the MEU(SOC) and its ability to conduct expeditionary maneuver warfare make it the force of choice of the combatant commander for early intervention in crises around the world.

A MEU(SOC) is organized the same as all MAGTFs. The GCE is a battalion landing team (BLT); the ACE is normally a reinforced medium lift helicopter squadron; and the CSSE is a MEU service support group (MSSG) with a 15-day supply of combat service support. There are seven standing MEU(SOC) command elements based in Camp Lejeune, North Carolina, Camp Pendleton, California, and Okinawa, Japan and operating with the numbered fleets. See Figure 7-1.

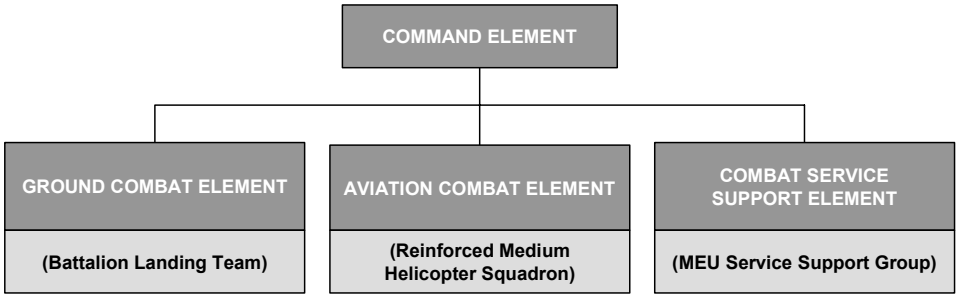

Figure 7-1. MEU(SOC) organization.

The MEU(SOC) is conducts a wide variety of missions (see Figure 7-2), such as tactical recovery of aircraft and personnel (TRAP), noncombatant evacuation operations (NEO), humanitarian assistance/disaster relief and force projection operations (direct action raids, amphibious landings). To meet the requirement to execute assigned missions within six hours of notification, the MEU(SOC) relies heavily on the use of well-developed SOP and predetermined task-organized forces. Fire support planning at the MEU(SOC) level consists of predetermined fire plans to support its varied missions.

Figure 7-2. MEU(SOC) missions.

7001. Fire Support Assets

The MEU(SOC) possesses a variety of organic fire support assets that can support its operations. Additionally, the MEU(SOC)'s fires capabilities can be augmented by joint or naval assets (i.e., Air Force, carrier air group, naval surface combatants). In most cases the MEU(SOC) commander has the following organic fire support assets—

- **ACE Attack Aircraft**. AV-8B Harrier jets, AH-1W Sea Cobras, UH-1N Iroquois helicopters.
- **GCE Artillery**. A battery of 155mm M198 medium towed howitzers.
- **GCE Mortars**. 60mm and 81mm mortars.

7002. Organization for MEU(SOC) Fire Support

A MEU(SOC) FFCC is established to assist the commander in the planning, coordination, and execution of fires. This FFCC performs the same functions as larger MAGTF organizations and differs only in size and the ability to sustain 24-hour operations for long periods of time. Key personnel involved in MEU(SOC) fire support are discussed in the following paragraphs.

a. MEU(SOC) Force Fires Coordinator

The MEU(SOC) FFC is responsible to the MEU(SOC) commander for the overall planning and coordination of all organic and supporting fires. The FFC's responsibilities also include planning and coordinating the use of non-lethal weapons, psychological operations, and any other fires not organic to the MEU(SOC). The FFC works closely with the MEU(SOC) operations officer throughout all phases of an operation to ensure supporting arms are closely integrated with maneuver. During planning, the FFC advises the MEU(SOC) commander on fire support considerations. Once a COA is selected, the FFC assists the designated mission commander in detailed mission planning and coordinates the use of fire support assets in execution.

b. MEU(SOC) Target Information Officer

As the principal assistant to the MEU(SOC) FFC, the TIO is responsible for targeting operations. The D3A targeting process must be closely aligned to detailed mission planning. The TIO does this with the assistance of the MEU(SOC) S-2A/target intelligence officer and other staff officers involved in the planning process. During mission planning, the TIO focuses on meeting the targeting guidance of the MEU(SOC) commander and the designated mission commander.

c. MEU(SOC) Air Officer

The MEU(SOC) air officer is responsible to the MEU(SOC) commander for the overall planning of aviation operations. He works closely with amphibious squadron (PHIBRON) and ACE staff in planning and coordinating MEU(SOC) air operations in support of assigned missions. During the planning phase of an operation he provides the MEU(SOC) commander air employment considerations. Once a COA is selected, the air officer assists the designated mission commander in detailed mission planning and coordinates the use of aviation assets (assault support as well as offensive air support) in execution.

d. MEU(SOC) Assistant Intelligence Officer

In addition to acting as the principal assistant to the MEU(SOC) intelligence officer, the S-2A is also the target intelligence officer. Together with the TIO, and using the commander's guidance, he determines the threat systems that will be targeted for any given operation.

e. Supporting Arms Coordinator

The SAC, located in the SACC, is responsible to the PHIBRON commander for the overall planning and coordination of supporting arms. The SAC works closely with the MEU(SOC) FFC, MEU(SOC) air officer, and MEU(SOC) TIO to ensure effective planning and timely coordination of fires takes place during an assigned mission.

f. Navy Tactical Air Coordinator

The Navy tactical air coordinator (TAC) is a member of the Navy tactical air coordination squadron attached to the PHIBRON staff. He is responsible for coordinating aviation operations and overseeing the running of the Navy TACC. The TAC works closely with the MEU(SOC) air officer and ACE personnel in planning MEU(SOC) air operations in support of assigned missions. When the MEU(SOC) functions as a part of a larger joint force that includes carrier or USAF aviation assets, the TAC and MEU(SOC) air officer are instrumental in ensuring the MEU(SOC)'s CAS needs are met during the ATO development cycle. During planning the TAC provides air planning considerations to the PHIBRON commander. Once a COA is selected, the TAC directs his efforts in meeting the aviation needs of the mission commander in coordination with the MEU(SOC) air officer.

g. GCE Fire Support Coordinator

The infantry battalion weapons company commander is designated the GCE FSC. He is responsible to the BLT commander for the overall planning and coordination of the BLT's fire support assets. His duties include: participating in the targeting process, preparing the fire support plan (with help from his supporting arms representatives), and recommending FSCMs. During planning, the GCE FSC coordinates with the MEU(SOC) staff for all mission requirements that require support from higher echelon units. During mission execution, the GCE FSC coordinates fires in support of the mission once the BLT FSCC is established.

h. GCE Artillery Liaison Officer

The artillery LNO is from the artillery battery and assigned to the FSCC. He is responsible for the planning and coordination of artillery support and assists the GCE FSC. He maintains information on the operational and logistical status of the artillery. During operations, he will advise the GCE FSC on artillery employment and works closely with the MEU(SOC) FFC and MEU(SOC) TIO for fire support planning and coordination.

i. GCE Air Officer

The GCE air officer provides aviation representation in the BLT FSCC. He consolidates and forwards the GCE commander's air support requirements to the appropriate air support control agency. During planning, he works closely with the MEU(SOC) air officer and ACE staff to develop the MEU(SOC) air plan. During execution, he coordinates the delivery of aviation fires in support of GCE operations.

j. Naval Gunfire Liaison Officer

The NGLO is a Navy officer who is assigned from the artillery regiment of the Marine division and is attached to the BLT. He is responsible for facilitating the employment of NSFS to support the MEU(SOC). The NGLO monitors the NGF spot nets and coordinates and supervises shore fire control party activities. He also keeps the TIO and the target intelligence officer abreast of all target information received through NSFS channels.

7003. Fire Support Planning Relationships

To conduct effective fire support planning and coordination, a clear understanding of the relationships that exist between the various staffs is neccessary. This includes the internal MEU(SOC) relationships and those between MEU(SOC) staffs and the various Navy staffs.

a. Supporting Arms Coordinator and MEU(SOC) Force Fires Coordinator

Until control is phased ashore, the MEU(SOC) FFC supports the SAC. FFCC personnel may in fact be part of the SACC. The SAC is designated as the senior fires coordinator in the SACC, but he must rely heavily on the expertise of the supporting arms representatives that man the SACC. The MEU(SOC) FFC will often have more experience in the planning and coordination of supporting arms and must assist the SAC in the timely coordination of fires.

b. MEU(SOC) Air Officer and Navy Tactical Air Coordinator

As the principal representative of the MEU(SOC) for aviation planning, the MEU(SOC) air officer works closely with the Navy TAC during the development of the MEU(SOC) air plan. All preplanned CAS requests, assault support missions, and administrative flights are scheduled into the air plan. The MEU(SOC) air officer must ensure that he effectively communicates the aviation needs of the MEU(SOC) to all the PHIBRON aviation planners.

During MEU(SOC)/PHIBRON operations, the MEU(SOC) air plan closely resembles an ATO, but the normal ATO planning cycle is compressed to 24-hours.

- **Preplanned Request**. Based on the commander's concept of operation and the results of the planning process, early requests for CAS are included into the air plan as preplanned requests (see figure 7-3). Due to the necessary lead-time for planning CAS, not all requests may be submitted in time for inclusion into the air plan as *scheduled* requests. Air officers can alleviate this by scheduling *on-call* CAS sorties into the air plan giving the MEU(SOC) commander greater flexibility for employing CAS during the conduct of an operation.

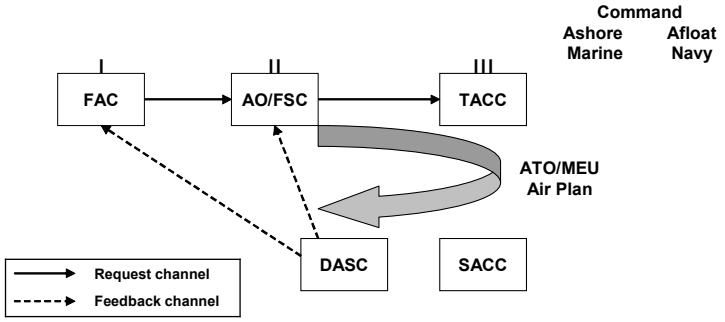

Figure 7-3. Preplanned close air support requests channels.

- **Immediate Requests**. Immediate requests for CAS are likely to arise during the battle as the commander seeks to exploit opportunities or protect the force at critical moment in time. If the immediate request for CAS cannot be met with available aircraft, then lower priority CAS missions—either scheduled or on-call—can be diverted. (See Figure 7-4.)

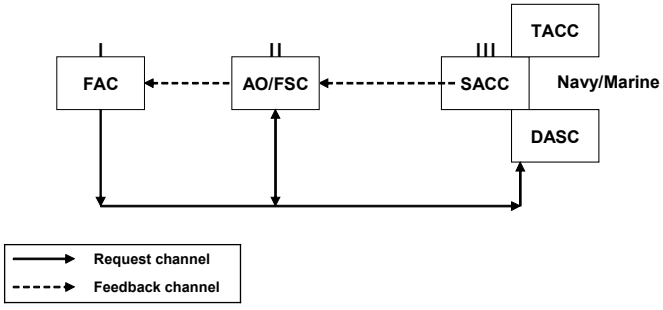

Figure 7-4. Immediate close air support requests channels.

c. MEU(SOC) Force Fires Coordinator and GCE Fire Support Coordinator

The MEU(SOC) FFC is focused on battlespace shaping in deep operations to accomplish the MEU(SOC) commander's mission. Additionally he requests and coordinates external fire support for the major subordinate elements. The GCE FSC employs the organic fire support assets of the BLT to conduct close operations. Since most MEU(SOC) missions involve raid forces of limited size, fire support coordination is normally conducted from the SACC.

7004. Planning and Execution Considerations

Rapid planning is the mainstay of MEU(SOC) operations. The crisis action team (CAT) must develop a proficiency in following all six steps of the MCPP in a time-constrained environment. The MEU(SOC) is able to do this through the combined planning experience of both the Marine and Navy staff members and the employment of highly refined, well-rehearsed SOPs. As with the detailed analysis of the MCPP, fire support planning must be integrated with other planning to ensure the optimum use of all supporting arms and the overall security of the ATF.

a. Planning

Fire support planners must be represented in every MEU(SOC)/PHIBRON planning cell. The MEU(SOC) and PHIBRON commanders along with principal staff officers normally make up the CAT as the senior-planning cell (first planning level). The MEU(SOC) FFC and the MEU(SOC) air officer will normally be members of this planning cell and provide the initial fire support and aviation assessments for mission analysis. Those special staff members that cannot be active members of the CAT (due to limited ship space) participate in the planning as members of the battle staff (second planning level). The battle staff assembles in the landing force operations center and follows the mission analysis conducted by the CAT through shipboard audio visual aids. The GCE FSC, air officer and artillery LNO are members of the battle staff and can further develop the fire support plan as soon as COAs have been developed by the CAT.

The mission planning cells make up the third MEU(SOC)/PHIBRON planning level. These cells are principally composed of the personnel who will conduct the mission, as determined by the mission commander. They conduct detailed mission planning based on the analysis and guidance of the CAT and battle staff. Fire support planners at every level must continue to provide their expertise and assistance in finalizing the plan.

The commander's guidance plays a pivotal role in determining the level of force to be employed in the operation. The final guidance for fires must come from the mission commander. As with maneuver, fire support planners must develop pre-designated, task-organized fire support packages that can be employed in support of any of the MEU(SOC) missions. Company-sized amphibious raids will normally have a greater level of fire support than humanitarian assistance or disaster relief operations for example.

An effective way of integrating fire support early in the planning process is to ensure the wargamed COA graphic and narrative includes a concept of fires. In this manner the scheme of maneuver and the concept of fires are developed concurrently. This will prevent the development of a concept of fires as an after-thought to an already approved COA. The MEU(SOC) FFC provides his estimate of supportability following the COA briefing. The MEU(SOC) FFC must brief the commander on what he believes is the preferred COA from a fire support perspective. During the confirmation brief the mission planning cells present the refined plan to the MEU(SOC) and PHIBRON commanders for their final approval. The following fire support planning products must be used to present the concept of fires: the list of targets, HPTL, AGM, and execution matrix for fire support.

b. Direct Action Missions

The maritime special purpose force is the principal executor of direct action mission for the MEU(SOC). This force is made up force reconnaissance and Navy sea-air-land team (SEAL) units. These raids are characterized by limited objective and reduced force operations where the maritime special purpose force commander seeks to accomplish his mission in a rapid and precise manner. Typically NSFS, artillery, and mortar fires do not lend themselves well to this type of operation. However, the use of armed escorts and on-call CAS works well and gives the maritime special purpose force flexibility in dealing with contingencies.

c. Humanitarian Assistance/Disaster Relief and Noncombatant Evacuation Operations

In these types of operations fire support planning is focused on the force protection concerns of the commander. The host nation climate has a significant impact on the level of force deemed acceptable for the mission. If the host nation is engaged in civil unrest with outbreaks of armed conflict among opposing factions, then the MEU(SOC) may employ supporting arms ashore to ensure the security of the force. For example, GCE mortars can be employed during airfield seizures. On-call CAS can also provide fires for assault support operations and maneuver forces on the ground.

d. Conventional Raids

Conventional raids are normally conducted in high threat environments where forcible entry and force protection are key mission considerations. MEU(SOC) fire support planners must make maximum use of all available fire support assets to ensure mission success. GCE artillery and mortar fires may be needed to support the raid force's maneuver ashore. While the raid force is moving ashore, the ACE and NSFS will likely provide the preponderance of fire support.

e. Amphibious Landings

MCWP 3-31.1, *Supporting Arms in Amphibious Operations*, provides detailed guidance in this area. The MEU(SOC) can conduct full-scale amphibious landings when designated as a lead echelon for follow-on forces. In these missions fire support planners must make maximum use of all supporting arms available to the MEU(SOC). Since U.S. Navy amphibious ships have limited NSFS capabilities, the commander should request NSFS ships to support the landing. He may also request additional aviation assets from the carrier battle group.

Chapter 8

Force Artillery

The use of force artillery is not a new concept to the Marine Corps. Marine amphibious corps during World War II had force-level artillery organizations. As late as the 1970's field artillery groups were part of the force troops element of the Marine amphibious forces. By the end of the 1970s, the Marine Corps had eliminated the artillery in the force troops. The field artillery groups were incorporated into the Marine divisions in 1978/79, and all artillery assets were consolidated in the GCE's artillery regiments, leaving no organic general support artillery to support the MAGTF commander. This structure was based on the role of the MAGTF command element at that time as a force provider that did not conduct combat operations.

When the MEF emerged as the Marine Corps' primary warfighting organization in the late 1980s, the lack of readily available fire support capability for the MEF commander became an issue. In 1996, the 14th Marine Regiment was designated the force artillery for I MEF to support its major theater of war OPLANs. This action was taken to counter the MEF's shortfall in counterbattery artillery relative to threat artillery capabilities. It also provided the capability to command and control MEF-level force artillery in OPLANS requiring multiple division maneuver elements.

Any MEB or MEF commander can establish a force artillery. While the material in this chapter applies to both the MEF and the MEB, only the MEF is depicted and described for illustrative purposes. The force artillery can be formed from:

- A Marine Corps Reserve artillery unit.
- An active duty Marine Corps artillery unit from an uncommitted division.
- U.S. Army or multinational artillery unit.

Currently the 14th Marine Regiment is designated the force artillery for I MEF in specific OPLANs. The 14th Marine Regiment should not be considered to be the sole source of force artillery units.

8001. Mission

The force artillery gives the MAGTF commander the capability to command and control MAGTF-level artillery. It provides him all-weather, surface-to-surface fires in support of MAGTF operations. Force artillery provides the MAGTF commander with—

- The ability to weight his main effort.
- Fires to reinforce the close battle.
- Fires in support of deep operations when the artillery is equipped with ATACMS.
- MAGTF-level ground based counterfire capability.
- Command and control of all assigned or attached non-GCE artillery.

8002. Concept of Employment

The command relationship between the force artillery and the MAGTF is specified in the OPLAN/OPORD. The force artillery is normally OPCON to the MAGTF. The MAGTF commander normally establishes force artillery as a major subordinate command to simplify command relationships. The MAGTF commander employs his force artillery based on the factors of METT-T. Assignment of tactical missions will also be based on METT-T and will be reflected in the artillery organization for combat.

The force artillery and its subordinate elements are capable of executing any of the four standard tactical missions that could be assigned to any artillery unit. For information on artillery standard missions see Appendix D. The force artillery should be organized to facilitate future operations. The force artillery commander must continue to evaluate the task-organization, providing recommendations on organization for combat to the MEF commander based on the tactical situation. Force artillery does not control assets other than those that are organic or attached to it. The division's artillery assets remain under the exclusive control of the division for use within their zone.

Force artillery provides the MEF commander the ability to directly influence the battle by providing responsive ground based fire support. In many cases force artillery weapons and systems capable of ranging the MEF battlespace will be retained in general support of the MEF though they may be positioned within the division's zone. Force artillery can be used to augment the division's indirect fire capability by weighting the main effort, or shaping the battlespace to set favorable conditions for future operations. The force artillery may temporarily attach battalions to other artillery organizations but normally supports the MEF commander's concept of operations through standard and non-standard tactical missions.

Force artillery provides the MAGTF commander with the means to effectively exercise command and control, logistics, and administrative functioning over all MAGTF artillery not dedicated to supporting the GCE. This includes, but is not limited to, all attached U.S. Army and multinational firing units, as well as survey, meteorological, and counterbattery radar teams and associated/dedicated combat service support. The force artillery must be capable of—

- Providing command and control of attached U.S. or multinational artillery assets (cannon, rocket, target acquisition).
- Providing liaison to the MAGTF to facilitate FFCC information flow, provide input/brief as required in MAGTF updates and targeting boards, participate on OPTs, and to coordinate logistics, intelligence, and personnel requirements.
- Provide personnel augments to the FFCC.
- Provide the MAGTF commander with the radar employment plan that supports the single-battle concept. Force artillery does not control the organic GCE radars of the artillery regiments, but coordinates the complete radar employment plan in the MAGTF zone by covering gaps in the GCE, joint, and multinational zones. This will enable the force artillery commander to focus long-range radars on enemy indirect fire assets.
- Normally, the counterfire target processing center will be located with the force artillery headquarters. However, it must be positioned where it will facilitate optimum counterfire support functions and communication with the force artillery fire direction center, FFCC, and the Marine TACC.
- Coordinate target acquisition/collection management requirements with the MAGTF G-2.
- Establish connectivity with the GCE FSCC and artillery units, the ACE, the CSSE, and FFCC to support the counterfire fight, as required.
- Establishing liaison teams with adjacent or attached U.S. Army and multinational artillery units.
- Planning for and coordinating logistical support for all force artillery attached units.

8003. Force Artillery Planning and Execution Considerations

The force artillery commander and his staff consider the following areas when determining the types and amount of technical and logistic support required when planning and executing operations—

a. Counterfire

Proactive counterfire functions are normally controlled and coordinated by the MAGTF FFC. Reactive counterfire functions are normally controlled and coordinated by the GCE FSCC. The counterfire fight is conducted primarily by artillery, air, NSFS, and EW units, supported by an integrated intelligence system. The preferred method for counterfire is a proactive approach involving sound IPB and a thorough collection plan to locate enemy fire support assets prior to their firing. Reactive counterfire emphasizes speed during the initial engagement through the employment of dedicated sensor to shooter channels and pre-authorized engagement criteria. The initial engagement is intended to suppress the hostile fire support system long enough for a more decisive engagement to be developed and executed. The MAGTF commander may task the force artillery commander with coordinating counterfire.

Enemy fire support assets located by force artillery will be reported to the SARC. Targets that meet the criteria for immediate attack as set forth in the AGM or RAGM will be engaged by force artillery, passed to GCE to attack, passed through the quick fire channel to Marine TACC, or to the FFCC for attack.

The force artillery will establish a counterfire liaison element within the FFCC to facilitate information flow. That liaison element will include personnel designated to facilitate counterfire functions. Dedicated communications links (such as quick-fire channels) between the force artillery fire direction center and the FFCC and the Marine TACC are essential. Force artillery may provide a liaison to the ACE to facilitate the attack of counterfire targets.

The counterfire execution plan will be developed and validated daily. It consists of a counterfire analysis that defines the counterfire threat; a counterfire collection plan (description of sensors which cover the expected counterfire target locations); and the counterfire matrix. In general, one of the following counter-fire scenarios will occur:

- If a counterfire target is located by division assets, and is within their zone, it is the division's responsibility and they attack it. The division can request reinforcing fires if required or appropriate.
- If a counterfire target is located by force artillery target acquisition assets and is located within a division zone, that target is passed to the division for engagement.
- If either division or force artillery assets locate counterfire targets that are in an adjacent ground force zone, it is passed to that ground force FSCC through the FFCC.
- If a counterfire target is located by a division asset in the MEF zone, that target is passed to the FFCC for attack by either the ACE or the force artillery.
- If a counterfire target is located by force artillery assets in the MAGTF zone and they are capable of engaging it, the force artillery liaison will coordinate the attack with the FFCC. If the force artillery is not capable of engaging the target, it may be passed to the ACE, via the quick fire channel.

b. Positioning

Force artillery units may be positioned within the AOs of the various MSCs in order to accomplish its mission. Usually, force artillery units will be positioned well forward in the GCE's AO to facilitate long-range fires or to augment the GCE's organic artillery. While the GCE will have priority of positioning within its AO, the commanders and staffs of both force artillery and GCE artillery units must plan and closely coordinate the assignment of firing positions and command and control locations. Cooperation between the force artillery and the GCE in positioning the force artillery will enhance support to the MAGTF as a whole, reduce movement control concerns within the GCE AO, and facilitate force protection through careful location of electronic emitters such as antenna farms and radar sites.

c. Force Artillery Intelligence

Intelligence support for the force artillery is provided by the force artillery intelligence section. It plays an important role in fusing the targeting data produced by the target processing center with the intelligence information/reports generated by MAGTF intelligence assets. The primary tool for processing intelligence data is the Intelligence Analysis System, under the supervision of the MAGTF G-2. The full integration of the fire direction center, the target processing center, and the intelligence sections within the intelligence operations center is crucial to the timely planning and execution of the counterfire mission.

The force artillery intelligence section will coordinate closely with the MAGTF G-2 to ensure the best possible exchange of intelligence and targeting information. This includes coordinating with the counterbattery radar officer and the target processing center to plan and control the best use of organic and attached radar assets. Target information gathered from the target processing center is provided to the SARC to update the MAGTF intelligence picture. The force artillery intelligence section may provide personnel as required to the MAGTF liaison team to facilitate information flow.

d. Target Acquisition

The force artillery has organic AN/TPQ-46A radars and may have attached artillery target acquisition systems (U.S. Army AN/TPQ-36 or AN/TPQ-37 radars). Force artillery will position its organic/attached weapons locating radars and artillery observation teams to best support the target acquisition requirements of the MAGTF. Depending on the situation, the counterbattery radar officer and all target processing center assets will either be located with the force artillery liaison team at the MAGTF or at the force artillery COC. Force artillery will coordinate the employment of all radars in the MAGTF zone to include the establishment of radar zones and queing schedules. Once coordination is completed, the force artillery counterbattery radar officer will publish the MAGTF radar employment plan as part of Appendix 19, Fire Support, to Annex C, Operations of the OPLAN/OPORD.

e. Force Artillery Liaison

Force artillery provides liaison to the MAGTF, ACE, GCE FSCC, division artillery forces, and when appropriate, to the rear area commander or coordinator. Additional liaison may be provided to artillery units adjacent to the MAGTF. Liaison teams must be provided with adequate communications capabilities so that they are not a burden to the gaining headquarters. However, external communications support may be required based on the mission. Depending on the tactical mission, operational tempo, and personnel requirements, the force artillery may task its organic battalions to provide all, or any part of, their battalion liaison teams to execute any force artillery liaison taskings. These taskings may include providing a force artillery liaison team to a reinforced U.S. Army or multinational unit. Force artillery liaison teams ensure:

- Mutual cooperation and understanding between commanders and staffs of different headquarters.
- Coordination on tactical matters to achieve mutual support and unity of effort in action.
- Coordinate and /or monitor execution of force artillery missions.
- Monitor current status of force artillery units.
- Assist in the coordination of the counterfire efforts of the MAGTF.
- Provide force artillery personnel to the MAGTF commander to augment the FFCC, future plans, and future operations sections, as required.
- Provide liaison to other G-level staff sections, as required.
- Advise the MAGTF commander/FFC on capabilities and limitations of the force artillery.

f. Meteorological Support

All meteorological operations for the force artillery will be conducted in accordance with MCWP 3-16.5, *Artillery Meteorology*. In addition to normal duties of providing meteorological support to organic and attached units of force

artillery, the force artillery meteorological section will be responsible for integrating or coordinating meteorological support operations with the GCE artillery meteorological sections.

g. Survey Support

The force artillery survey section will be responsible for providing survey support to all organic and attached units of the force artillery. Additionally, the force artillery survey officer may be assigned responsibility for survey control with in the MAGTF AO and will integrate/coordinate survey support with GCE artillery survey operations. For more information on survey, see MCWP 3-16.7, *Marine Artillery Survey*.

h. Communications

Force artillery responsibilities may encompass the entire MAGTF's battlespace. The distances involved in this area are well beyond those contemplated for the GCE's artillery. The force artillery commander will be required to communicate with his organic or assigned battalions, liaison sections, and supported GCE units. This may involve the use of non-standard equipment such as PC-based software and SIPRNET. The MAGTF is responsible for providing communications assets to augment force artillery organic assets to accomplish this task.

i. Logistics

The force artillery will require significant external logistical support to operate successfully. It may have a large number of personnel, significant maintenance requirements, and have extensive needs for the re-supply of ammunition and petroleum, oils, and lubricants (POL). Logistics support must enable force artillery to operate in a self-sustaining, self-contained fashion so as not to create an additional logistical burden on the MAGTF.

Logistics for the force artillery may be different from that required by a traditional artillery regiment in two ways:

- Force artillery may be required to support two or more divisions. Consequently, the distances traveled to effect resupply of force artillery units could be significantly greater than those of the GCE artillery regiments.
- The CSSE is not organized to support the addition logistics requirements of force artillery. Habitual relationships that exist between combat and CSS units in the MAGTF do not exist for the force artillery. Planners need to carefully consider force artillery logistics requirements. For example, force artillery may have attached assets that use different ammunition (Army MLRS or multinational force artillery systems) or require different types of support equipment not part of the MAGTF. Planners must give careful consideration in assigning a dedicated CSSD or in making other arrangements to support force artillery activities.

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Appendix A

Fire Support Reference Data

Fire support is fires that directly support land, maritime, amphibious, and special operations forces to engage enemy forces, combat formations, and facilities in pursuit of tactical and operational objectives (JP 1-02). The MAGTF principally employs fire support provided by the GCE, ACE, and force artillery, if established, but may also receive external fire support from other joint or multinational forces.

A-1. Mortars, Artillery, and Rockets

The primary role of mortars is to provide immediate and close indirect fires that support the maneuver of the company or battalion, and that augment direct fires during close combat. Although they are part of the total fire support system, mortars are not simply small artillery pieces. Mortars are unique fires support assets because they are organic to the infantry company and battalion. They provide valuable and responsive fires in close and rear area operations. For more information see MCWP 3-15.2, *Tactical Employment of Mortars*. See Table A-1.

Caliber	60mm	81mm	120mm [1]
Model	M224	M252	M285
Ammunition	HE, WP, ILLUM	HE, WP, RP, ILLUM	HE, WP, ILLUM
Fuzes	MO	MO	MO
Maximum Range (meters)	3,500 [2]	5,600 [3]	7,200
Minimum Range (meters)	75	70	200
Maximum Rate of Fire (rounds per minute)	30	35	15
Sustained Rate of Fire (rounds per minute)	20	15	5
Illumination Time (seconds)	25	60	70
Effective Casualty Radius (1 round)	28	35	60
FPF	90 (3 tubes)	35 (1 tube)	60 (1 tube)
NOTES:	1. USMC units do not have this weapon system. USMC units may operate with Army units equipped with these weapons. 2. With M720 ammunition. 3. With M821 ammunition.		
LEGEND:	HE – high explosive MO – multi-option fuze, VT, PD, Delay WP – white phosphorus	ILLUM – illumination RP – red phosphorus	

Table A-1. Mortar characteristics.

The mission of artillery in the Marine division is to furnish close and continuous fire support by neutralizing, destroying, or suppressing targets that threaten the success of the supported unit. Artillery provides responsive lethal and nonlethal fires to support the concept of operations. For more information see MCWP 3-16.1, *Marine Artillery Support*. To accomplish its mission, artillery conducts three tasks:

- Provides timely, close, accurate, and continuous fire support.
- Provides depth to combat by attacking hostile reserves, restricting movement, providing long-range support for reconnaissance forces and disrupting enemy command and control systems and logistics installations (i.e., shaping the battlefield).

- Delivers counterfire and suppression of enemy air defense to ensure freedom of action of ground and aviation forces.

HIMARS is a wheeled version of the MLRS designed to meet the Marine Corps' expeditionary maneuver warfare requirements. HIMARS provides ground-based deep operations fire support (out to 185 miles) and potent counterbattery capabilities. It can fire all the current and near-term MLRS family of munitions. Unlike the MLRS, the HIMARS launcher loader module only holds one rocket or missile pod.

U.S. Army MLRS units may be attached or placed under OPCON of Marine Corps force artillery or artillery regimental headquarters. Marine artillerymen must be familiar with various definitions and terminology used by MLRS units in order to operate more effectively. MCRP 3-16.1C, *Tactics, Techniques, and Procedures for MLRS Operations*, illustrates doctrinal procedures used by MLRS units. See Table A-2.

Caliber	155mm	105mm[1]	105mm[1]	155mm [1]	227mm [1]	607mm [1]
Model	M198	M102	M119A1	M109A5/A6	MLRS	ATACMS
Ammunition	HE, HC, WP, ILLUM, APICM, DPICM, M825 SMK, FASCAM, CPHD	HE, HC, WP, ILLUM, APICM	HE, HC, WP, ILLUM, APICM, DPICM	HE, HC, WP, ILLUM, APICM, DPICM, M825 SMK, FASCAM, CPHD	DPICM	APAM
Fuzes	PD, VT, MT, MTSQ, DELAY	PD, VE, MT, MTSQ, CP, DELAY	PD, VT, MT, MTSQ, CP, DELAY	PD, VT, MT, MTSQ, DELAY	ET	ET
Maximum Range (meters)	18,300 22,000 [2]	11,400	11,500	18,200 21,700 [2]	32,000 45,000 [3] 60,000 [4]	165,000 300,000
Range of RAP (meters)	30,100	15,300	19,500	30,000		
Range of DPICM (meters)	18,000 28,200 [5]	10,500	14,100	17,900 28,100 [5]		
Minimum Range (meters)					10,000 13,000	25,000 70,000
Maximum Rate of Fire (rounds per minute)	4	10	10	4	12/40 sec	2/20 sec
Sustained Rate of Fire (rounds per minute)	2	3	3	1	N/A	N/A
Illumination Time (Seconds)	120	75	75	120		
Effective Casualty Radius (1 round)	50	35	35	50	100	
FPF	300 (6 guns)	210 (6 guns)	210 (6 guns)	300 (6 guns) 150 (3 guns)	N/A	N/A

NOTES:
1. USMC units do not have these weapon systems. USMC units may operate with Army units equipped with these weapons.
2. With M795 HE, M825 Smk ammunition.
3. Extended Range MLRS was fielded in FY 99.
4. Guided MLRS to be fielded in FY 02.
5. Base Burn DPICM M864.

LEGEND:
APICM – antipersonnel improved conventional munitions.
CPHD – copperhead
DPICM – dual-purpose improved conventional munitions.
ET – electronic time
HE – high explosive
ILLUM – illumination
MT – mechanical time
MTSQ – mechanical time superquick
PD – point detonating
RAP – rocket assisted projectile
SMK – smoke
VT – variable time
WP – white phosphorus

Table A-2. Artillery and missile characteristics.

A-2. Aviation

Marine forces are general purpose forces and traditionally come "from the sea" with limited organic ground-based fire support and mobility assets. As such, Marine forces rely heavily on the fires, fire support, and mobility provided by Marine aviation. Marine aviation is an integral part of the MAGTF. It provides the MAGTF with a complete spectrum of operational capabilities based on the six functions of Marine aviation—EW, offensive air support, assault support,

air reconnaissance, control of aircraft and missiles, and AAW—and is a flexible instrument of the MAGTF's combat power. The ACE is a powerful and versatile part of the MAGTF's combined-arms team, complementing the MAGTF's GCE and CSSE, while functioning in consonance with the Marine Corps' doctrinal philosophy of expeditionary maneuver warfare. For more information see MCWP 3-23, *Offensive Air Support*.

Marine aviation provides the MAGTF commander with the operational flexibility he needs to accomplish his mission across the range of military operations. It extends the operational reach of the MAGTF and enables it to accomplish operational objectives designed to achieve strategic goals. Coupled with the strategic and operational mobility afforded by the sea, the ACE helps the MAGTF extend its influence to most areas of national concern. Since most ground- and ship-based fires have a limited range and ground-based mobility systems are limited by speed, range, and the terrain, the ACE allows the MAGTF commander to strike and maneuver throughout the depth of the battlespace. The ACE affords the MAGTF the ability to deliver fires, facilitate integrated command and control, enhance mobility and maneuver, provide force protection, sustain combat power, and collect intelligence. The ACE is a major provider of fire support through offensive air support, EW, and UAV support.

The MAGTF's single-battle concept exploits the combined-arms nature of MAGTF operations. It allows the MAGTF commander to fight a single-battle with an integrated, task-organized force of ground, aviation, and logistic forces. Based on this concept, operations performed by Marine aviation are rarely undertaken in isolation since its greatest value is in its integrated contribution to the MAGTF's overall mission. The ACE is designed to function most effectively as an integral part of the MAGTF and cannot be separated without a significant loss of capability. Marine aviation provides enhanced mobility and close fires for units in contact and augments ground and naval indirect fires. Marine aviation also gives the MEF the operational reach of a corps-level force.

Table A-3 provides information on the aircraft (from all Services) that could provide fire support to the MAGTF. For more detailed information on aircraft capabilities, see individual aircraft tactical manuals.

Aircraft	Service	Ordnance	Laser Tracker	Laser Designator	GPS	Marking Capability	Other Systems	Comm
AV-8B	USMC	GBU[1] GP bombs CBU AGM-65 IR and Laser Maverick 2.75" and 5" rockets 25mm cannon LLU-2 flares LLU-19 flares	Yes[2]	Yes[3]	Yes	IR[3] Rockets	FLIR NVG Radar[4]	UHF/VHF
A/OA-10A	USAF	GBU[1] GP bombs CBU Aerial mines AGM-65 IR and Laser Maverick 2.75" rockets 30mm cannon LLU-1/-2 flares LLU-5/-6 flares	Yes	No	No	Rockets	NVG	UHF/VHF
AC-130H/U	USAF	105mm howitzer 40mm cannon 20mm cannon	No	Yes[5]	Yes	GLINT 105mm WP 105mm HE 40mm LTD	Beacon FLIR LLLTV Radar	UHF/VHF HF SATCOM
B-1B	USAF	GP bombs	No	No	No	None	Radar	UHF/VHF HF SATCOM
B-52H	USAF	GP bombs AGM-142 CBU Aerial mines TALCM AGM-84 Harpoon	No	No	Yes	None	Beacon FLIR LLLTV NVG Radar	UHF/VHF HF SATCOM
F-14	USN	GBU GP bombs CBU 20mm cannon LLU-2 flares	No	Yes	No	Laser Rockets	FLIR NVG Radar	UHF/VHF

F-15E	USAF	GBU GP bombs CBU AGM-65 IR Maverick AGM-130 AGM-154 JSOW 20mm cannon	No	Yes	Yes	Laser	FLIR Radar	UHF/VHF
F-16C/D and C/J	USAF	GBU[6] GP bombs CBU AGM-65 IR and Laser Maverick AGM-154 JSOW AGM-88 HARM[7] 20mm cannon	Yes	Yes[8]	Yes[9]	Laser Rockets	LANTRIN NVG Radar	UHF/VHF
F/A-18A/C/D	USN USMC	GBU GP bombs CBU-99 AGM-65 IR[10] and Laser Maverick AGM-84D Harpoon AGM-88 HARM AGM-154 JSOW[10] GBU-31 JDAM[11] 2.75” and 5” rockets Aerial mines 20mm cannon LLU-2 flares LLU-19 flares	Yes	Yes	Yes	IR pointer Laser Rockets	FLIR NVG Radar	UHF/VHF
S-3B	USN	GP bombs CBU AGM-84D Harpoon 2.75” and 5” rockets Aerial mines LLU-2 flares	No	No	No	Rockets	FLIR Radar	UHF/VHF
UH-1N	USMC	2.75” rockets .50cal machine gun 7.62mm machine gun	No	No	Yes	IR pointer Rockets	FLIR LRF NVG	UHF/VHF
AH-1F	USA	BGM-71 TOW 2.75” rockets 20mm cannon	No	No	No	Rockets	NVG	UHF/VHF
AH-1W	USMC	BGM-71 TOW AGM-114 HELLFIRE 2.75” and 5” rockets 20mm cannon LLU-2 flares	No	Yes[12]	Yes	IR pointer Laser Rockets	CCDTV FLIR NVG	UHF/VHF
AH-64A/D	USA	AGM-114 HELLFIRE 2.75” rockets 30mm cannon	Yes	Yes[13]	Yes	Laser Rockets	DTV FLIR IDM NVG Radar[14]	UHF/VHF
OH-58D	USA	AGM-114 HELLFIRE	Yes	Yes	No	Laser Rockets	FLIR NVG TVS	UHF/VHF HF

1 Though these aircraft can carry and release GBUs, only AV-8Bs with Litening II have an onboard designation capability for terminal guidance.
2 Only AV-8B Night Attack have this capability.
3 Only AV-8B with Litening II capability.
4 Only AV-8B with radar upgrade have this capability.
5 AC-130H can only designate laser code 1688.
6 F-16 without LANTIRN capability require off-board designation for terminal guidance.
7 Only F-16 with HARM targeting system.
8 Only F-16 with LANTIRN capability.
9 GPS on some aircraft (Block 40/41; 50-52).
10 Only F/A-18 Lot 11 and above have this capability.
11 Some F/A-18 Lot 16 and all Lot 17 and above have this capability.
12 AH-1W can designate codes 1111-1788, but has maximum effectiveness from 1111-1488.
13 AH-64 cannot designate codes 1711-1788.
14 AH-64A does not have a radar capability.

Table A-3. Aircraft capabilities.

Tables A-4 and A-5 detail associated families of weapons and preferred types of ordnance for targets. For more detailed information on weapon capabilities, see *JMEM/AS Weaponeering Guide* and individual aircraft tactical manuals.

Family	Types of Ordnance
Aerial Mines	MK-52 MK-55 MK-56
Antiradiation missiles (ARMs)	AGM-88 HARM
Cluster bomb units (CBUs)	MK-20 Rockeye CBU-78 Gator AGM-154A/B JSOW (cluster versions)
General purpose (GP) bombs	MK-82, -83, -84
Incendiary bombs	FAE
Rockets and guns	2.75" and 5" rockets 20, 25, 30, 40, and105mm cannons
Precision guided munitions	AGM-65 IR and Laser Maverick AGM-84D Harpoon AGM-84E SLAM AGM-114 HELLFIRE AGM-154A/B/C JSOW (C model is unitary version) BGM-71 TOW CALCM GBU-10, -12, -16, -24 GBU-31 JDAM

Table A-4. Families of weapons.

Target	Preferred Ordnance
Personnel	CBUs ,GP bombs, guns, rockets
Armored vehicles	PGMs, CBUs, GBUs
Field artillery	PGMs, GP bombs, CBUs
Composite ground forces (CP, vehicles, fuel supply, ammunition, support vehicles, etc.)	PGMs, CBUs, guns, rockets
Rockets and surface-to-surface missiles	PGMs, GP bombs, CBUs
Antiaircraft artillery (fixed-sites)	PGMs, GP bombs, CBUs
Antiaircraft artillery (mobile)	PGMs, GP bombs, CBUs
Runways	GP bombs
Aircraft in the open and revetted	PGMs, GP bombs, CBUs, guns, rockets
Aircraft shelters and bunkers	PGMs with penetrating warheads, GP bombs, CBUs
Air-launched missile support facilities	PGMs, GP bombs
Fortified fighting positions and concrete pillboxes	PGMs, GP bombs with penetration capability
Simple log bunkers	PGMs, GP bombs with penetration capability
Hardened Underground targets	PGMs with penetrating warheads
Bridges	PGMs, GP bombs
Dams	PGMs, GP bombs with penetration capability
Locks	PGMs, GP bombs
Trucks and tracked prime movers	PGMs, GP bombs, CBUs
Route segments (highway and railroad)	PGMs, GP bombs for cratering
Railroad equipment and railyards	PGMs, GP bombs
Tunnels	PGMs with penetrating warheads
Ships	ARMs, Harpoon, PGMs, CBUs
SAM systems (with central guidance radars)	PGMs, GP bombs, CBUs, ARMs
SAM systems (with stand-alone radars)	PGMs, GP bombs, CBUs, ARMs
SAM support facilities	PGMs, GP bombs
Radar sites	PGMs, GP bombs, CBUs, ARMs
Communications facilities (above ground)	PGMs, GP bombs
Communications vans and vehicles	PGMs, GP bombs, CBUs
Antennas	PGMs, GP bombs, guns, rockets
Supply and POL facilities (supply storage)	GP bombs, CBUs with incendiary capability, guns, rockets
Supply and POL facilities (in the open/buildings)	GP bombs, CBUs with incendiary capability, guns, rockets
Supply and POL facilities (POL storage)	PGMs, GP bombs, guns, rockets
POL refineries and pumping stations	PGMs, GP bombs, guns, rockets
Ports and naval bases	PGMs, GP bombs
Ammunition production installations	PGMs, GP bombs
Light manufacturing and repair installations	PGMs, GP bombs
Above ground buildings	PGMs, GP bombs
Power plants	PGMs, GP bombs, CBUs

Table A-5. Preferred types of ordnance for targets.

A-3. Naval Surface Fire Support

NSFS plays a vital role in supporting MAGTF units during amphibious operations. It can provide high volumes of immediately available, responsive fire support to forces operating in littoral areas. The general mission of naval gunfire is to support amphibious operations by destroying, neutralizing, or suppressing targets that threaten the success of the supported unit.

NSFS is comprised of naval gunfire and Tomahawk land-attack missiles (TLAM). TLAMs are normally employed to strike strategic and operational level targets as directed by the JFC.

Ships types suitable for naval gunfire support are cruisers and destroyers See Table A-6. Regardless of the ship type, the only current naval gunfire weapon is the 5-inch/54 caliber rapid fire guns. See Table A-7.

Ship Class	Armament	Magazine Capacity
Ticonderoga (CG-47)	2 5”/54	950 – 1,000
Arleigh Burke (DDG-51)	1 5”/54	475 – 500
Spruance (DD 963)	2 5”/54	950 – 1,000

Table A-6. Naval gunfire platforms.

Weapon	Max Range (m) Full Charge	RAP	Max Range (m) Reduced Charge	Rate of Fire Per Tube (Max/Sust)	Ammo	Fuzes
5"/54	23,100	29,181	12,200	20/20	HE, HC, ILLUM, WP, RAP, ICM (Mk 172)	Q, MT, CVT, VT, DEL

LEGEND:
CVT – controlled variable time
DEL – delay
HC – high capacity
HE – high explosive
ILLUM – illumination
MT – mechanical time
Q – quick
RAP – rocket assisted projectile
VT – variable time
WP – white phosphorus

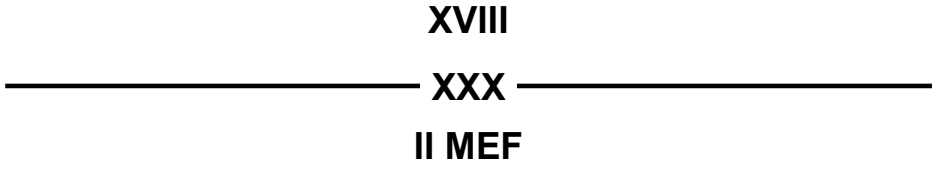
Table A-7. Naval gunfire capabilities.

Appendix B

Fire Support Coordinating Measures Graphics

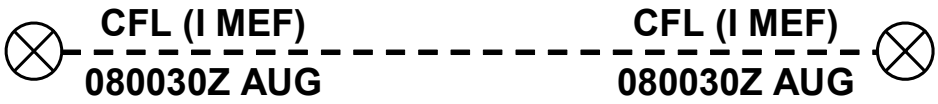
FSCMs are displayed on maps, firing charts, and overlays. Graphic portrayal includes, as a minimum, the visual code, the abbreviation for the measure, the establishing headquarters, and the effective date-time group. Often, the DTG is shown as a from-to time. Usually, coordination measures are labeled at each end of a line or within the graphic, space permitting. Both the graphics and the lettering are in black for all measures.

B-1. Boundaries

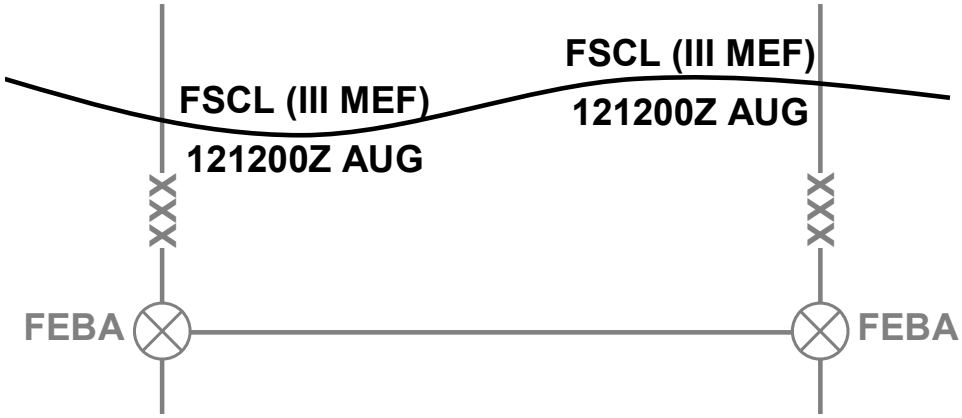


B-2. Permissive Measures

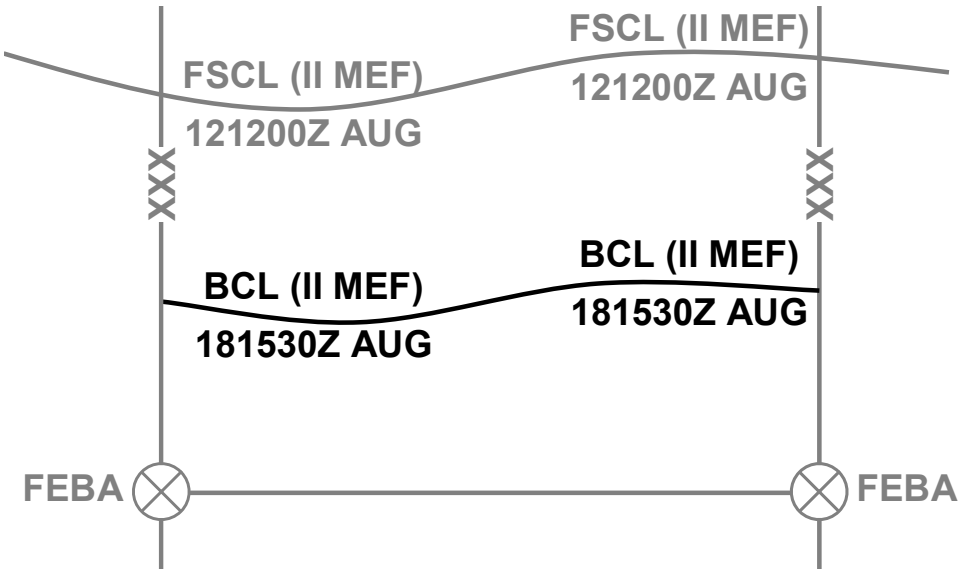
- **Coordinated Fire Line**



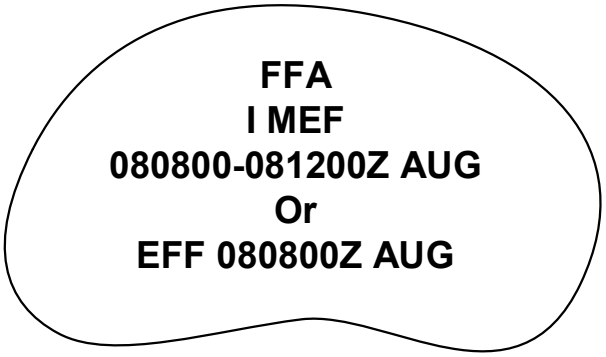
- **Fire Support Coordination Line**



- **Battlefield Coordination Line**

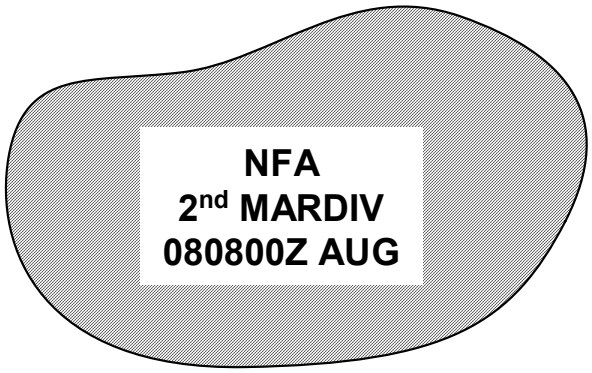


- **Free Fire Area**

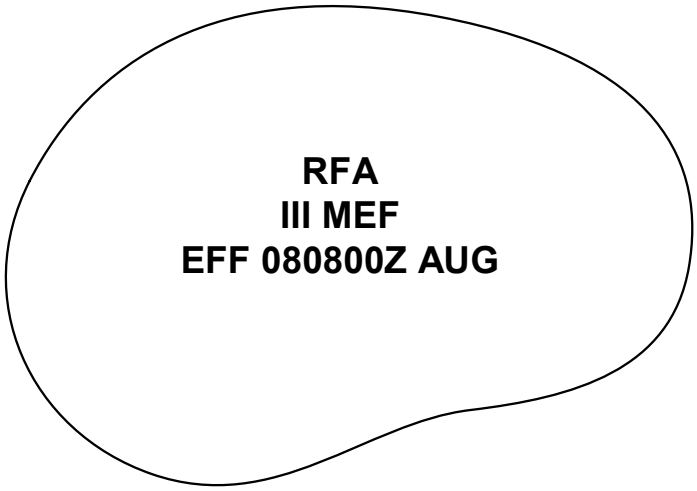


B-3. Restrictive Measures

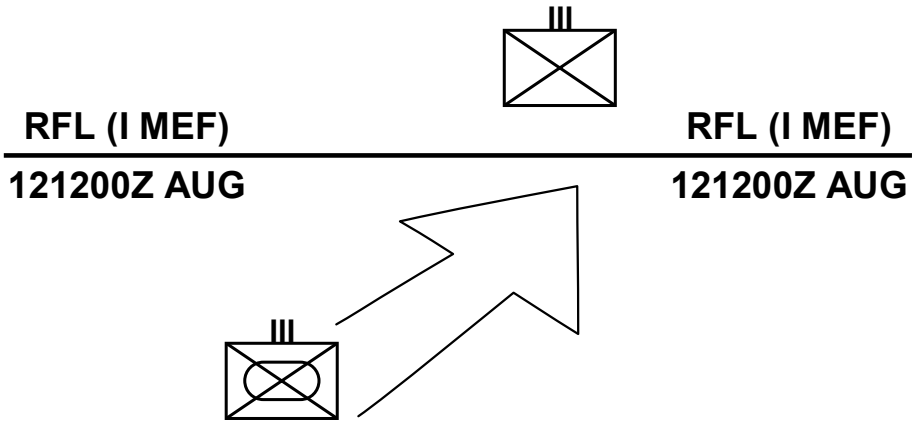
- **No Fire Area**



- **Restrictive Fire Area**



- **Restrictive Fire Line**



- **Airspace Coordination Area**

ACA
1st MARDIV
MIN ALT: 500
MAX ALT: 3,000
GRIDS NK2313 to NK3013 to
NK2320 to NK3022
EFF 281400-281800Z AUG

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Appendix C

World-Wide Artillery, Mortar, and Rocket Systems

The below table provides the characteristics of various artillery, mortar, and rocket systems that are in service world-wide.

MANUFACTURER/WEAPON	BASIC RANGE (METERS)	BB/RAP RANGE (METERS)	RATE OF FIRE		COUNTRIES POSSESSING	REMARKS
			MAX	SUSTAINED		
AUSTRIA						
GHN-45, 155mm Towed	30,300	39,600	7/min	2/min	Iran, Iraq, Thailand	None
BRAZIL						
ASTROS II, MRL	—	30,000 60,000	32/min 4/min	Reload Reload	Saudi Arabia, Iran, Qatar	None
CHINA						
WS-1, 320mm MRL	—	80,000	4/min	Reload	None	None
Type 83, 273mm MRL	—	40,000	4/min	Reload	None	None
Type 71, 180mm MRL	—	20,000	10/min	Reload	None	None
WA 021, 155mm Towed	30,000	39,000	5/min	2/min	None	None
Type 83, 152mm Towed	30,400	38,000	4/min	2/min	Iraq	None
Type 82/85, 130mm MRL	—	15,000	60/5 min	Reload	Thailand	None
Type 59-1, 130mm Towed	27,500	38,000	10/min	10/min	Iran, Iraq, Oman, Norty Korea, Egypt, Lebanon	None
FRANCE						
GCT, 155mm SP	23,000	29,000	6/min	2/min	Iraq, Kuwait, Saudi Arabia	None
GCT, 155mm Towed	24,000	32,000	3/18 sec	6/min	Cyprus	None
MkF3, 155mm SP	20,000	25,000	3/min	1/min	Iraq, Kuwait, UAE	None
GERMANY						
PZH 2000, 155mm SP	30,000	40,000	3/10 sec	9/min	None	None
IRAN						
N10, 450mm MRL	—	150,000	1/min	2/hour	None	None
IRAQ						
ARABEL 100, 400mm MRL	—	100,000	4/min	Reload	None	None
ARABEL 50, 262mm MRL	—	50,000	12/min	Reload	Former Yugoslavia, Bosnia Serb Army, Croatia	None
ISRAEL						
845, 155mm Towed	24,000	39,000	5/min	2/min	None	None
M71, 155mm Towed	23,500	30,000	5/min	2/min	Singapore, Thailand, South Africa	None
ITALY						
PALMARIA, 155mm SP	24,700	30,000	3/20 sec	4/min	Libya, Nigeria	None

Table C-1. World-wide artillery, mortar, and rocket systems

MANUFACTURER/WEAPON	BASIC RANGE (METERS)	BB/RAP RANGE (METERS)	RATE OF FIRE		COUNTRIES POSSESSING	REMARKS
			MAX	SUSTAINED		
NORTH KOREA						
M1985, 240mm MRL	—	43,000	12/min	Reload	Iran	CHEM
M1978, 170mm SP	40,000	—	N/A	N/A	Iran, Iraq	None
M46, 130mm SP	27,000	—	6/min	1.1/min	None	None
BM 11, 122mm MRL	—	20,500	30/min	Reload	Palestinian Liberation Organization, Syria, Iran, Iraq, Uganda	None
M1981m 122 SP	23,900	—	N/A	N/A	None	None
M1992, 120mm SP Mortar	8,700	—	N/A	N/A	None	None
RUSSIA/CIS						
FROG-7, MRL	—	70,000	1/min	1/hour	Former Warsaw Pact, Afghanistan, Algeria, Cuba, Egypt, Iraq, North Korea, Libya, Syria, Yemen	NUKE, CHEM
SMERCH, 300mm MRL	—	70,000	12/min	Reload	Kuwait, UAE	None
2S4, 240mm SP Mortar	9,600	18,000	1/min	40/hour	Iraq, Czech Republic	NUKE, LGM
M240, 240mm Towed Mortar	9,700	18,000	1/min	38/hour	IRA, Iraq, North Korea, Egypt, Oman, Lebanon	NUKE, LGM
BM 27, 220mm MRL	—	35,000	16/min	Reload	Afghanistan, Syria	CHEM, MINES
2S7, 203mm SP	37,500	47,000	2/min	2/min	Czech Republic, Poland, Slovakia	None
2S3, 180mm Towed	30,400	43,800	1/min	1/2 min	India, Iraq, Egypt, Syria	None
2S3, 152 SP	20,600	24,000	4/min	1/min	Hungary, Iraq, Lybia, Syria	None
2S19, 152mm SP	24,700	30,000	8/min	8/min	None	LGM
2S5, 152mm SP	28,400	37,000	5/min	5/min	None	None
2A36, 152mm Towed	28,400	37,000	5/min	1/min	Finland	None
D-20, 152mm Towed	17,230	30,000	5/min	1/min	Algeria, China, Cuba, Egypt, Vietnam, Former Yugoslavia	None
BM 14, 122mm MRL	—	9,800	16/min	Reload	Algeria, Afghanistan, Cambodia, China, Egypt, Syria, North Korea, Vietnam	CHEM
BM 21, 140mm MRL	—	20,400	40/min	Reload	China, Egypt, India, Iran, Iraq, North Korea, others	CHEM, MINES
2S1, 122mm SP	15,300	22,000	8/min	1.1/min	None	None
D-30, 122mm Towed	15,300	22,000	8/min	1.1/min	China	None
2s9, 120mm SP Mortar	8,900	13,000	6/min	6/min	Afghanistan	LGM
2S23, 120mm SP Mortar	8,900	12,900	10 min	10/min	None	LGM
2B9, 82mm SP/T Mortar	4,300	—	120/min		Hungary	None
SOUTH AFRICA						
G-6, 155mm SP	30,800	39,600	3/21 sec	4/min	UAE, Oman	None
G-5, 155mm Towed	30,200	39,000	3/min	3/min	None	None
UNITED KINGDOM						
FH 70, 155mm Towed	24,700	31,500	3/13 sec	2/min	Germany, Italy, Japan, Saudi Arabia	None
FORMER YUGOSLAVIA						
M-77, 128mm MRL	—	20,600	32/min	Reload	Bosnia, Bosnian Serb Army, Croatia, Iraq, Serbia, Monte Negro	None
LEGEND:	CHEM – chemical munitions capable NUKE – nuclear munitions capable SP – self-propelled				MRL – multiple rocket launcher LGM – laser-guided munitions capable	

Table C-1. World-wide artillery, mortar, and rocket systems (continued).

Appendix D

Artillery Tactical Missions

In organizing for combat, artillery units are assigned one of four standard tactical missions or a non-standard mission. Inherent responsibilities describe actions associated with each tactical mission that the artillery must accomplish to support the maneuver commander. The inherent responsibilities address priority in calls for fire, zone of fire, furnishing forward observers, establishing liaison, establishing communication, positioning and planning fires and are associated with each standard tactical mission as shown in Table D-1.

Commanders create non-standard tactical missions by changing, modifying, or amplifying one or more of the seven inherent responsibilities or by explaining contingencies not covered by the inherent responsibilities.

D-1. Standard Tactical Missions

The four standard tactical missions are direct support, reinforcing, general support reinforcing, and general support.

- **Direct Support.** Direct support (DS) is the most decentralized of the tactical missions. An artillery unit in DS of a maneuver unit (infantry, tank, light armored reconnaissance, aviation) is concerned primarily with the fire support needs of only that unit. An artillery unit can only be DS to one maneuver unit at a time and a maneuver unit can have only one DS artillery unit at a time. The DS artillery commander plans and coordinates fires to support the maneuver commander's intent and positions his unit where it can best support the maneuver commander's concept of operations. An artillery unit should habitually support the same maneuver force to enhance coordination and training.
- **Reinforcing.** Reinforcing (R) requires an artillery unit to augment the fires of another artillery unit. When a DS unit needs additional fires to meet the needs of the maneuver commander, another artillery unit may be assigned the reinforcing mission. Normally because of difficulties in controlling the fires and positioning reinforcing units, a DS unit is never reinforced by more than two units of same size as the DS unit.
- **General Support-Reinforcing.** A general support-reinforcing (GS-R) mission requires an artillery unit to provide fires to the force as a whole and then to reinforce the fires of another artillery unit as a second priority. The GS-R unit remains under the control of its parent artillery headquarters. The GS-R mission offers the commander the flexibility to meet the requirements of a variety of tactical situations.
- **General Support.** A general support (GS) mission requires an artillery unit to support the force as a whole. The GS unit remains under the control of its parent artillery headquarters. GS missions make artillery immediately responsive to the needs of the maneuver commander and are the most centralized of the standard tactical missions.

Artillery units are normally assigned more centralized tactical missions (GS, GS-R) in defensive situations and tend to be assigned more decentralized tactical missions (DS, R) when on the offensive.

D-2. Inherent Responsibilities

The seven inherent responsibilities as associated with the standard tactical missions are depicted in the below table.

TACTICAL MISSIONS	INHERENT RESPONSIBILITIES						
ARTY UNIT WITH MISSION OF	ANSWERS CALLS FOR FIRE IN PRIORITY FROM	HAS AS ITS ZONE OF FIRE	FURNISHES FORWARD OBSERVERS	ESTABLISHES LIAISON WITH	ESTABLISHES COMMS WITH	IS POSITIONED BY	HAS ITS FIRES PLANNED BY
DIRECT SUPPORT	1. Supported unit. 2. Own observers 3. Higher artillery headquarters	Zone of supported unit	To each company-sized maneuver element of supported unit	Supported unit (down to battalion level)	Supported unit	Unit commander as deemed necessary or ordered by higher artillery headquarters	Develops own fire plan
REINFORCING	1. Reinforced unit. 2. Own observers 3. Higher artillery headquarters	Zone of fire of reinforced unit	No requirement	Reinforced unit	Reinforced unit	Reinforced unit or ordered by higher artillery headquarters	Reinforced unit
GENERAL SUPPORT-REINFORCING	1. Higher artillery headquarters 2. Reinforced unit 3. Own observers	Zone of supported unit to include zone of fire of reinforced unit	No requirement	Reinforced unit	Reinforced unit	Higher artillery headquarters or reinforced unit subject to prior approval by higher artillery headquarters	Higher artillery headquarters
GENERAL SUPPORT	1. Higher artillery headquarters	Zone of supported unit	No inherent responsibility	No inherent responsibility	No inherent responsibility	Higher artillery headquarters	Higher artillery headquarters

Table D-1. Inherent responsibilities.

Appendix E

Glossary

Section I
Acronyms

Note: Acronyms change over time in response to new operational concepts, capabilities, doctrinal changes and other similar developments. The following publications are the sole authoritative sources for official military acronyms:

1. Joint Publication 1-02*, Department of Defense Dictionary of Military and Associated Terms*.
2. MCRP 5-12C, *Marine Corps Supplement to the Department of Defense Dictionary of Military and Associated Terms*.
3. MCRP 5-2A, *Operational Terms and Graphics*

A2C2	Army airspace command and control
AADC	area air defense commander
AAW	antiair warfare
ABCCC	airborne battlefield command and control center
ACA	airspace control authority; airspace coordination area
ACE	aviation combat element
AFATDS	Advanced Field Artillery Tactical Data System
AGM	attack guidance matrix
AIRSUPREQ	air support request
ALLOREQ	allocation request
AMC	air mission commander
AO	area of operations
AOA	amphibious objective area
ARFOR	Army forces
ATACMS	Army Tactical Missile System
ATO	air tasking order
ASC(A)	air support coordinator (airborne)
ASOC	air support operations center
ASR	assault support request
ATF	amphibious task force
BCD	battlefield coordination detachment
BCL	battlefield coordination line
BDA	battle damage assessment
BLT	battalion landing team
BSM	battlespace shaping matrix

C2W	command and control warfare
C3	command, control, and communications
CAS	close air support
CAT	crisis action team
CATF	commander, amphibious task force
CBAE	commander's battlespace area evaluation
CCIR	commander's critical information requirement
CFL	coordinated fire line
CIA	Central Intelligence Agency
CLF	commander, landing force
COA	course of action
COC	combat operations center
COG	center of gravity
COMARFOR	commander, Army forces
COMUSCENTCOM	Commander, United States Central Command
CSSE	combat service support element
CSSOC	combat service support element (CSSE) operations center
CV	critical vulnerability
D3A	decide, detect, deliver, and assess
DASC	direct air support center
DIA	Defense Intelligence Agency
DOCC	deep operations coordination cell
DOD	Department of Defense
DP	decision point
DS	direct support
DSM	decision support matrix
DST	decision support template
EW	electronic warfare
EW/C	early warning/control
FAC(A)	forward air controller (airborne)
FFA	free-fire area
FFC	force fires coordinator
FFCC	force fires coordination center
FRAGO	fragmentary order
FSA	fire support area
FSC	fire support coordinator
FSCC	fire support coordination center
FSCL	fire support coordination line
FSCM	fire support coordinating measure
FSCOORD	fire support coordinator
FSE	fire support element
FSS	fire support station
GCE	ground combat element
GS	general support
GS-R	general support-reinforcing
HHQ	higher headquarters

HIMARS	high mobility artillery rocket system
HPT	high-payoff target
HPTL	high-payoff target list
HVT	high-value target
IO	information operations
IPB	intelligence preparation of the battlespace
IWSC	Information Warfare Support Center
JAOC	joint air operations center
JC2WC	joint command and control warfare center
JFACC	joint force air component commander
JFC	joint force commander
JFE	joint fire element
JFLCC	joint force land component commander
JFMCC	joint force maritime component commander
JIC	joint intelligence center
JIPTL	joint integrated prioritized target list
JIOC	joint information operations center
JISE	joint intelligence support element
JPOTF	joint psychological operations task force
JSOTF	joint special operations task force
JTAR	joint tactical air strike request
JTCB	joint targeting coordination board
JTF	joint task force
JTSG	joint targeting steering group
KTO	Kuwaiti Theater of Operations
LF	landing force
LNO	liaison officer
MACCS	Marine air command and control system
MAGTF	Marine air-ground task force
MCDP	Marine Corps doctrinal publication
MCOO	modified combined obstacle overlay
MCPP	Marine Corps Planning Process
MCRP	Marine Corps reference publication
MCWP	Marine Corps warfighting publication
MEA	munitions effect assessment
MEB	Marine expeditionary brigade
MEF	Marine expeditionary force
METT-T	mission, enemy, terrain and weather, troops and support available - time available
MEU(SOC)	Marine expeditionary unit (special operations capable)
MLRS	Multiple Launch Rocket System
MOE	measure of effectiveness
MRL	multiple rocket launcher
MSC	major subordinate command
MSSG	Marine expeditionary unit (MEU) service support group

NAI	named area of interest
NEO	noncombatant evacuation operation
NFA	no-fire area
NGLO	naval gunfire liaison officer
NIMA	National Imagery and Mapping Agency
NMJIC	National Military Joint Intelligence Center
NSA	National Security Agency
NSFS	naval surface fire support
OCAC	operations control and analysis center
OIC	officer in charge
OMFTS	operational maneuver from the sea
OPCON	operational control
OPLAN	operation plan
OPORD	operation order
OPSEC	operations security
OPT	operational planning team
PHIBRON	amphibious squadron
PIR	priority intelligence requirements
POL	petroleum, oils, and lubricants
PSYOP	psychological operations
R	reinforcing
RADC	regional air defense commander
RAGM	reactive attack guidance matrix
RAOC	rear area operations center
RFA	restrictive fire area
RFI	request for information
RFL	restrictive fire line
ROC	rehearsal of concept
ROE	rules of engagement
SAC	supporting arms coordinator
SACC	supporting arms coordination center
SARC	surveillance and reconnaissance center
SEAL	sea-air-land team
SIGINT	signals intelligence
SIPRNET	SECRET Internet Protocol Router Network
SOCCE	special operations command and control element
SOF	special operations forces
SOLE	special operations liaison element
SOP	standing operating procedures
SORTIEALOT	sortie allotment message
STOM	ship-to-objective maneuver
TAC	tactical air coordinator
TAC(A)	tactical air coordinator (airborne)
TACC	tactical air command center (USMC) (Marine TACC) Tactical air control center (USN) (Navy TACC)
TACON	tactical control

TACP	tactical air control party
TADC	tactical air direction center
TAI	target area of interest
TAOC	tactical air operations center
TBMCS	theater battle management core system
TCO	tactical combat operations
TGWG	targeting guidance working group
TIO	target information officer
TLAM	Tomahawk land-attack missile
TRAP	tactical recovery of aircraft and personnel
TSS	target selection standard
TVA	target value analysis
UAV	unmanned aerial vehicle
UNAAF	Unified Action Armed Forces

Section II
Definitions

Note: Definitions of military terms change over time in response to new operational concepts, capabilities, doctrinal changes and other similar developments. The following publications are the sole authoritative sources for official military definitions of military terms:

1. Joint Publication 1-02*, Department of Defense Dictionary of Military and Associated Terms*.
2. MCRP 5-12C, *Marine Corps Supplement to the Department of Defense Dictionary of Military and Associated Terms*.
3. MCRP 5-2A, *Operational Terms and Graphics*.

A

amphibious objective area: A geographical area (delineated for command and control purposes in the order initiating the amphibious operation) within which is located the objective(s) to be secured by the amphibious force. This area must be of sufficient size to ensure accomplishment of the amphibious force's mission and must provide sufficient area for conducting necessary sea, air, and land operations. Also called **AOA**. (JP 1-02)

amphibious operation: A military operation launched from the sea by an amphibious force, embarked in ships or craft with the primary purpose of introducing a landing force ashore to accomplish the assigned mission. (JP 1-02)

apportionment (air): The determination and assignment of the total expected effort by percentage and/or by priority that should be devoted to the various air operations for a given period of time. Also called **air apportionment**. (JP 1-02)

area of operations: An operational area defined by the joint force commander for land and naval forces. Areas of operation do not typically encompass the entire operational area of the joint force commander, but should be large enough for component commanders to accomplish their missions and protect their forces. Also called **AO**. (JP 1-02)

assessment: 1. Analysis of the security, effectiveness, and potential of an existing or planned intelligence activity. (JP 1-02)

B

battle damage assessment: The timely and accurate estimate of damage resulting from the application of military force, either lethal or non-lethal, against a predetermined objective. Battle damage assessment can be applied to the employment of all types of weapon systems (air, ground, naval, and special forces weapon systems) throughout the range of military operations. Battle damage assessment is primarily an intelligence responsibility with required inputs and coordination from the operators. Battle damage assessment is composed of physical damage assessment, functional damage assessment, and target system assessment. Also called **BDA**. (JP 1-02)

battle handover: A designated point (phase line) on the ground where responsibility transitions from the stationary force to the moving force and vice versa. It is within direct fire range and observed indirect fire range of the stationary force. (MCRP 5-12A)

battlespace: All aspects of air, surface, subsurface, land, space, and electromagnetic spectrum which encompass the area of influence and area of interest. (MCRP 5-12C)

boundary: A line that delineates surface areas for the purpose of facilitating coordination and deconfliction of operations between adjacent units, formations, or areas. (JP 1-02)

C

campaign plan: A plan for a series of related military operations aimed at accomplishing a strategic or operational objective within a given time and space. (JP 1-02)

centers of gravity: Those characteristics, capabilities, or localities from which a military force derives its freedom of action, physical strength, or will to fight. (JP 1-02)

close operations: Military actions conducted to project power decisively against enemy forces which pose an immediate or near term threat to the success of current battles or engagements. These military actions are conducted by committed forces and their readily available tactical reserves, using maneuver and combined arms. (MCRP 5-12C)
combat assessment: The determination of the overall effectiveness of force employment during military operations. Combat assessment is composed of three major components: (a) battle damage assessment; (b) munitions effectiveness assessment; and (c) reattack recommendation. Also called **CA**. (JP 1-02)

combat power: The total means of destructive and/or disruptive force which a military unit/formation can apply against the opponent at a given time. (JP 1-02)

combined arms: The full integration of combat arms in such a way that to counteract one, the enemy must become more vulnerable to another. (MCRP 5-12C)

critical vulnerability: An aspect of a center of gravity that if exploited will do the most significant damage to an adversary's ability to resist. A vulnerability cannot be critical unless it undermines a key strength. Also called **CV**. (MCRP 5-12C)

counterfire: Fire intended to destroy or neutralize enemy weapons. Includes counterbattery, counterbombardment, and countermortar fire. (JP 1-02)

D

deep operations: Military actions conducted against enemy capabilities which pose a potential threat to friendly forces. These military actions are designed to isolate, shape, and dominate the battlespace and influence future operations. (MCRP 5-12C)

destruction fire: Fire delivered for the sole purpose of destroying material objects. (JP 1-02)

F

fires: The effects of lethal or nonlethal weapons. (JP 1-02)

fire support: Fires that directly support land, maritime, amphibious, and special operation forces to engage enemy forces, combat formations, and facilities in pursuit of tactical and operational objectives. (JP 1-02) In Marine Corps usage, assistance to elements of the Marine air-ground task force engaged with the enemy rendered by other firing units, including (but not limited to) artillery, mortars, naval surface fire support, and offensive air support (MCRP 5-12C)

fire support area: An appropriate maneuver area assigned to fire support ships by the naval force commander from which they can deliver gunfire support to an amphibious operation. Also called **FSA**. (JP 1-02)

fire support coordination: The planning and executing of fire so that targets are adequately covered by a suitable weapon or group of weapons. (JP 1-02)

fire support coordinating measure: A measure employed by land or amphibious commanders to facilitate the rapid engagement of targets and simultaneously provide safeguards for friendly forces. (JP 1-02)

fire support station: An exact location at sea within a fire support area from which a fire support ship delivers fire. (JP 1-02)

functional component command: A command normally, but not necessarily, composed of forces of two or more Military Departments which may be established across the range of military operations to perform particular operational missions that may be of short duration or may extend over a period of time. (JP 1-02)

I

information operations: Use of offensive and defensive information means to degrade, destroy, and exploit an adversary's information-based process while protecting one's own. Also called **IO**. (JP 1-02)

J

joint fires: Fires produced during the employment of forces from two or more components in coordinated action toward a common objective. (JP 1-02)

joint fires element: An optional staff element that provides recommendations to the operations directorate to accomplish fires planning and synchronization. Also called **JFE**. (JP 1-02)

joint fire support: Joint fires that assist air, land, maritime, amphibious, and special operations forces to move, maneuver, and control territory, populations, airspace, and key waters. (JP 1-02)

joint force air component commander: The commander within a unified command, subordinate unified command, or joint task force responsible to the establishing commander for making recommendations on the proper employment of assigned, attached, and/or made available for tasking air forces; planning and coordinating air operations; or accomplishing such operational missions as may be assigned. The joint force air component commander is given the authority necessary to accomplish missions and tasks assigned by the establishing commander. Also called **JFACC**. (JP 1-02)

joint force commander: A general term applied to a combatant commander, subunified commander, or joint task force commander authorized to exercise combatant command (command authority) or operational control over a joint force. Also called **JFC**. (JP 1-02)

joint force land component commander: The commander within a unified command, subordinate unified command, or joint task force responsible to the establishing commander for making recommendations on the proper employment of assigned, attached, and/or made available for tasking land forces; planning and coordinating land operations; or accomplishing such operational missions as may be assigned. The joint force land component commander is given the authority necessary to accomplish missions and tasks assigned by the establishing commander. Also called **JFLCC**. (JP 1-02)

joint force maritime component commander: The commander within a unified command, subordinate unified command, or joint task force responsible to the establishing commander for making recommendations on the proper employment of assigned, attached, and/or made available for tasking maritime forces and assets; planning and

coordinating maritime operations; or accomplishing such operational missions as may be assigned. The joint force maritime component commander is given the authority necessary to accomplish missions and tasks assigned by the establishing commander. Also called **JFMCC**. (JP 1-02)

joint targeting coordination board: A group formed by the joint force commander to accomplish broad targeting oversight functions that may include but are not limited to coordinating targeting information, providing targeting guidance and priorities, and refining the joint integrated prioritized target list. The board is normally comprised of representatives from the joint force staff, all components, and if required, component subordinate units. Also called **JTCB**. (JP 1-02)

joint task force: A joint force that is constituted and so designated by the Secretary of Defense, a combatant commander, a subunified commander, or an existing joint task force commander. Also called **JTF**. (Joint Pub 1-02)

L

landing force: A Marine Corps or Army task organization formed to conduct amphibious operations. The landing force, together with the amphibious task force and other forces, constitute the amphibious force. Also called **LF**. (JP 1-02)

M

maneuver warfare: A warfighting philosophy that seeks to shatter the enemy's cohesion through a variety of rapid, focused, and unexpected actions which create a turbulent and rapidly deteriorating situation with which the enemy cannot cope. (MCRP 5-12C)

Marine air-ground task force: The Marine Corps principal organization for all missions across the range of military operations, composed of forces task-organized under a single commander capable of responding rapidly to a contingency anywhere in the world. The types of forces in the Marine air-ground task force (MAGTF) are functionally grouped into four core elements: a command element, an aviation combat element, a ground combat element, and a combat service support element. The four core elements are categories of forces, not formal commands. The basic structure of the MAGTF never varies, though the number, size, and type of Marine Corps units comprising each of its four elements will always be mission dependent. The flexibility of the organizational structure allows for one or more subordinate MAGTFs to be assigned. Also called **MAGTF**. (JP 1-02)

Marine expeditionary brigade: A Marine air-ground task force that is constructed around a reinforced infantry regiment, a composite Marine aircraft group, and a brigade service support group. The Marine expeditionary brigade (MEB), commanded by a general officer, is task-organized to meet the requirements of a specific situation. It can function as part of a joint task force, as the lead echelon of the Marine expeditionary force (MEF), or alone. It varies in size and composition, and is larger than a Marine expeditionary unit but smaller than a MEF. The MEB is capable of conducting missions across the full range of military operations. Also called **MEB**. (JP 1-02)

Marine expeditionary force: The largest Marine air-ground task force (MAGTF) 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 force service support 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. Also called **MEF**. (JP 1-02)

Marine expeditionary unit (special operations capable): The Marine Corps standard, forward-deployed, sea-based expeditionary organization. The Marine expeditionary unit (special operations capable) (MEU[SOC]) is a Marine

expeditionary unit, augmented with selected personnel and equipment, that is trained and equipped with an enhanced capability to conduct amphibious operations and a variety of specialized missions of limited scope and duration. These capabilities include specialized demolition, clandestine reconnaissance and surveillance, raids, *in-extremis* hostage recovery, and enabling operations for follow-on forces. The MEU(SOC) is not a special operations force but, when directed by the National Command Authorities, the combatant commander, and/or other operational commander, may conduct limited special operations *in extremi*s, when other forces are inappropriate or unavailable. Also called **MEU(SOC)**. (JP 1-02)

military operations other than war: Operations that encompass the use of military capabilities across the range of military operations short of war. These military actions can be applied to complement any combination of the other instruments of national power and occur before, during, and after war. Also called **MOOTW**. (JP 1-02)

N

named area of interest: The geographical area where information that will satisfy a specific information requirement can be collected. Named areas of interest are usually selected to capture indications of adversary courses of action, but also may be related to conditions of the battlespace. Also called **NAI**. (JP 1-02)

neutralization fire: Fire which is delivered to render the target ineffective or unusable. (JP 1-02)

0

operational control: Command authority that may be exercised by commanders at any echelon at or below the level of combatant command. Operational control is inherent in combatant command (command authority) and may be delegated within the command. When forces are transferred between combatant commands, the command relationship the gaining commander will exercise (and the losing commander will relinquish) over these forces must be specified by the Secretary of Defense. Operational control is 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. Operational control includes authoritative direction over all aspects of military operations and joint training necessary to accomplish missions assigned to the command. Operational control should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and Service and/or functional component commanders. Operational control normally provides full authority to organize commands and forces and to employ those forces as the commander in operational control considers necessary to accomplish assigned missions; it does not, in and of itself, include authoritative direction for logistics or matters of administration, discipline, internal organization, or unit training. Also called **OPCON**. (JP 1-02)

R

rear operations: Military actions conducted to support and permit force sustainment and to provide security for such actions. (MCRP 5-12C)

rules of engagement: Directives issued by competent military authority which delineate the circumstances and limitations under which United States forces will initiate and /or continue combat engagement with other forces encountered. Also called ROE. (Joint Pub 1-02)

S

Service component command: A command consisting of the Service component commander and all those Service forces, such as individuals, units, detachments, organizations, and installations under that command, including the

support forces that have been assigned to a combatant command or further assigned to a subordinate unified command or joint task force. (JP 1-02)

suppression: Temporary or transient degradation by an opposing force of the performance of a weapons system below the level needed to fulfill its mission objectives. (JP 1-02)

sustainment: The provision of personnel, logistic, and other support required to maintain and prolong operations or combat until successful accomplishment or revision of the mission or of the national objective. (JP 1-02)

T

tactical control: Command authority over assigned or attached forces or commands, or military capability or forces made available for tasking, that is limited to the detailed direction and control of movements or maneuvers within the operational area necessary to accomplish missions or tasks assigned. Tactical control is inherent in operational control. Tactical control may be delegated to, and exercised at any level at or below the level of combatant command. When forces are transferred between combatant commands, the command relationship the gaining commander will exercise (and the losing commander will relinquish) over these forces must be specified by the Secretary of Defense. Tactical control provides sufficient authority for controlling and directing the application of force or tactical use of combat support assets within the assigned mission or task. Also called **TACON**. (JP 1-02)

target acquisition: The detection, identification, and location of a target in sufficient detail to permit the effective employment of weapons. (JP 1-02)

target area of interest: The geographical area where high-value targets can be acquired and engaged by friendly forces. Not all target areas of interest will form part of the friendly course of action; only target areas of interest associated with high priority targets are of interest to the staff. These are identified during staff planning and wargaming. Target areas of interest differ from engagement areas in degree. Engagement areas plan for the use of all available weapons; target areas of interest might be engaged by a single weapon. Also called **TAI**. (JP 1-02)

target priority: A grouping of targets with the indicated sequence of attack. (JP 1-02)

W

warfighting functions: The six mutually supporting military activities integrated in the conduct of all military operations are:
1. command and control—The means by which a commander recognizes what needs to be done and sees to it that appropriate actions are taken.
2. maneuver—The movement of forces for the purpose of gaining an advantage over the enemy.
3. fires—Those means used to delay, disrupt, degrade, or destroy enemy capabilities, forces, or facilities as well as affect the enemy's will to fight.
4. intelligence--Knowledge about the enemy or the surrounding environment needed to support decisionmaking.
5. logistics—All activities required to move and sustain military forces.
6. force protection—Actions or efforts used to safeguard own centers of gravity while protecting, concealing, reducing, or eliminating friendly critical vulnerabilities.
Also called **WF**. (MCRP 5-12C)

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Appendix F

References

1. Joint Publications

Joint Pub 0-2	Unified Action Armed Forces (UNAAF)
Joint Pub 1	Joint Warfare of the Armed Forces of the United States
Joint Pub 1-02	Department of Defense Dictionary of Military and Associated Terms
Joint Pub 2-0	Joint Doctrine for Intelligence Support to Operations
Joint Pub 2-01	Joint Intelligence Support to Military Operations
Joint Pub 3-0	Doctrine for Joint Operations
Joint Pub 3-01.4	JTTP for Joint Suppression of Enemy Air Defenses (J-SEAD)
Joint Pub 3-02	Joint Doctrine for Amphibious Operations
Joint Pub 3-02.1	Joint Doctrine for Landing Force Operations
Joint Pub 3-03	Doctrine for Joint Interdiction Operations
Joint Pub 3-05	Doctrine for Joint Special Operations
Joint Pub 3-05.5	Joint Special Operations Targeting and Mission Planning Procedures
Joint Pub 3-07	Joint Doctrine for Military Operations Other Than War
Joint Pub 3-09	Doctrine for Joint Fire Support
Joint Pub 3-09.1	Joint Tactics, Techniques, and Procedures for Laser Designation Operations
Joint Pub 3-09.4	Joint Tactics, Techniques, and Procedures for Close Air Support (CAS)
Joint Pub 3-10	Joint Doctrine for Rear Area Operations
Joint Pub 3-12	Doctrine for Joint Nuclear Operations
Joint Pub 3-13.1	Joint Doctrine for Command and Control Warfare (C2W)
Joint Pub 3-51	Joint Doctrine for Electronic Warfare
Joint Pub 3-55	Doctrine for Reconnaissance, Surveillance, and Target Acquisition Support for Joint Operations (RSTA)
Joint Pub 3-55.1	Joint Tactics, Techniques, and Procedures for Unmanned Aerial Vehicles
Joint Pub 3-56.1	Command and Control for Joint Air Operations
Joint Pub 5-0	Doctrine for Planning Joint Operations
Joint Pub 5-00.2	Joint Task Force Planning Guidance and Procedures
Joint Pub 6-0	Doctrine for Command, Control, Communications, and Computer (C4) Systems Support to Joint Operations
Joint Pub 6-02	Joint Doctrine for Employment of Operational/Tactical Command, Control, Communications, and Computer Systems

2. Marine Corps Publications

MCDP 1	Warfighting
MCDP 1-0	Marine Corps Operations

MCDP 1-0.1	Componency
MCDP 1-1	Strategy
MCDP 1-2	Campaigning
MCDP 1-3	Tactics
MCDP 2	Intelligence
MCDP 3	Expeditionary Operations
MCDP 4	Logistics
MCDP 5	Planning
MCDP 6	Command and Control
MCWP 2-1	Intelligence Operations
MCWP 2-11	MAGTF Intelligence Collection
MCWP 2-12	MAGTF Intelligence Analysis and Production
MCWP 3-1	Ground Combat Operations
MCWP 3-2	Aviation Operations
MCWP 3-16	Fire Support Coordination in the Ground Combat Element
MCWP 3-22.2	Suppression of Enemy Air Defenses
MCWP 3-23	Offensive Air Support
MCWP 3-23.1	Close Air Support
MCWP 3-23.2	Deep Air Support
MCWP 3-24	Assault Support
MCWP 3-25	Control of Aircraft and Missiles
MCWP 3-25.3	Marine Air Command and Control System Handbook
MCWP 3-25.4	Tactical Air Command Center Handbook
MCWP 3-36.1	Electronic Warfare
MCWP 3-37	MAGTF Nuclear Biological and Chemical Defense Operations
MCWP 3-41.1	MAGTF Rear Area Operations
MCWP 4-1	Logistics Operations
MCWP 5-1	Marine Corps Planning Process
MCWP 5-11.1	MAGTF Aviation Planning
MCWP 6-2	MAGTF Command and Control
MCRP 5-12C	Marine Corps Supplement to the Department of Defense Dictionary of Military and Associated Terms
MCRP 5-2A	Operational Terms and Graphics

3. Navy Publications

NWP 3-09.11M	Supporting Arms in Amphibious Operations
NWP 3-02.1	Ship-to-Shore Movement

4. Army Publications

FM 3	Operations
FM 6-20	Fire Support in the Airland Battle
FM 6-20-10	TTPs For the Targeting Process
FM 6-20-30	TTPs For Fire Support For Corps and Division Operations
FM 6-20-40	TTPs For Fire Support For Brigade Operations (Heavy)

FM 6-20-50	TTPs For Fire Support For Brigade Operations (Light)
FM 6-60	TTPs For Multiple Launch Rocket System (MLRS) Operations
FM 6-121	TTPs For Field Artillery Acquisition

5. Miscellaneous Publications

MCO 5600.49	Marine Corps Doctrinal Proponency
MCBul 5600	Marine Corps Publications Status
MAA 24	Mission Area Analysis 24, Fire Support Final Report

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